



# **PIPELINE CAPACITY DISCLOSURE**

**Relating to  
Gas (Information Disclosure) Regulations 1997**

**Year Ending 30 June 2012**

**August 2012**

## **1. INTRODUCTION**

This document comprises the Pipeline Capacity Disclosure of Vector Gas Limited ("Vector") [formerly NGC New Zealand Limited] pursuant to the Gas (Information Disclosure) Regulations 1997 (the "Regulations"), Schedule 1, PART 5, for the year ending 30 June 2012.

As far as practicable main section headings mirror those of Schedule 1, PART 5 of the Regulations. For additional clarity the relevant clause number of Schedule 1 PART 5 is given alongside each main section heading, and some sub-section headings.

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## **Terminology**

In this report terminology generally matches that in the Regulations. Some terms differ from those currently used in Vector's Transmission System Information Memorandum and transmission services agreements. For example:

| Term in this Report: | Equivalent Vector Term:                                 |
|----------------------|---|
|                      |   |
| Intake Point         | Receipt Point   |
| Offtake Point        | Delivery Point  |
| transmission system  | pipeline (ie <i>part of the "Transmission System"</i> ) |

## **Exclusions**

This report covers the transmission pipeline systems specified in the Regulations. Some parts of Vector's Transmission System, specifically minor laterals off the Maui pipeline, are not covered. These include the Te Awamutu North lateral, the Te Kuiti South and the Te Kuiti North laterals.

## **Disclaimer**

Except in the case of a pipeline with a single Intake Point supplying a single Offtake Point it is difficult to describe a pipeline's capacity in simple terms. Vector's pipelines serve multiple Offtake Points most of which are entirely independent of each other notwithstanding that they may supply similar loads, for example dairy factories, or be subject to similar influences, such as the weather.

In addition, since gas is a compressible fluid the quantity of energy stored within a pipeline ("line pack") may change significantly over time as pressures within the pipeline change. As a consequence the flow at a pipeline's Intake Point need not necessarily equate to the sum of the offtakes at any given time. This has a significant bearing on a pipeline's ability to supply the various Offtake Points.

It is the interaction of all the time-varying offtakes along its length that determines a pipeline's capacity to transport gas from the Intake Point to a given Offtake Point. Therefore capacity must generally be defined as the ability to transport gas from the Intake Point to a given Offtake Point *subject to* what is happening at other Offtake Points at the same time. Where there are multiple large Offtake Points a significant change at any one of them may materially affect the capacity available to the others.

Information contained in this report is presented in good faith in order to comply with the Regulations and to give an overview of the capacity of Vector's transmission systems.

However, shippers or potential shippers should not base their business decisions on the information contained in this report without consulting Vector.

Vector will accept no responsibility for the consequences of any misunderstanding, misinterpretation or misuse of information contained in this report.

While reasonable care has been taken in the preparation of this report, Vector takes no responsibility for the consequences of any errors that may be contained herein.

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## 2. TRANSMISSION SYSTEMS

(Ref. Schedule 1 Part 5, Clause 1)

The attached map and pipeline schematics (sheets 01 to 06) depict Vector's high-pressure gas transmission pipelines dealt with in this disclosure. They show all Intake and Offtake Points, other pipeline stations including compressor stations, pressure reductions stations and main line (ie line-break isolation) valves, pipe sizes and other information.

Distances between any two stations on the same pipeline (at the time of construction) can be calculated from the respective station numbers shown on the schematics, as follows:

The last 4 digits of each station number give the distance in km (ie wxy.z km) of that station from the origin of the particular pipeline or lateral on which it is located.

*Example 1:* Gisborne Sales Gate has the station number 5052013. This means that this station is on the 505 lateral, which starts at the Gisborne Offtake Station near Kawerau, and is 201.3 km downstream of that point.

*Example 2:* The distance between the Southdown and Henderson Delivery Points (on the North System) is found by subtracting the upstream station number from the downstream, ie:

|                               |   |         |
|-------------------------------|---|---------|
| Henderson station number      | = | 4300355 |
| Southdown station number      | = | 4300015 |
| Distance between these points | = | 34.0 km |

Tables 2.7.1, 2.7.2 and 2.7.3 show the station number, location and map grid reference of each Intake and Offtake Point.

Clause 23 (4) of the Regulations requires Vector to treat the following four transmission pipelines as separate transmission systems:

- North (ie north of Rotowaro)
- Central (ie Kapuni to Rotowaro including the Morrinsville sub-system)
- Bay of Plenty (ie east of Pokuru)
- South (ie south of Kapuni)

The Central System is currently divided into two sections, the Central (North) and Central (South). There is an interconnection between the Central (South) System and the Bay of Plenty System at Pokuru (No.2).

This report also includes the Frankley Rd to Kapuni transmission pipeline.

Therefore the transmission pipelines presented in this disclosure are:

- **North:** extending from the end of the Maui pipeline at Rotowaro (near Huntly) to Auckland, then through to Kauri north of Whangarei;
- **Central (North):** extending from Rotowaro to Hamilton (Temple View) and including the Morrinsville sub-system;

- **Central (South):** extending from the Kapuni Gas Treatment Plant to the interconnection to the Bay of Plenty System at Pokuru ("Pokuru No.2 Offtake");
- **Bay of Plenty:** extending east from Pokuru (near Te Awamutu) on the Maui line to Tauranga, Taupo and Gisborne, etc;
- **South:** extending south from the Kapuni Gas Treatment Plant to Wellington and Hastings;
- **Frankley Rd to Kapuni:** extending from the Frankley Rd Offtake Station on the Maui pipeline near New Plymouth to the Kapuni Gas Treatment Plant, including laterals to the TCC Power Station and the Ammonia-Urea Plant.

For convenience a certain amount of information has been extracted from the attached schematics and presented in the following tables. Note that "MAOP" means the maximum allowable operating pressure of the pipeline.

## **Table 2.1 North System**

The pipeline consists of the following main sections (ie excluding minor laterals):

| Pipeline Segment                                    | Nominal Bore (mm) | Length (km) | MAOP (bar g) |
|---|-------------------|-------------|--------------|
| Rotowaro - Papakura East Pressure Reducing Station  | 350               | 60.8        | 86           |
| Papakura East Pressure Reducing Station - Southdown | 350               | 28.4        | 66           |
| Rotowaro - Papakura West                            | 200               | 60.8        | 86           |
| Ingram Rd - Glenbrook                               | 150               | 23.0        | 86           |
| Westfield - Henderson                               | 200               | 35.5        | 66           |
| Henderson - Whangarei Offtake                       | 150               | 145.4       | 86           |
| Whangarei - Kauri                                   | 100               | 21.5        | 86           |

## **Table 2.2 Central (North) System**

This pipeline consists of the following main sections

| Pipeline Segment               | Nominal Bore (mm) | Length (km) | MAOP (bar g) |
|--------------------------------|-------------------|-------------|--------------|
| Rotowaro - Te Kowhai           | 200               | 25.8        | 86           |
| Te Kowhai - Te Rapa Offtake    | 150               | 6.3         | 86           |
| Te Rapa lateral                | 200               | 1.3         | 86           |
| Te Rapa Offtake - Horotiu East | 150               | 1.0         | 86           |
| Horotiu East - Kuranui Rd      | 100               | 24.8        | 86           |
| Kuranui Rd - Cambridge         | 80                | 22.7        | 86           |
| Kuranui Rd - Morrinsville      | 150               | 8.5         | 86           |
| Morrinsville - Waitoa          | 100               | 9.4         | 86           |
| Te Kowhai – Temple View        | 200               | 9.7         | 86           |

## **Table 2.3 Central (South) System**

This pipeline consists of the following main sections

| Pipeline Segment                          | Nominal Bore (mm) | Length (km) | MAOP (bar g) |
|---|-------------------|-------------|--------------|
| Kapuni - New Plymouth Offtake             | 200               | 52.9        | 86           |
| New Plymouth lateral                      | 80                | 10.5        | 86           |
| New Plymouth - Mahoenui Compressor.       | 200               | 81.7        | 86           |
| Mahoenui Compressor – Pokuru No.2 Offtake | 200               | 84.0        | 86           |
| Pokuru No.2 Offtake – Temple View         | 200               | 24.5        | 86           |

## **Table 2.4 Bay of Plenty System**

This pipeline consists of the following main sections.

| Pipeline Segment                 | Nominal Bore (mm) | Length (km) | MAOP (bar g) |
|----------------------------------|-------------------|-------------|--------------|
| Pokuru - Kinleith                | 300               | 78.8        | 86           |
| Kinleith - Kawerau               | 200               | 103.1       | 86           |
| Kawerau - Whakatane              | 100               | 13.7        | 86           |
| Kawerau - Gisborne               | 100/200           | 184/17.3    | 86           |
| Lichfield - Mt Maunganui Offtake | 150/100           | 34.3/43.7   | 86           |
| Taupo lateral                    | 100/150           | 18.2/20.7   | 86           |
| Rotorua lateral                  | 80                | 18          | 86           |

## **Table 2.5 South System**

This pipeline consists of the following main sections. This system is extensively looped. Loops are tabulated separately.

| Pipeline Segment                 | Nominal Bore (mm) | Length (km) | MAOP (bar g) |
|----------------------------------|-------------------|-------------|--------------|
| Kapuni GTP – Hawera              | 200               | 17.8        | 86           |
| Hawera – Wanganui                | 200               | 79.9        | 86           |
| Wanganui – Himatangi             | 200               | 51.4        | 86           |
| Himatangi - Palmerston North O/T | 150/80            | 23.8/23.8   | 86           |
| Palmerston North – Hastings      | 150/200           | 5.8/123.5   | 86           |
| Himatangi – Wellington           | 200               | 104.1       | 86           |

The looped sections of the system are:

| Pipeline Segment            | Nominal Bore (mm) | Length (km) | MAOP (bar g) |
|-----------------------------|-------------------|-------------|--------------|
| Hawera – Kaitoke Compressor | 300               | 87.3        | 86           |
| Otaki Tie-In – Belmont      | 300               | 55.7        | 86           |

## **Table 2.6 Frankley Rd to Kapuni System**

This pipeline consists of the following main sections.

| Pipeline Segment                  | Nominal Bore (mm) | Length (km) | MAOP (bar g) |
|-----------------------------------|-------------------|-------------|--------------|
| Frankley Rd - Derby Rd Compressor | 500               | 22.3        | 66           |
| Derby Rd – Pembroke Rd            | 500               | 5.5         | 66           |
| Pembroke Rd – TCC Power Station   | 500               | 8.6         | 66           |
| Pembroke Rd – Kapuni GTP          | 500               | 18.8        | 66           |
| Kapuni – Ammonia Urea Offtake     | 100               | 0.5         | 86           |
| Ammonia Urea Offtake - Lactose    | 100/200           | 1.5/1.3     | 86           |

**TABLE 2.7.1 LOCATION OF INTAKE AND OFFTAKE POINTS**

Ref. Schedule 1 Part 5, Clause 1 (1)

| SYSTEM          | INTAKE POINT | OFFTAKE POINT          | STATION NUMBER | LOCATION                    | NZMS 260 GRID REFERENCE |
|-----------------|--------------|------------------------|----------------|-----------------------------|-------------------------|
| North           | Rotowaro     |                        | 4002907        | Waikokowai Rd               | Huntly                  |
|                 |              | Alfriston              | 4190001        | Phillip Rd                  | Manukau City            |
|                 |              | Bruce McLaren          | 4380001        | Bruce McLaren Rd            | Glen Eden               |
|                 |              | Drury 1 & 2            | 4003503        | Waihoehoe Rd                | Drury                   |
|                 |              | Flat Bush              | 4003677        | 131 Murphy's Rd             | Flat Bush               |
|                 |              | Glenbrook              | 4050230        | Mission Bush Rd             | Glenbrook               |
|                 |              | Harrisville            | 2003197        | Harrisville Rd              | Harrisville             |
|                 |              | Henderson              | 4300356        | 110 Amriens Rd              | Taupaki                 |
|                 |              | Hunua                  | 4180001        | Hunua Rd                    | Papakura                |
|                 |              | Kauri                  | 4350215        | SH 1 (near Vinegar Hill Rd) | Kauri                   |
|                 |              | Kingseat               | 4050141        | Kingseat Rd                 | Patumahoe               |
|                 |              | Marsden 1              | 4370069        | Mair Rd                     | Marsden Point           |
|                 |              | Marsden 2              | 4370069        | Mair Rd                     | Marsden Point           |
|                 |              | Maungaturoto DF        | 4330133        | SH 12                       | Maungaturoto            |
|                 |              | Oakleigh               | 4301681        | Whittle Rd                  | Oakleigh                |
|                 |              | Otahuhu B              | 4420025        | Hellabys Rd                 | Otara                   |
|                 |              | Papakura               | 2003394        | Hingaia Rd                  | Papakura                |
|                 |              | Pukekohe               | 4050059        | Butcher Rd                  | Pukekohe                |
|                 |              | Ramarama               | 4170001        | Ararimu Rd                  | Ramarama                |
|                 |              | Southdown              | 4300015        | Hugo Johnston Drive         | Penrose                 |
|                 |              | Tuakau                 | 2003168        | Bolland Rd                  | Tuakau                  |
|                 |              | Waitoki                | 4310001        | Kahikatea Flat Rd           | Rodney                  |
|                 |              | Warkworth 2            | 4320063        | Woodcocks Rd                | Warkworth               |
|                 |              | Wellsford              | 4301075        | Farmers Lime Rd             | Wellsford               |
|                 |              | Westfield              | 4003810        | Mt Wellington Highway       | Westfield               |
|                 |              | Whangarei              | 4340091        | Dyer St                     | Whangarei               |
| Central (North) | Rotowaro     |                        | 4002907        | Waikokowai Rd               | Huntly                  |
|                 |              | Cambridge              | 4070227        | Bruntwood Rd                | Cambridge               |
|                 |              | Hamilton (Te Kowhai)   | 2080001        | Limmer Rd                   | Hamilton                |
|                 |              | Hamilton (Temple View) | 2002431        | Foster Rd                   | Temple View             |
|                 |              | Horotiu                | 4020071        | Horotiu Bridge Rd           | Te Rapa                 |
|                 |              | Kiwitahi               | 4090014        | Morrinsville - Walton Rd    | Morrinsville            |
|                 |              | Matangi                | 4080039        | Tauwhare Rd                 | Matangi                 |
|                 |              | Morrinsville           | 4020406        | Railway Yards               | Morrinsville            |
|                 |              | Morrinsville DF        | 4020406        | Railway Yards               | Morrinsville            |
|                 |              | Tatuanui               | 4020470        | SH 26                       | Tatuanui                |
|                 |              | Tauwhare               | 4070131        | Tauwhare Rd                 | Tauwhare                |
|                 |              | Te Rapa                | 4100022        | SH 1                        | Te Rapa                 |
|                 |              | Te Rapa Cogeneration   | 4100022        | SH 1                        | Te Rapa                 |
|                 |              | Waitoa                 | 4020500        | Wood Rd                     | Waitoa                  |
|                 |              |                        |                |                             |                         |
| Central (South) | Kapuni       |                        | 1000001        | Palmer Rd                   | Kapuni                  |
|                 |              | Eltham                 | 2060076        | North St                    | Eltham                  |
|                 |              | Kaponga                | 2070053        | Manai Rd                    | Kaponga                 |
|                 |              | Inglewood              | 2010041        | Tarata Rd                   | Inglewood               |
|                 |              | New Plymouth           | 2030105        | 195a Connell Rd East        | New Plymouth            |
|                 |              | Stratford              | 2000192        | Pembroke Rd                 | Stratford               |
|                 |              | Waitara                | 2030046        | Waitara Rd                  | Waitara                 |

**TABLE 2.7.2 LOCATION OF INTAKE AND OFFTAKE POINTS**

Ref. Schedule 1 Part 5, Clause 1 (1)

| SYSTEM               | INTAKE POINT          | OFFTAKE POINT | STATION NUMBER     | LOCATION          |            | NZMS 260 GRID REFERENCE |
|----------------------|-----------------------|---------------|--------------------|-------------------|------------|-------------------------|
| <b>Bay of Plenty</b> | Pokuru                |               | 4002308            | Candy Rd          | Te Awamutu | S15 040487              |
|                      | Broadlands            | 5100001       | Broadlands Rd      | Reporoa           | U17 003944 |                         |
|                      | Edgecumbe             | 5020192       | Awakeri Rd         | Edgecumbe         | V15 470509 |                         |
|                      | Edgecumbe DF          | 5020192       | Awakeri Rd         | Edgecumbe         | V15 470509 |                         |
|                      | Gisborne              | 5052013       | Back Ormond Rd     | Gisborne          | Y18 442740 |                         |
|                      | Kawerau               | 5001820       | East Bank Rd       | Kawerau           | V15 361407 |                         |
|                      | Kawerau (Caxton mill) | 5001820       | East Bank Rd       | Kawerau           | V15 361407 |                         |
|                      | Kawerau (Tasman mill) | 5001820       | East Bank Rd       | Kawerau           | V15 361407 |                         |
|                      | Kihikihi (Te Awamutu) | 5000113       | Brill Rd, Kihikihi | Te Awamutu        | S15 148481 |                         |
|                      | Kinleith              | 5010004       | Off Old Taupo Rd   | Kinleith          | T16 618218 |                         |
|                      | Kinleith (mill)       | 5000789       | Off Old Taupo Rd   | Kinleith          | T16 618218 |                         |
|                      | Lichfield DF          | 5090005       | SH 1               | Lichfield         | T16 572370 |                         |
|                      | Mt Maunganui          | 8040049       | Truman Rd          | Mt Maunganui      | U14 951854 |                         |
|                      | Okoroire Springs      | 8000175       | Somerville Rd      | Okoroire          | T15 568568 |                         |
|                      | Opotiki               | 5060044       | Factory Rd         | Opotiki           | W15 848440 |                         |
|                      | Papamoa               | 8000805       | SH 2               | Te Puke           | U14 997818 |                         |
|                      | Pyes Pa               | 8070001       | Lakes Boulevard    | Pyes Pa, Tauranga | U14 842802 |                         |
|                      | Putaruru              | 8000044       | SH 1               | Putaruru          | T15 549458 |                         |
|                      | Rangiuru              | 8050083       | SH 2               | Te Puke           | U14 083734 |                         |
|                      | Reporoa               | 5040182       | SH 5               | Parekarangi       | U17 995034 |                         |
|                      | Rotorua               | 5030180       | SH 5               | Rotorua           | U16 948308 |                         |
|                      | Taupo                 | 5080389       | 269 Rakaunui Rd    | Taupo             | U18 812776 |                         |
|                      | Tauranga              | 8030079       | Birch Ave          | Tauranga          | U14 872843 |                         |
|                      | Te Puke               | 8000888       | Washer Rd          | Te Puke           | U14 023749 |                         |
|                      | Te Teko               | 5020093       | Matahina Rd        | Te Teko           | V15 432442 |                         |
|                      | Tirau                 | 8020020       | Okoroire Rd        | Tirau             | T15 529549 |                         |
|                      | Tirau DF              | 8020020       | Okoroire Rd        | Tirau             | T15 529549 |                         |
|                      | Tokoroa               | 5000720       | Baird Rd           | Tokoroa           | T16 583270 |                         |
|                      | Waikeria              | 5000176       | Higham Rd          | Kihikihi          | S15 205474 |                         |
|                      | Whakatane             | 5070137       | Mill Rd            | Whakatane         | W15 580533 |                         |

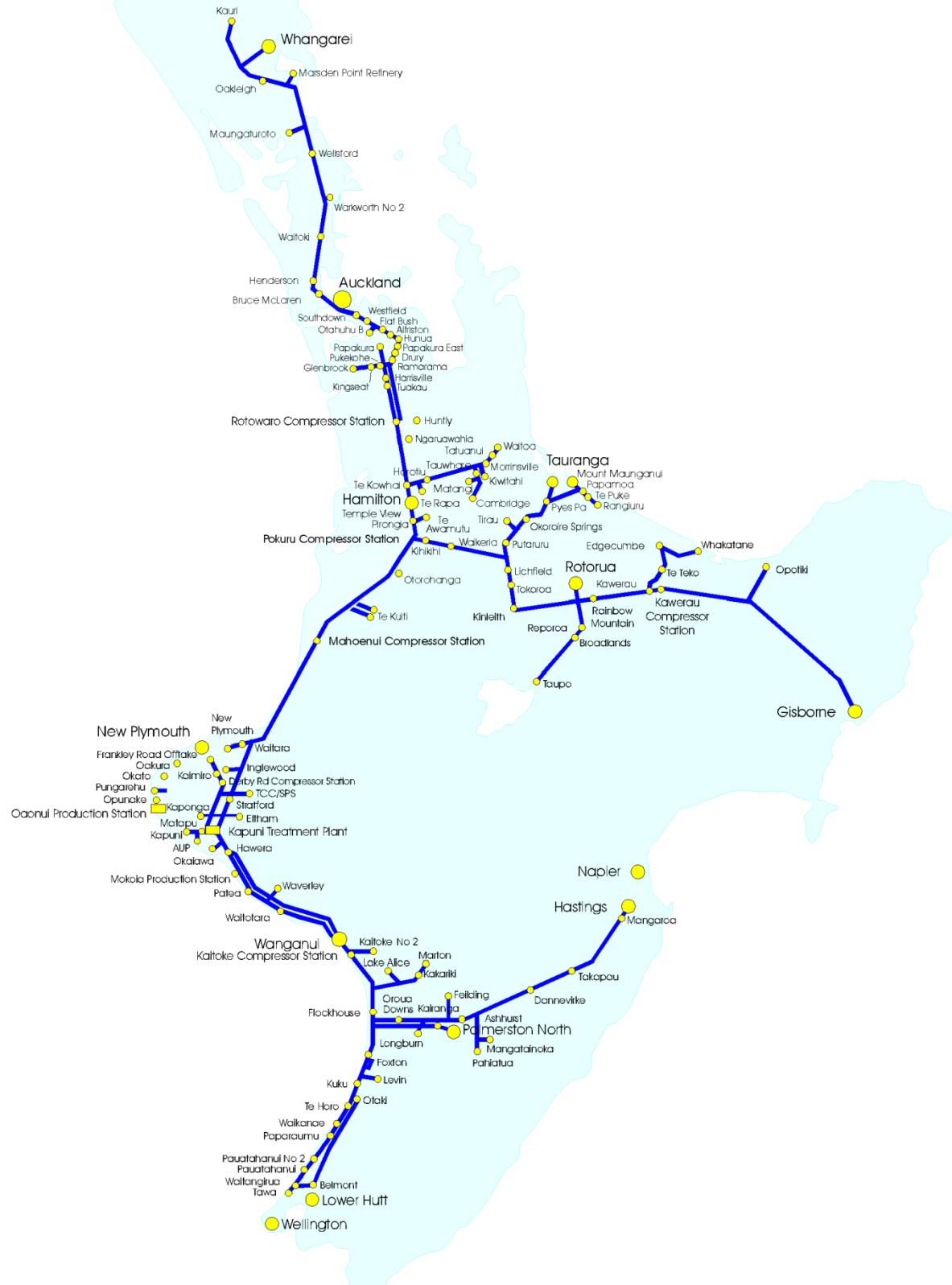
|                              |                            |             |               |                   |              |            |
|------------------------------|----------------------------|-------------|---------------|-------------------|--------------|------------|
| <b>Frankley Rd to Kapuni</b> | Frankley Rd                | Frankley Rd | 4000439       | Frankley Rd       | New Plymouth | P19 012304 |
|                              | Kaimiro Mixing Stn         |             | 3000357       | 686A Egmont Road  | Kaimiro      | Q19 086229 |
|                              | Norfolk Mixing Stn         |             | 3000302       | Durham Road Upper | Norfolk      | Q20 121189 |
|                              | Kupe                       |             | 7590117       | Palmer Road       | Kapuni       | Q20 113914 |
|                              |                            |             |               |                   |              |            |
|                              | Ammonia-Urea Plant         | 3070002     | Palmer Rd     | Kapuni            | Q20 105914   |            |
|                              | Kapuni (Lactose plant)     | 3060034     | Manai Rd      | Kapuni            | P20 079915   |            |
|                              | Kapuni Gas Treatment Plant | 1000001     | Palmer Rd     | Kapuni            | Q20 110918   |            |
|                              | Stratford Power Stn        | 3030086     | 189 East Road | Stratford         | Q20 237074   |            |
|                              | TCC Power Station          | 3010002     | 189 East Rd   | Stratford         | Q20 237074   |            |

**TABLE 2.7.3 LOCATION OF INTAKE AND OFFTAKE POINTS**

Ref. Schedule 1 Part 5, Clause 1 (1)

| SYSTEM       | INTAKE POINT      | OFFTAKE POINT | STATION NUMBER                    | LOCATION         | NZMS 260 GRID REFERENCE |
|--------------|-------------------|---------------|-----------------------------------|------------------|-------------------------|
| <b>South</b> | Kapuni            |               | 1000001                           | Palmer Rd        | Kapuni                  |
|              | Mokoia Mixing Stn |               | 1000266                           | Mokoia Rd        | Mokoia                  |
|              | Ashhurst          | 7050001       | Saddle Rd                         | Ashhurst         | T24 448993              |
|              | Belmont           | 1100028       | Belmont Rd                        | Lower Hutt       | R27 698033              |
|              | Dannevirke        | 7000503       | Rule Rd                           | Dannevirke       | U23 721077              |
|              | Feilding          | 1140087       | Campbell Rd                       | Feilding         | S23 044295              |
|              | Flockhouse        | 1001420       | Parewanui Rd                      | Bulls            | S23 018001              |
|              | Foxton            | 1001629       | Foxton Beach Rd                   | Foxton           | S24 021799              |
|              | Hastings          | 7001531       | Karamu Rd South                   | Hastings         | V21 394660              |
|              | Hawera            | 1000178       | Fairfield Rd                      | Hawera           | Q21 193769              |
|              | Kairanga          | 1070244       | Gillespies Line                   | Palmerston North | S24 278939              |
|              | Kaitoke           | 1050041       | Pauri Rd                          | Kaitoke          | R22 055344              |
|              | Kakariki          | 1150001       | Cnr Makirikiri Rd & Goldings Line | Marton           | S23 137200              |
|              | Kuku              | 1160001       | Kuku Beach Rd                     | Kuku             | S25 934579              |
|              | Lake Alice        | 1060013       | Lake Alice Rd                     | Lake Alice       | S23 093170              |
|              | Levin             | 1090052       | Hokio Beach Rd                    | Levin            | S25 009621              |
|              | Longburn          | 1080068       | Reserve Rd                        | Longburn         | S24 262889              |
|              | Manaih            | 1010016       | Kohiti Rd                         | Okaiaawa         | Q21 122857              |
|              | Mangaroa          | 7001469       | Bridge Pa Rd                      | Mangaroa         | V21 339463              |
|              | Mangatainoka      | 7030004       | Kohinui Rd                        | Mangatainoka     | T24 531832              |
|              | Marton            | 1040212       | Wings Line                        | Marton           | S23 144208              |
|              | Matapu            | 1000013       | Skeet Rd                          | Kapuni           | Q20 119907              |
|              | Okaiaawa          | 1010016       | Kohiti Rd                         | Okaiaawa         | Q21 122857              |
|              | Oroua Downs       | 1130051       | SH 1 near Omanuka Rd              | Oroua Downs      | S24 087939              |
|              | Otaki             | 1002005       | off SH 1 next to Otaki River      | Otaki            | R25 892475              |
|              | Pahiatua          | 7020212       | Mangahao Rd                       | Pahiatua         | T24 491806              |
|              | Palmerston North  | 1070272       | Rangitikei Line                   | Palmerston North | T24 304934              |
|              | Paraparaumu       | 1002236       | Valley Rd                         | Paraparaumu      | R26 793289              |
|              | Patea             | 1000422       | Victoria Rd                       | Patea            | Q22 368589              |
|              | Pauatahanui 1     | 1002455       | Paekakariki Hill Rd               | Paekakariki      | R26 707117              |
|              | Pauatahanui 2     | 1002423       | Paekakariki Hill Rd               | Pauatahanui      | R26 730140              |
|              | Takapau           | 7000844       | SH 2 (Nancy St)                   | Takapau          | U23 958266              |
|              | Tawa A            | 1110077       | Takapu Rd                         | Tawa             | R27 635007              |
|              | Tawa B            | 1190001       | SH1                               | Tawa             | R27 636008              |
|              | Te Horo           | 1170001       | Te Horo Beach Rd                  | Te Horo          | R25 866438              |
|              | Waikanae          | 1002164       | Kauri Rd                          | Waikanae         | R26 807347              |
|              | Waitangirua       | 1002532       | Track off Waihora Crescent        | Porirua East     | R27 684057              |
|              | Waitotara         | 1000692       | Waiiu Beach Rd                    | Waitotara        | R22 586492              |
|              | Wanganui          | 1000977       | Karoro Rd                         | Wanganui         | R22 824377              |
|              | Waverley          | 1030058       | Lower Okotuku Rd                  | Waverley         | R22 536577              |

