Water Supply
(December 1999)

Operations Group
(December 1999)

Operations Group
Review of Operations for the Period Ended 31 December 1999

1. Items of Note

- Jason Colton, the consultant from Hyder Consulting in the United Kingdom, has completed his tour of work for us and has returned to the United Kingdom. He is to be congratulated on the work he has carried out. The plant optimisation work that he has undertaken at Te Marua and Wainuiomata is bearing fruit, with the result that it is now possible to produce larger volumes of higher quality treated water over extended periods of time. The work has identified the requirement for additional monitoring equipment in order that we can truly benefit from these improvements and successfully apply for the regrading of the treatment plants.

- Even though Y2K passed off without a hitch, the preparation work carried out by numerous operational staff will be of extreme benefit in the event of any future emergency situation.

- No excessive supply demands were experienced during the period.

2. Water Quality

A total of 569 samples from trunk mains were tested for coliform organisms. None of these samples tested positive.

Secchi disc water clarity in the Te Marua north lake varied between 2.6 m and 3.5 m, and in the south lake between 4.2 and 6.0 m. These are considered satisfactory. The dominant phytoplankton were as follows:

- North Lake: *Oscillatoria, Synedra, Ankistrodesmus*

- South Lake: *Anabaena, Staurastrum,* and *Anabaena*

Oscillatoria is a filter clogging algae when present in high concentrations.

Synedra produces a musty smell and slick tongue sensation when abundant

Staurastrum produces a grassy smell when abundant.

Dissolved oxygen and pH readings are also satisfactory.

Giardia and *Cryptosporidium* results were as follows:

Te Marua

Lakes	)	No *Giardia*
	)	No *Cryptosporidium*
Intake	)	No *Giardia*
	)	No *Cryptosporidium*
Treated Water	)	No *Giardia*
	)	No *Cryptosporidium*

Wainuiomata

Treated Water	)	No *Giardia*
	)	No *Cryptosporidium*
Lower George Creek	)	No *Giardia*
	)	Low *Cryptosporidium*
Big Huia Intake	)	Low *Giardia*
	)	No *Cryptosporidium*
Intake	)	Low G*iardia*
	)	Low *Cryptosporidium*
George Creek South arm	)	Low *Giardia*
	)	Low *Cryptosporidium*

Orongorongo

Intake	)	Low *Giardia*
	)	Low *Cryptosporidium*

During November and December 1999 53 transgressions were notified:

- 1 high fluoride
- 15 low fluoride
- 1 high chlorine
- 6 low chlorine
- 2 high pH
- 1 low pH
- 5 presumptive coliform
- 4 high turbidity
- 3 high iron
- 14 alkalinity

3. Supply Situation

The two monthly seasonal forecast for January and February 2000 issued by the

Meteorological Service is as follows:

Situation as at 10 January:

For Wellington:

Rain: About normal

Wind: Less than normal

Temperature: Above normal

Sunshine: Above average

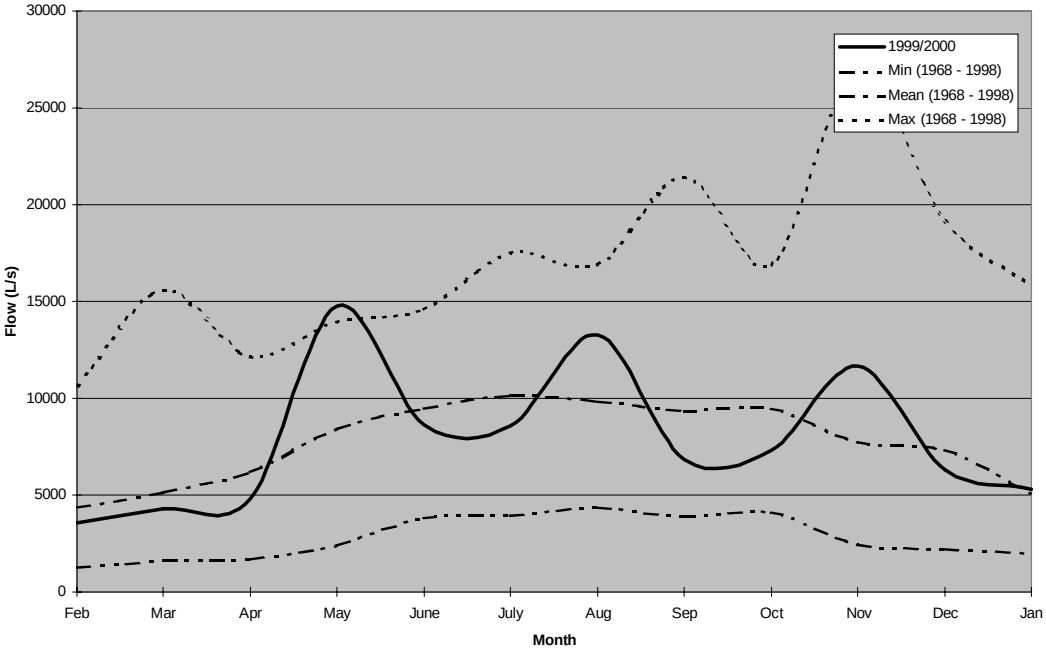
Specials: Stretches of dry weather lasting several days

