
Water Supply

March 2002

Operations Group
March 2002

Operations Group Review of Operations for the Period Ended 31 March 2002

1. Items of Note

- It is pleasing to note that financial agreement with Wellington City Council is nearing a satisfactory conclusion, although final settlement of retention money is awaited.
- No problems have been experienced with meeting water supply demands from our customers. The peak day demand occurred on 3 February 2002 at a level of 198.4 MLD. The average quantity of water supplied during the past three months has been 160 MLD.

2. Water Quality

A total of 245 samples from trunk mains were tested for coliform organisms. None of these samples tested positive.

A total of 50 samples of treated water from treatment plants were tested for faecal coliforms. None of these samples tested positive.

Secchi disc water clarity in Te Marua Lake 1 (north lake) varied between 3.8 m and 4.9 m, and in Te Marua Lake 2 (south lake) between 3.4 m and 4.9 m. These are considered satisfactory.

The dominant phytoplankton were as follows:

- Lake 1: *Staurastrum*, *Peridium*, *Oscillatoria*
- Lake 2: *Staurastrum*, *Peridium*, *Westellar*

Oscillatoria is a filter clogging algae when present in high concentrations. *Asterionella* and *Peridium* produce fishy odours.

Dissolved oxygen (8.9-9.8 mg/L) was satisfactory. pH values were satisfactory (7.2-7.8).

Giardia and *Cryptosporidium* results were as follows:

Te Marua

Lakes)	No <i>Giardia</i>
)	No <i>Cryptosporidium</i>
Intake)	No <i>Giardia</i>
)	No <i>Cryptosporidium</i>

Treated Water) No *Giardia*
) No *Cryptosporidium*

Wainuiomata

Treated Water) No *Giardia*
) No *Cryptosporidium*

Lower George Creek and) Low *Giardia*
George Creek south arm) Low *Cryptosporidium*
combined)

Orongorongo and Big Huia) No *Giardia*
Intake combined) No *Cryptosporidium*

Wainuiomata intake) Low *Giardia*
) Low *Cryptosporidium*

Guidelines Criteria

0-10 oocysts per 100 litres = low
10-50 oocysts per 100 litres = medium
>50 oocysts per 100 litres = high

3. Supply Situation

The bi-monthly seasonal forecast for March 2002 issued by the Meteorological Service is as follows:

For Wellington

Rain: About normal, after a wet February. Some areas may be drier than normal.

Wind: About normal.

Temperature: About normal, some cold southerlies.

Sunshine: About normal after a dull February.

Confidence: Low to moderate

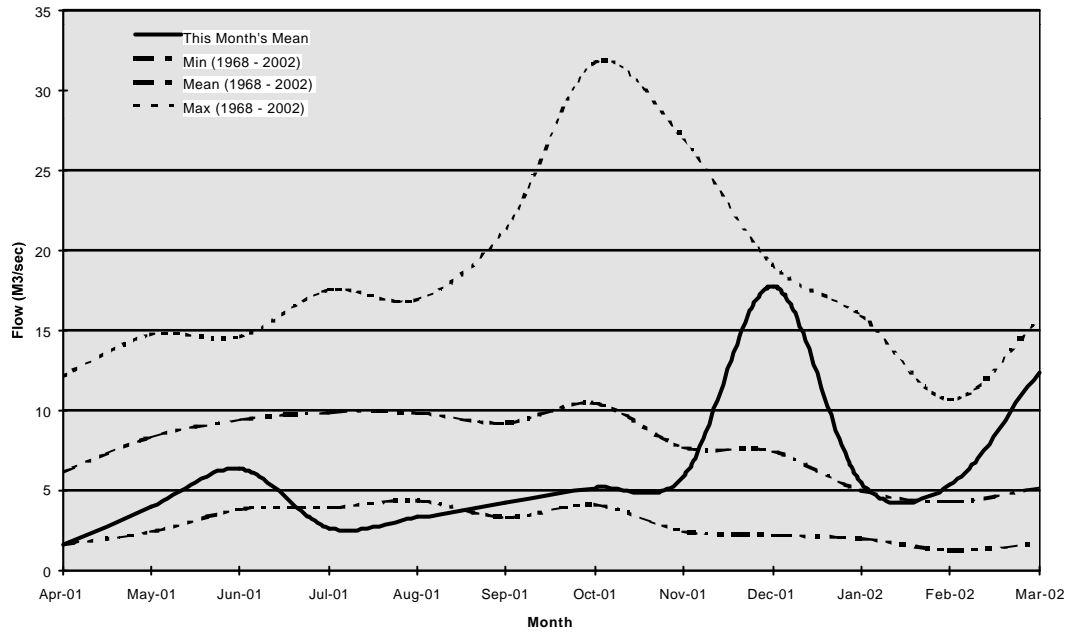
Specials: Mobile and cyclic

As we move closer to winter the standard near-weekly cycle for each front and its following anticyclone is expected to become the dominant pattern. During the dry periods, west or northwest winds may become strong for several days. There may well be several chilly southerly outbreaks as low-pressure systems develop and

deepen on passing fronts. These systems feed on the density difference between the cool southerly on one side and the moist northerly on the other ... check the weather map and if you see one forming, prepare for a day or two of wet weather.