## Transmission Pipelines



A

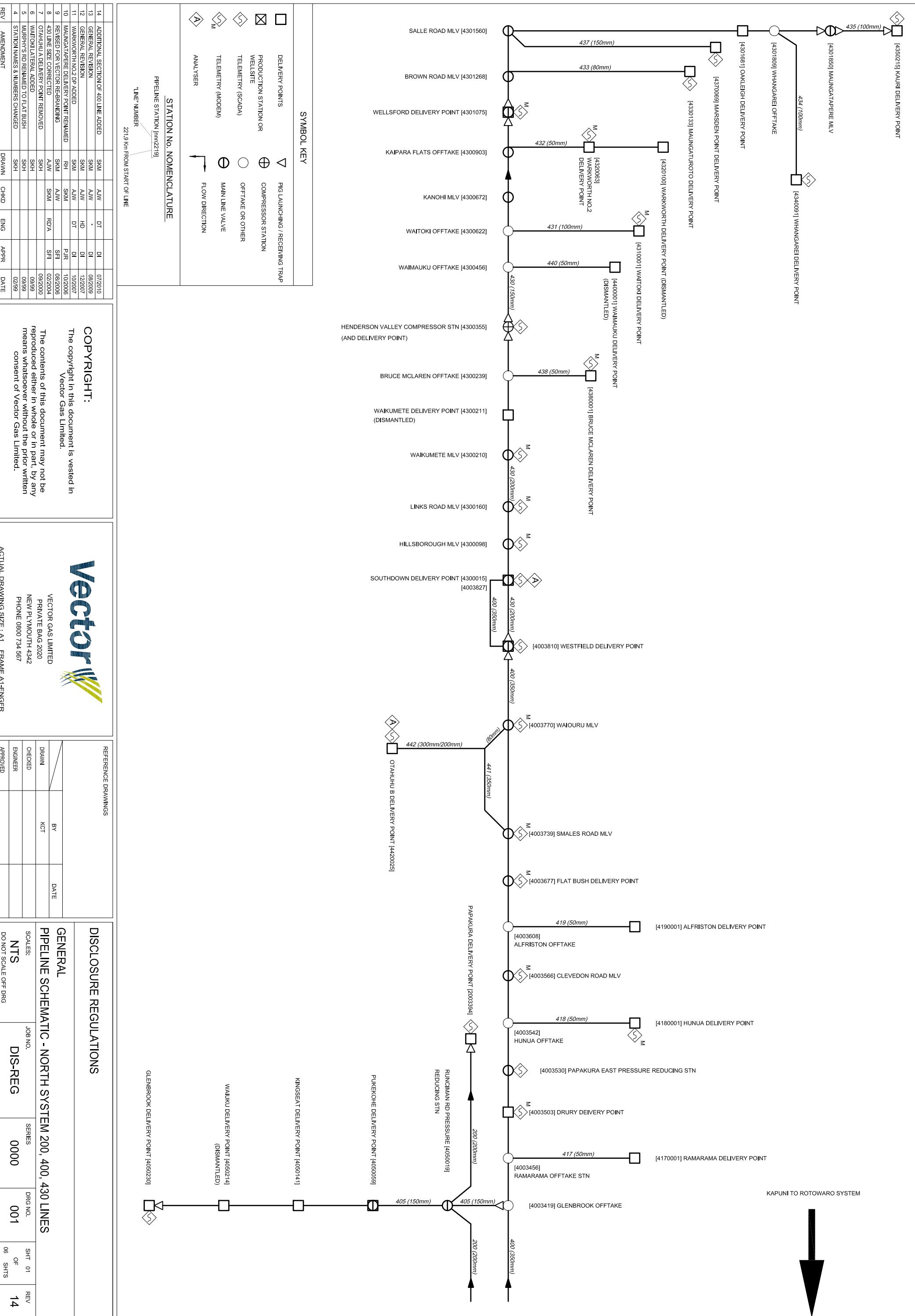
B

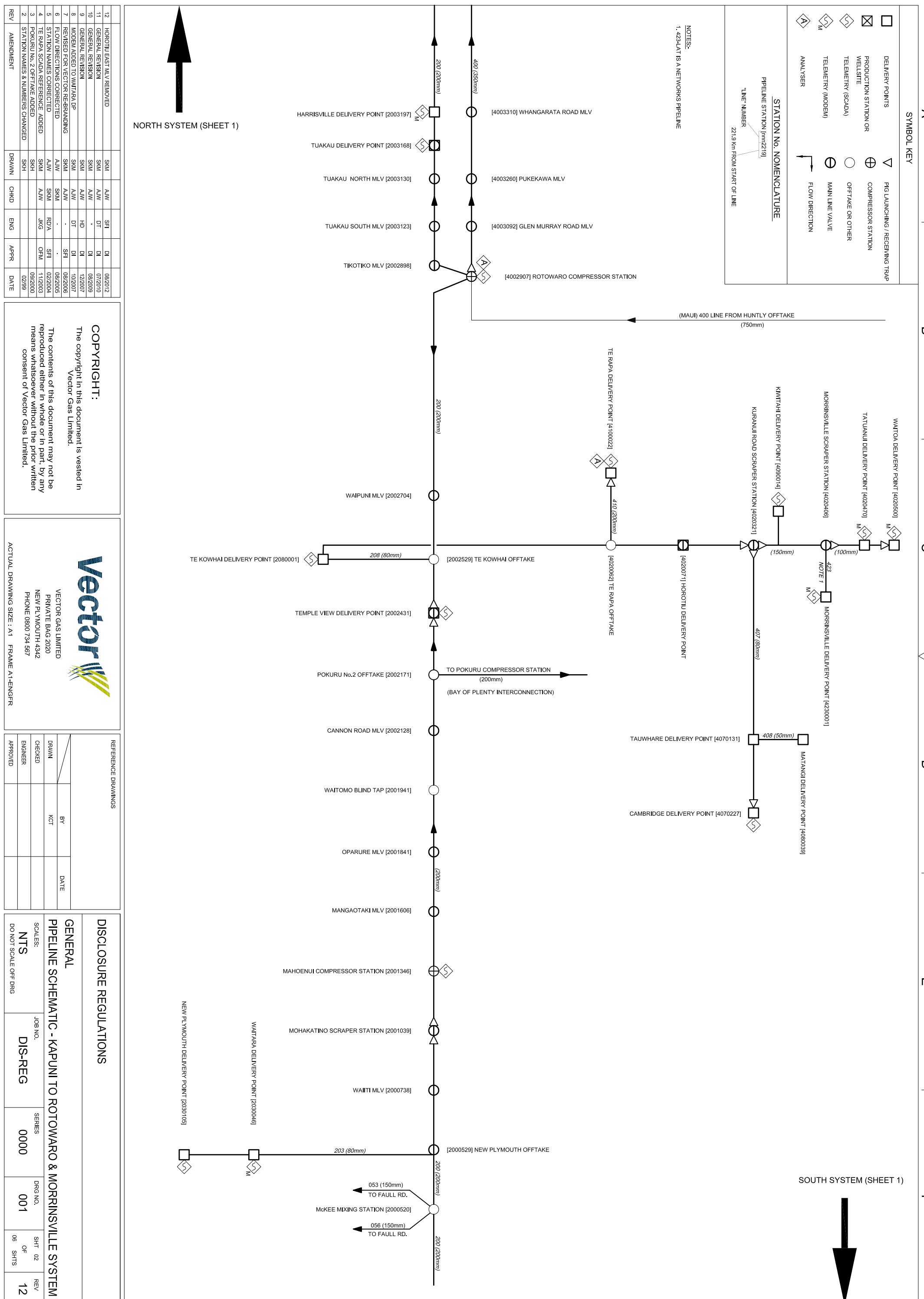
C

D

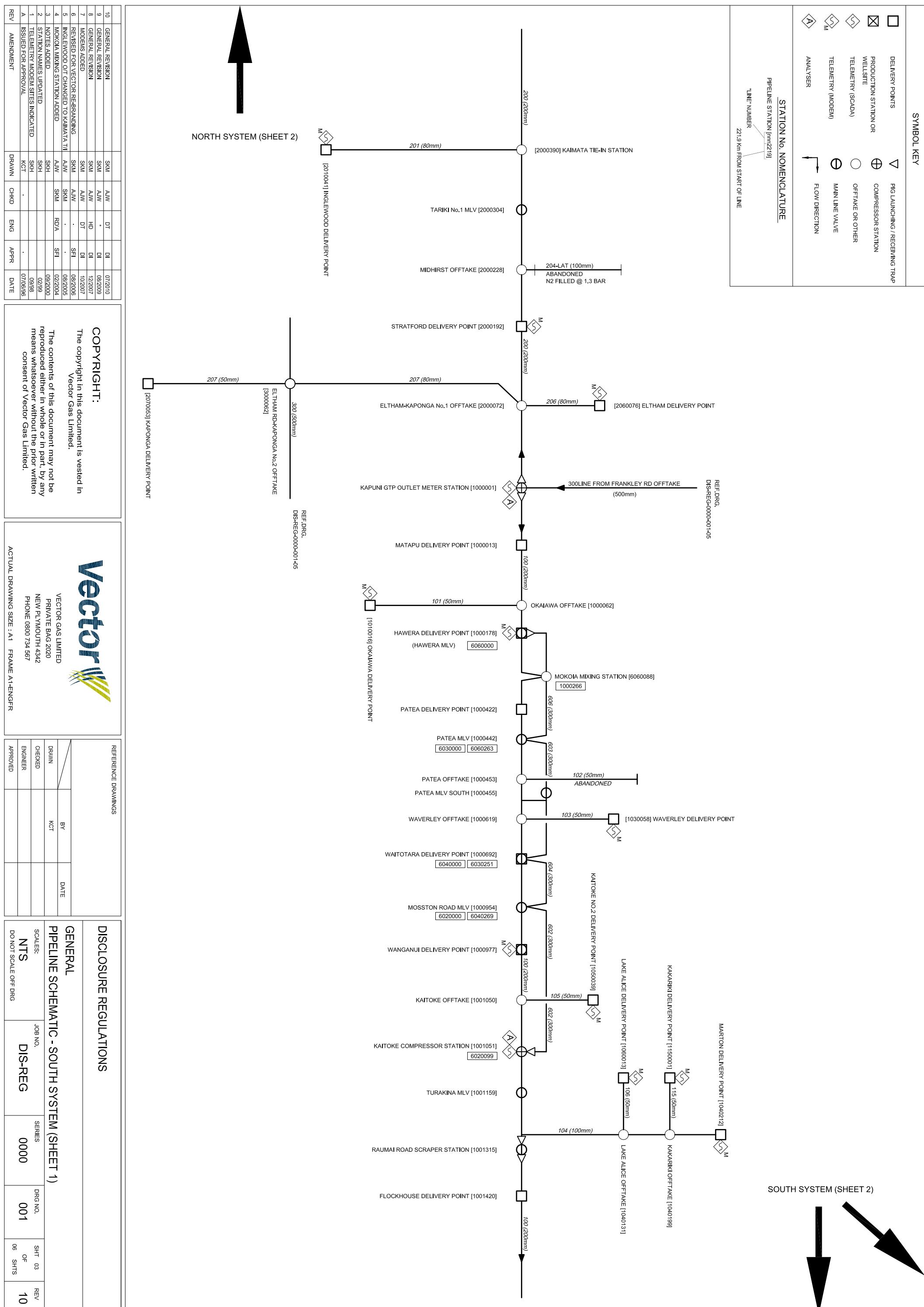
E

F





NORTH SYSTEM (SHEET 1)



**vector**

REFERENCE DRAWINGS

|                 |     |     |    |    |         |
|-----------------|-----|-----|----|----|---------|
| NEURAL REVISION | SKM | AJW | DT | DI | 07/2010 |
| NEURAL REVISION | SKM | AJW | *  | DI | 08/2009 |
| NEURAL REVISION | SKM | AJW | HD | DI | 12/2007 |
| ITEMS ADDED     | SKM | AJW | DT | DI | 10/2007 |

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**vector** REFERENCE DRAW

DISCLOSURE REGULATION

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10 of 10

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NORTH SYSTEM (SHEET 2)

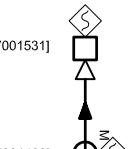
207 (50mm)  
EL THAI RD-KAPONGA No.2 OFFTAKE  
[3000062]

RAUMAI ROAD SCRAPER STATION [100131]

FLOCKHOUSE DELIVERY POINT [100142]

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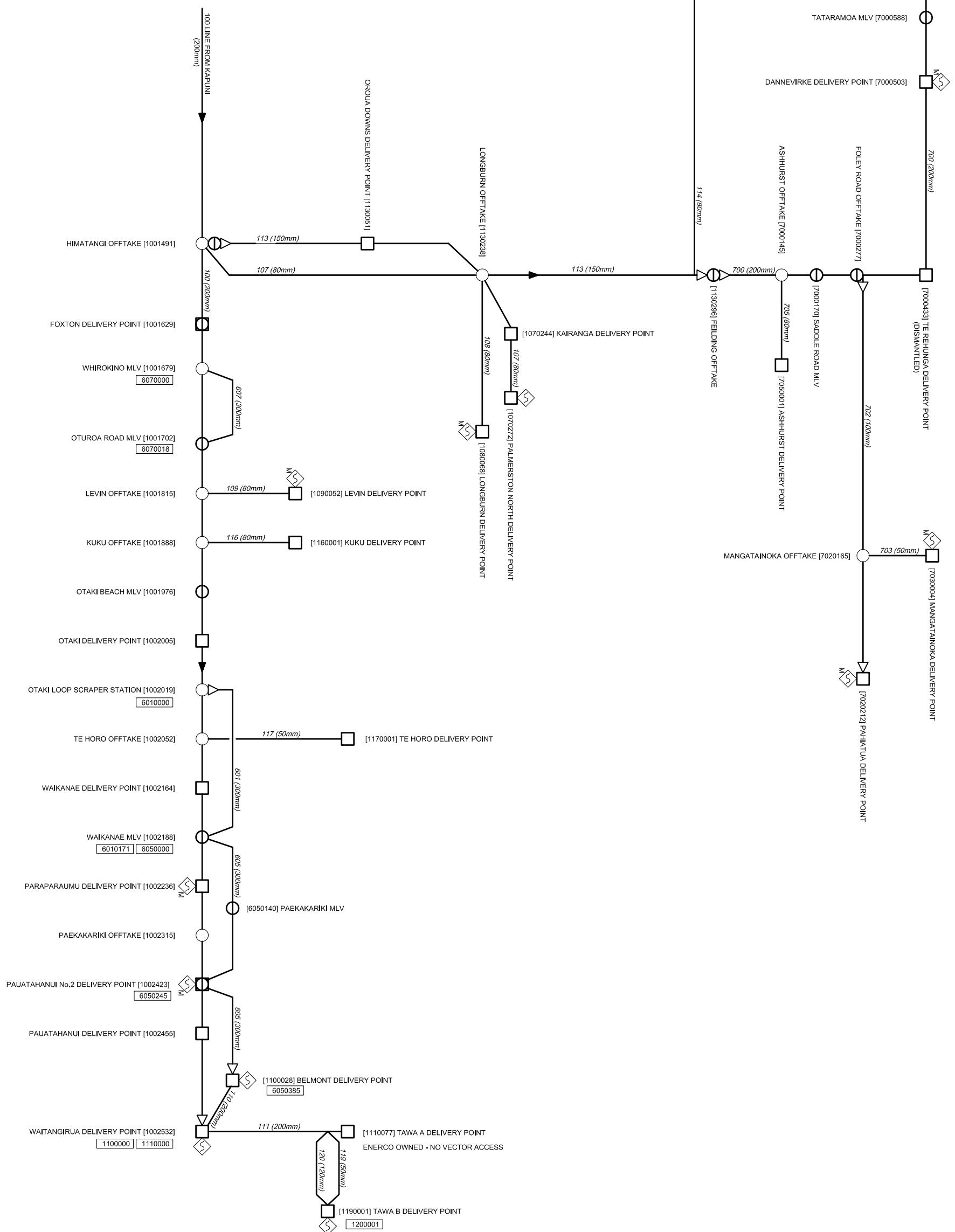
1

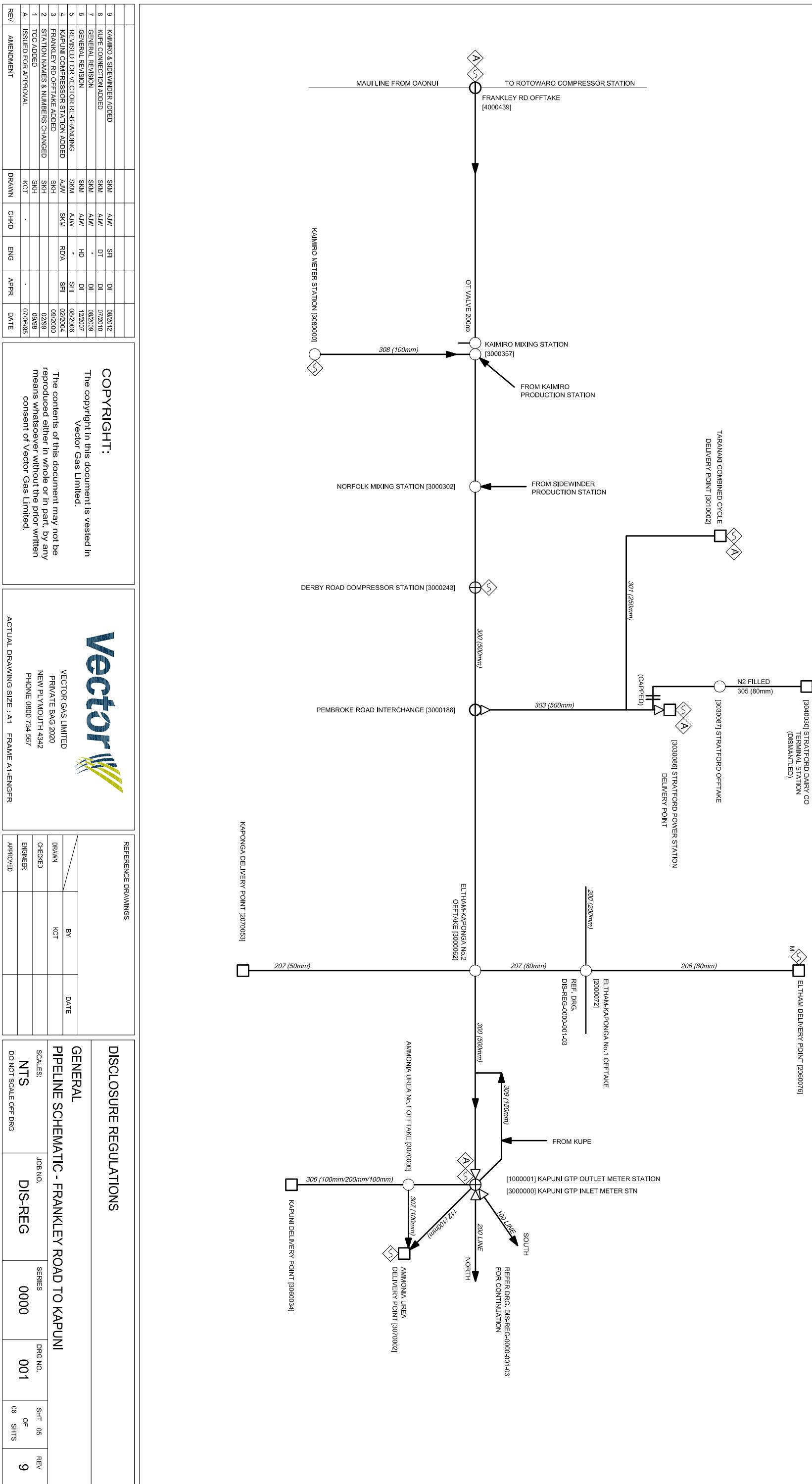
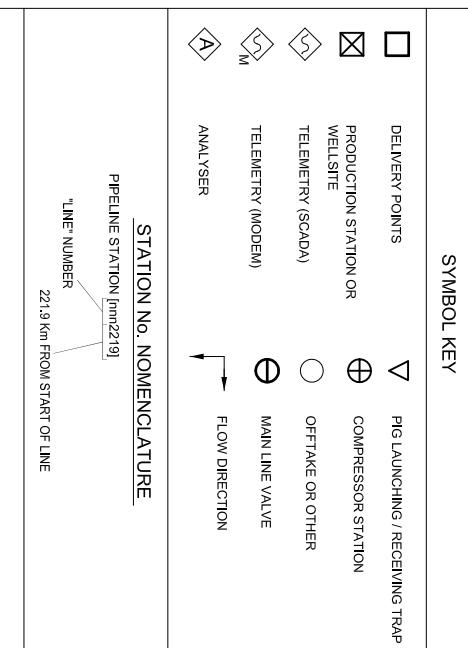


SOUTH SYSTEM (SHEET 1)

| SYMBOL KEY                        |   |
|-----------------------------------|---|
| DELIVERY POINTS                   | □ |
| PRODUCTION STATION OR<br>WELLSITE | ☒ |
| TELEMETRY (SCADA)                 | ◇ |
| TELEMETRY (MODEM)                 | ◆ |
| ANALYSER                          | Ⓐ |
| PIG LAUNCHING / RECEIVING TRAP    | ▽ |
| COMPRESSOR STATION                | ⊕ |
| OFTAKE OR OTHER                   | ○ |
| MAIN LINE VALVE                   | ⊖ |
| FLOW DIRECTION                    | ↑ |

PIPELINE STATION [from 2219]

"LINE" NUMBER  
221.9 Km FROM START OF LINE





### **3. INTAKE POINTS** (Ref. Schedule 1 Part 5, Clause3)

In the year ending 30 June 2012 the Intake Points for Vector's transmission pipelines were as follows:

#### North System

In normal operation there is only a single Intake Point, at Rotowaro Compressor Station. All gas entering the North System there was received from the Maui Pipeline.

#### South System

There were two major Intake Points for the South System, namely the Kapuni Compressor Station and the Mokoia Mixing Station, South of Hawera. Mokoia has not been included in the analysis as a sole intake point due to its low injection volume into the system i.e. it cannot meet the peak week system demand by itself.

#### Central System

Rotowaro Compressor Station was the sole Intake Point for the Central (North) System.

The sole Intake Point for the Central (South) System was at the Kapuni Gas Treatment Plant.

#### Bay of Plenty System

Gas entered the Bay of Plenty System either through the Pokuru No.1 Intake Point (from the Maui pipeline) or the Pokuru No.2 Intake Point (from the Central (South) System).

The Pokuru No.1 and Pokuru No.2 Intake Points are located within a hundred metres or so of each other, adjacent to the Pokuru compressor station.

#### Frankley Rd System

Frankley Rd interchange is both an Intake Point and an Offtake Point as Frankley Rd has "bi-directional" two-way flow metering.

An additional injection point named Kupe now exists as a significant intake point for this system.

There are minor intake points at Kaimiro and Norfolk Road which inject very low volumes. These have not been included in the analysis as sole injection points i.e. they cannot meet the peak week system demand by themselves individually.

Gas from the KGTP may be able to enter the Frankley Rd system, on an interruptible basis.

#### **4. OFFTAKE POINTS** (Ref. Schedule 1 Part 5, Clause 4)

Tables 4.1 to 4.6, respectively, give the following information for each pipeline:

- Date of the system peak week
- The throughput of each Offtake Point in the system peak week
- For each Offtake Point with a throughput in the system peak week greater than 2,000 GJ, the dates of the Offtake Point's peak week
- For each Offtake Point with a throughput in the system peak week greater than 2,000 GJ, the Offtake Point's peak week throughput
- The average throughput in the system peak week of all Offtake Points with a throughput in the system peak week less than 2,000 GJ
- Total system throughput in the system peak week
- The theoretical numerical factor (ie multiplier) by which the throughput of each Offtake Point with a throughput in the system peak week greater than 2,000 GJ could have been increased, assuming:
  - the same load profile at each Offtake Point; and
  - no capital expenditure (ie no system expansion); and
  - no change in throughput at other Offtake Points
- The *increase* in weekly throughput after applying the above factor.  
(NB: If the factor is "x" the *increase* is  $(x-1) \times$  weekly throughput.)

**TABLE 4.1 NORTH TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 4 (4) (a) (b) and (c)

| INTAKE POINT            | OFFTAKE POINTS                         | SYSTEM PEAK WEEK |            | INCREASE WITH NO CAPEX <sup>1</sup> |           | OFFTAKE PEAK WEEK |            |
|-------------------------|--|------------------|------------|-------------------------------------|-----------|-------------------|------------|
|                         |  | Week Ending      | Throughput | (Factor)                            | (GJ)      | Week Ending       | Throughput |
| Rotowaro                |  | 21-Aug-11        | n/a        | n/a                                 | n/a       | n/a               | n/a        |
|                         | <i>offtakes &gt; 2,000 GJ per week</i> |                  |            |                                     |           |                   |            |
| Otahuhu B power station | 21-Aug-11                              | 410,026          | 1.0        | 0                                   | 20-May-12 | 412,064           |            |
| Southdown power station | 21-Aug-11                              | 203,058          | 1.1        | 20,306                              | 21-Aug-11 | 203,058           |            |
| Westfield               | 21-Aug-11                              | 191,008          | 1.0        | 0                                   | 21-Aug-11 | 191,008           |            |
| Papakura                | 21-Aug-11                              | 92,970           | 1.6        | 55,782                              | 31-Jul-11 | 114,565           |            |
| Glenbrook               | 21-Aug-11                              | 43,118           | 1.5        | 21,559                              | 26-Feb-12 | 52,600            |            |
| Henderson               | 21-Aug-11                              | 38,050           | 1.4        | 15,220                              | 21-Aug-11 | 38,050            |            |
| Marsden <sup>2</sup>    | 21-Aug-11                              | 35,744           | n/a        | n/a                                 | 10-Jul-11 | 64,948            |            |
| Kauri                   | 21-Aug-11                              | 16,971           | 2.0        | 16,971                              | 02-Oct-11 | 17,059            |            |
| Harrisville             | 21-Aug-11                              | 12,882           | 5.8        | 61,834                              | 21-Aug-11 | 12,882            |            |
| Flat Bush               | 21-Aug-11                              | 10,430           | 3.2        | 22,945                              | 04-Dec-11 | 10,984            |            |
| Drury                   | 21-Aug-11                              | 8,817            | 5.8        | 42,320                              | 21-Aug-11 | 8,817             |            |
| Maungaturoto            | 21-Aug-11                              | 8,005            | 2.0        | 8,005                               | 25-Sep-11 | 15,926            |            |
| Bruce McLaren           | 21-Aug-11                              | 7,734            | 3.3        | 17,788                              | 21-Aug-11 | 7,734             |            |
| Hunua                   | 21-Aug-11                              | 7,729            | 5.2        | 32,463                              | 11-Dec-11 | 9,064             |            |
| Warkworth               | 21-Aug-11                              | 6,826            | 1.5        | 3,413                               | 21-Aug-11 | 6,826             |            |
| Whangarei               | 21-Aug-11                              | 3,846            | 5.6        | 17,692                              | 21-Aug-11 | 3,846             |            |
| Waitoki                 | 21-Aug-11                              | 3,201            | 5.7        | 15,043                              | 21-Aug-11 | 3,201             |            |
| Tuakau                  | 21-Aug-11                              | 3,008            | 20.9       | 59,865                              | 06-May-12 | 4,646             |            |
|                         |  |                  | 1,103,424  |                                     |           |                   |            |

|                                     |           |       |
|-------------------------------------|-----------|-------|
| <i>offtakes &lt; 2,000 per week</i> |           |       |
| Pukekohe                            | 21-Aug-11 | 1,272 |
| Rama Rama                           | 21-Aug-11 | 995   |
| Alfriston                           | 21-Aug-11 | 517   |
| Kingseat                            | 21-Aug-11 | 42    |
| Wellsford                           | 21-Aug-11 | 25    |
| Oakleigh                            | 21-Aug-11 | 0     |
|                                     |           | 2,852 |

ie Average per Offtake&lt;2,000 GJ = 475

TOTAL THROUGHPUT 1,106,276**Notes:**

1. Theoretical capacity assuming all other offtake points remain unchanged with no provision for operational 'headroom'. Factors do not take account of potential coincident peak flows from dominant generation load namely Otahuhu B & Southdown.
2. As this is an interruptible load it is not included in the modelling to determine the factors for other Offtake Points.

**TABLE 4.2 CENTRAL (NORTH) TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 4 (4) (a) (b) and (c)

| INTAKE POINT | OFFTAKE POINTS                         | SYSTEM PEAK WEEK |            | INCREASE WITH NO CAPEX <sup>1</sup>   |          | OFFTAKE PEAK WEEK |             |
|--------------|--|------------------|------------|---------------------------------------|----------|-------------------|-------------|
|              |  | Week Ending      | Throughput | (GJ)                                  | (Factor) | (GJ)              | Week Ending |
|              |  |                  |            |                                       |          |                   | Throughput  |
| Rotowaro     |  | 25-Sep-11        | n/a        | n/a                                   | n/a      | n/a               | n/a         |
|              | <i>offtakes &gt; 2,000 GJ per week</i> |                  |            |                                       |          |                   |             |
|              | Te Rapa Cogeneration <sup>2</sup>      | 25-Sep-11        | 99,782     | 2.4                                   | 139,695  | 04-Mar-12         | 103,135     |
|              | Hamilton Temple View                   | 25-Sep-11        | 21,408     | 4.9                                   | 83,490   | 21-Aug-11         | 33,725      |
|              | Hamilton Te Kowhai                     | 25-Sep-11        | 11,769     | 8.6                                   | 89,444   | 17-Jun-12         | 17,189      |
|              | Morrinsville DF                        | 25-Sep-11        | 11,100     | 3.6                                   | 28,859   | 25-Sep-11         | 11,100      |
|              | Cambridge                              | 25-Sep-11        | 15,045     | 1.9                                   | 13,540   | 25-Sep-11         | 15,045      |
|              | Tatuanui DF                            | 25-Sep-11        | 6,740      | 5.4                                   | 29,658   | 16-Oct-11         | 7,137       |
|              | Waitoa                                 | 25-Sep-11        | 6,379      | 3.9                                   | 18,499   | 17-Jun-12         | 9,056       |
|              | Kiwitahi (Peroxide)                    | 25-Sep-11        | 6,146      | 6.0                                   | 30,730   | 17-Jul-11         | 6,653       |
|              |  |                  | 178,368    |                                       |          |                   |             |
|              | <i>offtakes &lt; 2,000 per week</i>    |                  |            |                                       |          |                   |             |
|              | Morrinsville                           | 25-Sep-11        | 1,014      |                                       |          |                   |             |
|              | Horotiu                                | 25-Sep-11        | 292        |                                       |          |                   |             |
|              | Kiwitahi                               | 25-Sep-11        | 139        |                                       |          |                   |             |
|              | Matangi                                | 25-Sep-11        | 17         |                                       |          |                   |             |
|              |  |                  | 1,461      |                                       |          |                   |             |
|              |  |                  |            | ie Average per Offtake<2,000 GJ = 365 |          |                   |             |
|              | TOTAL THROUGHPUT                       |                  |            | 179,829                               |          |                   |             |

Note:

1. Theoretical capacity assuming all other offtake points remain unchanged with no provision for operational 'headroom'.
2. Actual Te Rapa Cogeneration load has dominant impact on available capacity

**TABLE 4.3 CENTRAL (SOUTH) TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 4 (4) (a) (b) and (c)

| INTAKE POINT | OFFTAKE POINTS                         | SYSTEM PEAK WEEK |            | INCREASE WITH NO CAPEX <sup>1</sup> |          | OFFTAKE PEAK WEEK |             |
|--------------|--|------------------|------------|-------------------------------------|----------|-------------------|-------------|
|              |  | Week Ending      | Throughput | (GJ)                                | (Factor) | (GJ)              | Week Ending |
| Kapuni       |  | 21-Aug-11        | n/a        | n/a                                 | n/a      | n/a               | n/a         |
|              | <i>offtakes &gt; 2,000 GJ per week</i> |                  |            |                                     |          |                   |             |
|              | Pokuru 2 <sup>2</sup>                  | 21-Aug-11        | 93,506     | 1.5                                 | 46,753   | 24-Jun-12         | 119,004     |
|              | New Plymouth                           | 21-Aug-11        | 23,568     | 1.7                                 | 16,497   | 21-Aug-11         | 23,568      |
|              | Eltham                                 | 21-Aug-11        | 2,971      | 11.4                                | 30,897   | 13-May-12         | 3,734       |
|              | Waitara                                | 21-Aug-11        | 2,672      | 12.2                                | 29,926   | 21-Aug-11         | 2,672       |
|              | Stratford                              | 21-Aug-11        | 2,266      | 13.3                                | 27,868   | 21-Aug-11         | 2,266       |
|              |  |                  | 124,982    |                                     |          |                   |             |
|              | <i>offtakes &lt; 2,000 per week</i>    |                  |            |                                     |          |                   |             |
|              | Inglewood                              | 21-Aug-11        | 905        |                                     |          |                   |             |
|              | Kaponga                                | 21-Aug-11        | 67         |                                     |          |                   |             |
|              |  |                  | 972        |                                     |          |                   |             |
|              | TOTAL THROUGHPUT                       |                  |            | 125,954                             |          |                   |             |

ie Average per Offtake&lt;2,000 GJ = 486

**Notes:**

1. Theoretical capacity assuming all other offtake points remain unchanged with no provision for operational 'headroom'.
2. The throughput for Pokuru 2 represents a flat profile during the Central South peak week.  
This has been calculated from the average of the Pokuru#2 flow load at the time of the Central South System Peak Week.

**TABLE 4.4 BAY OF PLENTY TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 4 (4) (a) (b) and (c)

| INTAKE POINT                           | OFFTAKE POINTS | SYSTEM PEAK WEEK |            | INCREASE WITH NO CAPEX <sup>1</sup> |          | OFFTAKE PEAK WEEK |             |
|--|----------------|------------------|------------|-------------------------------------|----------|-------------------|-------------|
|  |                | Week Ending      | Throughput | (GJ)                                | (Factor) | (GJ)              | Week Ending |
| Pokuru                                 |                | 13-Nov-11        | n/a        | n/a                                 | n/a      | n/a               | n/a         |
| <i>offtakes &gt; 2,000 GJ per week</i> |                |                  |            |                                     |          |                   |             |
| Kinleith (MIII)                        |                | 13-Nov-11        | 85,565     | 1.9                                 | 77,008   | 22-Jan-12         | 98,190      |
| Edgecumbe DF                           |                | 13-Nov-11        | 32,530     | 1.8                                 | 26,024   | 02-Oct-11         | 33,243      |
| Reporoa                                |                | 13-Nov-11        | 16,031     | 3.4                                 | 38,475   | 13-Nov-11         | 16,031      |
| Whakatane <sup>2</sup>                 |                | 13-Nov-11        | 15,191     | 2.4                                 | 21,268   | 02-Oct-11         | 17,010      |
| Lichfield DF                           |                | 13-Nov-11        | 12,360     | 12.4                                | 140,907  | 02-Oct-11         | 12,716      |
| Kawerau (Tasman)                       |                | 13-Nov-11        | 11,607     | 9.0                                 | 92,853   | 02-Oct-11         | 12,661      |
| Mt Maunganui                           |                | 13-Nov-11        | 10,102     | 2.7                                 | 17,173   | 07-Aug-11         | 11,521      |
| Tirau DF                               |                | 13-Nov-11        | 9,652      | 10.5                                | 91,690   | 02-Oct-11         | 10,825      |
| Rotorua                                |                | 13-Nov-11        | 5,823      | 3.8                                 | 16,306   | 21-Aug-11         | 12,564      |
| Gisborne                               |                | 13-Nov-11        | 4,211      | 4.6                                 | 15,160   | 01-Apr-12         | 15,627      |
| Kawerau (Caxton)                       |                | 13-Nov-11        | 3,520      | 28.1                                | 95,379   | 31-Jul-11         | 3,886       |
| Tauranga                               |                | 13-Nov-11        | 2,859      | 5.6                                 | 13,153   | 21-Aug-11         | 5,891       |
|  |                |                  | 209,452    |                                     |          |                   |             |
| <i>offtakes &lt; 2,000 per week</i>    |                |                  |            |                                     |          |                   |             |
| Papamoa                                |                | 13-Nov-11        | 1,766      |                                     |          |                   |             |
| Putaruru                               |                | 13-Nov-11        | 1,624      |                                     |          |                   |             |
| Taupo                                  |                | 13-Nov-11        | 1,583      |                                     |          |                   |             |
| Rangiuru                               |                | 13-Nov-11        | 1,291      |                                     |          |                   |             |
| Tokoroa                                |                | 13-Nov-11        | 1,268      |                                     |          |                   |             |
| Pyes Pa                                |                | 13-Nov-11        | 911        |                                     |          |                   |             |
| Broadlands                             |                | 13-Nov-11        | 800        |                                     |          |                   |             |
| Kihikihi                               |                | 13-Nov-11        | 674        |                                     |          |                   |             |
| Te Puke                                |                | 13-Nov-11        | 283        |                                     |          |                   |             |
| Waikeria                               |                | 13-Nov-11        | 237        |                                     |          |                   |             |
| Kinleith                               |                | 13-Nov-11        | 231        |                                     |          |                   |             |
| Kawerau                                |                | 13-Nov-11        | 113        |                                     |          |                   |             |
| Tirau                                  |                | 13-Nov-11        | 76         |                                     |          |                   |             |
| Opotiki                                |                | 13-Nov-11        | 55         |                                     |          |                   |             |
| Okoroire Springs                       |                | 13-Nov-11        | 12         |                                     |          |                   |             |
| Edgecumbe                              |                | 13-Nov-11        | 6          |                                     |          |                   |             |
| Te Teko                                |                | 13-Nov-11        | 1          |                                     |          |                   |             |
|  |                |                  | 10,931     |                                     |          |                   |             |
| TOTAL THROUGHPUT                       |                |                  | 220,383    |                                     |          |                   |             |

ie Average per Offtake<2,000 GJ = 643

**Note:**

- Theoretical capacity assuming all other offtake points remain unchanged with no provision for operational 'headroom'.
- The throughput for Whakatane offtake includes the Whakatane Board Mills as they are downstream of the offtake point.