Confidence: Moderate

After a notably cool December with more southerlies than normal, the rest of the summer looks set to offer lighter winds and extended sunny periods. There will still be a few cold fronts bringing some top-up rainfall but these should be spaced a week or more apart.

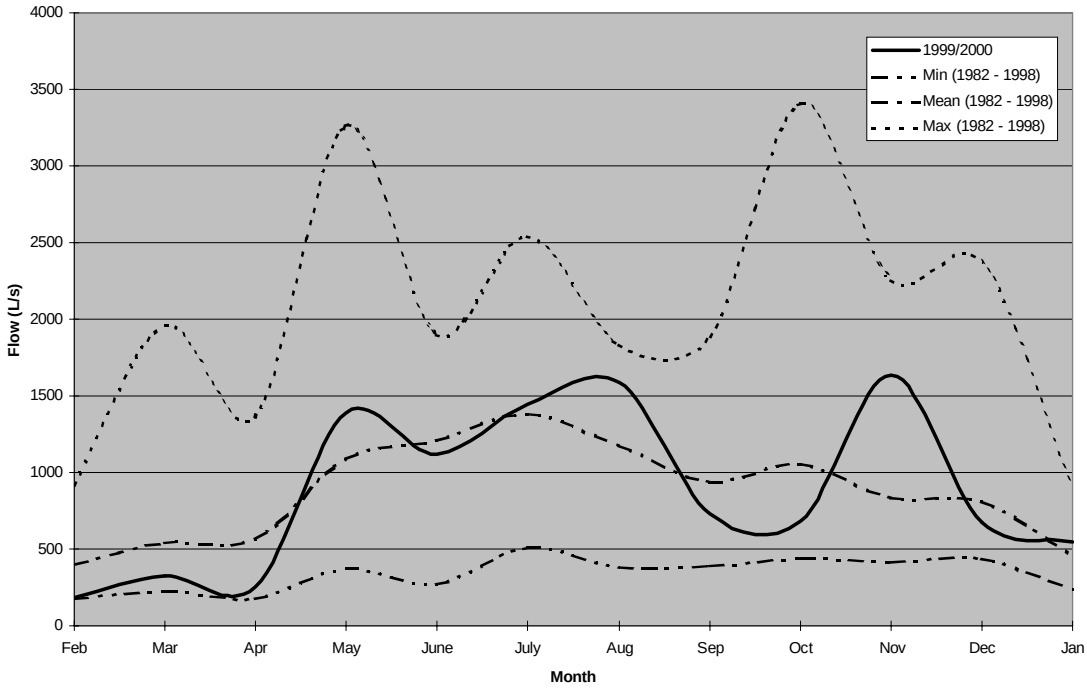
Hutt River Flows

The mean monthly river flow for the month of January was average



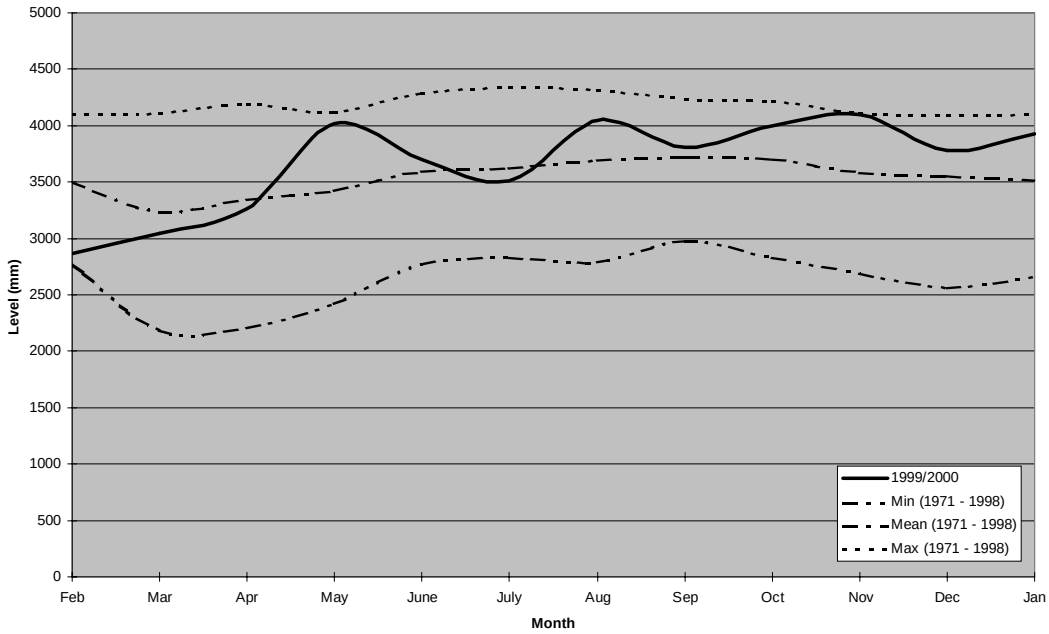
Wainuiomata River Flows

The river flows for the month of January were average.



Aquifer Levels

The aquifer level for January was above normal.



4. Production

4.1 Wainuiomata

4.1.1 Quality

The most recent pieces of equipment to fail have been the polymer blenders on the treatment plant and washwater recovery plant. This has resulted in plant shutdowns because of high turbidity levels. Replacement equipment is being trialled.

4.1.2 Safety

There are no accidents or incidents to report.

4.1.3 Operations

The standby PLC has been sent to Sydney for fault diagnosis.

We now have 46,000 litres of diesel to turn over.

Plant Tours

There were no tours during this period.

4.1.4 General

There have only been two regular occurrences that have been giving us some trouble:

- The poly blenders have been failing to add poly. Solutions to this are being trialled.

- The float balance pump has failed a couple of times. The replacement pump expected to arrive in January 2000.