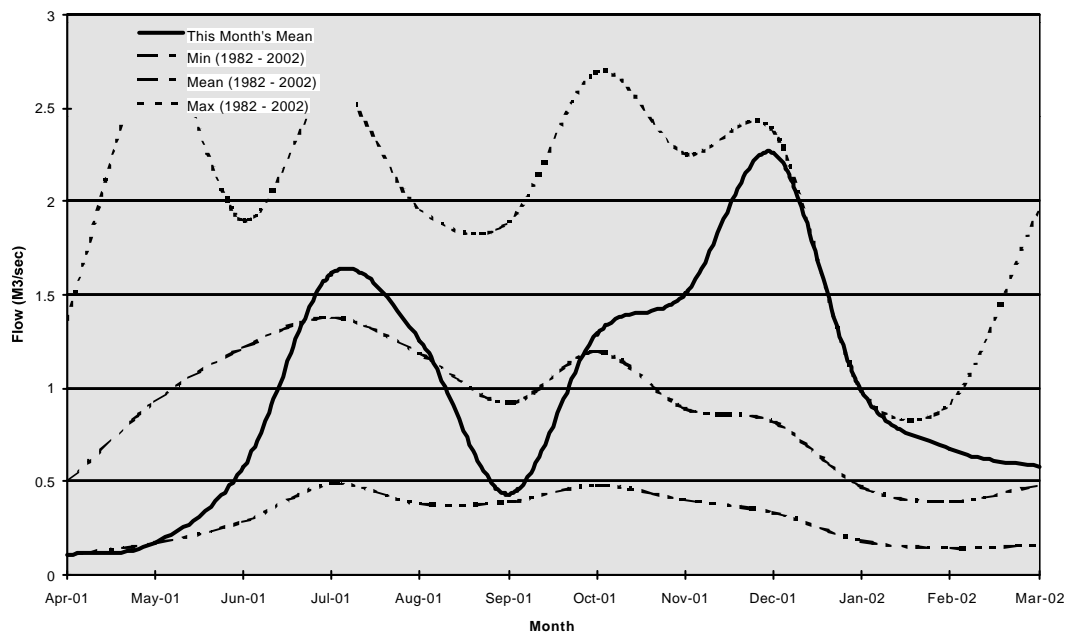
Hutt River Flows

The mean monthly flow in the Hutt River during March was above average and approaching the maximum due to a couple of high rainfall events within the Hutt Catchment.



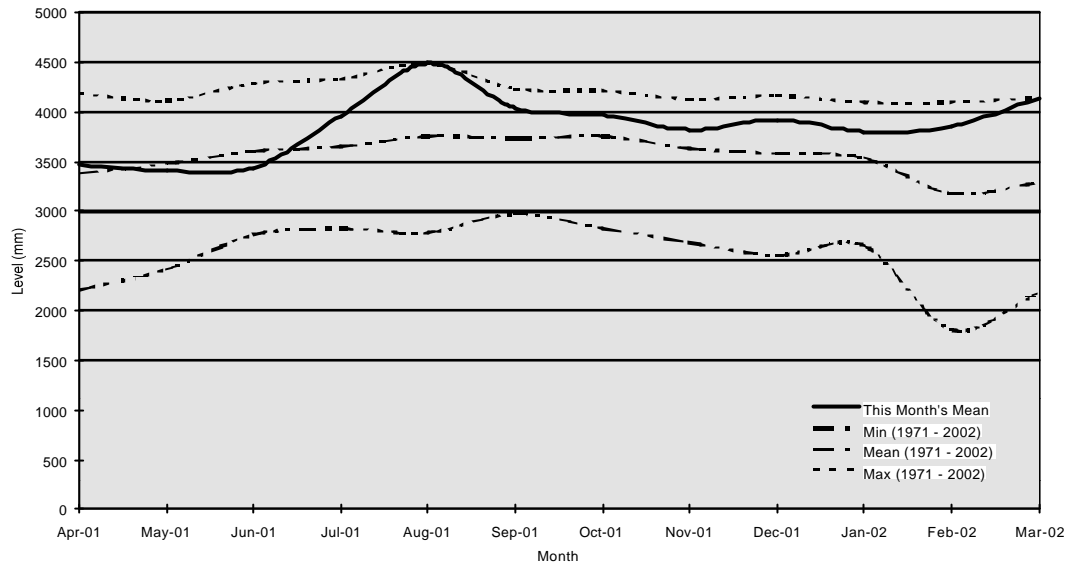
Wainuiomata River Flows

Flows in the Wainuiomata River were just above average during March, somewhat unaffected by the high rainfall events over the hill in the Hutt Catchment.