**TABLE 4.5.1 FRANKLEY RD TO KAPUNI TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 4 (4) (a) (b) and (c)

| INTAKE POINT | OFFTAKE POINTS                         | SYSTEM PEAK WEEK |            | INCREASE WITH NO CAPEX <sup>1</sup> |        | OFFTAKE PEAK WEEK |            |
|--------------|--|------------------|------------|-------------------------------------|--------|-------------------|------------|
|              |  | Week Ending      | Throughput | (Factor)                            | (GJ)   | Week Ending       | Throughput |
| Frankley Rd  |  | 27-May-12        |            | n/a                                 | n/a    | n/a               | n/a        |
|              | <i>offtakes &gt; 2,000 GJ per week</i> |                  |            |                                     |        |                   |            |
|              | TCC Power Station                      | 27-May-12        | 327,576    | 1.1                                 | 32,758 | 05-Feb-12         | 412,907    |
|              | Kapuni GTP/Maui Bypass                 | 27-May-12        | 290,841    | 1.0                                 | 0      | 30-Oct-11         | 348,095    |
|              | Stratford Storage                      | 27-May-12        | 161,596    | 1.2                                 | 32,319 | 01-Jan-12         | 251,704    |
|              | Ammonia-Urea Plant                     | 27-May-12        | 142,226    | 1.3                                 | 42,668 | 10-Jun-12         | 145,265    |
|              | Kapuni Treatment Plant                 | 27-May-12        | 4,528      | 1.3                                 | 1,358  | 02-Oct-11         | 42,387     |
|              |  |                  | 926,767    |                                     |        |                   |            |
|              | <i>offtakes &lt; 2,000 per week</i>    |                  |            |                                     |        |                   |            |
|              | Lactose                                | 27-May-12        | 221        |                                     |        |                   |            |
|              | Frankley Rd Offtake                    | 27-May-12        | 6          |                                     |        |                   |            |
|              | Stratford Power Station                | 27-May-12        | 0          |                                     |        |                   |            |
|              |  |                  | 227        |                                     |        |                   |            |
|              | TOTAL THROUGHPUT                       |                  | 926,994    |                                     |        |                   |            |

**Notes:**

1. Theoretical capacity assuming all other offtake points remain unchanged with no provision for operational 'headroom'.

ie Average per Offtake&lt;2,000 GJ = 76

**TABLE 4.5.2 FRANKLEY RD TO KAPUNI TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 4 (4) (a) (b) and (c)

| INTAKE POINT | OFFTAKE POINTS                         | SYSTEM PEAK WEEK |            | INCREASE WITH NO CAPEX <sup>1</sup> |        | OFFTAKE PEAK WEEK |            |
|--------------|--|------------------|------------|-------------------------------------|--------|-------------------|------------|
|              |  | Week Ending      | Throughput | (Factor)                            | (GJ)   | Week Ending       | Throughput |
| Kupe         |  | 27-May-12        |            | n/a                                 | n/a    | n/a               | n/a        |
|              | <i>offtakes &gt; 2,000 GJ per week</i> |                  |            |                                     |        |                   |            |
|              | TCC Power Station                      | 27-May-12        | 327,576    | 1.1                                 | 32,758 | 05-Feb-12         | 412,907    |
|              | Kapuni GTP/Maui Bypass                 | 27-May-12        | 290,841    | 1.1                                 | 29,084 | 30-Oct-11         | 348,095    |
|              | Stratford Storage                      | 27-May-12        | 161,596    | 1.4                                 | 64,638 | 01-Jan-12         | 251,704    |
|              | Ammonia-Urea Plant                     | 27-May-12        | 142,226    | 1.3                                 | 42,668 | 10-Jun-12         | 145,265    |
|              | Kapuni Treatment Plant                 | 27-May-12        | 4,528      | 1.3                                 | 1,358  | 02-Oct-11         | 42,387     |
|              |  |                  | 926,767    |                                     |        |                   |            |
|              | <i>offtakes &lt; 2,000 per week</i>    |                  |            |                                     |        |                   |            |
|              | Lactose                                | 27-May-12        | 221        |                                     |        |                   |            |
|              | Frankley Rd Offtake                    | 27-May-12        | 6          |                                     |        |                   |            |
|              | Stratford Power Station                | 27-May-12        | 0          |                                     |        |                   |            |
|              |  |                  | 227        |                                     |        |                   |            |
|              | TOTAL THROUGHPUT                       |                  | 926,994    |                                     |        |                   |            |

**Notes:**

- Theoretical capacity assuming all other offtake points remain unchanged with no provision for operational 'headroom'.

ie Average per Offtake&lt;2,000 GJ = 76

**TABLE 4.6 SOUTH TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 3 and Clause 4 (4) (a) (b) and (c)

| INTAKE POINT                           | OFFTAKE POINTS | SYSTEM PEAK WEEK |            | INCREASE WITH NO CAPEX <sup>1</sup> |        | OFFTAKE PEAK WEEK |            |
|--|----------------|------------------|------------|-------------------------------------|--------|-------------------|------------|
|  |                | Week Ending      | Throughput | (Factor)                            | (GJ)   | Week Ending       | Throughput |
| Kapuni + Mokoia                        |                | 21-Aug-11        |            | n/a                                 | n/a    |                   |            |
| <i>offtakes &gt; 2,000 GJ per week</i> |                |                  |            |                                     |        |                   |            |
| Tawa A+B                               |                | 21-Aug-11        | 91,805     | 1.2                                 | 18,361 | 8/21/2011         | 91,805     |
| Belmont                                |                | 21-Aug-11        | 53,484     | 1.4                                 | 21,394 | 8/21/2011         | 53,484     |
| Hastings                               |                | 21-Aug-11        | 35,265     | 1.6                                 | 21,159 | 7/10/2011         | 44,945     |
| Palmerston Nth                         |                | 21-Aug-11        | 32,608     | 1.6                                 | 19,565 | 8/21/2011         | 32,608     |
| Wanganui                               |                | 21-Aug-11        | 23,276     | 1.9                                 | 20,949 | 8/21/2011         | 23,276     |
| Waitanguruua (AGL)                     |                | 21-Aug-11        | 10,620     | 2.9                                 | 20,178 | 8/21/2011         | 10,620     |
| Pahiatua                               |                | 21-Aug-11        | 8,943      | 4.2                                 | 28,619 | 9/25/2011         | 10,380     |
| Levin                                  |                | 21-Aug-11        | 7,696      | 3.7                                 | 20,779 | 8/21/2011         | 7,696      |
| Hawera                                 |                | 21-Aug-11        | 7,118      | 4.6                                 | 25,624 | 10/23/2011        | 16,457     |
| Okaiawa                                |                | 21-Aug-11        | 6,346      | 3.8                                 | 17,770 | 5/20/2012         | 8,847      |
| Paraparaumu                            |                | 21-Aug-11        | 5,379      | 5.1                                 | 22,052 | 8/21/2011         | 5,379      |
| Longburn                               |                | 21-Aug-11        | 4,939      | 5.4                                 | 21,732 | 10/9/2011         | 8,860      |
| Feilding                               |                | 21-Aug-11        | 4,657      | 5.5                                 | 20,955 | 6/17/2012         | 5,241      |
| Marton                                 |                | 21-Aug-11        | 4,466      | 4.4                                 | 15,186 | 6/17/2012         | 5,350      |
| Pauatahanui 1                          |                | 21-Aug-11        | 2,489      | 10.3                                | 23,150 | 8/21/2011         | 2,489      |
| Takapau                                |                | 21-Aug-11        | 2,329      | 9.0                                 | 18,634 | 12/18/2011        | 2,886      |
| Waikanae                               |                | 21-Aug-11        | 2,095      | 11.7                                | 22,415 | 8/21/2011         | 2,095      |
|  |                |                  | 303,517    |                                     |        |                   |            |
| <i>offtakes &lt; 2,000 per week</i>    |                |                  |            |                                     |        |                   |            |
| Dannevirke                             |                | 21-Aug-11        | 1,613      |                                     |        |                   |            |
| Kakariki                               |                | 21-Aug-11        | 1,019      |                                     |        |                   |            |
| Patea                                  |                | 21-Aug-11        | 882        |                                     |        |                   |            |
| Foxton                                 |                | 21-Aug-11        | 757        |                                     |        |                   |            |
| Lake Alice                             |                | 21-Aug-11        | 700        |                                     |        |                   |            |
| Manaia                                 |                | 21-Aug-11        | 693        |                                     |        |                   |            |
| Mangaroa                               |                | 21-Aug-11        | 663        |                                     |        |                   |            |
| Otaki                                  |                | 21-Aug-11        | 657        |                                     |        |                   |            |
| Kaitoke                                |                | 21-Aug-11        | 613        |                                     |        |                   |            |
| Waverley                               |                | 21-Aug-11        | 591        |                                     |        |                   |            |
| Waitotara                              |                | 21-Aug-11        | 561        |                                     |        |                   |            |
| Ashhurst                               |                | 21-Aug-11        | 296        |                                     |        |                   |            |
| Mangatainoka                           |                | 21-Aug-11        | 235        |                                     |        |                   |            |
| Pauatahanui 2                          |                | 21-Aug-11        | 27         |                                     |        |                   |            |
| Kuku                                   |                | 21-Aug-11        | 25         |                                     |        |                   |            |
| Te Horo                                |                | 21-Aug-11        | 20         |                                     |        |                   |            |
| Matapu                                 |                | 21-Aug-11        | 16         |                                     |        |                   |            |
| Flockhouse                             |                | 21-Aug-11        | 5          |                                     |        |                   |            |
| Oroua Downs                            |                | 21-Aug-11        | 1          |                                     |        |                   |            |
| Kairanga                               |                | 21-Aug-11        | 1          |                                     |        |                   |            |
| Rimu Start-up                          |                | 21-Aug-11        | 0          |                                     |        |                   |            |
|  |                |                  | 9,376      |                                     |        |                   |            |
| ie Average per Offtake<2,000 GJ = 446  |                |                  |            |                                     |        |                   |            |
| TOTAL THROUGHPUT                       |                |                  | 312,892    |                                     |        |                   |            |

## Notes:

1. Theoretical capacity assuming all other offtake points remain unchanged with no provision for operational 'headroom'.
2. Mokoia intake maximum assumed at 27,852 GJ/week.

## **5. FURTHER DISCLOSURE: OFFTAKE POINTS WITH THROUGHPUT LESS THAN 2,000 GJ/WEEK**

(Ref. Schedule 1 Part 5, Clause 5)

Tables 4.1 to 4.6, respectively, also show for each pipeline the following information in respect of each Offtake Point with a throughput in the system peak week less than 2,000 GJ:

- Throughput of each such Offtake Point in the system peak week
- Total throughput of all such Offtake Points in the system peak week
- Average throughput of all such Offtake Points in the system peak week

## **6. CRITICAL POINTS OF TRANSMISSION SYSTEMS**

(Ref. Schedule 1 Part 5, Clause 6)

Tables 6.1 to 6.6, respectively, show for each pipeline the following information in relation to each Offtake Point with a throughput in the system peak week greater than 2,000 GJ:

- The factor by which the throughput of the Offtake Point could have been increased in the system peak week assuming no capital expenditure on the Offtake Point for the increased throughput.
- The critical point or section of pipeline providing the first or principal constraint on increased throughput at the Offtake Point in the system peak week.
- A brief statement of a possible means to remove the constraint.
- An estimate of the increase in throughput at the Offtake Point given the removal of the constraint.
- An estimate of the capital cost to remove the system constraint on the estimated increased throughput excluding upgrade of the intake or offtake points.

**TABLE 6.1 NORTH TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 6 (2) (a) (b) and (c)

**SYSTEM PEAK WEEK: Week Ending 21 August 2011**

| OFFTAKE POINTS          | INCREASE WITH NO CAPEX |        | CRITICAL POINT(S) LIMITING THROUGHPUT | MEANS TO REMOVE LIMITATION                      | CAPITAL COST <sup>1</sup><br>(\$000) | INCREASE<br>(Limit removed) |         |
|-------------------------|------------------------|--------|---------------------------------------|---|--------------------------------------|-----------------------------|---------|
|                         | (Factor)               | (GJ)   |                                       |   |                                      | (Factor)                    | (GJ)    |
| Otahuhu B power station | 1.0                    | -      | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 1.4                         | 164,010 |
| Southdown power station | 1.1                    | 20,306 | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 1.7                         | 142,141 |
| Westfield               | 1.0                    | -      | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 1.6                         | 114,605 |
| Papakura                | 1.6                    | 55,782 | Runciman Rd to Papakura pipeline      | Runciman Rd to Papakura pipeline loop (11.8 km) | 13,300                               | 1.7                         | 65,079  |
| Glenbrook               | 1.5                    | 21,559 | Runciman Rd to Glenbrook DP           | Loop Runciman Rd to Glenbrook DP                | 22,000                               | 2.4                         | 60,366  |
| Henderson               | 1.4                    | 15,220 | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 3.2                         | 83,711  |
| Marsden <sup>2</sup>    | n/a                    | n/a    |                                       |   |                                      |                             |         |
| Kauri                   | 2.0                    | 16,971 | Kauri Delivery Point                  | Loop Papakura East to Smales Rd MLV             | 40,000                               | 2.5                         | 25,456  |
| Harrisville             | 5.8                    | 61,834 | Runciman Rd to Glenbrook DP           | Loop Runciman Rd to Glenbrook DP                | 22,000                               | 6.2                         | 66,987  |
| Flat Bush               | 3.2                    | 22,945 | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 16.7                        | 163,746 |
| Drury                   | 5.8                    | 42,320 | Ingram to papakura East               | Ingram to papakura East Loop (10 km)            | 11,000                               | 16.9                        | 140,185 |
| Maungaturoto            | 2.0                    | 8,005  | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 2.6                         | 12,808  |
| Bruce McLaren           | 3.3                    | 17,788 | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 9.1                         | 62,646  |
| Hunua                   | 5.2                    | 32,463 | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 24.0                        | 177,773 |
| Warkworth               | 1.5                    | 3,413  | Warkworth lateral pipeline            | Loop Warkworth Lateral                          | 5,300                                | 2.2                         | 8,192   |
| Whangarei               | 5.6                    | 17,692 | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 9.2                         | 31,538  |
| Waitoki                 | 5.7                    | 15,043 | Papakura East to Smales Rd pipeline   | Loop Papakura East to Smales Rd MLV             | 40,000                               | 17.1                        | 51,530  |
| Tuakau                  | 20.9                   | 59,865 | Runciman Rd to Glenbrook DP           | Loop Runciman Rd to Glenbrook DP                | 22,000                               | 22.9                        | 65,882  |

**Note:**

1. Capital Cost estimates exclude the cost of upgrading the Intake or Offtake Points (if required) for the increased throughput.

Reinforcement unit costs have been updated based on recent studies.

2. As this is an interruptible load it is not included in the modelling.

**TABLE 6.2 CENTRAL (NORTH) TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 6 (2) (a) (b) and (c)

**SYSTEM PEAK WEEK: Week Ending 25 September 2011**

| OFFTAKE POINTS       | INCREASE WITH NO CAPEX |         | CRITICAL POINT(S) LIMITING THROUGHPUT | MEANS TO REMOVE LIMITATION         | CAPITAL COST <sup>1</sup><br>(\$000) | INCREASE<br>(Limit removed) |         |
|----------------------|------------------------|---------|---------------------------------------|------------------------------------|--------------------------------------|-----------------------------|---------|
|                      | (Factor)               | (GJ)    |                                       |                                    |                                      | (Factor)                    | (GJ)    |
| Te Rapa Cogeneration | 2.4                    | 139,695 | Te Kowhai to Te Rapa pipeline         | Loop Te Kowhai to Te Rapa pipeline | 7,900                                | 2.6                         | 159,651 |
| Hamilton Temple View | 4.9                    | 83,490  | Te Kowhai to Te Rapa pipeline         | Loop Te Kowhai to Te Rapa pipeline | 7,900                                | 5.0                         | 85,630  |
| Hamilton Te Kowhai   | 8.6                    | 89,444  | Te Kowhai to Te Rapa pipeline         | Loop Te Kowhai to Te Rapa pipeline | 7,900                                | 8.8                         | 91,798  |
| Morrinsville DF      | 3.6                    | 28,859  | Te Kowhai to Te Rapa pipeline         | Loop Te Kowhai to Te Rapa pipeline | 7,900                                | 4.0                         | 33,299  |
| Cambridge            | 1.9                    | 13,540  | Te Kowhai to Te Rapa pipeline         | Loop Te Kowhai to Te Rapa pipeline | 7,900                                | 2.1                         | 16,549  |
| Tatuanui DF          | 5.4                    | 29,658  | Te Kowhai to Te Rapa pipeline         | Loop Te Kowhai to Te Rapa pipeline | 7,900                                | 6.2                         | 35,050  |
| Waitoa               | 3.9                    | 18,499  | Te Kowhai to Te Rapa pipeline         | Loop Te Kowhai to Te Rapa pipeline | 7,900                                | 4.4                         | 21,689  |
| Kiwitahi (Peroxide)  | 6.0                    | 30,730  | Te Kowhai to Te Rapa pipeline         | Loop Te Kowhai to Te Rapa pipeline | 7,900                                | 7.0                         | 36,876  |

**Note:**

1. Capital Cost estimates exclude the cost of upgrading the Intake or Offtake Points (if required) for the increased throughput.

**TABLE 6.3 CENTRAL (SOUTH) TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 6 (2) (a) (b) and (c)

**SYSTEM PEAK WEEK: Week Ending 21 August 2011**

| OFFTAKE POINTS | INCREASE WITH<br>NO CAPEX |        | CRITICAL POINT(S) LIMITING<br>THROUGHPUT | MEANS TO REMOVE LIMITATION          | CAPITAL<br>COST <sup>1</sup><br>(\$000) | INCREASE<br>(Limit removed) |        |
|----------------|---------------------------|--------|--|-------------------------------------|---|-----------------------------|--------|
|                | (Factor)                  | (GJ)   |  |                                     |   | (Factor)                    | (GJ)   |
| Pokuru 2       | 1.5                       | 46,753 | Kapuni compressor                        | Upgrade Kapuni compressor           | 8,800                                   | 1.9                         | 84,155 |
| New Plymouth   | 1.7                       | 16,497 | New Plymouth lateral                     | Loop New Plymouth lateral (10.5 km) | 9,623                                   | 2.3                         | 30,638 |
| Eltham         | 11.4                      | 30,897 | Kapuni compressor                        | Upgrade Kapuni compressor           | 8,800                                   | 20.6                        | 58,229 |
| Waitara        | 12.2                      | 29,926 | New Plymouth lateral                     | Loop New Plymouth lateral (4.6 km)  | 4,216                                   | 13.0                        | 32,063 |
| Stratford      | 13.3                      | 27,868 | Kapuni compressor                        | Upgrade Kapuni compressor           | 8,800                                   | 44.9                        | 99,465 |

Note:

1. Capital Cost estimates exclude the cost of upgrading the Intake or Offtake Points (if required) for the increased throughput.

**TABLE 6.4 BAY OF PLENTY TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 6 (2) (a) (b) and (c)

**SYSTEM PEAK WEEK: Week Ending 13 November 2011**

| OFFTAKE POINTS   | INCREASE WITH NO CAPEX |         | CRITICAL POINT(S) LIMITING THROUGHPUT | MEANS TO REMOVE LIMITATION <sup>2</sup>  | CAPITAL COST <sup>1</sup> | INCREASE (Limit removed) |         |
|------------------|------------------------|---------|---------------------------------------|--|---------------------------|--------------------------|---------|
|                  | (Factor)               | (GJ)    |                                       |  |                           | (Factor)                 | (GJ)    |
| Kinleith (Mill)  | 1.9                    | 77,008  | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 2.7                      | 145,460 |
| Edgecumbe DF     | 1.8                    | 26,024  | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 2.1                      | 35,783  |
| Reporoa          | 3.4                    | 38,475  | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 3.9                      | 46,491  |
| Whakatane 2      | 2.4                    | 21,268  | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 2.9                      | 28,863  |
| Lichfield DF     | 12.4                   | 140,907 | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 19.7                     | 231,137 |
| Kawerau (Tasman) | 9.0                    | 92,853  | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 11.6                     | 123,030 |
| Mt Maunganui     | 2.7                    | 17,173  | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 3.1                      | 21,214  |
| Tirau DF         | 10.5                   | 91,690  | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 12.0                     | 106,167 |
| Rotorua          | 3.8                    | 16,306  | Rotorua lateral + Pokuru compression  | Loop Rotorua lateral and upgrade Pokuru  | 24,450                    | 8.1                      | 41,346  |
| Gisborne         | 4.6                    | 15,160  | Gisborne lateral + Pokuru compression | Loop Gisborne and Upgrade Pokuru (10km)  | 28,555                    | 5.6                      | 19,372  |
| Kawerau (Caxton) | 28.1                   | 95,379  | Pokuru compression                    | Upgrade Pokuru                           | 16,555                    | 36.4                     | 124,591 |
| Tauranga         | 5.6                    | 13,153  | Tauranga lateral                      | Loop Tauranga lateral and upgrade Pokuru | 21,745                    | 13.4                     | 35,456  |

**Notes:**

1. Capital Cost estimates exclude the cost of upgrading the Intake or Offtake Points (if required) for the increased throughput.
2. The increased flow through some laterals would approach the limit of acceptable velocity. If the laterals were to be looped even larger increases would be possible, provided also that Pokuru compression was upgraded accordingly.

**TABLE 6.5.1 FRANKLEY RD TO KAPUNI TRANSMISSION SYSTEM (Frankley Intake)**

Ref. Schedule 1 Part 5, Clause 6 (2) (a) (b) and (c)

**SYSTEM PEAK WEEK: Week Ending 27 May 2012**

| OFFTAKE POINTS         | INCREASE WITH NO CAPEX |        | CRITICAL POINT(S) LIMITING THROUGHPUT | MEANS TO REMOVE LIMITATION <sup>2</sup>     | CAPITAL COST <sup>1</sup> | INCREASE (Limit removed) |           |
|------------------------|------------------------|--------|---------------------------------------|---|---------------------------|--------------------------|-----------|
|                        | (Factor)               | (GJ)   |                                       |   |                           | (Factor)                 | (GJ)      |
| TCC Power Station      | 1.1                    | 32,758 | Pressure at Kapuni                    | Build new compressor station at Frankley Rd | 35,000                    | 6.2                      | 1,703,395 |
| Kapuni GTP/Maui Bypass | 1.0                    | -      | Pressure at Kapuni                    | Build new compressor station at Frankley Rd | 35,000                    | 4.9                      | 1,134,281 |
| Stratford Storage      | 1.2                    | 32,319 | Pressure at Kapuni                    | Build new compressor station at Frankley Rd | 35,000                    | 8.8                      | 1,260,449 |
| Ammonia-Urea Plant     | 1.3                    | 42,668 | Pressure at Kapuni                    | Build new compressor station at Frankley Rd | 35,000                    | 5.2                      | 597,348   |
| Kapuni Treatment Plant | 1.3                    | 1,358  | Pressure at Kapuni                    | Build new compressor station at Frankley Rd | 35,000                    | 15.8                     | 67,014    |

Notes:

1. Capital Cost estimates exclude the cost of upgrading the Intake or Offtake Points (if required) for the increased throughput.
2. Additional throughput would be obtainable with larger compressors at Frankley Rd, ie the pipeline would not be the constraint with the increased throughput.

**TABLE 6.5.2 FRANKLEY RD TO KAPUNI TRANSMISSION SYSTEM (Kupe Intake)**

Ref. Schedule 1 Part 5, Clause 6 (2) (a) (b) and (c)

**SYSTEM PEAK WEEK: Week Ending 27 May 2012**

| OFFTAKE POINTS         | INCREASE WITH NO CAPEX |        | CRITICAL POINT(S) LIMITING THROUGHPUT | MEANS TO REMOVE LIMITATION <sup>1</sup> | CAPITAL COST | INCREASE (Limit removed) |      |
|------------------------|------------------------|--------|---------------------------------------|---|--------------|--------------------------|------|
|                        | (Factor)               | (GJ)   |                                       |   |              | (Factor)                 | (GJ) |
| TCC Power Station      | 1.1                    | 32,758 | Kupe contractual flow capacity        | No reinforcement identified             | n/a          | n/a                      | n/a  |
| Kapuni GTP/Maui Bypass | 1.1                    | 29,084 | Kupe contractual flow capacity        | No reinforcement identified             | n/a          | n/a                      | n/a  |
| Stratford Storage      | 1.4                    | 64,638 | Kupe contractual flow capacity        | No reinforcement identified             | n/a          | n/a                      | n/a  |
| Ammonia-Urea Plant     | 1.3                    | 42,668 | Kupe contractual flow capacity        | No reinforcement identified             | n/a          | n/a                      | n/a  |
| Kapuni Treatment Plant | 1.3                    | 1,358  | Kupe contractual flow capacity        | No reinforcement identified             | n/a          | n/a                      | n/a  |

**Note:**

1. No reinforcement is identified because the Kupe flow capacity is contractually capped and physical upgrades do not change this condition.

**TABLE 6.6 SOUTH TRANSMISSION SYSTEM**

Ref. Schedule 1 Part 5, Clause 6 (2) (a) (b) and (c)

**SYSTEM PEAK WEEK: Week Ending 21 August 2011**

| OFFTAKE POINTS     | INCREASE WITH NO CAPEX | CRITICAL POINT(S) LIMITING THROUGHPUT <sup>2</sup> | MEANS TO REMOVE LIMITATION           | CAPITAL COST <sup>1</sup>  | INCREASE (Limit removed) |      |         |
|--------------------|------------------------|--|--------------------------------------|--|--------------------------|------|---------|
|                    | (Factor)               | (GJ)   |                                      | (\$000)  | (Factor)                 | (GJ) |         |
| Tawa A+B           | 1.2                    | 18,361   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 2.1  | 100,986 |
| Belmont            | 1.4                    | 21,394   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 3.0  | 106,968 |
| Hastings           | 1.6                    | 21,159   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 3.5  | 88,164  |
| Palmerston Nth     | 1.6                    | 19,565   | Palmerston North Lateral             | Upgrade Kaitoke + Kapuni compressor and loop Palmerston North Lateral  | 20,727                   | 2.7  | 55,433  |
| Wanganui           | 1.9                    | 20,949   | Kapuni to Hawera (unlooped) pipeline | Loop Kapuni to Hawera and upgrade Kapuni compressor                    | 26,400                   | 8.8  | 181,556 |
| Waitanguruia (AGL) | 2.9                    | 20,178   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 10.7 | 103,013 |
| Pahiatua           | 4.2                    | 28,619   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 7.3  | 56,343  |
| Levin              | 3.7                    | 20,779   | Levin Lateral                        | Upgrade Kaitoke + Kapuni compressor and loop Levin Lateral             | 19,985                   | 7.5  | 50,023  |
| Hawera             | 4.6                    | 25,624   | Kapuni to Hawera (unlooped) pipeline | Loop Kapuni to Hawera and upgrade Kapuni compressor                    | 26,400                   | 21.3 | 144,493 |
| Okaiawa            | 3.8                    | 17,770   | Okaiawa Lateral                      | Upgrade Kapuni compressor and loop Okaiawa Lateral                     | 9,735                    | 11.1 | 64,098  |
| Paraparaumu        | 5.1                    | 22,052   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 21.8 | 111,875 |
| Longburn           | 5.4                    | 21,732   | Longburn Lateral                     | Upgrade Kaitoke + kapuni compressor and loop Longburn Lateral (6.6 km) | 18,830                   | 14.5 | 66,678  |
| Feilding           | 5.5                    | 20,955   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 8.6  | 35,390  |
| Marton             | 4.4                    | 15,186   | Marton Lateral                       | Upgrade Kaitoke + Kapuni compressor and loop Marton Lateral            | 37,770                   | 21.1 | 89,775  |
| Pauatahanui 1      | 10.3                   | 23,150   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 47.9 | 116,747 |
| Takapau            | 9.0                    | 18,634   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 43.4 | 98,760  |
| Waikanae           | 11.7                   | 22,415   | Kaitoke to Himatangi pipeline        | Upgrade Kaitoke + Kapuni compressor and loop from Kaitoke to Himatangi | 49,700                   | 53.9 | 110,816 |

1. Capital Cost estimates exclude the cost of upgrading the Intake or Offtake Points (if required) for the increased throughput.

## **7. METHODOLOGIES** (Ref. Schedule 1 Part 5, Clause 7)

### **Intake Points** (Ref. Clause 3)

In past disclosures, the model used default values for temperatures and compositions. This year, gas temperatures and compositions were taken into account for each system to increase modelling accuracy.

In calculating the numerical factor for throughput increase, each system's peak week average gas temperature was used for modelling. Modelling was carried out based on the assumption that no heat was lost to the surroundings by the gas flow in the pipeline.

Each of the six systems had their own composition associated with the gas flow into those systems.

#### South System

The actual flow rates in the system peak week for Kapuni was not used in the modelling, instead a fixed pressure replaced the load profile. When determining the numerical factors for possible throughput increases with Kapuni as the Intake Point, the Kapuni supply pressure was fixed at 84 barg, and the Mokoia flow intake was set at the actual profile during the system peak week.

### **Offtake Points** (Ref. Clause 4)

Information disclosed as required by Clause 4 (4) of the Regulations was determined as set out below.

### **Peak Week Dates** (Ref. Clause 4 (4) (a))

#### For Systems

For all Offtake Points with metering incorporating electronic data storage capability (the vast majority) reports are available showing the daily throughput at each Offtake Point.

For each transmission system a spreadsheet was compiled showing the daily throughput of all Offtake Points for the whole year. Aggregate daily and weekly throughputs were then calculated.

In all cases, the system peak week was taken to be the week, ie 00:00 hours on Monday to 24:00 hours on Sunday, in which the aggregate offtake was greatest.

#### For Individual Offtake Points

The date of each Offtake Point's *individual* peak week was obtained from the spreadsheets of daily throughput for each system referred to above.

## **Peak Week Throughput** (Ref. Clause 4 (4) (b))

### For the System

In all cases, system peak week throughputs were obtained from the spreadsheets of daily throughput for each system referred to above.

### For the Offtake Points

Individual Offtake Point peak throughputs were obtained from the spreadsheets of daily throughputs for each system referred to above.

## **Throughput Increase in System Peak Week**

(Ref. Clause 4 (4) (c))

### General Considerations

The numerical factor (theoretical multiplier) by which the throughput of each Offtake Point could have been increased in the system peak week was determined using Vector's transient flow model (the "Model", as defined below). In accordance with the requirements of the Regulations this was done (i) assuming no capital investment to increase existing system capacity and (ii) no change in throughput at other Offtake Points on the system (iii) in addition there is no provision for operational headroom necessary to ensure reliability of supply.

- Using data from SCADA/OATIS or metering as applicable, flow rates (in standard  $m^3/s$ ) were calculated for each hour of the system peak week for each Offtake Point. The data was assembled into "flow profiles" of the form required by the Model, then loaded into the model. (A hard copy of each flow profile is included in Appendix 1).
- For the few Offtake Points for which hourly data was not available (those having metering without electronic data storage capability, ie generally sites with very small throughput) an average flow rate was calculated from meter readings and entered into the Model.
- Each of the defined transmission systems was modelled separately. The Model was first run with actual loads in the system peak week to generate appropriate starting conditions for subsequent simulations.
- An Offtake Point was then selected and a multiplier applied to its flow profile. This factor affected only the hourly flow rates for the chosen Offtake Point.
- Each simulation was continued until it became evident either that the increased load was unsustainable or conversely a larger factor could be applied. A new factor was selected and the simulation repeated. This process was continued until the maximum factor consistent with the relevant limiting criterion (see below) was identified.
- The above process was applied in turn to each Offtake Points on the system with a throughput greater than 2,000 GJ in the system peak

week.

- The limiting criterion applied to determine whether the increased throughput would have been achievable or not was whether the pipeline pressure at the most critical point of the system remained above the minimum acceptable value. For the Northland section of the North System, this was taken as 25 bar g. A lower pressure criterion would have resulted in only an insignificant increase in throughput. No account was taken of the rate of pressure decay to the minimum acceptable value or the "volatility" of the pressure at the critical point resulting from the increased throughput or other provision for operational headroom necessary to ensure reliability of supply.
- Where the pressure drop in a lateral or section of pipeline was observed to be exceptionally high given the increased throughput the maximum velocity of gas in the pipeline was checked. In some cases this constituted the limit on increased throughput.
- Where compression at the Intake Point was not modelled (see below) the maximum flow rate through the Intake Point during each simulation was noted. This was later checked against the known capacity of the existing compression to verify the adequacy of such compression.
- The Model is set up to model only high pressure pipelines. Offtake Points are not modelled. Attempting to simulate flow through the heater, regulators or control valves, piping and meter of each Offtake Point on the system would result in an unwarranted increase in complexity and simulation running time. As a consequence no account was taken of the ability of an existing Offtake Point to handle increased throughput. It was assumed that an Offtake Point could be upgraded if required. (*This is a significant assumption in view of the possibility of additional land being required and/or more stringent operating restrictions being imposed by statutory authorities as a condition of any significant upgrade being permitted. Readers of this report should take note.*)
- Modelling was undertaken without regard to shippers' current capacity reservations or the probability of the increased capacity ever being required at any particular Offtake Point.

### System Specific Considerations

#### *North System*

- Capacity of the Rotowaro compressor station, Intake Point for the North System, is directly proportional to the pressure available from the Maui pipeline. The Rotowaro compressor station comprises two gas turbine-driven centrifugal units plus two gas engine-driven 4-cylinder reciprocating units. These units are able to run with a suction pressure corresponding to the minimum contractual Maui delivery pressure, ie 30 bar g, and depending on the magnitude of the flow required, are still able to achieve a discharge pressure up to the maximum working pressure of the downstream pipelines (86 bar g).
- For the sake of simplicity compression at Rotowaro was not modelled. Instead a fixed pressure of 84 bar g was assumed in all simulations.

The peak throughput of the Rotowaro Intake Point was noted in each simulation. This was added to the peak throughput of the Central (North) System for which Rotowaro is also the Intake Point. The total peak Rotowaro throughput was compared to the capacity of the compression installed there to check that the latter would have been sufficient.

- Additional criteria applied in the case of the North System were that pipeline pressures at the Otahuhu B and Southdown Offtake Points be not less than 35 and 49 bar g, respectively, in order that contractual delivery pressure obligations could be met.
- In the system peak week, NZ Refinery Company was using gas. However, because the supply to NZRC is interruptible, the refinery's load was removed from the system while modelling other offtake points.

#### *Central (North) System*

- Rotowaro is the Intake Point for the Central (North) System. As noted above, compression at Rotowaro was not modelled. A fixed pressure of 84 bar g at the Intake Point was assumed in all simulations.

#### *Central (South) System*

- Installed compression at the Kapuni Gas Treatment Plant, Intake Point for the Central (South) System, is adequate to meet current requirements but could limit pipeline capacity at flows above 560,000GJ/week. Therefore for simplicity compression at Kapuni was not modelled. A fixed pressure of 84 bar g at the Intake Point was assumed in all simulations albeit that available suction pressure may constrain the compressor discharge pressure/capacity.
- The only existing "Offtake Point" north of New Plymouth is the interconnection to the Bay of Plenty System, ie Pokuru. Compression at Mahoenui was modelled and a fixed pressure of 84 bar g was assumed. A flat load profile was assumed for the interconnection to BOP. This BOP flat load was calculated from the average value of Pokuru #2 flow load at the time of Central South system peak week.
- The Pokuru Offtake incorporates piping connections to both the suction side and the discharge side of the Pokuru compressors. Simulations to determine the maximum throughput were based on a discharge-side connection.

#### *Bay of Plenty System*

- For simplicity compression at Pokuru was not modelled but could limit pipeline capacity at flows above 260,000GJ/week. A fixed pressure of 74 bar g at the system Intake Point was assumed in all simulations.

#### *South System*

- As noted in Central South above, installed compression capacity at the Kapuni Gas Treatment Plant is adequate for current requirements but could limit pipeline capacity at flows above 560,000GJ/week. Therefore for simplicity compression at Kapuni was not modelled. A fixed

pressure of 84 bar g at the Intake Point was assumed in all simulations albeit that available suction pressure may constrain compressor discharge pressure/capacity.

- In simulations of the existing system requiring compression at Kaitoke, the smaller (No.1) unit was modelled with an outlet pressure of 84 bar.
- The Offtake Points that supply Wellington city are Tawa A (for Powerco's distribution network) and Tawa B (for Nova's distribution network). However many years ago the South transmission system was reconfigured to end at Waitangirua, some 7.7 km north of Tawa. Since then the section of the original (200 mm) transmission pipeline from Waitangirua to Tawa has operated at a nominal pressure of 19bar. Factors for Tawa A and B, respectively, therefore technically apply at Waitangirua.

#### *Frankley Rd to Kapuni System*

- A fixed pressure of 44 bar g was assumed to be available from the Maui pipeline at the Frankley Rd Intake Point. This pressure is typical of pressure available from the Maui line, which operates to maintain a Taranaki target pressure between 42 and 48 bar g. Currently Derby Rd compressor station is not operational and will require significant work to enable it to be brought back to service.
- An additional criterion in all simulations was to maintain a minimum delivery pressure of 41 bar g to the Kapuni Gas Treatment Plant.

## **Further Disclosure Relating to Transmission Systems**

(Ref. Clause 5)

Throughputs for Offtake Points with a throughput less than 2,000 GJ in the system peak week were determined in the same way as those for Offtake Points with throughputs greater than 2,000 GJ. (See above.)

## **Critical Points of Transmission Systems**

(Ref. Clause 6 (2))

- During modelling pursuant to Clause 4 (4) (c) of the Regulations the critical point or section of each system constraining further increases in throughput at each Offtake Point was noted.
- For each Offtake Point in turn a reinforcement option was selected capable of removing the constraint. The appropriate Model files were then amended accordingly.
- For each Offtake Point in turn further simulations were carried out to determine the increased throughput deliverable from the reinforced

system. Essentially the same methodology as described earlier (see "Throughput Increase in System Peak Week (Ref. Clause 4 (4) (c))" above) was followed.

- In all simulations a fixed pressure was modelled at the Rotowaro, Pokuru, and Kapuni Intake Points, respectively. The throughput displayed by the Model for each of these Intake Points was noted. In the case of Rotowaro the *existing* flow into the Central (North) System was added to the *increased* flow into the North System. In the case of Kapuni the *existing* flow into the Central (South) System was added to the *increased* flow into the South System. Additional compression requirements (if any) were then calculated from the flow, suction and discharge pressure.
- Estimates of the cost to remove the constraint affecting each Offtake Point contained in Tables 6.1 to 6.6 were developed using historic average construction rates for pipelines and other facilities. Please note: on no account does Vector wish to imply that the means of increasing system capacity identified in these tables would necessarily be the optimum, taking into account the requirements of the system as a whole, or that Vector would necessarily employ such means. The costs are "order of magnitude" only; Vector does not warrant their accuracy.
- No account was taken of RMA-related issues in identifying means to remove constraints on the transmission system. Vector does not have any special rights of access to private land for the purposes of constructing new pipelines and related facilities.
- Values for the numerical factor by which the throughput of each Offtake Point could have been increased are set out in Tables 6.1 to 6.6 respectively, which were in all cases determined through further modelling.

## **Transient Flow (Capacity Simulation) Model**

(Ref. Clause 7 (2))

Modelling of pipeline systems undertaken pursuant to this disclosure was carried out using SynerGEE Gas version 4.4.2 software, written by Germanischer Lloyd Group. This new software replaced the previous Stoner Pipeline Simulator software during 2010.

A hard copy of the input data (a flow profile for each Offtake Point) is provided in Appendix 1 of this disclosure. This data will be provided on request in Microsoft Excel spreadsheet format.

## **8. GAS (CAPACITY) HELD OR RESERVED IN TRANSMISSION SYSTEMS** (Ref. Schedule 1 Part 5, Clause 8)

Tables 8.1 to 8.6, respectively, show transmission capacity information relating to Intake and Offtake Points on each pipeline for the first, third and fifth financial years after the financial year to which this report refers, as follows:

- Aggregate MDQ held or reserved at each Offtake Point for Vector-owned, and non-Vector companies, respectively.
- Aggregate MHQ held or reserved at each Offtake Point for Vector-owned and non-Vector companies, respectively. (*NB: Standard transmission contracts currently define MHQ as MDQ ÷ 16; non-standard contracts define the MHQ individually.*)
- Delivery pressures, where non-standard.

Data for standard transmission contracts has been extracted from OATIS. Data for non-standard contracts has been taken from the relevant non-standard contracts.

Shippers reserve capacity under standard transmission contracts annually prior to the start of the contract year. They are under no obligation to reserve the same capacity the following year. During any year a Shipper may also:

- (a) transfer capacity between Offtake Points;
- (b) trade capacity with other shippers (for periods as short as a day);
- (c) purchase additional capacity from Vector; and/or
- (d) apply to cancel capacity it no longer needs,

subject to the terms and conditions of the Vector Transmission Code.

While Vector's financial year ends on 30<sup>th</sup> June, the contract year for transmission services ends on 30<sup>th</sup> September annually. As at the date of this report shippers have not yet confirmed their capacity requirements for the next contract year. Therefore capacity held or reserved under both standard and non-standard transmission contracts in the next financial year has been taken as the actual capacity held or reserved by shippers as at the end of the financial year to which this report refers.

The same assumption has been made in respect of the third and the fifth financial years after the financial year to which this report refers.

**TABLE 8.1 NORTH TRANSMISSION SYSTEM CAPACITY RESERVATIONS**

Ref. Schedule 1 Part 5, Clause 8 (2)

| INTAKE POINT | OFFTAKE POINTS                 |            | y/e 30 June 2012       |                 | y/e 30 June 2014 |                 | y/e 30 June 2016 |                 | NON-STD DELIVERY PRESSURE |  |
|--------------|--------------------------------|------------|------------------------|-----------------|------------------|-----------------|------------------|-----------------|---------------------------|--|
|              |                                |            | CAPACITY RESERVED BY:  |                 |                  |                 |                  |                 |                           |  |
|              |                                |            | Vector                 | Others          | Vector           | Others          | Vector           | Others          |                           |  |
| Rotowaro     | <b>Over 2,000 GJ per week</b>  |            | - all numbers are GJ - |                 |                  |                 |                  |                 | <b>bar g</b>              |  |
|              | Drury 2                        | MDQ        | 800<br>50              | 108<br>7        | 800<br>50        | 108<br>7        | 800<br>50        | 108<br>7        |                           |  |
|              | Flat Bush                      | MDQ<br>MHQ | -<br>-                 | 1,826<br>114    | -<br>-           | 1,826<br>114    | -<br>-           | 1,826<br>114    |                           |  |
|              | Glenbrook                      | MDQ<br>MHQ | 7,650<br>478           | -<br>-          | 7,650<br>478     | -<br>-          | 7,650<br>478     | -<br>-          |                           |  |
| 2            | Greater Auckland               | MDQ<br>MHQ | 12,432<br>777          | 39,002<br>2,438 | 12,432<br>777    | 39,002<br>2,438 | 12,432<br>777    | 39,002<br>2,438 |                           |  |
|              | Harrisville                    | MDQ<br>MHQ | 1,600<br>100           | 16<br>1         | 1,600<br>100     | 16<br>1         | 1,600<br>100     | 16<br>1         |                           |  |
| 3            | Hunua                          | MDQ<br>MHQ | 140<br>9               | 2,154<br>135    | 140<br>9         | 2,154<br>135    | 140<br>9         | 2,154<br>135    |                           |  |
|              | Kauri DF & Maungaturoto DF     | MDQ<br>MHQ | 2,500<br>125           | -<br>-          | 2,500<br>125     | -<br>-          | 2,500<br>125     | -<br>-          |                           |  |
|              | Otahuhu B Power Station        | MDQ<br>MHQ | -<br>-                 | 60,000<br>2,727 | -<br>-           | 60,000<br>2,727 | -<br>-           | 60,000<br>2,727 | Nominal 48                |  |
|              | Southdown Power Station        | MDQ<br>MHQ | -<br>-                 | 37,800<br>1,784 | -<br>-           | 37,800<br>1,784 | -<br>-           | 37,800<br>1,784 | Minimum 49                |  |
|              | Tuakau                         | MDQ<br>MHQ | 240<br>15              | 680<br>43       | 240<br>15        | 680<br>43       | 240<br>15        | 680<br>43       |                           |  |
|              | Waitoki                        | MDQ<br>MHQ | -<br>-                 | 581<br>36       | -<br>-           | 581<br>36       | -<br>-           | 581<br>36       |                           |  |
|              | Warkworth                      | MDQ<br>MHQ | 1,750<br>73            | 86<br>5         | 1,750<br>73      | 86<br>5         | 1,750<br>73      | 86<br>5         |                           |  |
|              | Whangarei                      | MDQ<br>MHQ | 183<br>11              | 381<br>24       | 183<br>11        | 381<br>24       | 183<br>11        | 381<br>24       |                           |  |
|              | <b>TOTAL</b>                   | MDQ        | 27,295                 | 142,632         | 27,295           | 142,632         | 27,295           | 142,632         |                           |  |
|              |                                | MHQ        | 1,638                  | 7,313           | 1,638            | 7,313           | 1,638            | 7,313           |                           |  |
| 4            | <b>Under 2,000 GJ per week</b> | MDQ        | 380                    | 527             | 380              | 527             | 380              | 527             |                           |  |
|              |                                | MHQ        | 24                     | 33              | 24               | 33              | 24               | 33              |                           |  |

Notes:

- 1 Firm transmission capacity only: interruptible capacity excluded
- 2 Includes Bruce McLaren, Henderson, Papakura, Papakura 3 & Westfield
- 3 Includes Hunua, Hunua (Nova) & Hunua 3
- 4 Includes Alfriston, Drury 1, Kingseat, Marsden 1, Marsden 2, Maungaturoto DF, Oakleigh, Pukekohe, Ramarama & Wellsford

**TABLE 8.2 CENTRAL (NORTH) TRANSMISSION SYSTEM CAPACITY RESERVATIONS**

Ref. Schedule 1 Part 5, Clause 8 (2)

| INTAKE POINT                     | OFFTAKE POINTS                |            | y/e 30 June 2012       |        | y/e 30 June 2014 |        | y/e 30 June 2016 |        | NON-STD DELIVERY PRESSURE |  |
|----------------------------------|-------------------------------|------------|------------------------|--------|------------------|--------|------------------|--------|---------------------------|--|
|                                  |                               |            | CAPACITY RESERVED BY:  |        |                  |        |                  |        |                           |  |
|                                  |                               |            | Vector                 | Others | Vector           | Others | Vector           | Others |                           |  |
| Rotowaro                         | <b>Over 2,000 GJ per week</b> |            | - all numbers are GJ - |        |                  |        |                  |        | bar g<br>Nominal 22.5     |  |
|                                  | Cambridge                     | MDQ<br>MHQ | -                      | 2,315  | -                | 2,315  | -                | 2,315  |                           |  |
|                                  |                               |            | -                      | 145    | -                | 145    | -                | 145    |                           |  |
|                                  | 2 Greater Hamilton            | MDQ<br>MHQ | 1,600                  | 7,563  | 1,600            | 7,563  | 1,600            | 7,563  |                           |  |
|                                  |                               |            | 100                    | 473    | 100              | 473    | 100              | 473    |                           |  |
|                                  | Kiwitahi (Peroxide)           | MDQ<br>MHQ | -                      | 1,025  | -                | 1,025  | -                | 1,025  |                           |  |
|                                  |                               |            | -                      | 64     | -                | 64     | -                | 64     |                           |  |
|                                  | Morrinsville DF               | MDQ<br>MHQ | -                      | 1,780  | -                | 1,780  | -                | 1,780  |                           |  |
|                                  |                               |            | -                      | 111    | -                | 111    | -                | 111    |                           |  |
| Tatuanui DF                      | Tatuanui DF                   | MDQ<br>MHQ | -                      | 1,004  | -                | 1,004  | -                | 1,004  | Nominal 22.5              |  |
|                                  |                               |            | -                      | 63     | -                | 63     | -                | 63     |                           |  |
|                                  | Te Rapa Cogeneration          | MDQ<br>MHQ | -                      | 25,500 | -                | 25,500 | -                | 25,500 |                           |  |
|                                  |                               |            | -                      | 1,200  | -                | 1,200  | -                | 1,200  |                           |  |
|                                  | Waitoa                        | MDQ<br>MHQ | 142                    | 1,822  | 142              | 1,822  | 142              | 1,822  |                           |  |
|                                  |                               |            | 9                      | 125    | 9                | 125    | 9                | 125    |                           |  |
|                                  | <b>TOTAL</b>                  |            | MDQ                    | 1,742  | 41,009           | 1,742  | 41,009           | 1,742  | 41,009                    |  |
|                                  |                               |            | MHQ                    | 109    | 2,181            | 109    | 2,181            | 109    | 2,181                     |  |
| <b>3 Under 2,000 GJ per week</b> |                               |            | MDQ                    | 30     | 1,093            | 30     | 1,093            | 30     | 1,093                     |  |
|                                  |                               |            | MHQ                    | 2      | 68               | 2      | 68               | 2      | 68                        |  |

Notes:

1 Firm transmission capacity only: interruptible capacity excluded

2 Includes Hamilton Te Kowhai & Hamilton Temple View

3 Includes Horotiu, Kiwitahi 2, Matangi, Morrinsville

**TABLE 8.3 CENTRAL (SOUTH) TRANSMISSION SYSTEM CAPACITY RESERVATIONS**

Ref. Schedule 1 Part 5, Clause 8 (2)

| INTAKE POINT | OFFTAKE POINTS                 |     | y/e 30 June 2012          |        | y/e 30 June 2014 |        | y/e 30 June 2016 |        | NON-STD DELIVERY PRESSURE |  |
|--------------|--------------------------------|-----|---------------------------|--------|------------------|--------|------------------|--------|---------------------------|--|
|              |                                |     | CAPACITY RESERVED BY:     |        |                  |        |                  |        |                           |  |
|              |                                |     | Vector                    | Others | Vector           | Others | Vector           | Others |                           |  |
| Kapuni       | <b>Over 2,000 GJ per week</b>  |     | - all numbers are in GJ - |        |                  |        |                  |        | <b>bar g</b>              |  |
|              | Eltham                         | MDQ | 225                       | 439    | 225              | 439    | 225              | 439    |                           |  |
|              |                                | MHQ | 14                        | 27     | 14               | 27     | 14               | 27     |                           |  |
|              | New Plymouth                   | MDQ | 600                       | 3,041  | 600              | 3,041  | 600              | 3,041  |                           |  |
|              |                                | MHQ | 38                        | 190    | 38               | 190    | 38               | 190    |                           |  |
|              | Stratford                      | MDQ | -                         | 343    | -                | 343    | -                | 343    |                           |  |
|              |                                | MHQ | -                         | 21     | -                | 21     | -                | 21     |                           |  |
|              | Waitara                        | MDQ | 90                        | 377    | 90               | 377    | 90               | 377    |                           |  |
|              |                                | MHQ | 6                         | 24     | 6                | 24     | 6                | 24     |                           |  |
|              | <b>TOTAL</b>                   | MDQ | 915                       | 4,200  | 915              | 4,200  | 915              | 4,200  |                           |  |
|              |                                | MHQ | 57                        | 263    | 57               | 263    | 57               | 263    |                           |  |
| 2            | <b>Under 2,000 GJ per week</b> | MDQ | -                         | 154    | -                | 154    | -                | 154    |                           |  |
|              |                                | MHQ | -                         | 10     | -                | 10     | -                | 10     |                           |  |

Notes:

1 Firm transmission capacity only: interruptible capacity excluded

2 Includes Inglewood & Kaponga

**TABLE 8.4 BAY of PLENTY TRANSMISSION SYSTEM CAPACITY RESERVATIONS**

Ref. Schedule 1 Part 5, Clause 8 (2)

| INTAKE POINT          | OFFTAKE POINTS                 |  | y/e 30 June 2012          |            | y/e 30 June 2014        |                         | y/e 30 June 2016        |                         | NON-STD DELIVERY PRESSURE |                       |
|-----------------------|--------------------------------|--|---------------------------|------------|-------------------------|-------------------------|-------------------------|-------------------------|---------------------------|-----------------------|
|                       |                                |  | CAPACITY RESERVED BY:     |            |                         |                         |                         |                         |                           |                       |
|                       |                                |  | Vector                    | Others     | Vector                  | Others                  | Vector                  | Others                  |                           |                       |
| Pokuru 1,<br>Pokuru 2 | <b>Over 2,000 GJ per week</b>  |  | - all numbers are in GJ - |            |                         |                         |                         |                         | <b>bar g</b>              |                       |
|                       |                                |  | Edgecumbe DF              | MDQ<br>MHQ | -<br>-<br>2,010<br>126  | -<br>-<br>1,255<br>78   | -<br>-<br>1,555<br>83   | -<br>-<br>1,255<br>78   | 2,010<br>126              |                       |
|                       |                                |  | Gisborne                  | MDQ<br>MHQ | 1,555<br>83             | 1,255<br>78             | 1,555<br>83             | 1,255<br>78             | 1,555<br>83               |                       |
|                       |                                |  | 2  Greater Mt Maunganui   | MDQ<br>MHQ | 55<br>3                 | 2,616<br>163            | 55<br>3                 | 2,616<br>163            | 55<br>3                   |                       |
|                       |                                |  | 3  Greater Tauranga       | MDQ<br>MHQ | 250<br>16               | 959<br>60               | 250<br>16               | 959<br>60               | 250<br>16                 |                       |
|                       |                                |  | Kawerau (ex-Caxton)       | MDQ<br>MHQ | 1,940<br>121            | -<br>-<br>1,940<br>121  | -<br>-<br>1,940<br>121  | -<br>-<br>1,940<br>121  | -<br>-<br>-               |                       |
|                       |                                |  | Kawerau (ex-Tasman)       | MDQ<br>MHQ | 1,813<br>113            | -<br>-<br>1,813<br>113  | -<br>-<br>1,813<br>113  | -<br>-<br>1,813<br>113  | -<br>-<br>-               |                       |
|                       |                                |  | Kinleith (paper mill)     | MDQ<br>MHQ | 13,218<br>826           | -<br>-<br>13,218<br>826 | -<br>-<br>13,218<br>826 | -<br>-<br>13,218<br>826 | -<br>-<br>-               |                       |
|                       |                                |  | Lichfield DF              | MDQ<br>MHQ | -<br>-<br>588<br>37     | -<br>-<br>588<br>37     | -<br>-<br>588<br>37     | -<br>-<br>588<br>37     | -<br>-<br>588<br>37       |                       |
|                       |                                |  | Reporoa                   | MDQ<br>MHQ | -<br>-<br>1,085<br>68   | -<br>-<br>1,085<br>68   | -<br>-<br>1,085<br>68   | -<br>-<br>1,085<br>68   | -<br>-<br>1,085<br>68     |                       |
|                       |                                |  | Rotorua                   | MDQ<br>MHQ | 450<br>28               | 1,512<br>94             | 450<br>28               | 1,512<br>94             | 450<br>28                 |                       |
|                       |                                |  | Tirau DF                  | MDQ<br>MHQ | -<br>-<br>81<br>5       | -<br>-<br>81<br>5       | -<br>-<br>81<br>5       | -<br>-<br>81<br>5       | -<br>-<br>81<br>5         |                       |
|                       |                                |  | Whakatane                 | MDQ<br>MHQ | 2,394<br>150            | 202<br>13               | 2,394<br>150            | 202<br>13               | 2,394<br>150              | 202<br>13             |
|                       |                                |  | <b>TOTAL</b>              | MDQ<br>MHQ | <b>21,676<br/>1,341</b> | <b>10,308<br/>644</b>   | <b>21,676<br/>1,341</b> | <b>10,308<br/>644</b>   | <b>21,676<br/>1,341</b>   | <b>10,308<br/>644</b> |
| 4                     | <b>Under 2,000 GJ per week</b> |  | MDQ                       | 1,629      | 3,978                   | 1,629                   | 3,978                   | 1,629                   | 3,978                     |                       |
|                       |                                |  | MHQ                       | 82         | 249                     | 82                      | 249                     | 82                      | 249                       |                       |

Notes:

- 1 Firm transmission capacity only: interruptible capacity excluded
- 2 Includes Mt Maunganui & Papamoa
- 3 Includes Pyes Pa & Tauranga
- 4 Includes Broadlands, Edgecumbe, Kawerau, Kihikihi, Kinleith, Okoroire Springs, Opotiki, Putaruru, Rangiuru, Taupo, Te Puke, Te Teko, Tirau, Tokoroa & Waikeria

**TABLE 8.5 FRANKLEY RD TRANSMISSION SYSTEM CAPACITY RESERVATIONS**

Ref. Schedule 1 Part 5, Clause 8 (2)

| INTAKE POINT                                  | OFFTAKE POINTS          |            | y/e 30 June 2012           | y/e 30 June 2014           | y/e 30 June 2016           | NON-STD DELIVERY PRESSURE  |                            |            |       |
|---|-------------------------|------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------|-------|
|   |                         |            | CAPACITY RESERVED BY:      |                            |                            |                            |                            |            |       |
|   |                         |            | Vector                     | Others                     | Vector                     | Others                     | Vector                     |            |       |
| Frankley Rd,<br>Kupe, Kaimiro,<br>TAW, Kapuni | Over 2,000 GJ per week  |            | - all numbers are in GJ -  |                            |                            |                            |                            |            | bar g |
| 2   | Ammonia-Urea Plant      | MDQ<br>MHQ | -<br>-<br>22,500<br>1,010  | -<br>-<br>22,500<br>1,010  | -<br>-<br>22,500<br>1,010  | -<br>-<br>22,500<br>1,010  | -<br>-<br>22,500<br>1,010  |            |       |
|   | Kapuni GTP              | MDQ<br>MHQ | -<br>-<br>35,958<br>1,935  | -<br>-<br>35,958<br>1,935  | -<br>-<br>35,958<br>1,935  | -<br>-<br>35,958<br>1,935  | -<br>-<br>35,958<br>1,935  |            |       |
|   | Stratford 2             | MDQ<br>MHQ | -<br>-<br>50,000<br>2,500  | -<br>-<br>50,000<br>2,500  | -<br>-<br>50,000<br>2,500  | -<br>-<br>50,000<br>2,500  | -<br>-<br>50,000<br>2,500  |            |       |
|   | TCC Powerstation        | MDQ<br>MHQ | -<br>-<br>64,000<br>2,840  | -<br>-<br>64,000<br>2,840  | -<br>-<br>64,000<br>2,840  | -<br>-<br>64,000<br>2,840  | -<br>-<br>64,000<br>2,840  | Nominal 31 |       |
|   | TOTAL                   | MDQ<br>MHQ | -<br>-<br>172,458<br>8,285 | -<br>-<br>172,458<br>8,285 | -<br>-<br>172,458<br>8,285 | -<br>-<br>172,458<br>8,285 | -<br>-<br>172,458<br>8,285 |            |       |
|   |                         |            |                            |                            |                            |                            |                            |            |       |
| 3   | Under 2,000 GJ per week | MDQ        | -                          | 175,179                    | -                          | 175,179                    | -                          | 175,179    |       |
|   |                         | MHQ        | -                          | 7,886                      | -                          | 7,886                      | -                          | 7,886      |       |

## Notes:

- 1 Firm transmission capacity only: interruptible capacity excluded
  - 2 Includes Ballance 8201 & Ballance 9626
  - 3 Includes Frankley Road-B1, Kapuni Lactose, Kupe & Stratford 3

**TABLE 8.6 SOUTH TRANSMISSION SYSTEM CAPACITY RESERVATIONS**

Ref. Schedule 1 Part 5, Clause 8 (2)

| INTAKE POINT    | OFFTAKE POINTS                 |            | y/e 30 June 2012            | y/e 30 June 2014              | y/e 30 June 2016            | NON-STD DELIVERY PRESSURE     |                             |
|-----------------|--------------------------------|------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|-----------------------------|
|                 |                                |            | CAPACITY RESERVED BY:       |                               |                             |                               |                             |
|                 |                                |            | Vector                      | Others                        | Vector                      | Others                        | Vector                      |
| Kapuni & Mokoia | <b>Over 2,000 GJ per week</b>  |            | - all numbers are in GJ -   |                               |                             |                               | <b>bar g</b>                |
|                 | Belmont                        | MDQ<br>MHQ | 785<br>49                   | 6,306<br>394                  | 785<br>49                   | 6,306<br>394                  | 785<br>49                   |
|                 | Feilding                       | MDQ<br>MHO | 11<br>1                     | 867<br>54                     | 11<br>1                     | 867<br>54                     | 11<br>1                     |
|                 | 2 Greater Waitangirua          | MDQ<br>MHQ | 120<br>8                    | 1,323<br>83                   | 120<br>8                    | 1,323<br>83                   | 120<br>8                    |
|                 | 3 Hastings                     | MDQ<br>MHQ | 5,942<br>372                | 6,048<br>378                  | 5,942<br>372                | 6,048<br>378                  | 5,942<br>372                |
|                 | 4 Hawera                       | MDQ<br>MHO | 835<br>52                   | 1,060<br>66                   | 835<br>52                   | 1,060<br>66                   | 835<br>52                   |
|                 | Levin                          | MDQ<br>MHQ | 404<br>25                   | 1,127<br>70                   | 404<br>25                   | 1,127<br>70                   | 404<br>25                   |
|                 | Longburn                       | MDQ<br>MHQ | 356<br>22                   | 499<br>31                     | 356<br>22                   | 499<br>31                     | 356<br>22                   |
|                 | Marton                         | MDQ<br>MHO | 721<br>45                   | 288<br>18                     | 721<br>45                   | 288<br>18                     | 721<br>45                   |
|                 | Okaiawa                        | MDQ<br>MHQ | -<br>-                      | 1,680<br>70                   | -<br>-                      | 1,680<br>70                   | -<br>-                      |
|                 | Pahiatua                       | MDQ<br>MHQ | 842<br>53                   | 44<br>3                       | 842<br>53                   | 44<br>3                       | 842<br>53                   |
|                 | Palmerston North               | MDQ<br>MHO | 849<br>53                   | 4,009<br>251                  | 849<br>53                   | 4,009<br>251                  | 849<br>53                   |
|                 | Paraparaumu                    | MDQ<br>MHQ | 40<br>3                     | 633<br>40                     | 40<br>3                     | 633<br>40                     | 40<br>3                     |
|                 | Takapau                        | MDQ<br>MHQ | -<br>-                      | 590<br>37                     | -<br>-                      | 590<br>37                     | -<br>-                      |
|                 | 5 Tawa                         | MDQ<br>MHO | 1,150<br>72                 | 11,803<br>738                 | 1,150<br>72                 | 11,803<br>738                 | 1,150<br>72                 |
|                 | Waikanae                       | MDQ<br>MHQ | -<br>-                      | 256<br>16                     | -<br>-                      | 256<br>16                     | -<br>-                      |
|                 | Wanganui                       | MDQ<br>MHQ | 100<br>6                    | 4,649<br>291                  | 100<br>6                    | 4,649<br>291                  | 100<br>6                    |
|                 | <b>TOTAL</b>                   | MDQ<br>MHQ | <b>12,156</b><br><b>760</b> | <b>41,182</b><br><b>2,539</b> | <b>12,156</b><br><b>760</b> | <b>41,182</b><br><b>2,539</b> | <b>12,156</b><br><b>760</b> |
| 6               | <b>Under 2,000 GJ per week</b> |            | MDQ<br>MHQ                  | 626<br>39                     | 2,011<br>126                | 626<br>39                     | 2,011<br>126                |

Notes:

- 1 Firm transmission capacity only: interruptible capacity excluded
- 2 Includes Waitangirua & Pauatahanui 1
- 3 Hastings includes Hastings (Nova)
- 4 Hawera includes Hawera (Nova)
- 5 Tawa includes Tawa A and Tawa B (Nova)
- 6 Includes Ashhurst, Dannevirke, Flockhouse, Foxton, Kairanga, Kaitoke, Kakariki, Kuku, Lake Alice, Manaia, Mangaroa, Mangatainoka, Matapu, Mokoia, Oroua Downs, Otaki, Pahiatua, Patea, Pauatahanui 2, Te Horo, Waikanae, Waitotara & Waverley

## **APPENDIX 1**

### **FLOW PROFILES**

Note: All figures are in standard cubic meters.

## BAY OF PLENTY SYSTEM

| Date        | Time  | Broadlands | Edgecumbe | Edgecumbe DF | Gisborne | Kawerau (Carton) | Kawerau (Tasman) | Kihikihi | Kinleith (CHH Mill) | Lichfield DF | Mt Maunganui | Opotiki | Papamoa | Putaruru | Ryes Pa Dp | Rangiora | Reporoa | Rotorua | Taupo | Tauranga | Te Puke | Tirau | Tirau DF | Tokoroa | Walkeria | Whakatane | Kawerau | Te Teko | Okorotere Springs |   |
|-------------|-------|------------|-----------|--------------|----------|------------------|------------------|----------|---------------------|--------------|--------------|---------|---------|----------|------------|----------|---------|---------|-------|----------|---------|-------|----------|---------|----------|-----------|---------|---------|-------------------|---|
| 07 Nov 2011 | 1:00  | 0          | 5090      | 357          | 521      | 1705             | 42               | 10851    | 1853                | 1216         | 0            | 192     | 136     | 123      | 95         | 2505     | 582     | 77      | 136   | 124      | 12      | 0     | 1303     | 59      | 21       | 2208      | 10      | 0       | 2                 |   |
| 07 Nov 2011 | 2:00  | 65         | 0         | 5030         | 338      | 523              | 1705             | 40       | 10288               | 10           | 2118         | 1376    | 0       | 210      | 168        | 123      | 508     | 2530    | 618   | 97       | 146     | 11    | 0        | 1355    | 36       | 20        | 2155    | 0       | 0                 | 2 |
| 07 Nov 2011 | 3:00  | 156        | 0         | 5026         | 358      | 513              | 1710             | 50       | 9578                | 10           | 1882         | 1635    | 0       | 191      | 179        | 123      | 333     | 2531    | 672   | 97       | 190     | 24    | 0        | 1217    | 47       | 21        | 2354    | 10      | 0                 | 2 |
| 07 Nov 2011 | 4:00  | 166        | 0         | 5043         | 412      | 523              | 1718             | 68       | 10430               | 10           | 1962         | 1714    | 0       | 225      | 167        | 128      | 225     | 2602    | 960   | 151      | 298     | 23    | 23       | 1059    | 59       | 21        | 2197    | 9       | 0                 | 2 |
| 07 Nov 2011 | 5:00  | 179        | 0         | 5064         | 524      | 532              | 1708             | 117      | 9455                | 10           | 1976         | 1854    | 0       | 379      | 262        | 213      | 397     | 2597    | 1426  | 324      | 650     | 68    | 23       | 965     | 275      | 34        | 2395    | 31      | 0                 | 2 |
| 07 Nov 2011 | 6:00  | 200        | 0         | 5062         | 728      | 515              | 1705             | 211      | 8621                | 48           | 2154         | 2251    | 19      | 428      | 387        | 276      | 2577    | 1918    | 531   | 967      | 88      | 33    | 1521     | 419     | 45       | 2444      | 39      | 0       | 2                 |   |
| 07 Nov 2011 | 7:00  | 272        | 4         | 4652         | 1007     | 514              | 1691             | 228      | 7503                | 52           | 2154         | 2370    | 19      | 428      | 387        | 196      | 442     | 2395    | 1571  | 467      | 806     | 76    | 22       | 1691    | 480      | 64        | 2306    | 39      | 0                 | 2 |
| 07 Nov 2011 | 8:00  | 275        | 0         | 4490         | 872      | 555              | 1680             | 178      | 7900                | 14           | 1922         | 2189    | 0       | 376      | 244        | 196      | 442     | 2395    | 1571  | 467      | 806     | 76    | 22       | 1691    | 480      | 64        | 2306    | 39      | 0                 | 2 |
| 07 Nov 2011 | 9:00  | 284        | 0         | 4296         | 906      | 518              | 1696             | 150      | 8030                | 28           | 1640         | 2591    | 0       | 324      | 338        | 174      | 439     | 2201    | 1355  | 365      | 674     | 53    | 22       | 1403    | 353      | 58        | 2101    | 18      | 0                 | 2 |
| 07 Nov 2011 | 10:00 | 279        | 0         | 4367         | 753      | 526              | 1697             | 141      | 9117                | 19           | 1625         | 2369    | 17      | 292      | 286        | 153      | 374     | 2180    | 1234  | 288      | 640     | 54    | 23       | 1393    | 363      | 66        | 2480    | 9       | 0                 | 2 |
| 07 Nov 2011 | 11:00 | 279        | 0         | 4617         | 919      | 521              | 1688             | 122      | 7985                | 18           | 1772         | 2467    | 0       | 309      | 253        | 141      | 374     | 2325    | 1215  | 304      | 608     | 64    | 22       | 1401    | 330      | 67        | 2409    | 18      | 0                 | 2 |
| 07 Nov 2011 | 12:00 | 280        | 4         | 4861         | 826      | 533              | 1671             | 113      | 6044                | 27           | 1806         | 2487    | 0       | 272      | 166        | 135      | 384     | 2249    | 1106  | 269      | 608     | 53    | 10       | 1381    | 341      | 62        | 1050    | 9       | 0                 | 2 |
| 07 Nov 2011 | 13:00 | 283        | 0         | 4872         | 881      | 566              | 1679             | 93       | 7694                | 4            | 1869         | 2228    | 17      | 274      | 316        | 125      | 414     | 2334    | 1016  | 232      | 598     | 42    | 22       | 1276    | 298      | 62        | 1500    | 17      | 0                 | 2 |
| 07 Nov 2011 | 14:00 | 279        | 0         | 4783         | 809      | 554              | 1679             | 93       | 7554                | 5            | 2141         | 2131    | 0       | 258      | 244        | 143      | 128     | 2342    | 995   | 215      | 531     | 31    | 23       | 1379    | 256      | 66        | 2136    | 9       | 0                 | 2 |
| 07 Nov 2011 | 15:00 | 279        | 0         | 4591         | 697      | 495              | 1674             | 66       | 7843                | 0            | 1992         | 2173    | 0       | 242      | 314        | 120      | 272     | 2390    | 887   | 216      | 443     | 43    | 22       | 1359    | 277      | 62        | 2357    | 28      | 0                 | 2 |
| 07 Nov 2011 | 16:00 | 265        | 0         | 4605         | 624      | 479              | 1683             | 94       | 10614               | 53           | 1892         | 1697    | 0       | 255      | 329        | 120      | 308     | 2444    | 869   | 274      | 465     | 42    | 22       | 1235    | 267      | 49        | 2374    | 18      | 0                 | 2 |
| 07 Nov 2011 | 17:00 | 209        | 0         | 4632         | 661      | 485              | 1681             | 141      | 7458                | 18           | 2067         | 1814    | 18      | 292      | 309        | 117      | 418     | 2454    | 851   | 326      | 443     | 53    | 22       | 1352    | 256      | 32        | 2236    | 28      | 0                 | 2 |
| 07 Nov 2011 | 18:00 | 96         | 0         | 4796         | 702      | 483              | 1696             | 150      | 7882                | 59           | 1888         | 1735    | 0       | 326      | 316        | 123      | 361     | 2448    | 836   | 391      | 498     | 53    | 22       | 1531    | 226      | 29        | 2196    | 18      | 0                 | 2 |
| 07 Nov 2011 | 19:00 | 0          | 5         | 4924         | 666      | 506              | 1707             | 160      | 7207                | 51           | 1752         | 1517    | 18      | 326      | 347        | 125      | 338     | 2386    | 851   | 364      | 497     | 66    | 11       | 1607    | 290      | 32        | 1991    | 29      | 0                 | 2 |
| 07 Nov 2011 | 20:00 | 0          | 4         | 4817         | 630      | 513              | 1723             | 143      | 7064                | 52           | 1726         | 1478    | 0       | 308      | 366        | 123      | 369     | 2503    | 924   | 292      | 453     | 54    | 11       | 1607    | 120      | 21        | 2220    | 19      | 0                 | 2 |
| 07 Nov 2011 | 21:00 | 0          | 5         | 4705         | 538      | 512              | 1714             | 115      | 6917                | 33           | 2092         | 1457    | 19      | 274      | 359        | 118      | 381     | 2412    | 799   | 236      | 354     | 44    | 0        | 1364    | 78       | 24        | 2129    | 19      | 0                 | 2 |
| 07 Nov 2011 | 22:00 | 0          | 4         | 4814         | 447      | 510              | 1722             | 87       | 6232                | 10           | 1914         | 1358    | 0       | 241      | 337        | 120      | 338     | 2398    | 674   | 147      | 266     | 34    | 0        | 1439    | 69       | 21        | 2114    | 19      | 0                 | 2 |
| 07 Nov 2011 | 23:00 | 0          | 5         | 5007         | 373      | 510              | 1716             | 49       | 7899                | 10           | 2255         | 1298    | 0       | 190      | 316        | 120      | 337     | 2302    | 565   | 112      | 156     | 11    | 0        | 1409    | 23       | 17        | 1761    | 9       | 0                 | 2 |
| 8 Nov 2011  | 0:00  | 0          | 4         | 4976         | 337      | 494              | 1710             | 39       | 11209               | 10           | 2032         | 1237    | 0       | 190      | 307        | 115      | 356     | 2380    | 510   | 77       | 145     | 23    | 0        | 1524    | 36       | 16        | 1046    | 10      | 0                 | 2 |
| 8 Nov 2011  | 1:00  | 0          | 5         | 4815         | 356      | 496              | 1690             | 49       | 11226               | 10           | 2067         | 1199    | 0       | 158      | 306        | 122      | 111     | 2466    | 512   | 58       | 124     | 11    | 0        | 1468    | 24       | 17        | 877     | 19      | 0                 | 2 |
| 8 Nov 2011  | 2:00  | 0          | 4         | 4884         | 375      | 443              | 1689             | 59       | 11639               | 10           | 1935         | 1278    | 0       | 174      | 308        | 122      | 170     | 2469    | 564   | 77       | 112     | 0     | 0        | 1512    | 24       | 16        | 743     | 9       | 0                 | 2 |
| 8 Nov 2011  | 3:00  | 0          | 5         | 4804         | 337      | 394              | 1685             | 60       | 10953               | 10           | 1960         | 1699    | 0       | 191      | 308        | 122      | 156     | 2459    | 547   | 77       | 135     | 11    | 0        | 1100    | 36       | 17        | 614     | 0       | 0                 | 2 |
| 8 Nov 2011  | 4:00  | 0          | 4853      | 376          | 503      | 1685             | 69               | 10003    | 5                   | 1632         | 1737         | 0       | 209     | 298      | 122        | 169      | 2541    | 619     | 77    | 156      | 12      | 0     | 997      | 24      | 12       | 1098      | 10      | 0       | 2                 |   |
| 8 Nov 2011  | 5:00  |            |           |              |          |                  |                  |          |                     |              |              |         |         |          |            |          |         |         |       |          |         |       |          |         |          |           |         |         |                   |   |