Aquifer Levels

The water level in the Waiwhetu aquifer rose to near maximum during March.



4. Production

4.1 Wainuiomata

4.1.1 Quality

- Daily filter compliance printouts have been commissioned.

4.1.2 Safety

There are no accidents or incidents to report.

4.1.3 Training

A day training session for four wheeled motorbikes was held.

4.1.4 Projects

There are no items to report.

4.1.5 General

- The plant produced an average flow of 31 MLD for March. This was because of river levels and the partial unavailability of the Orongorongos during this period. There was a considerable build-up of gravel on the floor of the Orongorongos intake, which severely restricted flow until it was removed. This source was also shut down on several occasions

because of river conditions, as well as a telemetry outage that meant it was closed for a day. Overall the plant was off for two planned five hour maintenance shutdowns and one overnight shutdown because of river conditions.

- The trials of powdered poly were completed and work on the construction of a permanent powdered poly plant commenced.
- Breakdowns occurred with the jigger gearbox, centrifuge seal and tractor hydraulics.

4.2 Waterloo Water Treatment Plant

4.2.1 Quality

There are no quality issues to report.

4.2.2 Safety

There are no accidents or incidents to report.

4.2.3 Operations

There are no items to report.

4.2.4 Projects

- Work to resolve noise and vibration problems at Waterloo have been discontinued whilst the success of work carried out to date is assessed.

4.3 Gear Island

4.3.1 Quality

There are no quality issues to report.

4.3.2 Safety

There are no accidents or incidents to report.

4.3.3 Operations

There are no items to report.

4.3.4 Projects

- There are no items to report.

4.4 Te Marua

4.4.1 Quality

There are no quality transgressions to report.

4.4.2 Safety

There are no accidents or incidents to report.

4.4.3 Operations (Call Outs)

Date	Problem	Cause
1 March 2002	Low streaming current alarm	High inlet colour
10 March 2002	Lake No. 1 alarm	Power fluctuation
16 March 2002	Low river level (Kaitoke) alarm	Power cut
17 March 2002	Increasing filter outlet turbidity	Dosing adjustment
18 March 2002	Low streaming current alarm	Blocked CO ₂ injector
19 March 2002	Low streaming current alarm	Blocked CO ₂ injector
20 March 2002	High treated water colour	Faulty instrument
22 March 2002	Filter sequence fault	Auto control out of sequence
23 March 2002	Lake No. 1 alarm	Heavy rain caused underdrain turbidity to increase
24 March 2002	Filter No. 1 sequence fault	North outlet valve failed to open within allotted time
25 March 2002	Filter No. 1 sequence fault	North outlet valve failed to open within allotted time
30 March 2002	Plant slam-shut	Major power cut

4.4.4 Plant Tours

12 March St Michael's School - 50 pupils

4.4.5 General

There are no general items to report.

5. Distribution

5.1 Health and Safety

There are no accidents or incidents to report.

5.2 Pipeline Section

5.2.1 Maintenance/Repairs

Maintenance was carried out on the following:

- The 1050 mm pipeline between the Korokoro valve chamber and Gear Island
- The scour and line valves on the Paremata double mains at Staites Drive were rehoused and repacked
- Further maintenance on the pipeline easements
- The 200 mm cast iron main south of the Paremata Bridge was repaired.

5.2.2 Point Howard Sample Line

- A new sample line and cabinet was installed on the inlet main.

5.2.3 Bell Road Electromagnetic Flow Meter - Karori

- The redundant meter was removed.
- A new meter and valve chamber was installed.

5.3 Electrical Section

Ongoing maintenance has resulted in the system operating well. No problems have been experienced.

6. Health and Safety : Total Injury/Illness/Incident Record

- Production
There are no accidents or incidents to report.
- Distribution
There are no accidents or incidents to report.
- Network
There are no accidents or incidents to report.