## BAY OF PLENTY SYSTEM

| Date        | Time  | Broadlands | Edgecumbe | Edgecumbe DF | Gisborne | Kawerau (CastTop) | Kawerau (Tasman) | Kihikihi | Kinleith (CHH Mill) | Lichfield Df | Mt Maunganui | Opotiki | Papamoa | Putaruru | Ryes Pa Dp | Rangiora | Reporoa | Rotorua | Taupo | Tauranga | Te Puke | Tirau | Tirau DF | Tokoroa | Walkeria | Whakatane | Kawerau | Te Teko | Okorotere Springs |   |
|-------------|-------|------------|-----------|--------------|----------|-------------------|------------------|----------|---------------------|--------------|--------------|---------|---------|----------|------------|----------|---------|---------|-------|----------|---------|-------|----------|---------|----------|-----------|---------|---------|-------------------|---|
| 10 Nov 2011 | 17:00 | 111        | 0         | 4723         | 856      | 533               | 1728             | 130      | 15804               | 1828         | 1680         | 18      | 292     | 292      | 133        | 343      | 2332    | 945     | 401   | 466      | 43      | 20    | 1329     | 270     | 36       | 2615      | 28      | 0       | 2                 |   |
| 10 Nov 2011 | 18:00 | 0          | 0         | 4799         | 1030     | 524               | 1739             | 141      | 17047               | 1844         | 1601         | 0       | 326     | 285      | 151        | 302      | 2285    | 892     | 382   | 565      | 75      | 32    | 1406     | 283     | 29       | 2418      | 29      | 0       | 2                 |   |
| 10 Nov 2011 | 19:00 | 0          | 4         | 4894         | 994      | 540               | 1699             | 124      | 18864               | 1930         | 1462         | 18      | 325     | 257      | 142        | 279      | 2305    | 911     | 312   | 541      | 66      | 11    | 1439     | 293     | 32       | 2562      | 29      | 0       | 2                 |   |
| 10 Nov 2011 | 20:00 | 0          | 0         | 4899         | 933      | 529               | 1720             | 116      | 20013               | 24           | 1620         | 1403    | 18      | 310      | 232        | 135      | 64      | 2362    | 1000  | 331      | 499     | 56    | 11       | 1460    | 166      | 25        | 2433    | 29      | 0                 | 2 |
| 10 Nov 2011 | 21:00 | 0          | 0         | 4853         | 1014     | 515               | 1724             | 77       | 16844               | 20           | 1990         | 1342    | 0       | 292      | 328        | 131      | 134     | 2383    | 875   | 276      | 377     | 68    | 0        | 1483    | 91       | 24        | 2423    | 20      | 0                 | 2 |
| 10 Nov 2011 | 22:00 | 0          | 0         | 4639         | 634      | 532               | 1718             | 70       | 15559               | 19           | 1930         | 1282    | 0       | 226      | 307        | 127      | 96      | 2347    | 586   | 113      | 512     | 115   | 11       | 1429    | 293      | 17        | 2459    | 20      | 0                 | 2 |
| 10 Nov 2011 | 23:00 | 0          | 0         | 4900         | 541      | 556               | 1758             | 41       | 16810               | 20           | 1977         | 1181    | 0       | 175      | 304        | 127      | 71      | 2469    | 583   | 96       | 157     | 11    | 0        | 1389    | 36       | 17        | 1364    | 10      | 0                 | 2 |
| 11 Nov 2011 | 0:00  | 0          | 0         | 4969         | 504      | 550               | 1761             | 33       | 18589               | 15           | 1873         | 1180    | 20      | 140      | 214        | 123      | 106     | 2363    | 512   | 115      | 146     | 12    | 0        | 1494    | 47       | 13        | 2440    | 10      | 0                 | 2 |
| 11 Nov 2011 | 1:00  | 0          | 0         | 4985         | 413      | 543               | 1750             | 34       | 19701               | 19           | 1887         | 1200    | 0       | 142      | 192        | 123      | 75      | 2303    | 512   | 77       | 125     | 11    | 0        | 1452    | 35       | 17        | 2366    | 9       | 0                 | 2 |
| 11 Nov 2011 | 2:00  | 15         | 0         | 5013         | 469      | 536               | 1730             | 12       | 16826               | 15           | 1830         | 1199    | 0       | 141      | 192        | 123      | 103     | 2428    | 476   | 96       | 136     | 11    | 0        | 1538    | 36       | 20        | 2331    | 0       | 0                 | 2 |
| 11 Nov 2011 | 3:00  | 165        | 0         | 4957         | 542      | 537               | 1716             | 35       | 16241               | 25           | 2005         | 1558    | 0       | 159      | 203        | 123      | 47      | 2413    | 512   | 97       | 125     | 11    | 0        | 1464    | 35       | 17        | 2175    | 10      | 0                 | 2 |
| 11 Nov 2011 | 4:00  | 152        | 0         | 4911         | 523      | 512               | 1721             | 44       | 16659               | 117          | 2116         | 1797    | 0       | 158      | 276        | 124      | 71      | 2469    | 583   | 96       | 157     | 11    | 0        | 1389    | 36       | 17        | 1364    | 10      | 0                 | 2 |
| 11 Nov 2011 | 5:00  | 138        | 0         | 5037         | 561      | 511               | 1718             | 99       | 16960               | 84           | 2062         | 1779    | 0       | 192      | 287        | 123      | 88      | 2573    | 709   | 113      | 266     | 24    | 22       | 1317    | 60       | 17        | 963     | 0       | 0                 | 2 |
| 11 Nov 2011 | 6:00  | 223        | 5         | 4916         | 748      | 541               | 1719             | 184      | 17078               | 38           | 1950         | 2037    | 51      | 363      | 285        | 177      | 270     | 2516    | 1176  | 308      | 639     | 57    | 23       | 1137    | 268      | 29        | 1608    | 20      | 0                 | 2 |
| 11 Nov 2011 | 7:00  | 196        | 0         | 4867         | 1202     | 541               | 1708             | 229      | 17335               | 33           | 1843         | 2136    | 100     | 411      | 317        | 233      | 380     | 2457    | 1573  | 502      | 893     | 87    | 33       | 1513    | 389      | 50        | 2537    | 29      | 0                 | 2 |
| 11 Nov 2011 | 8:00  | 236        | 0         | 4723         | 1657     | 565               | 1692             | 171      | 16788               | 78           | 1684         | 2391    | 100     | 393      | 295        | 186      | 377     | 2513    | 1307  | 456      | 784     | 76    | 22       | 1526    | 375      | 63        | 2293    | 29      | 0                 | 2 |
| 11 Nov 2011 | 9:00  | 240        | 0         | 4352         | 1196     | 543               | 1687             | 131      | 12639               | 147          | 2176         | 2015    | 98      | 322      | 314        | 155      | 353     | 2431    | 1127  | 382      | 620     | 65    | 32       | 1621    | 354      | 62        | 2444    | 29      | 0                 | 2 |
| 11 Nov 2011 | 10:00 | 197        | 0         | 4468         | 1205     | 524               | 1683             | 111      | 11806               | 95           | 1962         | 1975    | 67      | 274      | 266        | 138      | 2275    | 1072    | 328   | 608      | 64      | 22    | 1369     | 311     | 56       | 2495      | 18      | 0       | 2                 |   |
| 11 Nov 2011 | 11:00 | 287        | 0         | 3989         | 1245     | 539               | 1676             | 119      | 17377               | 46           | 2055         | 1996    | 17      | 275      | 287        | 132      | 283     | 2408    | 1124  | 344      | 587     | 64    | 11       | 1397    | 307      | 56        | 2376    | 18      | 0                 | 2 |
| 11 Nov 2011 | 12:00 | 286        | 0         | 4101         | 1107     | 521               | 1684             | 73       | 17824               | 61           | 1873         | 1895    | 0       | 258      | 275        | 131      | 313     | 2341    | 1072  | 325      | 608     | 42    | 22       | 1367    | 304      | 58        | 2469    | 18      | 0                 | 2 |
| 11 Nov 2011 | 13:00 | 295        | 4         | 4497         | 1218     | 512               | 1691             | 82       | 18505               | 102          | 1801         | 1856    | 0       | 256      | 233        | 130      | 412     | 2211    | 963   | 292      | 565     | 42    | 11       | 1430    | 281      | 56        | 2424    | 17      | 0                 | 2 |
| 11 Nov 2011 | 14:00 | 295        | 0         | 4702         | 1049     | 532               | 1711             | 54       | 18639               | 32           | 1845         | 1837    | 18      | 223      | 215        | 111      | 405     | 2346    | 853   | 256      | 499     | 42    | 10       | 1347    | 280      | 53        | 2418    | 9       | 0                 | 2 |
| 11 Nov 2011 | 15:00 | 286        | 0         | 4701         | 1119     | 547               | 1710             | 82       | 24216               | 14           | 1851         | 1818    | 0       | 222      | 171        | 98       | 358     | 2440    | 725   | 255      | 432     | 32    | 0        | 1253    | 248      | 56        | 2310    | 18      | 0                 | 2 |
| 11 Nov 2011 | 16:00 | 238        | 0         | 4812         | 1008     | 548               | 1724             | 91       | 23672               | 0            | 1959         | 1879    | 17      | 258      | 169        | 102      | 379     | 2264    | 762   | 255      | 399     | 52    | 11       | 1306    | 269      | 40        | 2357    | 18      | 0                 | 2 |
| 11 Nov 2011 | 17:00 | 142        | 0         | 4839         | 986      | 530               | 1740             | 110      | 24662               | 0            | 1984         | 1657    | 0       | 294      | 175        | 108      | 309     | 2276    | 833   | 291      | 454     | 53    | 0        | 1368    | 270      | 28        | 2286    | 18      | 0                 | 2 |
| 11 Nov 2011 | 18:00 | 4          | 0         | 4800         | 1005     | 539               | 1755             | 112      | 28603               | 0            | 1973         | 1697    | 18      | 327      | 156        | 119      | 78      | 2200    | 779   | 290      | 487     | 53    | 11       | 1452    | 270      | 33        | 2215    | 28      | 0                 | 2 |
| 11 Nov 2011 | 19:00 | 0          | 0         | 4758         | 968      | 542               | 1757             | 114      | 24046               | 0            | 1843         | 1618    | 0       | 308      | 157        | 111      | 72      | 2186    | 851   | 310      | 476     | 55    | 11       | 1476    | 282      | 28        | 2177    | 29      | 0                 | 2 |
| 11 Nov 2011 | 20:00 | 0          | 0         | 4585         | 892      | 545               | 1767             | 107      | 23753               | 0            | 1848         | 1240    | 18      | 275      | 146        | 117      | 77      | 2493    | 978   | 293      | 453     | 55    | 0        | 1510    | 78       | 29</td    |         |         |                   |   |

## NORTH SYSTEM

| Date        | Time  | Alfriston | Bruce McLaren | Dairy | Flat Bush | Glenbrook | Harrisville | Henderson | Hunua | Kauri | Kingseat | Marsden | Maungaturoto DF | Otahuhu B | Papakura | Pukekohe | Ranarama | Southdown | Tuakau | Waitoki | Warkworth | Westfield | Whangarei | Wellsford |
|-------------|-------|-----------|---------------|-------|-----------|-----------|-------------|-----------|-------|-------|----------|---------|-----------------|-----------|----------|----------|----------|-----------|--------|---------|-----------|-----------|-----------|-----------|
| 15 Aug 2011 | 1:00  | 131       | 552           | 1745  | 707       | 4013      | 1447        | 1887      | 256   | 2524  | 5        | 5864    | 719             | 41481     | 12810    | 141      | 163      | 33072     | 530    | 156     | 584       | 10290     | 262       | 4         |
| 15 Aug 2011 | 2:00  | 96        | 492           | 1855  | 931       | 4107      | 1647        | 2382      | 217   | 2525  | 5        | 5611    | 703             | 41085     | 13026    | 121      | 198      | 21576     | 300    | 134     | 660       | 9746      | 250       | 4         |
| 15 Aug 2011 | 3:00  | 135       | 590           | 1898  | 795       | 4026      | 1455        | 2377      | 222   | 2579  | 6        | 5780    | 699             | 41067     | 13028    | 103      | 196      | 21056     | 8      | 134     | 741       | 9592      | 238       | 4         |
| 15 Aug 2011 | 4:00  | 110       | 588           | 1941  | 792       | 4100      | 2370        | 2902      | 314   | 2547  | 5        | 6346    | 717             | 41154     | 13227    | 119      | 164      | 26544     | 0      | 122     | 915       | 9825      | 251       | 4         |
| 15 Aug 2011 | 5:00  | 110       | 684           | 1905  | 897       | 4364      | 2465        | 3264      | 291   | 2599  | 5        | 6172    | 707             | 41085     | 13423    | 125      | 196      | 35072     | 9      | 122     | 899       | 11010     | 251       | 4         |
| 15 Aug 2011 | 6:00  | 131       | 839           | 1810  | 1109      | 3757      | 2369        | 4205      | 473   | 2750  | 0        | 6918    | 713             | 48095     | 14638    | 175      | 163      | 35136     | 87     | 155     | 1291      | 13951     | 435       | 4         |
| 15 Aug 2011 | 7:00  | 124       | 1256          | 2050  | 1688      | 3418      | 2461        | 6435      | 649   | 2643  | 5        | 7017    | 739             | 54280     | 16214    | 297      | 212      | 35160     | 291    | 494     | 1547      | 24679     | 560       | 4         |
| 15 Aug 2011 | 8:00  | 114       | 1673          | 1967  | 2030      | 4438      | 2675        | 9297      | 592   | 2767  | 15       | 7655    | 925             | 66068     | 17684    | 367      | 206      | 35200     | 199    | 870     | 1698      | 38666     | 882       | 4         |
| 15 Aug 2011 | 9:00  | 52        | 1817          | 1614  | 2167      | 6447      | 2483        | 10732     | 659   | 2657  | 11       | 6408    | 909             | 67196     | 18034    | 327      | 173      | 35336     | 215    | 854     | 1588      | 41343     | 894       | 4         |
| 15 Aug 2011 | 10:00 | 5         | 1748          | 1010  | 2033      | 5285      | 1860        | 10263     | 690   | 2619  | 5        | 6831    | 970             | 67402     | 17654    | 301      | 71       | 35384     | 164    | 666     | 1027      | 37551     | 832       | 4         |
| 15 Aug 2011 | 11:00 | 10        | 1675          | 954   | 2035      | 4377      | 2350        | 9442      | 713   | 2485  | 0        | 5753    | 941             | 65763     | 17444    | 313      | 23       | 35336     | 171    | 598     | 1347      | 35750     | 859       | 4         |
| 15 Aug 2011 | 12:00 | 5         | 1667          | 1158  | 1922      | 5201      | 2623        | 8858      | 781   | 1681  | 5        | 3661    | 836             | 47354     | 17677    | 361      | 100      | 34784     | 206    | 777     | 1090      | 34680     | 745       | 4         |
| 15 Aug 2011 | 13:00 | 0         | 1490          | 812   | 1918      | 7165      | 2149        | 8467      | 687   | 1666  | 0        | 4331    | 798             | 46779     | 16633    | 308      | 52       | 27176     | 153    | 533     | 1261      | 35214     | 685       | 4         |
| 15 Aug 2011 | 14:00 | 6         | 1463          | 818   | 1905      | 7235      | 2358        | 8281      | 668   | 2181  | 0        | 4793    | 899             | 46729     | 15827    | 288      | 22       | 21000     | 286    | 510     | 1236      | 34099     | 708       | 4         |
| 15 Aug 2011 | 15:00 | 0         | 1475          | 850   | 2029      | 5994      | 2236        | 7829      | 594   | 2639  | 0        | 4536    | 799             | 46698     | 16647    | 252      | 46       | 21104     | 391    | 514     | 1064      | 32950     | 671       | 4         |
| 15 Aug 2011 | 16:00 | 10        | 1287          | 816   | 2002      | 6147      | 2236        | 7413      | 618   | 2592  | 0        | 4166    | 787             | 53098     | 15839    | 193      | 62       | 20960     | 228    | 395     | 869       | 32994     | 610       | 4         |
| 15 Aug 2011 | 17:00 | 20        | 1260          | 825   | 1911      | 5890      | 2167        | 7535      | 640   | 2723  | 0        | 4906    | 767             | 67628     | 16046    | 218      | 51       | 22184     | 212    | 467     | 752       | 32972     | 635       | 4         |
| 15 Aug 2011 | 18:00 | 58        | 1373          | 947   | 2097      | 3929      | 1078        | 8015      | 605   | 2421  | 10       | 4040    | 777             | 67768     | 17403    | 237      | 106      | 35976     | 403    | 699     | 1189      | 36483     | 781       | 4         |
| 15 Aug 2011 | 19:00 | 82        | 1459          | 1468  | 1988      | 2968      | 305         | 9650      | 580   | 1747  | 11       | 3942    | 658             | 67694     | 18607    | 289      | 224      | 37192     | 384    | 942     | 681       | 40773     | 793       | 4         |
| 15 Aug 2011 | 20:00 | 118       | 1417          | 1437  | 2012      | 2272      | 339         | 10485     | 563   | 1811  | 15       | 3943    | 775             | 67732     | 18423    | 245      | 220      | 36968     | 328    | 996     | 655       | 40704     | 767       | 4         |
| 15 Aug 2011 | 21:00 | 147       | 1346          | 1967  | 1856      | 2098      | 1414        | 10708     | 629   | 1906  | 11       | 3942    | 648             | 67592     | 18401    | 290      | 232      | 36960     | 483    | 891     | 1057      | 38993     | 656       | 4         |
| 15 Aug 2011 | 22:00 | 107       | 1192          | 1890  | 1716      | 1755      | 1682        | 10337     | 581   | 1939  | 10       | 3788    | 603             | 67723     | 17591    | 245      | 235      | 30600     | 504    | 721     | 976       | 34022     | 545       | 4         |
| 15 Aug 2011 | 23:00 | 137       | 1011          | 1876  | 1565      | 1756      | 1871        | 8825      | 526   | 1766  | 11       | 3813    | 450             | 67097     | 16996    | 191      | 221      | 21648     | 619    | 455     | 1113      | 26062     | 408       | 4         |
| 15 Aug 2011 | 0:00  | 114       | 839           | 1932  | 1622      | 2091      | 2084        | 6284      | 618   | 2067  | 5        | 3617    | 399             | 64125     | 16206    | 162      | 209      | 16864     | 589    | 251     | 1065      | 19505     | 324       | 4         |
| 16 Aug 2011 | 1:00  | 134       | 800           | 2003  | 1392      | 2181      | 2384        | 4688      | 642   | 2759  | 6        | 3334    | 397             | 44716     | 16221    | 142      | 240      | 10528     | 599    | 176     | 1160      | 16138     | 297       | 4         |
| 16 Aug 2011 | 2:00  | 128       | 768           | 1953  | 1438      | 1570      | 2431        | 4377      | 568   | 2753  | 5        | 3262    | 486             | 41546     | 16191    | 141      | 226      | 10472     | 787    | 154     | 1128      | 14023     | 286       | 4         |
| 16 Aug 2011 | 3:00  | 109       | 755           | 1989  | 1414      | 1750      | 2564        | 3843      | 537   | 2781  | 11       | 4006    | 589             | 41650     | 15958    | 148      | 223      | 10480     | 662    | 145     | 1133      | 13853     | 272       | 4         |
| 16 Aug 2011 | 4:00  | 130       | 806           | 2074  | 1516      | 2005      | 2754        | 4101      | 562   | 2882  | 10       | 5189    | 711             | 41822     | 16353    | 136      | 234      | 10504     | 679    | 134     | 1042      | 14123     | 286       | 4         |
| 16 Aug 2011 | 5:00  | 130       | 916           | 2093  | 1483      | 1838      | 2780        | 4278      | 517   | 2866  | 11       | 5242    | 602             | 41839     | 16358    | 226      | 241      | 10536     | 782    | 134     | 1277      | 15636     | 297       | 4         |
| 16 Aug 2011 | 6:00  | 128       | 1085          | 2177  | 1628      | 1755      | 2620        | 5183      | 582   | 2778  | 11       | 5025    | 697             | 48909     | 17181    | 219      | 245      | 14760     | 653    | 188     | 1716      | 18548     | 458       | 4         |
| 16 Aug 2011 | 7:00  | 133       | 1476          | 2087  | 1977      | 1744      | 2703        | 7278      | 718   | 2887  | 11       | 4626    | 687             | 62501     | 18167    | 242      | 238      | 22584     | 619    | 584     | 1835      | 28722     | 655       | 4         |
| 16 Aug 2011 | 8:00  | 134       | 1876          | 1934  | 2008      | 2173      | 2535        | 10055     | 751   | 2689  | 10       | 3574    | 721             | 68317     | 19657    | 375      | 223      | 34616     | 544    | 918     | 1697      | 43115     | 989       | 4         |
| 16 Aug 2011 | 9:00  | 55        | 1939          |       |           |           |             |           |       |       |          |         |                 |           |          |          |          |           |        |         |           |           |           |           |

## NORTH SYSTEM

| Date        | Time  | Alfriston | Bruce McLaren | Drury | Flat Bush | Glenbrook | Harrisville | Henderson | Hunua | Kauri | Kingseat | Marsden | Maungaturoto DF | Otahuhu B | Papakura | Pukekohe | Ranarama | Southdown | Tuakau | Waitoki | Warkworth | Westfield | Whangarei | Wellsford |
|-------------|-------|-----------|---------------|-------|-----------|-----------|-------------|-----------|-------|-------|----------|---------|-----------------|-----------|----------|----------|----------|-----------|--------|---------|-----------|-----------|-----------|-----------|
| 17 Aug 2011 | 12:00 | 0         | 1674          | 554   | 2115      | 8671      | 2219        | 7627      | 1680  | 1835  | 0        | 0       | 1125            | 67048     | 11231    | 309      | 32       | 37776     | 434    | 1023    | 1276      | 41085     | 771       | 4         |
| 17 Aug 2011 | 13:00 | 5         | 1505          | 571   | 2119      | 9758      | 2125        | 6679      | 1633  | 884   | 0        | 0       | 1119            | 66988     | 9017     | 294      | 17       | 37664     | 229    | 909     | 1351      | 40755     | 760       | 4         |
| 17 Aug 2011 | 14:00 | 0         | 1509          | 389   | 2136      | 8680      | 2064        | 6123      | 1708  | 752   | 0        | 0       | 819             | 66923     | 8001     | 243      | 0        | 37664     | 270    | 360     | 1340      | 40205     | 760       | 4         |
| 17 Aug 2011 | 15:00 | 10        | 1441          | 536   | 2183      | 8775      | 2023        | 5557      | 1629  | 1512  | 0        | 0       | 791             | 66956     | 7154     | 252      | 10       | 37688     | 304    | 297     | 1307      | 38052     | 662       | 4         |
| 17 Aug 2011 | 16:00 | 5         | 1260          | 611   | 2239      | 8507      | 1923        | 5187      | 1649  | 2491  | 0        | 0       | 1095            | 66670     | 7546     | 217      | 11       | 37784     | 444    | 235     | 933       | 36410     | 610       | 4         |
| 17 Aug 2011 | 17:00 | 0         | 1250          | 636   | 2097      | 8757      | 1848        | 5610      | 1553  | 2541  | 0        | 0       | 1079            | 66048     | 8184     | 204      | 48       | 37288     | 560    | 363     | 634       | 36706     | 623       | 4         |
| 17 Aug 2011 | 18:00 | 30        | 1274          | 668   | 2112      | 8269      | 1260        | 6726      | 1654  | 2609  | 0        | 0       | 1188            | 65625     | 10789    | 228      | 79       | 37296     | 546    | 603     | 542       | 39313     | 759       | 4         |
| 17 Aug 2011 | 19:00 | 57        | 1380          | 728   | 1918      | 7051      | 806         | 8497      | 1588  | 2753  | 5        | 0       | 1421            | 60520     | 11813    | 271      | 177      | 38536     | 629    | 895     | 480       | 44241     | 807       | 4         |
| 17 Aug 2011 | 20:00 | 123       | 1311          | 1236  | 1960      | 6482      | 866         | 9342      | 1523  | 2963  | 11       | 0       | 1451            | 60552     | 12426    | 249      | 216      | 37368     | 562    | 930     | 481       | 44051     | 770       | 4         |
| 17 Aug 2011 | 21:00 | 140       | 1348          | 1382  | 1873      | 6556      | 882         | 9330      | 1457  | 2742  | 10       | 0       | 1399            | 63063     | 12642    | 269      | 226      | 37304     | 538    | 848     | 419       | 41145     | 683       | 4         |
| 17 Aug 2011 | 22:00 | 130       | 1195          | 1475  | 1759      | 9024      | 913         | 9316      | 1531  | 2679  | 6        | 0       | 1225            | 66147     | 12634    | 218      | 229      | 34424     | 588    | 690     | 417       | 38158     | 582       | 4         |
| 17 Aug 2011 | 23:00 | 126       | 1021          | 1475  | 1489      | 9754      | 1009        | 7975      | 1519  | 2781  | 5        | 0       | 1330            | 66127     | 11592    | 213      | 194      | 33176     | 555    | 454     | 492       | 31655     | 471       | 4         |
| 17 Aug 2011 | 0:00  | 103       | 873           | 1764  | 1643      | 10713     | 1334        | 5615      | 1450  | 2834  | 5        | 0       | 1383            | 51935     | 11190    | 165      | 203      | 33280     | 639    | 250     | 704       | 24340     | 347       | 4         |
| 18 Aug 2011 | 1:00  | 134       | 786           | 1874  | 1589      | 9857      | 1674        | 3635      | 1554  | 2729  | 6        | 1768    | 1334            | 41807     | 10628    | 149      | 231      | 33208     | 869    | 153     | 787       | 21456     | 310       | 4         |
| 18 Aug 2011 | 2:00  | 128       | 730           | 1953  | 1508      | 7664      | 1945        | 3066      | 1438  | 2829  | 5        | 2583    | 1328            | 41585     | 10388    | 141      | 239      | 33304     | 733    | 144     | 1126      | 20660     | 297       | 4         |
| 18 Aug 2011 | 3:00  | 105       | 779           | 1912  | 1521      | 7147      | 2158        | 2797      | 1512  | 2849  | 6        | 2421    | 1253            | 41564     | 10589    | 121      | 218      | 33232     | 800    | 122     | 1066      | 20476     | 286       | 4         |
| 18 Aug 2011 | 4:00  | 128       | 828           | 1964  | 1543      | 8779      | 2441        | 2819      | 1309  | 2694  | 5        | 2561    | 1197            | 41583     | 10800    | 113      | 242      | 33208     | 878    | 124     | 1099      | 20136     | 286       | 4         |
| 18 Aug 2011 | 5:00  | 130       | 909           | 2045  | 1511      | 11506     | 2738        | 3351      | 1347  | 2862  | 5        | 2478    | 1199            | 41534     | 10989    | 123      | 241      | 33248     | 669    | 112     | 1378      | 21241     | 298       | 4         |
| 18 Aug 2011 | 6:00  | 109       | 1079          | 2009  | 1293      | 11703     | 2648        | 4209      | 1389  | 2824  | 11       | 2558    | 986             | 48424     | 11592    | 189      | 244      | 33360     | 639    | 155     | 1760      | 24511     | 470       | 4         |
| 18 Aug 2011 | 7:00  | 133       | 1482          | 2061  | 1488      | 10737     | 2659        | 6734      | 1402  | 2892  | 5        | 2558    | 857             | 61203     | 13219    | 282      | 247      | 34608     | 538    | 607     | 1863      | 33835     | 655       | 4         |
| 18 Aug 2011 | 8:00  | 128       | 1883          | 1962  | 1646      | 10624     | 2569        | 9662      | 1467  | 2923  | 11       | 2595    | 755             | 67970     | 14669    | 352      | 232      | 36168     | 560    | 898     | 1796      | 46449     | 1066      | 4         |
| 18 Aug 2011 | 9:00  | 64        | 1835          | 1094  | 1859      | 9344      | 2147        | 10521     | 1343  | 2876  | 16       | 2489    | 834             | 67360     | 16877    | 322      | 124      | 37048     | 500    | 1227    | 851       | 47094     | 981       | 4         |
| 18 Aug 2011 | 10:00 | 5         | 1627          | 591   | 1875      | 7802      | 2228        | 9224      | 1486  | 2648  | 0        | 2350    | 1188            | 66397     | 15495    | 301      | 26       | 36960     | 407    | 1006    | 1083      | 41130     | 898       | 4         |
| 18 Aug 2011 | 11:00 | 5         | 1544          | 544   | 1963      | 6959      | 2128        | 7754      | 1539  | 2167  | 0        | 2403    | 1261            | 67659     | 14658    | 309      | 17       | 37056     | 248    | 703     | 1340      | 37393     | 862       | 4         |
| 18 Aug 2011 | 12:00 | 0         | 1510          | 582   | 1800      | 7929      | 1923        | 6686      | 1435  | 1758  | 0        | 2487    | 1435            | 66367     | 13711    | 293      | 5        | 36968     | 213    | 404     | 1310      | 36034     | 750       | 4         |
| 18 Aug 2011 | 13:00 | 5         | 1315          | 567   | 1615      | 8851      | 1978        | 5584      | 1390  | 1401  | 0        | 2508    | 1684            | 64801     | 11644    | 253      | 11       | 37040     | 253    | 435     | 1292      | 34768     | 725       | 4         |
| 18 Aug 2011 | 14:00 | 0         | 1260          | 564   | 1733      | 7337      | 1931        | 5491      | 1458  | 1256  | 0        | 2852    | 1797            | 60935     | 11222    | 234      | 10       | 37376     | 261    | 430     | 1277      | 35127     | 674       | 4         |
| 18 Aug 2011 | 15:00 | 5         | 1192          | 523   | 2000      | 7226      | 1841        | 4812      | 1371  | 1643  | 0        | 3865    | 1795            | 61550     | 10810    | 203      | 11       | 37536     | 222    | 246     | 1077      | 33631     | 600       | 4         |
| 18 Aug 2011 | 16:00 | 10        | 1147          | 540   | 2115      | 8500      | 1812        | 3713      | 1372  | 1402  | 0        | 3730    | 2016            | 67192     | 10794    | 181      | 26       | 37568     | 134    | 236     | 804       | 31828     | 563       | 4         |
| 18 Aug 2011 | 17:00 | 5         | 1122          | 609   | 2016      | 8601      | 1556        | 4394      | 1477  | 2045  | 0        | 3421    | 1729            | 67761     | 11431    | 172      | 64       | 37576     | 209    | 288     | 764       | 30896     | 623       | 4         |
| 18 Aug 2011 | 18:00 | 31        | 1109          | 659   | 2045      | 10106     | 1196        | 5767      | 1683  | 2573  | 0        | 4443    | 1530            | 57553     | 13260    | 177      | 95       | 37592     | 350    | 447     | 467       | 33673     | 758       | 4         |
| 18 Aug 2011 | 19:00 | 56        | 1227          | 651   | 2016      | 9493      | 757         | 7613      | 1588  | 2733  | 10       | 6809    | 1793            | 57342     | 14892    | 256      | 172      | 37664     | 447    | 770     | 483       | 38477     | 819       | 4         |
| 18 Aug 2011 | 20:00 | 114       | 1200          | 11    |           |           |             |           |       |       |          |         |                 |           |          |          |          |           |        |         |           |           |           |           |

## NORTH SYSTEM

| Date        | Time  | Alfriston | Bruce McLaren | Drury | Flat Bush | Glenbrook | Harrisville | Henderson | Hunua | Kauri | Kingseat | Marsden | Maungaturoto DF | Otahuhu B | Papakura | Pukekohe | Ranarama | Southdown | Tuakau | Waitoki | Warkworth | Westfield | Whangarei | Wellsford |
|-------------|-------|-----------|---------------|-------|-----------|-----------|-------------|-----------|-------|-------|----------|---------|-----------------|-----------|----------|----------|----------|-----------|--------|---------|-----------|-----------|-----------|-----------|
| 19 Aug 2011 | 23:00 | 135       | 1061          | 1400  | 1638      | 7651      | 898         | 5001      | 1092  | 2839  | 6        | 2197    | 965             | 65587     | 14904    | 120      | 212      | 37848     | 937    | 395     | 473       | 22840     | 458       | 4         |
| 19 Aug 2011 | 0:00  | 111       | 924           | 1417  | 1397      | 5548      | 944         | 2796      | 1075  | 2872  | 10       | 2205    | 943             | 53027     | 13875    | 98       | 216      | 37784     | 892    | 256     | 685       | 18564     | 372       | 4         |
| 20 Aug 2011 | 1:00  | 131       | 790           | 1476  | 1327      | 7566      | 1313        | 1455      | 1012  | 2889  | 6        | 5217    | 949             | 54505     | 13888    | 81       | 203      | 37432     | 907    | 172     | 735       | 15275     | 334       | 4         |
| 20 Aug 2011 | 2:00  | 126       | 745           | 1731  | 1376      | 7393      | 1781        | 1054      | 1111  | 2776  | 10       | 5657    | 953             | 55155     | 13863    | 80       | 209      | 26064     | 969    | 129     | 644       | 13025     | 322       | 4         |
| 20 Aug 2011 | 3:00  | 114       | 764           | 1958  | 1343      | 6999      | 1956        | 938       | 1060  | 2094  | 6        | 5660    | 959             | 55603     | 13677    | 79       | 245      | 25688     | 667    | 120     | 1031      | 12370     | 271       | 4         |
| 20 Aug 2011 | 4:00  | 134       | 743           | 1920  | 1184      | 7479      | 2431        | 863       | 1075  | 1919  | 5        | 5668    | 981             | 56213     | 13266    | 80       | 223      | 25848     | 514    | 122     | 1060      | 11488     | 296       | 4         |
| 20 Aug 2011 | 5:00  | 134       | 779           | 1938  | 1272      | 7555      | 2591        | 925       | 1086  | 1951  | 11       | 6271    | 1012            | 56246     | 13886    | 94       | 235      | 25952     | 507    | 111     | 1258      | 12377     | 283       | 4         |
| 20 Aug 2011 | 6:00  | 108       | 887           | 1945  | 1245      | 7491      | 2622        | 1243      | 1073  | 2603  | 5        | 6819    | 975             | 56076     | 14100    | 110      | 248      | 25904     | 509    | 111     | 1381      | 12763     | 334       | 4         |
| 20 Aug 2011 | 7:00  | 139       | 981           | 1985  | 1443      | 5866      | 2699        | 2462      | 1066  | 2901  | 11       | 6846    | 1030            | 66183     | 14912    | 128      | 252      | 25848     | 428    | 238     | 1642      | 14950     | 382       | 4         |
| 20 Aug 2011 | 8:00  | 122       | 1156          | 1888  | 1486      | 5377      | 2593        | 4884      | 1061  | 2970  | 10       | 6862    | 927             | 70786     | 15331    | 151      | 240      | 25824     | 296    | 806     | 1668      | 20216     | 531       | 4         |
| 20 Aug 2011 | 9:00  | 60        | 1234          | 1129  | 1339      | 7956      | 2207        | 5917      | 1030  | 2927  | 16       | 6708    | 935             | 69366     | 15293    | 129      | 75       | 22824     | 135    | 601     | 767       | 26371     | 619       | 4         |
| 20 Aug 2011 | 10:00 | 0         | 1134          | 647   | 1256      | 8325      | 2234        | 5986      | 958   | 2767  | 6        | 6623    | 941             | 68753     | 13408    | 128      | 16       | 21768     | 0      | 599     | 975       | 27608     | 597       | 4         |
| 20 Aug 2011 | 11:00 | 11        | 991           | 572   | 1108      | 8217      | 2095        | 5087      | 1054  | 2939  | 0        | 6583    | 872             | 66242     | 12190    | 129      | 16       | 21824     | 0      | 481     | 1219      | 25726     | 535       | 4         |
| 20 Aug 2011 | 12:00 | 5         | 1029          | 595   | 1058      | 8135      | 1881        | 4013      | 1046  | 2812  | 0        | 7080    | 862             | 63095     | 10759    | 130      | 6        | 21856     | 0      | 339     | 1214      | 24512     | 512       | 4         |
| 20 Aug 2011 | 13:00 | 5         | 913           | 600   | 1299      | 8070      | 1940        | 2923      | 1040  | 2702  | 0        | 7275    | 1104            | 63071     | 9552     | 116      | 5        | 21872     | 0      | 297     | 1215      | 24189     | 450       | 4         |
| 20 Aug 2011 | 14:00 | 10        | 818           | 582   | 1003      | 7975      | 1884        | 2104      | 1033  | 2735  | 0        | 7267    | 1264            | 62970     | 8501     | 92       | 10       | 21864     | 0      | 265     | 1203      | 23440     | 423       | 4         |
| 20 Aug 2011 | 15:00 | 5         | 796           | 546   | 885       | 8088      | 1764        | 1549      | 972   | 2717  | 0        | 7303    | 1129            | 62718     | 7895     | 70       | 21       | 21912     | 0      | 232     | 956       | 22304     | 398       | 4         |
| 20 Aug 2011 | 16:00 | 5         | 774           | 611   | 958       | 7568      | 1662        | 1387      | 933   | 2594  | 0        | 7305    | 1295            | 62594     | 8303     | 69       | 26       | 21816     | 0      | 235     | 1065      | 21419     | 398       | 4         |
| 20 Aug 2011 | 17:00 | 5         | 869           | 711   | 1207      | 7593      | 1393        | 1835      | 916   | 1926  | 0        | 7305    | 1497            | 64852     | 9551     | 67       | 52       | 21896     | 0      | 268     | 667       | 20586     | 448       | 4         |
| 20 Aug 2011 | 18:00 | 25        | 868           | 677   | 958       | 6565      | 1266        | 3392      | 837   | 1705  | 0        | 7326    | 1525            | 68446     | 12036    | 87       | 96       | 22704     | 0      | 426     | 343       | 21658     | 572       | 4         |
| 20 Aug 2011 | 19:00 | 57        | 1033          | 534   | 1021      | 7497      | 738         | 5597      | 894   | 2138  | 10       | 7332    | 1368            | 69109     | 13483    | 158      | 150      | 25232     | 8      | 614     | 343       | 24767     | 682       | 4         |
| 20 Aug 2011 | 20:00 | 91        | 948           | 608   | 1115      | 7982      | 775         | 6090      | 886   | 2979  | 10       | 7361    | 1248            | 69372     | 13910    | 140      | 214      | 25872     | 0      | 660     | 373       | 24488     | 644       | 4         |
| 20 Aug 2011 | 21:00 | 136       | 888           | 919   | 874       | 7817      | 870         | 5631      | 873   | 2931  | 10       | 7400    | 1341            | 62908     | 13718    | 121      | 223      | 25808     | 0      | 612     | 326       | 22686     | 620       | 4         |
| 20 Aug 2011 | 22:00 | 98        | 843           | 1272  | 608       | 7911      | 892         | 5439      | 887   | 2886  | 11       | 7726    | 1325            | 52009     | 13700    | 107      | 225      | 25760     | 9      | 541     | 311       | 20289     | 532       | 4         |
| 20 Aug 2011 | 23:00 | 144       | 799           | 1511  | 584       | 6225      | 1011        | 4625      | 811   | 2870  | 10       | 7903    | 1406            | 47312     | 13700    | 92       | 241      | 25760     | 8      | 391     | 265       | 16554     | 445       | 4         |
| 20 Aug 2011 | 0:00  | 113       | 717           | 1545  | 656       | 6387      | 1848        | 2971      | 898   | 2916  | 11       | 8260    | 1550            | 47356     | 13906    | 88       | 240      | 25744     | 0      | 273     | 565       | 13180     | 360       | 4         |
| 21 Aug 2011 | 1:00  | 132       | 660           | 1817  | 709       | 7404      | 1990        | 1745      | 898   | 2917  | 6        | 8864    | 1540            | 47646     | 13079    | 82       | 213      | 25784     | 18     | 175     | 784       | 11166     | 322       | 4         |
| 21 Aug 2011 | 2:00  | 123       | 612           | 1906  | 711       | 6308      | 2130        | 1101      | 907   | 2029  | 5        | 8557    | 1578            | 47686     | 12860    | 85       | 242      | 25264     | 0      | 144     | 632       | 9529      | 296       | 4         |
| 21 Aug 2011 | 3:00  | 109       | 600           | 1997  | 757       | 6379      | 2051        | 866       | 914   | 1870  | 11       | 8349    | 1592            | 47763     | 12854    | 85       | 243      | 22152     | 0      | 121     | 1032      | 8985      | 283       | 4         |
| 21 Aug 2011 | 4:00  | 138       | 601           | 2044  | 793       | 7155      | 2494        | 900       | 833   | 1963  | 5        | 8352    | 1586            | 47942     | 13274    | 80       | 232      | 21832     | 0      | 123     | 1062      | 9126      | 296       | 4         |
| 21 Aug 2011 | 5:00  | 128       | 661           | 2022  | 699       | 6558      | 2736        | 1046      | 914   | 2725  | 11       | 8358    | 1578            | 48312     | 13263    | 117      | 254      | 21840     | 17     | 122     | 1215      | 9912      | 296       | 4         |
| 21 Aug 2011 | 6:00  | 113       | 686           | 2086  | 541       | 6915      | 2636        | 1319      | 825   | 2853  | 6        | 8364    | 1627            | 48315     | 13668    | 128      | 236      | 21864     | 19     | 121     | 1352      | 10598     | 345       | 4         |
| 21 Aug 2011 | 7:00  | 139       | 757           | 2100  | 522       | 6553      | 2715        | 2145      | 908   | 2893  | 10       | 8359</  |                 |           |          |          |          |           |        |         |           |           |           |           |

**CENTRAL (NORTH) SYSTEM**

| Date        | Time  | Cambridge | Hamilton Te Kowhai | Hamilton Temple View | Kiwitahi (Degussa) | Kiwitahi (Kwifert) | Morrisville | Morrisville DF | Tatuanui DF | Wairoa | Te Rapa | Matangi |
|-------------|-------|-----------|--------------------|----------------------|--------------------|--------------------|-------------|----------------|-------------|--------|---------|---------|
| 19 Sep 2011 | 1:00  | 1731      | 1181               | 1314                 | 904                | 9                  | 67          | 1726           | 987         | 335    | 14716   | 2       |
| 19 Sep 2011 | 2:00  | 1914      | 1135               | 1152                 | 923                | 4                  | 45          | 1706           | 982         | 296    | 15140   | 2       |
| 19 Sep 2011 | 3:00  | 1862      | 1061               | 1183                 | 924                | 5                  | 46          | 1694           | 981         | 387    | 14624   | 2       |
| 19 Sep 2011 | 4:00  | 2099      | 1023               | 1259                 | 923                | 9                  | 68          | 1736           | 974         | 408    | 14312   | 2       |
| 19 Sep 2011 | 5:00  | 1878      | 1061               | 1570                 | 924                | 0                  | 135         | 1680           | 1035        | 406    | 14472   | 2       |
| 19 Sep 2011 | 6:00  | 1697      | 1195               | 2437                 | 923                | 9                  | 145         | 1860           | 1102        | 492    | 14564   | 2       |
| 19 Sep 2011 | 7:00  | 2025      | 2189               | 4954                 | 942                | 18                 | 255         | 1909           | 1086        | 565    | 14308   | 2       |
| 19 Sep 2011 | 8:00  | 2498      | 3437               | 6945                 | 981                | 35                 | 298         | 1778           | 1081        | 406    | 14248   | 2       |
| 19 Sep 2011 | 9:00  | 2298      | 2797               | 5598                 | 980                | 36                 | 319         | 1815           | 1165        | 332    | 14092   | 2       |
| 19 Sep 2011 | 10:00 | 2333      | 2271               | 4486                 | 1000               | 34                 | 219         | 1851           | 1096        | 222    | 13724   | 2       |
| 19 Sep 2011 | 11:00 | 2260      | 1968               | 3913                 | 999                | 35                 | 220         | 1862           | 1097        | 332    | 13692   | 2       |
| 19 Sep 2011 | 12:00 | 2423      | 1709               | 3720                 | 941                | 35                 | 154         | 1971           | 1265        | 533    | 13596   | 2       |
| 19 Sep 2011 | 13:00 | 2098      | 1757               | 3493                 | 942                | 38                 | 110         | 1716           | 1422        | 372    | 13768   | 2       |
| 19 Sep 2011 | 14:00 | 2244      | 1648               | 3130                 | 942                | 34                 | 154         | 1685           | 1246        | 316    | 14152   | 2       |
| 19 Sep 2011 | 15:00 | 2445      | 1627               | 2808                 | 962                | 94                 | 177         | 1525           | 1070        | 405    | 14184   | 2       |
| 19 Sep 2011 | 16:00 | 2495      | 1793               | 2758                 | 922                | 86                 | 166         | 1189           | 1127        | 700    | 14808   | 2       |
| 19 Sep 2011 | 17:00 | 2425      | 2053               | 3675                 | 903                | 43                 | 189         | 1200           | 1100        | 905    | 14532   | 2       |
| 19 Sep 2011 | 18:00 | 2734      | 2516               | 4934                 | 921                | 43                 | 223         | 1252           | 945         | 978    | 14300   | 2       |
| 19 Sep 2011 | 19:00 | 2782      | 2875               | 5688                 | 920                | 52                 | 254         | 1627           | 662         | 979    | 14504   | 2       |
| 19 Sep 2011 | 20:00 | 2750      | 2822               | 5657                 | 919                | 9                  | 265         | 1606           | 898         | 1162   | 13672   | 2       |
| 19 Sep 2011 | 21:00 | 2442      | 2573               | 5121                 | 938                | 5                  | 221         | 1638           | 940         | 1164   | 14480   | 2       |
| 19 Sep 2011 | 22:00 | 2510      | 2158               | 4118                 | 918                | 4                  | 188         | 1501           | 871         | 1215   | 14320   | 2       |
| 19 Sep 2011 | 23:00 | 2459      | 1971               | 2596                 | 900                | 9                  | 156         | 1342           | 861         | 1253   | 14008   | 2       |
| 19 Sep 2011 | 0:00  | 2299      | 1288               | 1833                 | 921                | 4                  | 135         | 1313           | 825         | 1312   | 14528   | 2       |
| 20 Sep 2011 | 1:00  | 2132      | 1362               | 1102                 | 959                | 9                  | 113         | 1223           | 812         | 1468   | 14516   | 2       |
| 20 Sep 2011 | 2:00  | 1966      | 1524               | 766                  | 920                | 5                  | 111         | 1611           | 954         | 1478   | 14412   | 2       |
| 20 Sep 2011 | 3:00  | 1897      | 1362               | 913                  | 941                | 0                  | 146         | 1591           | 953         | 1472   | 14960   | 2       |
| 20 Sep 2011 | 4:00  | 2043      | 1341               | 953                  | 960                | 9                  | 101         | 1369           | 1048        | 1458   | 14900   | 2       |
| 20 Sep 2011 | 5:00  | 2167      | 1205               | 1249                 | 941                | 13                 | 101         | 1356           | 1152        | 1366   | 14964   | 2       |
| 20 Sep 2011 | 6:00  | 2205      | 1487               | 2160                 | 959                | 14                 | 113         | 1484           | 1177        | 1311   | 14492   | 2       |
| 20 Sep 2011 | 7:00  | 2531      | 2479               | 4827                 | 980                | 35                 | 212         | 1588           | 1262        | 1181   | 14900   | 2       |
| 20 Sep 2011 | 8:00  | 2623      | 3385               | 6986                 | 1016               | 44                 | 277         | 1741           | 1277        | 982    | 14500   | 2       |
| 20 Sep 2011 | 9:00  | 2151      | 2623               | 5370                 | 1015               | 50                 | 318         | 1917           | 1308        | 891    | 14680   | 2       |
| 20 Sep 2011 | 10:00 | 2097      | 1934               | 4528                 | 1016               | 39                 | 208         | 1889           | 1269        | 818    | 14680   | 2       |
| 20 Sep 2011 | 11:00 | 2022      | 1680               | 3825                 | 976                | 43                 | 218         | 1919           | 1139        | 782    | 14684   | 2       |
| 20 Sep 2011 | 12:00 | 1913      | 1765               | 3723                 | 978                | 51                 | 184         | 1900           | 978         | 947    | 14936   | 2       |
| 20 Sep 2011 | 13:00 | 2094      | 1812               | 3512                 | 978                | 38                 | 130         | 1913           | 1056        | 1019   | 14120   | 2       |
| 20 Sep 2011 | 14:00 | 2150      | 1771               | 3358                 | 959                | 38                 | 76          | 1808           | 1213        | 1167   | 14068   | 2       |
| 20 Sep 2011 | 15:00 | 2043      | 1587               | 3409                 | 977                | 34                 | 119         | 1661           | 1209        | 1389   | 13852   | 2       |
| 20 Sep 2011 | 16:00 | 1967      | 1451               | 2906                 | 958                | 39                 | 110         | 1936           | 1142        | 1457   | 14056   | 2       |
| 20 Sep 2011 | 17:00 | 2349      | 1585               | 3234                 | 938                | 30                 | 120         | 1946           | 1175        | 1511   | 13892   | 2       |
| 20 Sep 2011 | 18:00 | 2383      | 1958               | 3969                 | 936                | 9                  | 154         | 1924           | 974         | 1360   | 14468   | 2       |
| 20 Sep 2011 | 19:00 | 2312      | 2709               | 5408                 | 936                | 17                 | 243         | 1866           | 890         | 1398   | 15020   | 2       |
| 20 Sep 2011 | 20:00 | 2168      | 3091               | 5950                 | 936                | 18                 | 244         | 1910           | 1116        | 1451   | 14968   | 2       |
| 20 Sep 2011 | 21:00 | 2489      | 2875               | 5548                 | 935                | 14                 | 276         | 1865           | 1079        | 1457   | 14820   | 2       |
| 20 Sep 2011 | 22:00 | 2691      | 2512               | 4824                 | 935                | 13                 | 210         | 1813           | 946         | 1563   | 15008   | 2       |
| 20 Sep 2011 | 23:00 | 2506      | 1949               | 3296                 | 896                | 13                 | 188         | 1643           | 798         | 1571   | 15420   | 2       |
| 20 Sep 2011 | 0:00  | 2237      | 1516               | 1891                 | 915                | 14                 | 144         | 1665           | 963         | 1580   | 14748   | 2       |
| 21 Sep 2011 | 1:00  | 2146      | 1292               | 1396                 | 896                | 9                  | 101         | 1711           | 1016        | 1668   | 14720   | 2       |
| 21 Sep 2011 | 2:00  | 2164      | 1242               | 1481                 | 898                | 5                  | 68          | 1711           | 952         | 1759   | 14508   | 2       |
| 21 Sep 2011 | 3:00  | 2216      | 1170               | 1388                 | 915                | 9                  | 124         | 1667           | 998         | 1717   | 15116   | 2       |
| 21 Sep 2011 | 4:00  | 2182      | 1194               | 1510                 | 936                | 9                  | 78          | 1680           | 1018        | 1690   | 15048   | 2       |
| 21 Sep 2011 | 5:00  | 2346      | 1178               | 1808                 | 935                | 14                 | 91          | 1465           | 1172        | 1424   | 15168   | 2       |
| 21 Sep 2011 | 6:00  | 2383      | 1351               | 2627                 | 956                | 13                 | 113         | 1474           | 1173        | 1317   | 14944   | 2       |
| 21 Sep 2011 | 7:00  | 2348      | 2546               | 5261                 | 937                | 32                 | 256         | 1588           | 1166        | 1058   | 14844   | 2       |
| 21 Sep 2011 | 8:00  | 2581      | 4031               | 7822                 | 937                | 44                 | 354         | 1370           | 1231        | 984    | 14912   | 2       |
| 21 Sep 2011 | 9:00  | 2620      | 3312               | 6353                 | 956                | 44                 | 332         | 1228           | 858         | 946    | 15244   | 2       |
| 21 Sep 2011 | 10:00 | 2657      | 2457               | 5249                 | 938                | 47                 | 188         | 1022           | 836         | 874    | 14996   | 2       |
| 21 Sep 2011 | 11:00 | 2475      | 2195               | 4619                 | 958                | 39                 | 155         | 780            | 782         | 688    | 14908   | 2       |
| 21 Sep 2011 | 12:00 | 2334      | 1746               | 3928                 | 959                | 43                 | 144         | 956            | 825         | 560    | 15208   | 2       |
| 21 Sep 2011 | 13:00 | 2334      | 1645               | 3685                 | 940                | 47                 | 99          | 1201           | 781         | 559    | 15120   | 2       |
| 21 Sep 2011 | 14:00 | 2063      | 1589               | 3392                 | 941                | 34                 | 155         | 1213           | 903         | 637    | 14776   | 2       |
| 21 Sep 2011 | 15:00 | 2137      | 1507               | 3146                 | 962                | 39                 | 166         | 1430           | 963         | 737    | 14848   | 2       |
| 21 Sep 2011 | 16:00 | 2155      | 1610               | 3434                 | 960                | 34                 | 144         | 1616           | 954         | 971    | 14832   | 2       |
| 21 Sep 2011 | 17:00 | 2264      | 2029               | 3847                 | 941                | 26                 | 178         | 1626           | 913         | 1123   | 15320   | 2       |
| 21 Sep 2011 | 18:00 | 2423      | 2687               | 4983                 | 959                | 9                  | 211         | 1615           | 1013        | 1161   | 15104   | 2       |
| 21 Sep 2011 | 19:00 | 2567      | 3536               | 6313                 | 958                | 18                 | 277         | 1635           | 809         | 1232   | 15084   | 2       |
| 21 Sep 2011 | 20:00 | 2764      | 3491               | 6121                 | 956                | 9                  | 277         | 1630           | 735         | 1438   | 14436   | 2       |
| 21 Sep 2011 | 21:00 | 2818      | 3148               | 5707                 | 956                | 13                 | 265         | 1653           | 532         | 1502   | 14896   | 2       |
| 21 Sep 2011 | 22:00 | 2724      | 2720               | 4782                 | 935                | 23                 | 210         | 1652           | 545         | 1712   | 14548   | 2       |
| 21 Sep 2011 | 23:00 | 2547      | 1937               | 3261                 | 954                | 4                  | 178         | 1675           | 616         | 1656   | 14740   | 2       |
| 21 Sep 2011 | 0:00  | 2470      | 1443               | 1982                 | 955                | 14                 | 133         | 1815           | 622         | 1575   | 14960   | 2       |
| 22 Sep 2011 | 1:00  | 2527      | 1254               | 1387                 | 935                | 13                 | 123         | 1879           | 636         | 1713   | 15392   | 2       |
| 22 Sep 2011 | 2:00  | 2292      | 1135               | 1456                 | 955                | 0                  | 100         | 1826           | 790         | 1841   | 15588   | 2       |
| 22 Sep 2011 | 3:00  | 2182      | 1060               | 1479                 | 935                | 10                 | 124         | 1730           | 1058        | 1826   | 15500   | 2       |
| 22 Sep 2011 | 4:00  | 2163      | 1083               | 1526                 | 955                | 4                  | 78          | 1772           | 990         | 1770   | 15232   | 2       |
| 22 Sep 2011 | 5:00  | 2075      | 1023               | 1810                 | 935                | 9                  | 67          | 1817           | 1039        | 1662   | 15132   | 2       |
| 22 Sep 2011 | 6:00  | 2220      | 1278               | 2722                 | 956                | 18                 | 78          | 1848           | 667         | 1664   | 15088   | 2       |
| 22 Sep 2011 | 7:00  | 2415      | 2529               | 5279                 | 935                | 31                 | 211         | 2025           | 1048        | 1427   | 15628   | 2       |
| 22 Sep 2011 | 8:00  | 2835      | 3597               | 7257                 | 935                | 40                 | 242         | 2022           | 1063        | 1284   | 14984   | 2       |
| 22 Sep 2011 | 9:00  | 2093      | 2418               | 5469                 | 956                | 44                 | 252         | 1946           | 1010        | 1122   | 14680   | 2       |
| 22 Sep 2011 | 10:00 | 1511      | 1946               | 4208                 | 916                | 65                 | 174         | 1929           | 949         | 769    | 15160   | 2       |
| 22 Sep 2011 | 11:00 | 1090      | 1944               | 3889                 | 899                | 61                 | 176         | 1880           | 972         | 661    | 15152   | 2       |
| 22 Sep 2011 | 12:00 | 1620      | 1791               | 3925                 | 900                | 64                 | 164         | 1892           | 957         | 527    | 15024   | 2       |
| 22 Sep 2011 | 13:00 | 1861      | 1817               | 3845                 | 901                | 55                 | 142         | 1862           | 1022        | 469    | 14816   | 2       |
| 22 Sep 2011 | 14:00 | 2205      | 1787               | 3385                 | 919                | 51                 | 143         | 1778           | 1092        | 450    | 14124   | 2       |
| 22 Sep 2011 | 15:00 | 2240      | 1448               | 2918                 | 921                | 60                 | 132         | 1746           | 1052        | 618    | 13840   | 2       |
| 22 Sep 2011 | 16:00 | 2150      | 1536               | 2779                 | 881                | 60                 | 154         | 1716           | 905         | 705    | 14440   | 2       |
| 22 Sep 2011 | 17:00 | 2383      | 1959               | 3408                 | 842                | 107                | 166         | 1467           | 946         | 931    | 15136   | 2       |

**CENTRAL (NORTH) SYSTEM**

| Date        | Time  | Cambridge | Hamilton Te Kowhai | Hamilton Temple View | Kiwitahi (Degussa) | Kiwifahī (Kiwifert) | Morrisville | Morrisville DF | Tatuanui DF | Wairoa | Te Rapa | Matangi |
|-------------|-------|-----------|--------------------|----------------------|--------------------|---------------------|-------------|----------------|-------------|--------|---------|---------|
| 22 Sep 2011 | 18:00 | 2404      | 2179               | 4213                 | 860                | 8                   | 211         | 1454           | 967         | 1075   | 14612   | 2       |
| 22 Sep 2011 | 19:00 | 2565      | 2548               | 5285                 | 840                | 39                  | 244         | 1538           | 957         | 1241   | 14936   | 2       |
| 22 Sep 2011 | 20:00 | 2726      | 2634               | 5334                 | 840                | 52                  | 232         | 1623           | 929         | 1367   | 15248   | 2       |
| 22 Sep 2011 | 21:00 | 2655      | 2411               | 4832                 | 839                | 9                   | 232         | 1664           | 920         | 1392   | 14716   | 2       |
| 22 Sep 2011 | 22:00 | 2309      | 2181               | 4273                 | 839                | 61                  | 200         | 1633           | 831         | 1480   | 15084   | 2       |
| 22 Sep 2011 | 23:00 | 2002      | 1735               | 2938                 | 839                | 30                  | 167         | 1635           | 733         | 1441   | 14812   | 2       |
| 22 Sep 2011 | 0:00  | 2148      | 1318               | 1757                 | 859                | 9                   | 133         | 1668           | 873         | 1443   | 14804   | 2       |
| 23 Sep 2011 | 1:00  | 1875      | 1180               | 1240                 | 859                | 82                  | 134         | 1648           | 928         | 1641   | 14840   | 2       |
| 23 Sep 2011 | 2:00  | 1747      | 1097               | 1208                 | 898                | 13                  | 90          | 1585           | 968         | 1676   | 15576   | 2       |
| 23 Sep 2011 | 3:00  | 2092      | 1073               | 1133                 | 899                | 9                   | 68          | 1238           | 896         | 1768   | 15076   | 2       |
| 23 Sep 2011 | 4:00  | 2073      | 1083               | 1275                 | 899                | 5                   | 102         | 952            | 1003        | 1621   | 15256   | 2       |
| 23 Sep 2011 | 5:00  | 2018      | 1157               | 1207                 | 879                | 4                   | 91          | 1062           | 1018        | 1462   | 15180   | 2       |
| 23 Sep 2011 | 6:00  | 2201      | 1233               | 2180                 | 899                | 5                   | 102         | 1485           | 937         | 1487   | 15132   | 2       |
| 23 Sep 2011 | 7:00  | 2166      | 2229               | 5075                 | 899                | 31                  | 190         | 1592           | 910         | 1354   | 15544   | 2       |
| 23 Sep 2011 | 8:00  | 2129      | 3037               | 6603                 | 879                | 36                  | 287         | 1479           | 926         | 1306   | 14900   | 2       |
| 23 Sep 2011 | 9:00  | 1840      | 2160               | 4873                 | 899                | 39                  | 297         | 1455           | 1289        | 1215   | 14232   | 2       |
| 23 Sep 2011 | 10:00 | 1750      | 1539               | 3747                 | 880                | 35                  | 208         | 1673           | 1233        | 1161   | 14000   | 2       |
| 23 Sep 2011 | 11:00 | 1586      | 1500               | 3421                 | 841                | 34                  | 228         | 1671           | 1210        | 1049   | 13652   | 2       |
| 23 Sep 2011 | 12:00 | 1861      | 1341               | 3244                 | 861                | 38                  | 207         | 1640           | 1254        | 975    | 13764   | 2       |
| 23 Sep 2011 | 13:00 | 2023      | 1294               | 3104                 | 844                | 13                  | 119         | 1645           | 1228        | 1050   | 13832   | 2       |
| 23 Sep 2011 | 14:00 | 1953      | 1259               | 2692                 | 863                | 8                   | 141         | 1634           | 1134        | 1064   | 13576   | 2       |
| 23 Sep 2011 | 15:00 | 2205      | 1256               | 2460                 | 863                | 4                   | 99          | 1669           | 1082        | 1066   | 13704   | 2       |
| 23 Sep 2011 | 16:00 | 2116      | 1159               | 2352                 | 823                | 4                   | 110         | 1659           | 962         | 1122   | 14112   | 2       |
| 23 Sep 2011 | 17:00 | 1967      | 1284               | 2763                 | 861                | 5                   | 132         | 1542           | 989         | 1105   | 13952   | 2       |
| 23 Sep 2011 | 18:00 | 1933      | 1431               | 2954                 | 861                | 4                   | 145         | 1426           | 849         | 1162   | 14132   | 2       |
| 23 Sep 2011 | 19:00 | 2188      | 1797               | 3604                 | 841                | 4                   | 133         | 1500           | 884         | 1216   | 14868   | 2       |
| 23 Sep 2011 | 20:00 | 2094      | 1893               | 3737                 | 841                | 9                   | 144         | 1703           | 996         | 1322   | 14520   | 2       |
| 23 Sep 2011 | 21:00 | 1912      | 1857               | 3379                 | 860                | 5                   | 122         | 1726           | 1042        | 1279   | 15204   | 2       |
| 23 Sep 2011 | 22:00 | 1966      | 1722               | 3010                 | 840                | 9                   | 101         | 1895           | 1061        | 1463   | 15404   | 2       |
| 23 Sep 2011 | 23:00 | 2145      | 1576               | 2240                 | 860                | 4                   | 133         | 2000           | 984         | 1591   | 14928   | 2       |
| 23 Sep 2011 | 0:00  | 2219      | 1252               | 1439                 | 878                | 5                   | 78          | 1981           | 958         | 1516   | 14872   | 2       |
| 24 Sep 2011 | 1:00  | 1840      | 1145               | 953                  | 840                | 4                   | 89          | 1874           | 1017        | 1467   | 14884   | 2       |
| 24 Sep 2011 | 2:00  | 1891      | 1060               | 740                  | 898                | 5                   | 57          | 1811           | 982         | 1411   | 15268   | 2       |
| 24 Sep 2011 | 3:00  | 2165      | 1123               | 609                  | 899                | 9                   | 78          | 1759           | 971         | 1309   | 14828   | 2       |
| 24 Sep 2011 | 4:00  | 2313      | 1110               | 608                  | 879                | 4                   | 56          | 1726           | 1006        | 935    | 13980   | 2       |
| 24 Sep 2011 | 5:00  | 2404      | 1025               | 675                  | 880                | 5                   | 45          | 1718           | 991         | 840    | 14240   | 2       |
| 24 Sep 2011 | 6:00  | 2328      | 974                | 1141                 | 899                | 9                   | 33          | 1825           | 878         | 747    | 14552   | 2       |
| 24 Sep 2011 | 7:00  | 2257      | 1149               | 2318                 | 880                | 4                   | 79          | 1782           | 852         | 690    | 14288   | 2       |
| 24 Sep 2011 | 8:00  | 2276      | 1513               | 3346                 | 881                | 5                   | 122         | 1619           | 993         | 653    | 14508   | 2       |
| 24 Sep 2011 | 9:00  | 2114      | 1715               | 4351                 | 862                | 8                   | 133         | 1542           | 1094        | 560    | 14528   | 2       |
| 24 Sep 2011 | 10:00 | 1824      | 1606               | 3830                 | 843                | 5                   | 109         | 1542           | 1035        | 415    | 14308   | 2       |
| 24 Sep 2011 | 11:00 | 1549      | 1453               | 3100                 | 843                | 0                   | 110         | 1477           | 1052        | 416    | 14204   | 2       |
| 24 Sep 2011 | 12:00 | 1586      | 1260               | 2564                 | 844                | 13                  | 87          | 1509           | 1040        | 432    | 14236   | 2       |
| 24 Sep 2011 | 13:00 | 1882      | 1109               | 2222                 | 825                | 4                   | 109         | 1468           | 1034        | 413    | 14296   | 2       |
| 24 Sep 2011 | 14:00 | 1662      | 1037               | 2060                 | 845                | 4                   | 131         | 1511           | 1021        | 524    | 14372   | 2       |
| 24 Sep 2011 | 15:00 | 1772      | 957                | 1869                 | 864                | 8                   | 131         | 1631           | 981         | 524    | 14616   | 2       |
| 24 Sep 2011 | 16:00 | 1773      | 1091               | 1537                 | 825                | 0                   | 99          | 1655           | 956         | 525    | 14696   | 2       |
| 24 Sep 2011 | 17:00 | 1953      | 1314               | 1912                 | 844                | 5                   | 88          | 1678           | 964         | 618    | 14148   | 2       |
| 24 Sep 2011 | 18:00 | 2483      | 1441               | 2534                 | 845                | 9                   | 110         | 1741           | 751         | 767    | 14040   | 2       |
| 24 Sep 2011 | 19:00 | 2624      | 1844               | 2914                 | 844                | 4                   | 122         | 1697           | 581         | 859    | 14308   | 2       |
| 24 Sep 2011 | 20:00 | 2625      | 1842               | 3035                 | 843                | 4                   | 122         | 1663           | 688         | 802    | 14484   | 2       |
| 24 Sep 2011 | 21:00 | 2498      | 1514               | 2662                 | 843                | 9                   | 111         | 1241           | 707         | 709    | 14476   | 2       |
| 24 Sep 2011 | 22:00 | 2385      | 1281               | 2215                 | 843                | 5                   | 90          | 1241           | 1017        | 579    | 15100   | 2       |
| 24 Sep 2011 | 23:00 | 2258      | 1199               | 1902                 | 863                | 4                   | 68          | 1242           | 1057        | 431    | 14116   | 2       |
| 24 Sep 2011 | 0:00  | 2041      | 1130               | 1167                 | 844                | 9                   | 57          | 1021           | 1039        | 283    | 14308   | 2       |
| 25 Sep 2011 | 1:00  | 2026      | 1073               | 724                  | 845                | 0                   | 57          | 1429           | 1014        | 133    | 14464   | 2       |
| 25 Sep 2011 | 2:00  | 1936      | 1172               | 330                  | 845                | 9                   | 45          | 1167           | 960         | 151    | 14616   | 2       |
| 25 Sep 2011 | 3:00  | 2026      | 1085               | 297                  | 845                | 5                   | 45          | 1451           | 958         | 151    | 14604   | 2       |
| 25 Sep 2011 | 4:00  | 2119      | 976                | 354                  | 845                | 4                   | 44          | 1419           | 924         | 151    | 14924   | 2       |
| 25 Sep 2011 | 5:00  | 2227      | 1013               | 592                  | 845                | 9                   | 45          | 1538           | 924         | 133    | 14752   | 2       |
| 25 Sep 2011 | 6:00  | 2025      | 998                | 789                  | 845                | 4                   | 45          | 1548           | 1004        | 151    | 14080   | 2       |
| 25 Sep 2011 | 7:00  | 1898      | 1141               | 1422                 | 844                | 5                   | 79          | 1537           | 1003        | 134    | 14320   | 2       |
| 25 Sep 2011 | 8:00  | 2062      | 1356               | 2654                 | 845                | 4                   | 101         | 1503           | 1016        | 151    | 14404   | 2       |
| 25 Sep 2011 | 9:00  | 2225      | 1480               | 3565                 | 864                | 5                   | 134         | 1492           | 1088        | 152    | 14688   | 2       |
| 25 Sep 2011 | 10:00 | 2551      | 1385               | 3672                 | 844                | 4                   | 123         | 1414           | 1080        | 114    | 14724   | 2       |
| 25 Sep 2011 | 11:00 | 2573      | 1227               | 3245                 | 863                | 9                   | 122         | 1425           | 1058        | 114    | 14232   | 2       |
| 25 Sep 2011 | 12:00 | 2281      | 1278               | 3047                 | 825                | 4                   | 122         | 1511           | 1064        | 95     | 14232   | 2       |
| 25 Sep 2011 | 13:00 | 2315      | 1243               | 2982                 | 863                | 5                   | 122         | 1768           | 1023        | 150    | 14200   | 2       |
| 25 Sep 2011 | 14:00 | 2243      | 1451               | 2879                 | 864                | 9                   | 134         | 1801           | 935         | 131    | 15032   | 2       |
| 25 Sep 2011 | 15:00 | 2313      | 1358               | 3188                 | 824                | 4                   | 134         | 1736           | 847         | 132    | 15080   | 2       |
| 25 Sep 2011 | 16:00 | 2368      | 1287               | 3269                 | 863                | 5                   | 144         | 1831           | 1024        | 148    | 14228   | 2       |
| 25 Sep 2011 | 17:00 | 2151      | 1488               | 3197                 | 843                | 8                   | 144         | 1928           | 1069        | 186    | 14108   | 2       |
| 25 Sep 2011 | 18:00 | 2059      | 1909               | 4084                 | 863                | 5                   | 200         | 1906           | 1118        | 204    | 14672   | 2       |
| 25 Sep 2011 | 19:00 | 2256      | 2271               | 5090                 | 842                | 9                   | 210         | 1862           | 1136        | 205    | 15044   | 2       |
| 25 Sep 2011 | 20:00 | 2785      | 2344               | 5085                 | 861                | 0                   | 211         | 1830           | 1146        | 225    | 14592   | 2       |
| 25 Sep 2011 | 21:00 | 2672      | 2069               | 4246                 | 840                | 9                   | 178         | 1754           | 978         | 260    | 14288   | 2       |
| 25 Sep 2011 | 22:00 | 2474      | 1643               | 3014                 | 859                | 4                   | 123         | 1744           | 1066        | 298    | 14660   | 2       |
| 25 Sep 2011 | 23:00 | 2149      | 1211               | 1986                 | 859                | 5                   | 78          | 1832           | 923         | 336    | 14928   | 2       |
| 26 Sep 2011 | 0:00  | 2185      | 1481               | 1042                 | 843                | 9                   | 68          | 1784           | 758         | 319    | 15148   | 2       |