Strategy and Asset Group

March 2002

Strategy and Asset Group Review of Operations for the Period Ended 31 March 2002

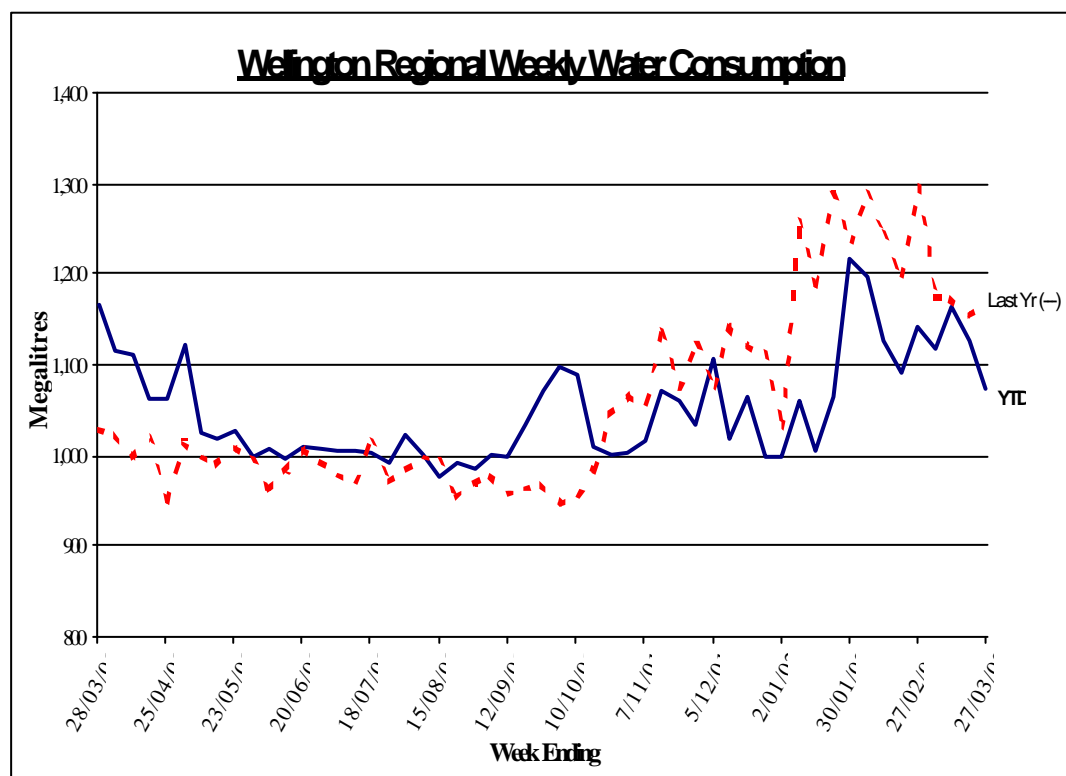
1. Items of Note

- The water sales year ended with the final weekly readings on 27 March. Total sales, subject to any customer comments, were 54,595 ML. This quantity was 597 ML less than the previous year. Given the wet 2001/2 summer, an even lesser volume may have been expected compared with the previous year. However, the reduced summer volume was partly offset by a dry spring in 2001.
- Expressions of interest have been called for supplying electricity to The Water Group's main facilities and The Regional Council Centre. It is expected tenders will be received for the three year contract before the budgets are finalised in June.
- An education video was produced a few years ago and is shown to visitors at the water treatment plants. It has recently been refreshed. A copy will be available for Councillors.

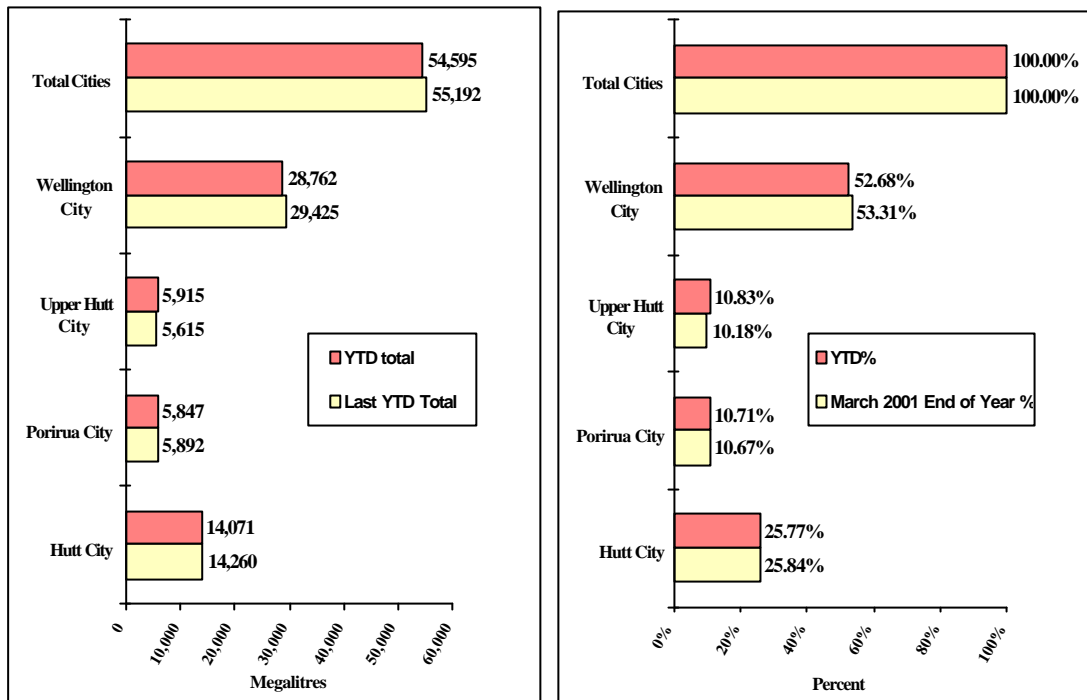
2. Sales Volume

Graphs outlining sales volumes are as follows:

Water Sold Over the Last 12 Months



Water Sold from 1 April 2001 to 27 March 2002



3. Asset Management

- The Hansen Financial Movement Report, which reports financial information from the Hansen asset management system for inclusion in the financial reports, is to be moved from the test database to the production database and monthly depreciation reports produced from 31 May 2002. Assets that have been replaced, but which are still on the books, are to be written off on 30 June 2002. In future, write off of replaced assets will be a routine part of the procedure to capitalise new assets.
- A review of the June 1998 Asset Management Plan has been commenced, but current updating is limited to financial forward planning. The Production Section is reviewing treatment plant maintenance aspects.
- The 2001/2 Capital Works Programme is progressing. Projected expenditure is forecast at \$3.6 million against a budget of \$3.9 million. Savings have resulted from good tender prices, the indefinite deferral of some projects and delays to some projects. The increase in the forecast since the last report is the cost of the purchase and refurbishment of the new Operations Centre in Oxford Terrace. The most substantial project, lining of the Rahui Reservoir supply main (part of the old Orongorongo/Karori pipeline) is approximately 25 percent complete and slightly behind programme. Other projects include security improvements at the treatment plants, replacement of the switchboard and pumps at Johnsonville Pumping Station, noise insulation at Moores Valley Road Pumping Station, and various minor improvements and replacements at the treatment plants.

- Finalising the transfer Karori Reservoir land to the Wellington City Council has been held up by delays in obtaining old survey information.
- Issues associated with our application to take water from the Moera aquifer are being worked through with IBM, whose fire protection system may be affected by our proposal.
- The updated Sustainable Yield Model (SYM), our primary strategic planning tool is now substantially complete. Some further possible minor refinements are being investigated. This model will be used in conjunction with the hydraulic model to improve our understanding of the potential capacity of the system.
- A number of Transit New Zealand highway upgrading proposals that affect our distribution mains are under investigation. The Council is required to meet 50 percent of the cost of any water main relocation work necessitated by highway realignment. Planning is underway to relocate the branch main to the Plimmerton Reservoir, which will be affected by new State Highway 1 roading work at Plimmerton. Planning work is also under way to move our main onto the new duplicate Paremata Bridge. Tenders to construct this bridge have closed and it is expected that a tender will be accepted early in May. Proposals to upgrade State Highway 58 in the vicinity of Haywards have also been discussed with Transit New Zealand consultants.
- Use is being made of the new hydraulic and SYM models to evaluate the impact of supplying water to Waikanae on our system. The Waikanae River has been added to the SYM, so that the shortfall from this source can be taken account of.
- Balloted hunting began in the Wainuiomata and Orongorongo Catchments on 29 March. Training of volunteers to assist with guiding visitors in the catchments has begun. A study to examine the cost and effectiveness of a wheel wash at the entrance to these catchments has been undertaken. The purpose of the wheel wash is to minimise infestation of the catchment by exotic weeds adjacent to the access road.

4. Quality Assurance

- Work has been undertaken by Operations Group staff to extract and report data required by the Ministry of Health to show compliance with the Drinking-Water Standard during 2001.
- An application has been submitted to the Hutt Valley District Health Board for the Wainuiomata Water Treatment Plant to be upgraded to an A grading. Data to support the application is being assembled. However, for a number of technical reasons it may be some months before the required 12 months of fully compliant records can be assembled.
- Work has begun on drafting Public Health Risk Management Plans. It is

expected that the new health legislation will make the provision and implementation of such plans mandatory. We already have good risk management procedures in place, so that significant changes to the way the system is operated are not expected.

5. Marketing

5.1 Summer Water Conservation Campaign

- Viewing figures for the Maggie Barry television advertising have been received and indicate that 93 percent of our two main target groups were exposed to the advertising, and that total ratings better than the baseline target. From 1 December 2001 Sky has broadcast both TVNZ channels on its digital network and has taken the programme feed from Auckland. It has recently come to light that as a result of this development people viewing TV1 or TV2 via Sky Digital would contribute to the total viewing figures but could not have seen our advertising. This raises questions over the validity of the ratings as a fair representation of exposure to our advertising. Our media buying agents are currently in discussion with TVNZ about the impact of this situation and compensation.
- There has been ongoing involvement with Corporate Communications trial of face-to-face communications about water conservation. Interviewers conducted a door-to-door education campaign in Grenada Village and Paparangi to assess the effectiveness of this form of communication. Post-campaign research design was among work completed during March.