**CENTRAL (SOUTH) SYSTEM**

| Date        | Time  | Eltham | Inglewood | Kaponga | New Plymouth | Straford | Waitara | Pokuru <sup>2</sup> |
|-------------|-------|--------|-----------|---------|--------------|----------|---------|---------------------|
| 15 Aug 2011 | 1:00  | 500    | 24        | 4       | 1893         | 163      | 225     | 14400               |
| 15 Aug 2011 | 2:00  | 475    | 14        | 4       | 1805         | 140      | 259     | 14400               |
| 15 Aug 2011 | 3:00  | 546    | 19        | 0       | 1787         | 162      | 236     | 14400               |
| 15 Aug 2011 | 4:00  | 435    | 18        | 4       | 1962         | 161      | 282     | 14404               |
| 15 Aug 2011 | 5:00  | 370    | 24        | 4       | 2085         | 173      | 290     | 14404               |
| 15 Aug 2011 | 6:00  | 526    | 80        | 8       | 2527         | 228      | 344     | 14404               |
| 15 Aug 2011 | 7:00  | 540    | 196       | 8       | 3527         | 420      | 446     | 14404               |
| 15 Aug 2011 | 8:00  | 591    | 324       | 9       | 5256         | 616      | 589     | 14404               |
| 15 Aug 2011 | 9:00  | 503    | 321       | 8       | 5926         | 555      | 583     | 14408               |
| 15 Aug 2011 | 10:00 | 487    | 285       | 12      | 5084         | 519      | 516     | 14400               |
| 15 Aug 2011 | 11:00 | 508    | 258       | 12      | 4804         | 449      | 471     | 14408               |
| 15 Aug 2011 | 12:00 | 472    | 205       | 8       | 4231         | 392      | 392     | 14400               |
| 15 Aug 2011 | 13:00 | 445    | 143       | 4       | 3903         | 322      | 382     | 14408               |
| 15 Aug 2011 | 14:00 | 478    | 146       | 8       | 3317         | 298      | 579     | 14404               |
| 15 Aug 2011 | 15:00 | 438    | 105       | 7       | 3230         | 253      | 526     | 14404               |
| 15 Aug 2011 | 16:00 | 448    | 93        | 8       | 3116         | 266      | 576     | 14408               |
| 15 Aug 2011 | 17:00 | 476    | 134       | 12      | 3378         | 345      | 455     | 14404               |
| 15 Aug 2011 | 18:00 | 506    | 213       | 15      | 4884         | 438      | 607     | 6060                |
| 15 Aug 2011 | 19:00 | 508    | 245       | 16      | 5749         | 473      | 680     | 5388                |
| 15 Aug 2011 | 20:00 | 489    | 240       | 16      | 5931         | 461      | 674     | 5336                |
| 15 Aug 2011 | 21:00 | 496    | 213       | 16      | 5567         | 404      | 635     | 5228                |
| 15 Aug 2011 | 22:00 | 435    | 159       | 12      | 4874         | 323      | 536     | 5228                |
| 15 Aug 2011 | 23:00 | 107    | 88        | 8       | 3664         | 233      | 419     | 5228                |
| 15 Aug 2011 | 0:00  | 99     | 51        | 8       | 2587         | 168      | 331     | 5232                |
| 16 Aug 2011 | 1:00  | 81     | 29        | 0       | 2369         | 132      | 297     | 8632                |
| 16 Aug 2011 | 2:00  | 70     | 28        | 4       | 2297         | 157      | 309     | 8992                |
| 16 Aug 2011 | 3:00  | 103    | 24        | 4       | 2096         | 146      | 300     | 8996                |
| 16 Aug 2011 | 4:00  | 158    | 29        | 5       | 2120         | 160      | 313     | 8996                |
| 16 Aug 2011 | 5:00  | 263    | 58        | 4       | 2355         | 160      | 313     | 8992                |
| 16 Aug 2011 | 6:00  | 602    | 104       | 4       | 2234         | 192      | 367     | 8992                |
| 16 Aug 2011 | 7:00  | 597    | 178       | 8       | 3050         | 445      | 471     | 8992                |
| 16 Aug 2011 | 8:00  | 639    | 307       | 8       | 5308         | 631      | 604     | 8988                |
| 16 Aug 2011 | 9:00  | 739    | 343       | 12      | 6245         | 618      | 606     | 8988                |
| 16 Aug 2011 | 10:00 | 688    | 262       | 23      | 5624         | 549      | 569     | 8992                |
| 16 Aug 2011 | 11:00 | 711    | 194       | 15      | 4529         | 469      | 440     | 8988                |
| 16 Aug 2011 | 12:00 | 643    | 189       | 8       | 3848         | 539      | 390     | 8992                |
| 16 Aug 2011 | 13:00 | 548    | 177       | 8       | 3377         | 448      | 330     | 8988                |
| 16 Aug 2011 | 14:00 | 677    | 170       | 7       | 3188         | 348      | 312     | 796                 |
| 16 Aug 2011 | 15:00 | 638    | 157       | 8       | 3023         | 414      | 260     | 0                   |
| 16 Aug 2011 | 16:00 | 524    | 158       | 8       | 2911         | 350      | 324     | 0                   |
| 16 Aug 2011 | 17:00 | 502    | 165       | 11      | 3262         | 405      | 396     | 2036                |
| 16 Aug 2011 | 18:00 | 528    | 223       | 12      | 4224         | 554      | 551     | 4328                |
| 16 Aug 2011 | 19:00 | 568    | 242       | 20      | 5458         | 553      | 657     | 4320                |
| 16 Aug 2011 | 20:00 | 568    | 237       | 19      | 5763         | 635      | 679     | 4204                |
| 16 Aug 2011 | 21:00 | 553    | 208       | 12      | 5376         | 515      | 616     | 4048                |
| 16 Aug 2011 | 22:00 | 525    | 158       | 12      | 4904         | 354      | 538     | 4044                |
| 16 Aug 2011 | 23:00 | 480    | 89        | 12      | 3629         | 276      | 405     | 4048                |
| 16 Aug 2011 | 0:00  | 177    | 37        | 8       | 2761         | 189      | 345     | 4048                |
| 17 Aug 2011 | 1:00  | 186    | 23        | 4       | 2149         | 163      | 298     | 13196               |
| 17 Aug 2011 | 2:00  | 155    | 24        | 4       | 1959         | 162      | 310     | 13316               |
| 17 Aug 2011 | 3:00  | 164    | 23        | 4       | 1955         | 161      | 327     | 13324               |
| 17 Aug 2011 | 4:00  | 224    | 28        | 0       | 2062         | 161      | 327     | 13316               |
| 17 Aug 2011 | 5:00  | 348    | 61        | 4       | 2146         | 184      | 340     | 13320               |
| 17 Aug 2011 | 6:00  | 651    | 105       | 4       | 2504         | 216      | 394     | 13316               |
| 17 Aug 2011 | 7:00  | 624    | 197       | 8       | 3400         | 507      | 437     | 13316               |
| 17 Aug 2011 | 8:00  | 655    | 308       | 8       | 5240         | 705      | 581     | 13316               |
| 17 Aug 2011 | 9:00  | 645    | 310       | 16      | 5980         | 671      | 605     | 13316               |
| 17 Aug 2011 | 10:00 | 659    | 266       | 20      | 5444         | 637      | 462     | 13312               |
| 17 Aug 2011 | 11:00 | 678    | 208       | 12      | 4611         | 564      | 421     | 13308               |
| 17 Aug 2011 | 12:00 | 619    | 238       | 16      | 4007         | 524      | 348     | 13312               |
| 17 Aug 2011 | 13:00 | 661    | 219       | 16      | 3738         | 544      | 297     | 13320               |
| 17 Aug 2011 | 14:00 | 652    | 222       | 19      | 3660         | 566      | 275     | 13316               |
| 17 Aug 2011 | 15:00 | 641    | 154       | 16      | 3326         | 488      | 302     | 13312               |
| 17 Aug 2011 | 16:00 | 567    | 129       | 12      | 3400         | 568      | 360     | 13320               |
| 17 Aug 2011 | 17:00 | 585    | 180       | 12      | 3947         | 578      | 435     | 13320               |
| 17 Aug 2011 | 18:00 | 588    | 226       | 15      | 5076         | 581      | 567     | 13316               |
| 17 Aug 2011 | 19:00 | 582    | 257       | 20      | 6046         | 556      | 694     | 12900               |
| 17 Aug 2011 | 20:00 | 565    | 235       | 12      | 6183         | 476      | 658     | 10624               |
| 17 Aug 2011 | 21:00 | 563    | 211       | 19      | 5931         | 442      | 609     | 10632               |
| 17 Aug 2011 | 22:00 | 555    | 166       | 12      | 5157         | 350      | 523     | 10624               |
| 17 Aug 2011 | 23:00 | 504    | 94        | 8       | 3899         | 246      | 424     | 10624               |
| 17 Aug 2011 | 0:00  | 463    | 47        | 4       | 2666         | 180      | 330     | 10632               |
| 18 Aug 2011 | 1:00  | 211    | 28        | 4       | 2310         | 157      | 324     | 14128               |
| 18 Aug 2011 | 2:00  | 154    | 28        | 4       | 2147         | 160      | 288     | 16176               |
| 18 Aug 2011 | 3:00  | 185    | 18        | 4       | 2016         | 159      | 303     | 16172               |
| 18 Aug 2011 | 4:00  | 244    | 28        | 4       | 2179         | 160      | 289     | 16176               |
| 18 Aug 2011 | 5:00  | 370    | 51        | 4       | 2236         | 161      | 302     | 16172               |
| 18 Aug 2011 | 6:00  | 674    | 61        | 8       | 2583         | 202      | 342     | 16172               |
| 18 Aug 2011 | 7:00  | 691    | 171       | 4       | 3517         | 506      | 442     | 16172               |
| 18 Aug 2011 | 8:00  | 673    | 280       | 12      | 5441         | 667      | 575     | 16172               |
| 18 Aug 2011 | 9:00  | 679    | 281       | 16      | 6142         | 701      | 550     | 16168               |
| 18 Aug 2011 | 10:00 | 649    | 230       | 15      | 5238         | 598      | 451     | 16168               |
| 18 Aug 2011 | 11:00 | 690    | 186       | 16      | 4377         | 530      | 390     | 16168               |
| 18 Aug 2011 | 12:00 | 612    | 209       | 15      | 3887         | 485      | 372     | 16164               |
| 18 Aug 2011 | 13:00 | 630    | 190       | 16      | 3395         | 428      | 344     | 16164               |
| 18 Aug 2011 | 14:00 | 623    | 173       | 15      | 3506         | 462      | 360     | 16164               |
| 18 Aug 2011 | 15:00 | 597    | 165       | 12      | 3195         | 404      | 332     | 16204               |
| 18 Aug 2011 | 16:00 | 470    | 131       | 16      | 2905         | 393      | 353     | 16192               |

**CENTRAL (SOUTH) SYSTEM**

| Date        | Time  | Eltham | Inglewood | Kaponga | New Plymouth | Siratford | Waitara | Pokuru 2 |  |
|-------------|-------|--------|-----------|---------|--------------|-----------|---------|----------|--|
| 18 Aug 2011 | 17:00 | 548    | 151       | 15      | 3306         | 392       | 383     | 20908    |  |
| 18 Aug 2011 | 18:00 | 586    | 207       | 16      | 4231         | 471       | 536     | 21072    |  |
| 18 Aug 2011 | 19:00 | 554    | 240       | 19      | 5309         | 503       | 618     | 21076    |  |
| 18 Aug 2011 | 20:00 | 566    | 229       | 16      | 5636         | 458       | 636     | 21072    |  |
| 18 Aug 2011 | 21:00 | 534    | 214       | 15      | 5437         | 435       | 572     | 21072    |  |
| 18 Aug 2011 | 22:00 | 476    | 173       | 12      | 4876         | 357       | 534     | 21068    |  |
| 18 Aug 2011 | 23:00 | 327    | 101       | 8       | 3912         | 256       | 457     | 21068    |  |
| 18 Aug 2011 | 0:00  | 212    | 46        | 8       | 2744         | 188       | 350     | 21072    |  |
| 19 Aug 2011 | 1:00  | 184    | 23        | 4       | 2383         | 165       | 305     | 21068    |  |
| 19 Aug 2011 | 2:00  | 174    | 18        | 4       | 2006         | 165       | 293     | 19444    |  |
| 19 Aug 2011 | 3:00  | 165    | 19        | 0       | 2056         | 154       | 286     | 13316    |  |
| 19 Aug 2011 | 4:00  | 153    | 27        | 4       | 2209         | 153       | 299     | 13316    |  |
| 19 Aug 2011 | 5:00  | 238    | 47        | 4       | 2181         | 153       | 285     | 13316    |  |
| 19 Aug 2011 | 6:00  | 656    | 94        | 4       | 2445         | 209       | 294     | 13312    |  |
| 19 Aug 2011 | 7:00  | 590    | 183       | 7       | 3429         | 410       | 422     | 13304    |  |
| 19 Aug 2011 | 8:00  | 638    | 288       | 12      | 5303         | 578       | 494     | 13308    |  |
| 19 Aug 2011 | 9:00  | 639    | 294       | 16      | 5659         | 602       | 540     | 13308    |  |
| 19 Aug 2011 | 10:00 | 621    | 213       | 19      | 4523         | 511       | 389     | 13304    |  |
| 19 Aug 2011 | 11:00 | 554    | 213       | 15      | 3758         | 367       | 315     | 13312    |  |
| 19 Aug 2011 | 12:00 | 368    | 170       | 12      | 3439         | 391       | 297     | 13320    |  |
| 19 Aug 2011 | 13:00 | 387    | 117       | 11      | 3042         | 367       | 272     | 13316    |  |
| 19 Aug 2011 | 14:00 | 404    | 91        | 20      | 2901         | 346       | 240     | 13308    |  |
| 19 Aug 2011 | 15:00 | 219    | 104       | 15      | 2668         | 313       | 209     | 13316    |  |
| 19 Aug 2011 | 16:00 | 196    | 72        | 12      | 2537         | 347       | 225     | 13316    |  |
| 19 Aug 2011 | 17:00 | 207    | 110       | 19      | 2786         | 380       | 281     | 13312    |  |
| 19 Aug 2011 | 18:00 | 214    | 175       | 16      | 3694         | 448       | 402     | 16944    |  |
| 19 Aug 2011 | 19:00 | 230    | 215       | 19      | 5014         | 458       | 522     | 28072    |  |
| 19 Aug 2011 | 20:00 | 210    | 210       | 19      | 5231         | 434       | 543     | 28252    |  |
| 19 Aug 2011 | 21:00 | 198    | 180       | 15      | 4776         | 398       | 497     | 28352    |  |
| 19 Aug 2011 | 22:00 | 186    | 148       | 16      | 4349         | 353       | 451     | 28344    |  |
| 19 Aug 2011 | 23:00 | 187    | 86        | 11      | 3696         | 250       | 383     | 28340    |  |
| 19 Aug 2011 | 0:00  | 147    | 50        | 8       | 2838         | 184       | 316     | 28332    |  |
| 20 Aug 2011 | 1:00  | 130    | 32        | 4       | 2380         | 138       | 287     | 15520    |  |
| 20 Aug 2011 | 2:00  | 141    | 18        | 4       | 2215         | 150       | 267     | 14372    |  |
| 20 Aug 2011 | 3:00  | 124    | 23        | 4       | 2025         | 139       | 257     | 14376    |  |
| 20 Aug 2011 | 4:00  | 133    | 18        | 4       | 1966         | 140       | 268     | 14368    |  |
| 20 Aug 2011 | 5:00  | 171    | 23        | 4       | 2053         | 162       | 269     | 14372    |  |
| 20 Aug 2011 | 6:00  | 253    | 32        | 4       | 2116         | 163       | 268     | 14372    |  |
| 20 Aug 2011 | 7:00  | 289    | 56        | 4       | 2280         | 208       | 311     | 14368    |  |
| 20 Aug 2011 | 8:00  | 552    | 118       | 8       | 3241         | 320       | 361     | 14372    |  |
| 20 Aug 2011 | 9:00  | 560    | 147       | 7       | 3975         | 375       | 434     | 14364    |  |
| 20 Aug 2011 | 10:00 | 552    | 128       | 12      | 3880         | 352       | 367     | 14372    |  |
| 20 Aug 2011 | 11:00 | 515    | 99        | 8       | 3317         | 320       | 323     | 14368    |  |
| 20 Aug 2011 | 12:00 | 498    | 83        | 7       | 2713         | 252       | 274     | 14364    |  |
| 20 Aug 2011 | 13:00 | 567    | 87        | 8       | 2386         | 208       | 273     | 14368    |  |
| 20 Aug 2011 | 14:00 | 488    | 67        | 8       | 2197         | 186       | 252     | 14368    |  |
| 20 Aug 2011 | 15:00 | 409    | 54        | 7       | 1960         | 174       | 224     | 14372    |  |
| 20 Aug 2011 | 16:00 | 466    | 63        | 8       | 2006         | 187       | 209     | 14368    |  |
| 20 Aug 2011 | 17:00 | 478    | 94        | 8       | 2060         | 232       | 254     | 14372    |  |
| 20 Aug 2011 | 18:00 | 487    | 158       | 11      | 2941         | 314       | 367     | 14376    |  |
| 20 Aug 2011 | 19:00 | 525    | 203       | 16      | 4133         | 369       | 508     | 14368    |  |
| 20 Aug 2011 | 20:00 | 318    | 198       | 16      | 4169         | 368       | 499     | 14368    |  |
| 20 Aug 2011 | 21:00 | 328    | 171       | 16      | 4036         | 334       | 434     | 14368    |  |
| 20 Aug 2011 | 22:00 | 378    | 137       | 12      | 3694         | 278       | 436     | 14368    |  |
| 20 Aug 2011 | 23:00 | 262    | 100       | 8       | 3146         | 221       | 379     | 14368    |  |
| 20 Aug 2011 | 0:00  | 125    | 55        | 8       | 2489         | 164       | 339     | 14372    |  |
| 21 Aug 2011 | 1:00  | 136    | 37        | 4       | 1984         | 130       | 311     | 17368    |  |
| 21 Aug 2011 | 2:00  | 117    | 23        | 4       | 1798         | 118       | 305     | 17480    |  |
| 21 Aug 2011 | 3:00  | 127    | 24        | 4       | 1736         | 131       | 294     | 17476    |  |
| 21 Aug 2011 | 4:00  | 118    | 33        | 4       | 1956         | 132       | 304     | 17480    |  |
| 21 Aug 2011 | 5:00  | 282    | 33        | 0       | 1876         | 144       | 313     | 17484    |  |
| 21 Aug 2011 | 6:00  | 502    | 34        | 4       | 2046         | 143       | 320     | 17484    |  |
| 21 Aug 2011 | 7:00  | 534    | 92        | 4       | 2364         | 177       | 322     | 17480    |  |
| 21 Aug 2011 | 8:00  | 564    | 154       | 8       | 2962         | 269       | 377     | 17480    |  |
| 21 Aug 2011 | 9:00  | 610    | 198       | 12      | 3909         | 347       | 442     | 17480    |  |
| 21 Aug 2011 | 10:00 | 581    | 174       | 11      | 4302         | 359       | 374     | 17492    |  |
| 21 Aug 2011 | 11:00 | 584    | 155       | 8       | 3771         | 370       | 330     | 17588    |  |
| 21 Aug 2011 | 12:00 | 545    | 120       | 11      | 3043         | 299       | 289     | 16380    |  |
| 21 Aug 2011 | 13:00 | 465    | 65        | 8       | 2927         | 254       | 253     | 13860    |  |
| 21 Aug 2011 | 14:00 | 443    | 44        | 7       | 2700         | 175       | 237     | 13864    |  |
| 21 Aug 2011 | 15:00 | 453    | 44        | 4       | 2038         | 152       | 191     | 13860    |  |
| 21 Aug 2011 | 16:00 | 371    | 44        | 4       | 1844         | 163       | 188     | 13860    |  |
| 21 Aug 2011 | 17:00 | 403    | 67        | 8       | 2117         | 188       | 217     | 13864    |  |
| 21 Aug 2011 | 18:00 | 459    | 124       | 15      | 2911         | 276       | 354     | 14084    |  |
| 21 Aug 2011 | 19:00 | 494    | 177       | 16      | 4012         | 358       | 464     | 14316    |  |
| 21 Aug 2011 | 20:00 | 426    | 176       | 11      | 4244         | 368       | 484     | 14312    |  |
| 21 Aug 2011 | 21:00 | 483    | 159       | 12      | 4074         | 334       | 450     | 14312    |  |
| 21 Aug 2011 | 22:00 | 494    | 118       | 8       | 3723         | 289       | 412     | 14316    |  |
| 21 Aug 2011 | 23:00 | 472    | 75        | 8       | 2810         | 221       | 343     | 14316    |  |
| 22 Aug 2011 | 0:00  | 443    | 41        | 5       | 2204         | 152       | 327     | 14312    |  |

**FRANKLEY RD SYSTEM**

| Date        | Time  | Ammonia-Urea Plant | Lactose | Stratford Storage | Stratford Power Station | TCC Power Station | Kapuni Treatment Plant | Kapuni GTP/Mau Bypass |
|-------------|-------|--------------------|---------|-------------------|-------------------------|-------------------|------------------------|-----------------------|
| 21 May 2012 | 1:00  | 21478              | 43      | 7656              | 0                       | 62888             | 0                      | 31050                 |
| 21 May 2012 | 2:00  | 21386              | 35      | 13528             | 0                       | 65136             | 0                      | 31056                 |
| 21 May 2012 | 3:00  | 20830              | 35      | 12128             | 0                       | 56544             | 0                      | 31069                 |
| 21 May 2012 | 4:00  | 20597              | 36      | 13664             | 0                       | 58880             | 0                      | 31060                 |
| 21 May 2012 | 5:00  | 20344              | 36      | 13984             | 0                       | 66800             | 0                      | 31062                 |
| 21 May 2012 | 6:00  | 20282              | 42      | 14248             | 0                       | 66060             | 0                      | 32512                 |
| 21 May 2012 | 7:00  | 20117              | 36      | 32488             | 0                       | 66484             | 0                      | 34198                 |
| 21 May 2012 | 8:00  | 19987              | 43      | 40736             | 0                       | 66584             | 0                      | 34676                 |
| 21 May 2012 | 9:00  | 19958              | 42      | 40560             | 0                       | 66868             | 0                      | 34652                 |
| 21 May 2012 | 10:00 | 19991              | 36      | 40056             | 0                       | 66776             | 0                      | 34658                 |
| 21 May 2012 | 11:00 | 20374              | 27      | 38416             | 0                       | 65864             | 0                      | 34650                 |
| 21 May 2012 | 12:00 | 20660              | 35      | 35008             | 0                       | 61404             | 0                      | 34642                 |
| 21 May 2012 | 13:00 | 20849              | 35      | 38488             | 0                       | 66704             | 0                      | 34585                 |
| 21 May 2012 | 14:00 | 20987              | 26      | 36176             | 0                       | 66472             | 0                      | 37516                 |
| 21 May 2012 | 15:00 | 21161              | 33      | 36536             | 0                       | 65656             | 0                      | 35130                 |
| 21 May 2012 | 16:00 | 20930              | 33      | 35456             | 0                       | 65876             | 0                      | 35318                 |
| 21 May 2012 | 17:00 | 20604              | 34      | 37688             | 0                       | 66404             | 0                      | 39142                 |
| 21 May 2012 | 18:00 | 20646              | 36      | 40664             | 0                       | 64184             | 0                      | 38899                 |
| 21 May 2012 | 19:00 | 20810              | 42      | 40376             | 0                       | 56372             | 0                      | 40738                 |
| 21 May 2012 | 20:00 | 20804              | 43      | 35216             | 0                       | 33004             | 0                      | 44830                 |
| 21 May 2012 | 21:00 | 20780              | 44      | 35312             | 0                       | 22708             | 74                     | 47729                 |
| 21 May 2012 | 22:00 | 21674              | 43      | 22920             | 0                       | 33332             | 18611                  | 67810                 |
| 21 May 2012 | 23:00 | 21647              | 44      | 14448             | 0                       | 68052             | 22369                  | 76228                 |
| 21 May 2012 | 0:00  | 21673              | 43      | 14952             | 0                       | 53380             | 10214                  | 75968                 |
| 22 May 2012 | 1:00  | 21653              | 44      | 20464             | 0                       | 20696             | 122                    | 68798                 |
| 22 May 2012 | 2:00  | 21094              | 43      | 22072             | 0                       | 23920             | 0                      | 60376                 |
| 22 May 2012 | 3:00  | 21052              | 44      | 21912             | 0                       | 25072             | 0                      | 60475                 |
| 22 May 2012 | 4:00  | 21042              | 50      | 20168             | 0                       | 35080             | 0                      | 61944                 |
| 22 May 2012 | 5:00  | 20917              | 43      | 21032             | 0                       | 65568             | 0                      | 61940                 |
| 22 May 2012 | 6:00  | 20858              | 51      | 22512             | 0                       | 60064             | 0                      | 61966                 |
| 22 May 2012 | 7:00  | 20893              | 44      | 31968             | 0                       | 61192             | 0                      | 61946                 |
| 22 May 2012 | 8:00  | 20894              | 50      | 44000             | 0                       | 59496             | 0                      | 61936                 |
| 22 May 2012 | 9:00  | 20717              | 51      | 45776             | 0                       | 55968             | 0                      | 61924                 |
| 22 May 2012 | 10:00 | 20395              | 36      | 46792             | 0                       | 52692             | 0                      | 61811                 |
| 22 May 2012 | 11:00 | 20251              | 35      | 47720             | 0                       | 55840             | 0                      | 54648                 |
| 22 May 2012 | 12:00 | 19990              | 41      | 47688             | 0                       | 40236             | 0                      | 45520                 |
| 22 May 2012 | 13:00 | 19782              | 33      | 47736             | 0                       | 25372             | 0                      | 38809                 |
| 22 May 2012 | 14:00 | 19722              | 33      | 47432             | 0                       | 19324             | 0                      | 36698                 |
| 22 May 2012 | 15:00 | 19664              | 33      | 47584             | 0                       | 17136             | 0                      | 33466                 |
| 22 May 2012 | 16:00 | 19686              | 32      | 46648             | 0                       | 20416             | 0                      | 29241                 |
| 22 May 2012 | 17:00 | 19739              | 27      | 42608             | 0                       | 22200             | 0                      | 29233                 |
| 22 May 2012 | 18:00 | 19760              | 35      | 39400             | 0                       | 25528             | 0                      | 29233                 |
| 22 May 2012 | 19:00 | 19790              | 42      | 38552             | 0                       | 20956             | 0                      | 29257                 |
| 22 May 2012 | 20:00 | 19815              | 43      | 29208             | 0                       | 24896             | 0                      | 32840                 |
| 22 May 2012 | 21:00 | 19834              | 42      | 23376             | 0                       | 31000             | 0                      | 38928                 |
| 22 May 2012 | 22:00 | 19893              | 43      | 23464             | 0                       | 24812             | 0                      | 51892                 |
| 22 May 2012 | 23:00 | 19876              | 44      | 23488             | 0                       | 23640             | 0                      | 58556                 |
| 22 May 2012 | 0:00  | 19827              | 35      | 23544             | 0                       | 18104             | 0                      | 61442                 |
| 23 May 2012 | 1:00  | 19841              | 36      | 20512             | 0                       | 63284             | 0                      | 61040                 |
| 23 May 2012 | 2:00  | 20030              | 43      | 21816             | 0                       | 61480             | 0                      | 61254                 |
| 23 May 2012 | 3:00  | 20037              | 35      | 18744             | 0                       | 62380             | 0                      | 61961                 |
| 23 May 2012 | 4:00  | 20053              | 36      | 17760             | 0                       | 68700             | 0                      | 61979                 |
| 23 May 2012 | 5:00  | 19993              | 35      | 15424             | 0                       | 68776             | 0                      | 62051                 |
| 23 May 2012 | 6:00  | 19994              | 36      | 17008             | 0                       | 67084             | 0                      | 65502                 |
| 23 May 2012 | 7:00  | 20036              | 36      | 33480             | 0                       | 68780             | 0                      | 65026                 |
| 23 May 2012 | 8:00  | 20352              | 35      | 47749             | 0                       | 61324             | 0                      | 64546                 |
| 23 May 2012 | 9:00  | 20491              | 43      | 46738             | 0                       | 65508             | 0                      | 63044                 |
| 23 May 2012 | 10:00 | 20316              | 27      | 32920             | 0                       | 68028             | 0                      | 63042                 |
| 23 May 2012 | 11:00 | 20290              | 35      | 32560             | 0                       | 42696             | 0                      | 61281                 |
| 23 May 2012 | 12:00 | 20211              | 27      | 57333             | 0                       | 26388             | 0                      | 57432                 |
| 23 May 2012 | 13:00 | 20225              | 26      | 43740             | 0                       | 24376             | 0                      | 55561                 |
| 23 May 2012 | 14:00 | 20179              | 32      | 30616             | 0                       | 29612             | 0                      | 48169                 |
| 23 May 2012 | 15:00 | 20167              | 27      | 37600             | 0                       | 21156             | 0                      | 44456                 |
| 23 May 2012 | 16:00 | 20111              | 26      | 37512             | 0                       | 25860             | 0                      | 43735                 |
| 23 May 2012 | 17:00 | 20091              | 27      | 39760             | 0                       | 23024             | 0                      | 43719                 |
| 23 May 2012 | 18:00 | 20262              | 35      | 42800             | 0                       | 25984             | 0                      | 43735                 |
| 23 May 2012 | 19:00 | 20394              | 27      | 38696             | 0                       | 21280             | 0                      | 43744                 |
| 23 May 2012 | 20:00 | 20436              | 35      | 37744             | 0                       | 18032             | 0                      | 43740                 |
| 23 May 2012 | 21:00 | 20478              | 36      | 45320             | 0                       | 25028             | 0                      | 43800                 |
| 23 May 2012 | 22:00 | 20421              | 35      | 32576             | 0                       | 26572             | 0                      | 47400                 |
| 23 May 2012 | 23:00 | 20311              | 36      | 27216             | 0                       | 24264             | 0                      | 47873                 |
| 23 May 2012 | 0:00  | 20513              | 27      | 23240             | 0                       | 19920             | 0                      | 50300                 |
| 24 May 2012 | 1:00  | 20473              | 36      | 14184             | 0                       | 61816             | 0                      | 51774                 |
| 24 May 2012 | 2:00  | 20494              | 35      | 13808             | 0                       | 62984             | 0                      | 52738                 |
| 24 May 2012 | 3:00  | 20498              | 36      | 13792             | 0                       | 67224             | 0                      | 52912                 |
| 24 May 2012 | 4:00  | 20479              | 35      | 13664             | 0                       | 60380             | 0                      | 52955                 |
| 24 May 2012 | 5:00  | 20458              | 36      | 14472             | 0                       | 59672             | 0                      | 52037                 |
| 24 May 2012 | 6:00  | 20492              | 35      | 14440             | 0                       | 68364             | 0                      | 52567                 |
| 24 May 2012 | 7:00  | 20497              | 35      | 28240             | 0                       | 65064             | 0                      | 51616                 |
| 24 May 2012 | 8:00  | 20481              | 35      | 37968             | 0                       | 58952             | 0                      | 51093                 |
| 24 May 2012 | 9:00  | 20442              | 27      | 46296             | 0                       | 55764             | 0                      | 51121                 |
| 24 May 2012 | 10:00 | 20389              | 36      | 41568             | 0                       | 67856             | 0                      | 51085                 |
| 24 May 2012 | 11:00 | 20481              | 27      | 34304             | 0                       | 64476             | 0                      | 51075                 |
| 24 May 2012 | 12:00 | 20679              | 26      | 35072             | 0                       | 64172             | 0                      | 50414                 |
| 24 May 2012 | 13:00 | 20856              | 27      | 29400             | 0                       | 67716             | 0                      | 50658                 |
| 24 May 2012 | 14:00 | 20857              | 27      | 26152             | 0                       | 67600             | 0                      | 51004                 |
| 24 May 2012 | 15:00 | 20861              | 26      | 24808             | 0                       | 50112             | 0                      | 48808                 |
| 24 May 2012 | 16:00 | 20880              | 27      | 24664             | 0                       | 25332             | 0                      | 40552                 |

**FRANKLEY RD SYSTEM**

| Date        | Time  | Ammonia-Urea Plant | Lactose | Stratford Storage | Stratford Power Station | TCC Power Station | Kapuni Treatment Plant | Kapuni GTP/Mau Bypass |
|-------------|-------|--------------------|---------|-------------------|-------------------------|-------------------|------------------------|-----------------------|
| 24 May 2012 | 17:00 | 20930              | 33      | 28536             | 0                       | 21380             | 0                      | 26774                 |
| 24 May 2012 | 18:00 | 20945              | 27      | 32400             | 0                       | 15896             | 0                      | 22019                 |
| 24 May 2012 | 19:00 | 20954              | 27      | 34632             | 0                       | 9712              | 0                      | 22484                 |
| 24 May 2012 | 20:00 | 21003              | 27      | 34024             | 0                       | 15840             | 0                      | 22726                 |
| 24 May 2012 | 21:00 | 21021              | 28      | 42272             | 0                       | 14116             | 0                      | 22734                 |
| 24 May 2012 | 22:00 | 20954              | 27      | 29992             | 0                       | 7648              | 0                      | 22732                 |
| 24 May 2012 | 23:00 | 21066              | 28      | 21408             | 0                       | 17068             | 0                      | 22716                 |
| 24 May 2012 | 0:00  | 21061              | 27      | 20936             | 0                       | 20696             | 0                      | 22718                 |
| 25 May 2012 | 1:00  | 21128              | 35      | 13920             | 0                       | 58748             | 0                      | 22694                 |
| 25 May 2012 | 2:00  | 21228              | 27      | 14608             | 0                       | 56244             | 0                      | 22718                 |
| 25 May 2012 | 3:00  | 21267              | 27      | 13720             | 0                       | 58288             | 0                      | 22718                 |
| 25 May 2012 | 4:00  | 21252              | 28      | 13664             | 0                       | 58420             | 0                      | 22718                 |
| 25 May 2012 | 5:00  | 21272              | 35      | 14632             | 0                       | 62820             | 0                      | 22712                 |
| 25 May 2012 | 6:00  | 21252              | 27      | 16752             | 0                       | 64336             | 0                      | 25233                 |
| 25 May 2012 | 7:00  | 21231              | 28      | 33320             | 0                       | 64512             | 0                      | 29239                 |
| 25 May 2012 | 8:00  | 21259              | 34      | 41968             | 0                       | 68148             | 0                      | 29239                 |
| 25 May 2012 | 9:00  | 21254              | 27      | 42104             | 0                       | 68780             | 0                      | 29231                 |
| 25 May 2012 | 10:00 | 21224              | 27      | 39296             | 0                       | 64404             | 0                      | 29235                 |
| 25 May 2012 | 11:00 | 21214              | 21      | 44872             | 0                       | 63760             | 0                      | 29227                 |
| 25 May 2012 | 12:00 | 21216              | 26      | 42760             | 0                       | 67356             | 0                      | 29231                 |
| 25 May 2012 | 13:00 | 21242              | 26      | 38576             | 0                       | 67064             | 0                      | 29231                 |
| 25 May 2012 | 14:00 | 21236              | 20      | 38920             | 0                       | 67040             | 0                      | 29217                 |
| 25 May 2012 | 15:00 | 21234              | 26      | 39992             | 0                       | 66832             | 0                      | 31404                 |
| 25 May 2012 | 16:00 | 21226              | 27      | 41128             | 0                       | 66924             | 0                      | 34913                 |
| 25 May 2012 | 17:00 | 21290              | 20      | 37800             | 0                       | 66868             | 0                      | 36471                 |
| 25 May 2012 | 18:00 | 21319              | 27      | 41696             | 0                       | 63040             | 0                      | 39265                 |
| 25 May 2012 | 19:00 | 21367              | 35      | 39232             | 0                       | 61800             | 0                      | 40121                 |
| 25 May 2012 | 20:00 | 21470              | 27      | 37256             | 0                       | 59040             | 0                      | 40093                 |
| 25 May 2012 | 21:00 | 21530              | 28      | 40200             | 0                       | 67456             | 0                      | 40097                 |
| 25 May 2012 | 22:00 | 21653              | 35      | 32568             | 0                       | 67544             | 0                      | 40170                 |
| 25 May 2012 | 23:00 | 21669              | 36      | 23832             | 0                       | 67980             | 0                      | 40168                 |
| 25 May 2012 | 0:00  | 21690              | 36      | 23304             | 0                       | 66080             | 0                      | 40150                 |
| 26 May 2012 | 1:00  | 21691              | 36      | 14120             | 0                       | 61864             | 0                      | 37428                 |
| 26 May 2012 | 2:00  | 21710              | 36      | 15424             | 0                       | 61828             | 0                      | 40873                 |
| 26 May 2012 | 3:00  | 21708              | 35      | 13968             | 0                       | 57484             | 0                      | 40586                 |
| 26 May 2012 | 4:00  | 21724              | 37      | 14992             | 0                       | 56880             | 0                      | 40848                 |
| 26 May 2012 | 5:00  | 21701              | 36      | 16704             | 0                       | 56720             | 0                      | 41945                 |
| 26 May 2012 | 6:00  | 21719              | 42      | 14216             | 0                       | 56740             | 0                      | 41037                 |
| 26 May 2012 | 7:00  | 21728              | 36      | 9752              | 0                       | 47236             | 0                      | 40599                 |
| 26 May 2012 | 8:00  | 21704              | 43      | 10568             | 0                       | 51120             | 0                      | 40575                 |
| 26 May 2012 | 9:00  | 21717              | 36      | 13544             | 0                       | 57428             | 0                      | 40586                 |
| 26 May 2012 | 10:00 | 21692              | 35      | 16832             | 0                       | 55692             | 0                      | 40586                 |
| 26 May 2012 | 11:00 | 21683              | 27      | 13504             | 0                       | 60004             | 0                      | 40571                 |
| 26 May 2012 | 12:00 | 21607              | 27      | 13536             | 0                       | 54316             | 411                    | 43072                 |
| 26 May 2012 | 13:00 | 21594              | 26      | 13896             | 0                       | 54312             | 6125                   | 54013                 |
| 26 May 2012 | 14:00 | 21576              | 27      | 10312             | 0                       | 53668             | 6124                   | 54069                 |
| 26 May 2012 | 15:00 | 21628              | 26      | 9696              | 0                       | 49560             | 5975                   | 54045                 |
| 26 May 2012 | 16:00 | 21589              | 27      | 9912              | 0                       | 50244             | 5986                   | 54056                 |
| 26 May 2012 | 17:00 | 21654              | 27      | 9416              | 0                       | 54036             | 5458                   | 53373                 |
| 26 May 2012 | 18:00 | 21531              | 27      | 16024             | 0                       | 66032             | 4172                   | 51299                 |
| 26 May 2012 | 19:00 | 21529              | 27      | 10152             | 0                       | 62132             | 4161                   | 50702                 |
| 26 May 2012 | 20:00 | 21654              | 35      | 9776              | 0                       | 49216             | 4267                   | 50698                 |
| 26 May 2012 | 21:00 | 21628              | 28      | 7552              | 0                       | 46716             | 4359                   | 50691                 |
| 26 May 2012 | 22:00 | 21639              | 27      | 1120              | 0                       | 36304             | 4073                   | 50707                 |
| 26 May 2012 | 23:00 | 21757              | 27      | 0                 | 0                       | 34564             | 3884                   | 50696                 |
| 26 May 2012 | 0:00  | 21679              | 27      | 0                 | 0                       | 34668             | 4150                   | 50709                 |
| 27 May 2012 | 1:00  | 21687              | 28      | 0                 | 0                       | 41764             | 237                    | 41336                 |
| 27 May 2012 | 2:00  | 21650              | 27      | 616               | 0                       | 35344             | 0                      | 36492                 |
| 27 May 2012 | 3:00  | 21753              | 27      | 0                 | 0                       | 32196             | 0                      | 35079                 |
| 27 May 2012 | 4:00  | 21685              | 27      | 0                 | 0                       | 32212             | 0                      | 32066                 |
| 27 May 2012 | 5:00  | 21738              | 27      | 0                 | 0                       | 32460             | 0                      | 28116                 |
| 27 May 2012 | 6:00  | 21794              | 28      | 0                 | 0                       | 37312             | 0                      | 27405                 |
| 27 May 2012 | 7:00  | 21781              | 27      | 0                 | 0                       | 36076             | 0                      | 25312                 |
| 27 May 2012 | 8:00  | 21781              | 27      | 0                 | 0                       | 38596             | 0                      | 23786                 |
| 27 May 2012 | 9:00  | 21622              | 27      | 8768              | 0                       | 42520             | 0                      | 23778                 |
| 27 May 2012 | 10:00 | 21367              | 20      | 9680              | 0                       | 42508             | 0                      | 23784                 |
| 27 May 2012 | 11:00 | 21314              | 27      | 5720              | 0                       | 43756             | 0                      | 23772                 |
| 27 May 2012 | 12:00 | 21327              | 27      | 0                 | 0                       | 46820             | 0                      | 30831                 |
| 27 May 2012 | 13:00 | 21321              | 27      | 0                 | 0                       | 52156             | 1389                   | 37733                 |
| 27 May 2012 | 14:00 | 21307              | 20      | 0                 | 0                       | 50284             | 159                    | 39580                 |
| 27 May 2012 | 15:00 | 21338              | 27      | 0                 | 0                       | 50224             | 0                      | 39360                 |
| 27 May 2012 | 16:00 | 21423              | 20      | 0                 | 0                       | 55288             | 0                      | 39364                 |
| 27 May 2012 | 17:00 | 21100              | 26      | 0                 | 0                       | 55236             | 0                      | 39382                 |
| 27 May 2012 | 18:00 | 21099              | 21      | 0                 | 0                       | 58368             | 0                      | 39370                 |
| 27 May 2012 | 19:00 | 21177              | 27      | 0                 | 0                       | 47904             | 0                      | 39923                 |
| 27 May 2012 | 20:00 | 21108              | 20      | 0                 | 0                       | 42540             | 0                      | 40073                 |
| 27 May 2012 | 21:00 | 21089              | 27      | 4888              | 0                       | 47932             | 0                      | 40085                 |
| 27 May 2012 | 22:00 | 21126              | 27      | 16408             | 0                       | 45172             | 0                      | 40755                 |
| 27 May 2012 | 23:00 | 21162              | 28      | 8016              | 0                       | 50620             | 0                      | 41544                 |
| 28 May 2012 | 0:00  | 21086              | 27      | 15288             | 0                       | 46188             | 0                      | 41467                 |

## SOUTH SYSTEM

|             | Date  | Time | Rainfall | Injection | Ashhurst | Bentmont | Dameville | Felting | Flockhouse | Foron | Hastings | Hawera | Pauatahanui #2 | Kainanga | Kaitoke | Kakariki | Kuku | Lake Alice | Lewin | Longburn | Mahaia | Mangatiroka | Marton | Natapu | Okiowa | Oroa Downs | Otaki | Pahiatua | Palmerston Nth | Paraparaumu | Patea | Pauatahanui #1 | Rainu Start-up | Takapau | Te Horo | Waihapa | Waitanguru | Tawa  | Waltonara | Wanganui | Waitemata |     |      |    |
|-------------|-------|------|----------|-----------|----------|----------|-----------|---------|------------|-------|----------|--------|----------------|----------|---------|----------|------|------------|-------|----------|--------|-------------|--------|--------|--------|------------|-------|----------|----------------|-------------|-------|----------------|----------------|---------|---------|---------|------------|-------|-----------|----------|-----------|-----|------|----|
| 15 Aug 2011 | 1:00  | 0    | 8        | 3532      | 180      | 371      | 46        | 2704    | 909        | 4     | 0        | 75     | 11             | 4        | 20      | 670      | 642  | 46         | 84    | 0        | 857    | 2           | 788    | 0      | 53     | 938        | 1983  | 252      | 199            | 217         | 0     | 65             | 3              | 89      | 470     | 5655    | 32         | 1184  | 56        |          |           |     |      |    |
| 15 Aug 2011 | 2:00  | 0    | 17       | 3315      | 149      | 376      | 1         | 34      | 2900       | 891   | 4        | 0      | 73             | 23       | 4       | 12       | 620  | 578        | 74    | 82       | 0      | 910         | 2      | 931    | 0      | 29         | 916   | 2004     | 224            | 211         | 202   | 0              | 52             | 3       | 84      | 451     | 5685       | 39    | 1021      | 52       |           |     |      |    |
| 15 Aug 2011 | 3:00  | 0    | 9        | 3414      | 235      | 375      | 1         | 35      | 3006       | 914   | 4        | 0      | 77             | 12       | 4       | 17       | 646  | 575        | 79    | 82       | 45     | 923         | 2      | 765    | 0      | 28         | 972   | 2065     | 227            | 181         | 218   | 0              | 170            | 3       | 85      | 473     | 6223       | 39    | 1139      | 74       |           |     |      |    |
| 15 Aug 2011 | 4:00  | 0    | 9        | 3746      | 214      | 397      | 1         | 35      | 3006       | 914   | 4        | 0      | 77             | 12       | 4       | 17       | 646  | 575        | 79    | 82       | 45     | 923         | 2      | 765    | 0      | 28         | 972   | 2065     | 227            | 181         | 218   | 0              | 170            | 3       | 89      | 472     | 6632       | 44    | 1373      | 93       |           |     |      |    |
| 15 Aug 2011 | 5:00  | 0    | 17       | 4120      | 204      | 451      | 1         | 112     | 3790       | 910   | 4        | 0      | 76             | 54       | 4       | 0        | 92   | 180        | 4     | 15       | 1491   | 811         | 133    | 102    | 11     | 975        | 2     | 284      | 0              | 134         | 974   | 5945           | 928            | 218     | 503     | 0       | 578        | 3     | 321       | 232      | 16521     | 163 | 3524 | 30 |
| 15 Aug 2011 | 6:00  | 0    | 27       | 5525      | 216      | 564      | 1         | 110     | 4366       | 1017  | 4        | 0      | 89             | 128      | 4       | 0        | 13   | 1010       | 630   | 110      | 104    | 43          | 939    | 2      | 163    | 0          | 56    | 926      | 3362           | 557         | 163   | 289            | 0              | 456     | 3       | 169     | 883        | 10316 | 87        | 2054     | 37        |     |      |    |
| 15 Aug 2011 | 7:00  | 0    | 53       | 9814      | 225      | 796      | 1         | 131     | 5318       | 1240  | 4        | 0      | 92             | 180      | 4       | 15       | 1491 | 811        | 133   | 102      | 11     | 975         | 2      | 284    | 0      | 134        | 974   | 5945     | 928            | 218         | 503   | 0              | 578            | 3       | 321     | 232     | 16521      | 163   | 3524      | 30       |           |     |      |    |
| 15 Aug 2011 | 8:00  | 0    | 88       | 14029     | 279      | 1232     | 1         | 191     | 6648       | 1529  | 4        | 0      | 112            | 159      | 4       | 69       | 1728 | 963        | 145   | 133      | 23     | 1041        | 2      | 183    | 0      | 223        | 1080  | 8403     | 1405           | 176         | 635   | 0              | 612            | 3       | 520     | 3443    | 24123      | 178   | 5127      | 31       |           |     |      |    |
| 15 Aug 2011 | 9:00  | 0    | 88       | 13267     | 269      | 1294     | 1         | 189     | 7011       | 1273  | 4        | 0      | 134            | 178      | 4       | 87       | 1994 | 983        | 148   | 134      | 23     | 1230        | 2      | 131    | 0      | 252        | 1043  | 8274     | 1570           | 164         | 566   | 0              | 671            | 3       | 609     | 3147    | 25617      | 145   | 5340      | 36       |           |     |      |    |
| 15 Aug 2011 | 10:00 | 0    | 88       | 11976     | 300      | 1267     | 1         | 196     | 6614       | 1388  | 4        | 0      | 136            | 161      | 4       | 109      | 2072 | 978        | 161   | 135      | 22     | 1043        | 2      | 176    | 0      | 262        | 999   | 7628     | 1359           | 145         | 476   | 0              | 612            | 3       | 561     | 2667    | 22026      | 180   | 5167      | 30       |           |     |      |    |
| 15 Aug 2011 | 11:00 | 0    | 70       | 10738     | 286      | 1207     | 1         | 194     | 6567       | 1284  | 4        | 0      | 131            | 167      | 4       | 118      | 1840 | 912        | 155   | 131      | 11     | 967         | 2      | 188    | 0      | 178        | 1003  | 6727     | 1013           | 182         | 374   | 0              | 566            | 3       | 423     | 2074    | 18941      | 166   | 4863      | 41       |           |     |      |    |
| 15 Aug 2011 | 12:00 | 0    | 60       | 10733     | 296      | 1063     | 1         | 135     | 6545       | 1135  | 4        | 0      | 126            | 175      | 4       | 118      | 1581 | 891        | 142   | 115      | 31     | 865         | 2      | 168    | 0      | 135        | 992   | 6064     | 893            | 55          | 381   | 0              | 622            | 3       | 320     | 2123    | 19345      | 168   | 4650      | 24       |           |     |      |    |
| 15 Aug 2011 | 13:00 | 0    | 43       | 10308     | 284      | 933      | 1         | 153     | 6329       | 1018  | 4        | 0      | 116            | 164      | 4       | 120      | 1741 | 913        | 143   | 119      | 53     | 568         | 2      | 169    | 0      | 188        | 960   | 5847     | 1086           | 60          | 373   | 0              | 629            | 3       | 392     | 2097    | 19604      | 169   | 4668      | 29       |           |     |      |    |
| 15 Aug 2011 | 14:00 | 0    | 77       | 10209     | 255      | 885      | 1         | 172     | 6262       | 979   | 4        | 0      | 121            | 164      | 4       | 102      | 1559 | 1140       | 134   | 119      | 63     | 334         | 2      | 120    | 0      | 157        | 667   | 5864     | 883            | 59          | 372   | 0              | 705            | 3       | 340     | 2156    | 19247      | 167   | 4861      | 29       |           |     |      |    |
| 15 Aug 2011 | 15:00 | 0    | 70       | 10794     | 242      | 893      | 1         | 142     | 6419       | 1267  | 4        | 0      | 117            | 156      | 4       | 86       | 1225 | 965        | 117   | 120      | 55     | 349         | 2      | 107    | 0      | 144        | 804   | 5894     | 1031           | 115         | 450   | 0              | 708            | 3       | 381     | 2370    | 20548      | 140   | 4943      | 39       |           |     |      |    |
| 15 Aug 2011 | 16:00 | 0    | 51       | 11549     | 335      | 926      | 1         | 155     | 6041       | 1302  | 4        | 0      | 125            | 167      | 4       | 66       | 1591 | 1117       | 125   | 110      | 55     | 382         | 2      | 168    | 0      | 150        | 947   | 5761     | 1255           | 77          | 532   | 0              | 607            | 3       | 516     | 2578    | 21049      | 42    | 4770      | 29       |           |     |      |    |
| 15 Aug 2011 | 17:00 | 0    | 61       | 11487     | 294      | 970      | 1         | 182     | 6358       | 1485  | 4        | 0      | 114            | 79       | 4       | 59       | 1595 | 891        | 138   | 122      | 56     | 368         | 2      | 187    | 0      | 174        | 1102  | 7157     | 1478           | 116         | 586   | 0              | 434            | 3       | 624     | 2671    | 20730      | 30    | 4589      | 34       |           |     |      |    |
| 15 Aug 2011 | 18:00 | 0    | 71       | 12979     | 254      | 1115     | 1         | 185     | 6330       | 1689  | 4        | 0      | 102            | 130      | 4       | 72       | 1618 | 814        | 120   | 106      | 34     | 408         | 2      | 172    | 0      | 189        | 978   | 8126     | 1659           | 199         | 654   | 0              | 438            | 3       | 684     | 2937    | 21205      | 25    | 5957      | 29       |           |     |      |    |
| 15 Aug 2011 | 19:00 | 0    | 88       | 13773     | 242      | 1181     | 1         | 175     | 6254       | 1815  | 4        | 0      | 92             | 248      | 4       | 74       | 1595 | 841        | 103   | 116      | 35     | 396         | 2      | 769    | 5      | 181        | 834   | 8455     | 1710           | 207         | 683   | 0              | 386            | 3       | 742     | 2983    | 21564      | 25    | 6017      | 34       |           |     |      |    |
| 15 Aug 2011 | 20:00 | 0    | 72       | 11775     | 196      | 1088     | 1         | 143     | 6088       | 1630  | 4        | 0      | 89             | 220      | 4       | 59       | 1532 | 446        | 98    | 96       | 35     | 386         | 2      | 1389   | 0      | 155        | 894   | 7357     | 1607           | 181         | 653   | 0              | 364            | 3       | 699     | 2808    | 18339      | 26    | 5307      | 25       |           |     |      |    |
| 15 Aug 2011 | 21:00 | 0    | 71       | 10786     | 198      | 934      | 1         | 142     | 6140       | 1021  | 4        | 0      | 86             | 172      | 4       | 50       | 1471 | 737        | 83    | 93       | 68     | 365         | 2      | 1420   | 0      | 133        | 1068  | 7123     | 1415           | 172         | 590   | 0              | 285            | 3       | 618     | 2533    | 17033      | 56    | 5172      | 34       |           |     |      |    |
| 15 Aug 2011 | 22:00 | 0    | 45       | 9563      | 287      | 781      | 1</td     |         |            |       |          |        |                |          |         |          |      |            |       |          |        |             |        |        |        |            |       |          |                |             |       |                |                |         |         |         |            |       |           |          |           |     |      |    |

## SOUTH SYSTEM

|             | Date  | Time | Rinu Injection | Ashhurst | Bentmont | Danevirke | Felting | Flockhouse | Foxton | Hastings | Hawera | Pauatahanui #2 | Kainanga | Kaitoke | Kakariki | Kuku | Lake Alice | Lewin | Longburn | Manai'a | Mangatairoka | Marton | Naparu | Okiowa | Oroa Downs | Otaiki | Pahiatua | Palmerston Nth | Paraparaumu | Patea | Pauatahanui #1 | Rinu Start-up | Takapau | Te Horo | Waikanae | Waitanguru | Tawa  | Wainiora | Wanganui | Waverley |
|-------------|-------|------|----------------|----------|----------|-----------|---------|------------|--------|----------|--------|----------------|----------|---------|----------|------|------------|-------|----------|---------|--------------|--------|--------|--------|------------|--------|----------|----------------|-------------|-------|----------------|---------------|---------|---------|----------|------------|-------|----------|----------|----------|
| 18 Aug 2011 | 21:00 | 0    | 60             | 10796    | 291      | 840       | 1       | 117        | 6997   | 1090     | 4      | 0              | 80       | 190     | 4        | 171  | 1229       | 843   | 84       | 89      | 60           | 302    | 2      | 1167   | 0          | 138    | 1662     | 6412           | 1246        | 145   | 535            | 0             | 255     | 3       | 521      | 2339       | 17698 | 25       | 4371     | 74       |
| 18 Aug 2011 | 22:00 | 0    | 43             | 9260     | 271      | 726       | 1       | 100        | 5864   | 889      | 4      | 0              | 78       | 163     | 4        | 142  | 825        | 766   | 65       | 89      | 24           | 303    | 2      | 1436   | 0          | 95     | 1641     | 5422           | 1039        | 152   | 452            | 0             | 169     | 3       | 437      | 1911       | 15499 | 46       | 3712     | 70       |
| 18 Aug 2011 | 23:00 | 0    | 26             | 6535     | 268      | 515       | 1       | 81         | 5229   | 603      | 4      | 0              | 67       | 164     | 4        | 114  | 647        | 693   | 59       | 80      | 12           | 213    | 2      | 1786   | 0          | 79     | 1641     | 3887           | 625         | 144   | 326            | 0             | 215     | 3       | 275      | 1213       | 11295 | 78       | 3002     | 65       |
| 18 Aug 2011 | 0:00  | 0    | 17             | 4363     | 258      | 389       | 1       | 53         | 4822   | 411      | 4      | 0              | 67       | 146     | 4        | 114  | 647        | 693   | 59       | 80      | 12           | 213    | 2      | 1776   | 0          | 50     | 1649     | 2689           | 371         | 124   | 230            | 0             | 180     | 3       | 139      | 659        | 7600  | 59       | 1957     | 65       |
| 19 Aug 2011 | 1:00  | 0    | 9              | 3339     | 268      | 337       | 1       | 33         | 4474   | 301      | 4      | 0              | 74       | 155     | 4        | 164  | 1063       | 766   | 50       | 81      | 13           | 259    | 2      | 1776   | 0          | 50     | 1649     | 2689           | 371         | 124   | 230            | 0             | 194     | 3       | 95       | 461        | 5919  | 67       | 1741     | 61       |
| 19 Aug 2011 | 2:00  | 0    | 17             | 3003     | 199      | 317       | 1       | 33         | 4735   | 282      | 4      | 0              | 72       | 156     | 4        | 74   | 548        | 620   | 72       | 80      | 12           | 216    | 2      | 1850   | 0          | 34     | 1672     | 2018           | 215         | 101   | 188            | 0             | 180     | 3       | 85       | 382        | 5515  | 105      | 1868     | 61       |
| 19 Aug 2011 | 3:00  | 0    | 17             | 2927     | 283      | 381       | 1       | 33         | 4735   | 282      | 4      | 0              | 72       | 156     | 4        | 74   | 548        | 620   | 72       | 80      | 12           | 216    | 2      | 1791   | 0          | 33     | 1745     | 2038           | 217         | 127   | 176            | 0             | 194     | 3       | 88       | 384        | 5633  | 78       | 1545     | 53       |
| 19 Aug 2011 | 4:00  | 0    | 8              | 2985     | 212      | 403       | 1       | 33         | 4708   | 283      | 4      | 0              | 71       | 156     | 4        | 61   | 551        | 598   | 83       | 78      | 0            | 216    | 2      | 1677   | 0          | 33     | 1734     | 2385           | 274         | 194   | 201            | 0             | 243     | 3       | 96       | 423        | 6386  | 46       | 1757     | 65       |
| 19 Aug 2011 | 5:00  | 0    | 9              | 3303     | 175      | 415       | 1       | 126        | 4711   | 320      | 4      | 0              | 79       | 155     | 4        | 51   | 739        | 578   | 109      | 88      | 12           | 218    | 2      | 1677   | 0          | 36     | 1677     | 3180           | 528         | 162   | 241            | 0             | 334     | 3       | 160      | 765        | 8528  | 86       | 2196     | 55       |
| 19 Aug 2011 | 6:00  | 0    | 17             | 5077     | 225      | 448       | 1       | 132        | 5089   | 708      | 4      | 0              | 93       | 192     | 4        | 74   | 1045       | 680   | 103      | 94      | 14           | 246    | 2      | 1526   | 0          | 36     | 1677     | 3180           | 528         | 162   | 241            | 0             | 334     | 3       | 160      | 765        | 8528  | 86       | 2196     | 55       |
| 19 Aug 2011 | 7:00  | 0    | 27             | 9347     | 234      | 694       | 1       | 159        | 6123   | 1082     | 4      | 0              | 99       | 244     | 4        | 150  | 1479       | 778   | 114      | 94      | 0            | 277    | 2      | 1589   | 0          | 111    | 1703     | 5699           | 920         | 174   | 433            | 0             | 542     | 3       | 300      | 1998       | 14816 | 168      | 3356     | 63       |
| 19 Aug 2011 | 8:00  | 0    | 86             | 13224    | 270      | 1258      | 1       | 203        | 7733   | 1630     | 4      | 0              | 98       | 254     | 4        | 193  | 2073       | 878   | 152      | 113     | 0            | 355    | 2      | 1322   | 0          | 189    | 1745     | 8131           | 1322        | 127   | 609            | 0             | 553     | 3       | 481      | 3313       | 22839 | 180      | 5050     | 60       |
| 19 Aug 2011 | 9:00  | 0    | 86             | 12168    | 341      | 1036      | 1       | 237        | 8301   | 1607     | 4      | 0              | 118      | 252     | 4        | 197  | 2046       | 800   | 153      | 114     | 0            | 429    | 2      | 189    | 0          | 187    | 1706     | 7926           | 1387        | 97    | 516            | 0             | 666     | 3       | 530      | 2889       | 22267 | 182      | 4951     | 47       |
| 19 Aug 2011 | 10:00 | 0    | 68             | 10568    | 319      | 918       | 1       | 244        | 7084   | 1479     | 4      | 0              | 117      | 214     | 4        | 202  | 1900       | 801   | 141      | 126     | 0            | 381    | 2      | 658    | 0          | 175    | 1649     | 6786           | 1168        | 67    | 386            | 0             | 621     | 3       | 446      | 2306       | 18947 | 166      | 4315     | 51       |
| 19 Aug 2011 | 11:00 | 0    | 60             | 9335     | 305      | 900       | 1       | 197        | 7150   | 1419     | 4      | 0              | 113      | 267     | 4        | 201  | 1721       | 746   | 133      | 117     | 0            | 351    | 2      | 400    | 0          | 116    | 1148     | 6021           | 912         | 80    | 353            | 0             | 523     | 3       | 319      | 1984       | 16912 | 170      | 3889     | 46       |
| 19 Aug 2011 | 12:00 | 0    | 42             | 8775     | 329      | 955       | 1       | 198        | 6948   | 1415     | 4      | 0              | 107      | 259     | 4        | 181  | 1482       | 758   | 139      | 118     | 0            | 352    | 2      | 295    | 0          | 106    | 1044     | 5815           | 841         | 84    | 327            | 0             | 430     | 3       | 251      | 1797       | 16489 | 88       | 3753     | 56       |
| 19 Aug 2011 | 13:00 | 0    | 51             | 8395     | 333      | 844       | 1       | 191        | 6517   | 1368     | 4      | 0              | 101      | 258     | 4        | 183  | 1299       | 644   | 128      | 116     | 0            | 321    | 2      | 214    | 0          | 68     | 951      | 5605           | 745         | 59    | 314            | 0             | 390     | 3       | 210      | 1677       | 17275 | 26       | 3161     | 56       |
| 19 Aug 2011 | 14:00 | 0    | 60             | 8124     | 284      | 805       | 1       | 117        | 6296   | 1364     | 4      | 0              | 93       | 249     | 4        | 182  | 1202       | 621   | 119      | 106     | 0            | 305    | 2      | 227    | 0          | 92     | 957      | 5004           | 744         | 67    | 287            | 0             | 430     | 3       | 227      | 1655       | 16528 | 20       | 3375     | 52       |
| 19 Aug 2011 | 15:00 | 0    | 59             | 7446     | 261      | 775       | 1       | 119        | 5809   | 1538     | 4      | 0              | 98       | 205     | 4        | 175  | 939        | 591   | 111      | 105     | 0            | 305    | 2      | 315    | 0          | 75     | 1221     | 4658           | 677         | 50    | 288            | 0             | 451     | 3       | 207      | 1351       | 15725 | 26       | 3110     | 56       |
| 19 Aug 2011 | 16:00 | 0    | 43             | 7617     | 260      | 689       | 1       | 156        | 5911   | 1462     | 4      | 0              | 108      | 188     | 4        | 119  | 779        | 590   | 90       | 96      | 0            | 291    | 2      | 433    | 0          | 63     | 1268     | 4662           | 693         | 59    | 318            | 0             | 431     | 3       | 258      | 1395       | 15781 | 21       | 3342     | 43       |
| 19 Aug 2011 | 17:00 | 0    | 43             | 8935     | 260      | 720       | 1       | 146        | 5813   | 1393     | 4      | 0              | 99       | 207     | 4        | 145  | 791        | 613   | 92       | 109     | 0            | 328    | 2      | 433    | 0          | 66     | 1623     | 5085           | 869         | 144   | 406            | 0             | 294     | 3       | 350      | 1724       | 16698 | 16       | 4105     | 48       |
| 19 Aug 2011 | 18:00 | 0    | 59             | 10382    | 262      | 784       | 1       | 147        | 5803   | 1300     | 4      | 0              | 92       | 207     | 4        | 181  | 1046       |       |          |         |              |        |        |        |            |        |          |                |             |       |                |               |         |         |          |            |       |          |          |          |