5.2 Other Activities of Note

- A review of the 1998 water supply video, *Wellington Regional Water Supply - A Brief History* was completed and new segments filmed, to update aspects of the content that were outdated and to introduce water use levels and conservation to the subjects covered.
- A Communications Strategy first draft was written for discussion with the Divisional Manager, Utility Services and Wellington Regional Council's Communications Manager.
- During the summer period Wholesale Water operations staff hosted visits to Te Marua and Wainuiomata Water Treatment Plants as part of *Wonderful Water Walks* at Kaitoke and Wainuiomata run by Forests and Parks (part of their summer events programme). Feedback from visitors returned an average "satisfaction" rating for "Interpretation and Guiding" of 4.9 (Te Marua) and 4.8 (Wainuiomata) out of 5.0. This reflects well on the plant visits as part of the total event.
- Arrangements were made for some 300 pupils from two schools to visit one of our treatment plants during March.

- A review of the content of The Water Group's treatment plant tours is continuing.

6. Projects Undertaken by Engineering Consultancy for Strategy and Asset

- Orongorongo River Intake

The extent of the proposed remedial works on Orongorongo River intake has been confirmed. Preparation of detailed drawings of the work can now proceed.

- Wainuiomata/Orongorongo Catchment Wheel Wash

A proposal for the construction of a vehicle wheel wash at the entrance to the catchment area has been prepared.

- *Stuart Macaskill Lakes Emergency Action Plan*

Work on reviewing the *Stuart Macaskill Lakes Emergency Action Plan* is proceeding.

- Waterloo Water Treatment Plant Vibration and Noise

An assessment is being made to determine whether further work is required to ensure that a fatigue failure of the motor hall floor does not occur.

- Garaging for Waterloo Wellfield Generators

A report assessing options for garaging the mobile generators for the Waterloo wellfield has been prepared.

- Refurbishment of the OK Main, Petone

Refurbishment of the OK main between Hutt Park and Korokoro is proceeding but not as quickly as programmed. This slow progress will result in the Petone residents receiving chlorinated and fluoridated water for a longer period than anticipated. The Contractor has inserted approximately 25 percent of the PE pipe liner.

- Paremata Bridge, State Highway 1

Transit New Zealand is proposing to construct a new bridge at Paremata. The 300 mm pipeline supplying water to Plimmerton and Pukerua Bay will be relocated on to this new bridge. Design of the pipeline for the new bridge is proceeding. A temporary diversion of the existing pipe has been designed to allow the bridge to be constructed.

➤ Deviation of Branch Pipeline to Plimmerton No. 2 Reservoir

The proposed realignment of State Highway 1 requires Plimmerton No. 2 branch pipeline to be relocated. Contract Documents are being prepared for this deviation. Transit New Zealand's programme for this work has been delayed because of a funding shortfall.

➤ Stokes Valley Branch Main

An assessment is being made of the strength and remaining operational life of the asbestos cement section of this branch main. Two sections of pipe will be cut out and tested in April 2002.

➤ Johnsonville Pumping Station Switchboard and Pumpsets

Replacement of the Johnsonville Pumping Station switchboard and pumpsets is progressing. The pumpsets and variable speed drives have been ordered. Quotations have been invited for the fabrication and installation of the new switchboard.

➤ Warwick Street Pumping Station

A report on the condition of the Warwick Street Pumping Station switchboard and pumpsets is being finalised. Replacement of the switchboard is proposed.

➤ Karori Pumping Station

A report on the condition of the Karori Pumping Station switchboard and pumpsets is being finalised. Replacement of the switchboard and the pumpsets is proposed.

➤ Reservoir Float Valve Replacement

An order has been placed for the supply of inlet control valves for Trentham No. 1 and Porirua Low Level No. 1 Reservoirs. Drawings of the installation of these valves are being prepared.

➤ Moores Valley Pumping Station Noise Reduction

Details are being prepared for the installation of seals to reduce the noise emission from the Moores Valley Pumping Station.

➤ Pipe Holding Down Straps in Tunnels and Tunnel Access

Tenders have been invited for the installation of pipe securing straps in the Kaitoke pipeline tunnels.

Included in the two Contracts for this work is the construction of concrete access chambers to provide safe access into the tunnels.

➤ Flow Meters

A new head for the Ngauranga interconnection flow meter has been installed.

Engineering Consultancy Group
March 2002

Engineering Consultancy Group Review of Operations for the Period Ended 31 March 2002

1. Work Carried Out for the Strategy and Asset Group

The main capital projects for which the Engineering Consultancy Group has responsibility are itemised in the Strategy and Asset Group report. Support is also provided for other projects being undertaken by this group.

2. Work Carried Out for the Operations Group

The Engineering Consultancy Group has continued to provide support for smaller projects arising from the operation and maintenance of the wholesale water supply system.

3. Work Carried Out for Wellington City Council

3.1 General

Current projects underway are detailed in the following sections.

3.2 Thorndon Quay

This project is for the replacement of a 200 mm asbestos cement main for the full length of Thorndon Quay. This is a challenging project, as Thorndon Quay has already had significant cable laying operations in recent months. Included in the Contract are short sections in Mulgrave Street and Kate Sheppard Place. The Contract commenced from the north end and has made good progress, with pipe laid and commissioned to Davis Street. The balance of the pipe in Thorndon Quay has been laid, along with most of Kate Sheppard Place. The Contractor has carried out the work with minimum inconvenience to members of the public or motorists.

3.3 Wakefield Street

A request has been received for a proposal to be submitted to design a replacement water main in Wakefield Street from Courtenay Place to Cuba Street. This will be another challenging project.

3.4 Aramoana Reservoir, Miramar

There is a storage deficit in the Low Level Zone of 10 ML. This was identified and reported on at the time of approval of the Macalister Park 20 ML Reservoir. Of this storage, approximately 7 ML is required in the Eastern Suburbs (Miramar) and 3 ML in the Southern Suburbs (Island Bay). The Consultants' investigations

have established that the site is underlain by a deep gully. The reservoir will be relocated on to better ground but will extend on to reserve land. This will lengthen the approval processes.

3.5 Kelburn Reservoir

This reservoir will replace two existing reservoirs that are adjacent to the Karori Wildlife Sanctuary. The Contract has been awarded and excellent progress has been made. The floor of the south chamber of the reservoir has been completed and work is under way on the walls.

3.6 Southgate Park Reservoir

Additional investigations have been carried out at a potential site below Southgate Park. Subsurface investigations have been carried out, to determine the extent of landfill refuse that underlies the site and the issues to be managed in the moving of this material. The report has been forwarded to Wellington City Council and additional information is being provided.

3.7 Onslow Reservoir

There are two reservoirs on the Onslow site. The proposal is that the rectangular western reservoir be demolished and replaced with a larger reservoir, so that the water storage deficiency in the zone can be rectified. An initial scheme has been prepared and responses to the brief for the engagement of the design consultant have been received. A recommendation has been submitted to Wellington City Council. Investigations have continued into the pipeline deviations that will be required.

4. Miscellaneous Projects

4.1 Kapiti Water Supply

Investigations have continued to determine the impact of this new supply on the Wellington Regional Council's wholesale water system. This will need to be analysed further, using the Sustainable Yield Model and the Hydraulic Model that is now in the calibration phase.

4.2 Emergency Water Supply

The consultant engaged for this project has commenced the information collection phase and will be reviewing the response plans of the five councils. Wellington Regional Council staff will be providing technical input to the project. The final report will be timed to take account of the outcomes of a major exercise, Project Phoenix, which will be held in July.

Laboratory Services
March 2002

Laboratory Services Department Review of Operations for the Period Ended 31 March 2002

1. Items of Note

- Revenue receipts would appear to be down this month but several late internal charges, when included, restore a normal operating surplus. This month saw the termination of several of the Environment Division summer projects involved in recreational water quality monitoring.
- Our accreditation in the new field of drinking water testing has been granted and confirmed by IANZ. We will now be listed and advertised accordingly in the Ministry of Health *Register of Approved Drinking Water Laboratories*.
- Level 2 training for four wheel drive vehicles were attended by two staff members who were subsequently certificated.

2. Business Summary

2.1 Quality

There were no requests for retesting samples and test reports are timely.

2.2 Health and Safety

There were no accidents or incidents to report.

Plantation Forestry

March 2002

Plantation Forestry Department Review of Operations for the Period Ended 31 March 2002

1. Log Harvest Contract

March has improved on the February results with a further 1,700 tonne produced to give a monthly total of 4,914 tonnes logged for the month. This has been because of a combination of relatively good weather and two crews operating in reasonable country. Improving export prices has switched sellers' attention to that market, with a result that domestic mills are short of product.

The Divisional Manager, Utility Services and I visited Renalls' mill at Masterton. Renalls have traditionally chipped pulp logs for supply to the Panpac mill at Whirinaki. Over the past two years they have commenced milling sawlogs and have continuously upgraded the mill's capability to the point where they now saw all sawlog grades and have markets both domestically and in the United States and Australia. They have also constructed a large kiln to produce kiln dried timber. Management of the mill was concerned that after considerable investment to increase the output and grades of the mill they were working short days because of the lack of logs.

In our case prices were better on the export market and the logs currently being felled were not suitable. It is anticipated that, provided the purchase price is comparable, significant volumes of sawlog could go through this mill in the future.

Reception tests were carried out on the logging route through the forest as part of the plan to provide upgraded communications between the trucks, staff and the Rallywoods residents. We now await the outcome and the options available to us to improve radio reception in this area.

Grade output for March was:

Grade	Tonnes	%
Pruned Domestic	0976.5	19.87
Pruned Export	0	0
Partial Pruned	274.04	5.58
S/A Grade	314.81	6.41
L Grade	755.88	15.38
R Grade	215.49	4.39
K Sawlog	115.2	2.34
K Rough	1,082.89	22.04
Pulp	861.05	17.52
O/S Pulp	318.38	6.48
Xport Pulp	0	0
Other	0	0
	4,914.24	

2. Silviculture Contracts

The contractors have been assisting with road maintenance and "daylighting", and thus have not spent a full month on silviculture.

No invoices have been presented this month. To date 39.1 hectares of a planned 119 have been completed. It is still anticipated that all work can be completed by year end.

3. Plantation Forestry Operations

Most work during the month concentrated on monitoring the harvest contractors and supervising the contractors maintaining the access road. Some additional millings were laid primarily to control dust but in two places to improve traction where grade and curvature coincided and trucks showed a tendency to loose traction.

A visiting Chinese delegation was hosted for a visit to Pakuratahi to view second rotation plantings and the rate of growth achievable in this area. From their questions it would appear that our growth rates are far quicker than they experience.

The possum programme at Pakuratahi and Mangaroa is being delayed by the opposition from groups in Upper Hutt. At present possum damage is not an issue in these blocks but a close watch will be kept as the second rotation trees at Pakuratahi are especially at risk.

The annual forest health assessment results have been received. No new infestations were identified.

4. Forest Access

Access to all areas, except Maungakotukutuku, remains good.

We have programmed further weed spraying to ensure we get the maximum drying benefits from sun and wind through winter. We have also isolated a number of potential “trouble spots” on the logging road and have arranged proactive maintenance to improve these areas prior to winter. Given the extent of new and significantly upgrading on the route, the number of sites requiring attention was remarkably few.

We are still looking at our options to gain access to the block from Paekakariki Hill Road. This access would reduce the “round trip” time to the port by at least one hour. We have received complaints from a resident of Bulls Run Road regarding truck movements in the early morning. Access from Paekakariki Hill Road would allow the trucks to enter the forest later but still achieve an acceptable arrival time at Centreport.

We have sought an amendment to our resource consent conditions from Porirua City Council and, if successful, will commence negotiations with adjacent landowners that have expressed interest in allowing access.

5. Market Trends

The latest Rayonier market report is reproduced below.

Domestic Markets

Domestic mills in the southern North island region are currently experiencing supply difficulties for all log grades. The market dynamics of Q1 have resulted from a shortage of harvesting infrastructure coupled with “locked up” wood not being released into the market over the wet summer months.

The strength of the NZ dollar continues to impact on value added products with strong demand at present from the Australian and US markets. The main difficulty New Zealand mills are currently faced with is keeping up with demand.

Pruned – Demand & Price Firm

Demand for pruned logs fell off over the first month of this year but we are now beginning to see some recovery as mills increase their capacity again. As expected, pruned prices fell slightly this quarter due to mills adjusting themselves after the US markets decreased demand late last year. The US mouldings market has improved 20% in the past 3 months and if demand is sustained at current or better prices there will be a lift in value of pruned logs.

Sawlog – Demand & Price High

Sawlog demand in the domestic market has remained high throughout the quarter. Demand is particularly strong at present reflecting supply shortages, prices are expected to hold if not increase over the next quarter.

Pulp – Demand & Price Stable

Pulp prices increased slightly over the southern North Island region as the major facilities push to increase volumes over this quarter.

Export Markets

Korea

The strong Korean economy and lower freight rates have caused

log prices to increase considerably in Korea over the last quarter. Demand is also being driven by increased competition from China. Inventory levels are now lower than normal and we expect prices to hold through the next quarter.

China

Inventories over Q1 have been higher than normal caused by slow consumption over January due to the Chinese new year. We expect to see demand continue to increase and pick up again to at least the levels we were experiencing in the last 6 months of 2001.

Japan

The log market in Japan continues to struggle. Domestic customers in Japan have been made aware that they will need to increase prices paid to remain competitive in the future. Consequently prices have improved \$5–10 FOB.