Following the optimisation trials the plant recently has passed one of its milestones, i.e., producing treated water at a rate of 60 MLD over a continuous period of 32 hours.

Providing there is enough water in the rivers and the raw water turbidity is below 0.8 NTU and 24 colour, the plant should now be able to run continuously at 60 MLD on four filters, as long as the system can take water.

We have discovered that Wainuiomata can only supply about 50 MLD when the mains pressure in the 1050 mm main reaches 115 m at Randwick. The outlet valve goes wide open but the pressure in the 1050 mm main holds up the water, causing the treated water reservoir at Wainuiomata to overflow.

Since December the plant has been running at 60 MLD during the day and 48 MLD at night. The rivers are starting to dry up and we can now only supply 46 MLD.

So far this year the plant has been running at 0.05 NTU or better. There is an element of doubt in this figure as it is below the detectable limit of the current field instruments. Our laboratory instrument is closer to 0.02 NTU. New instrumentation is proposed.

4.1.5 Projects

Capital Works

- There were no capital works during the period.

Operational Projects

- The coagulant storage tank bund was coated on 19 October 1999. The new tanks are on-site and should be installed within four weeks.
- The washwater recovery plant modifications should start next month. This will add more security to the plant, giving us standby float balance and washwater sludge transfer pumps.
- The mammoth task of labelling every item of plant for asset maintenance is 25 percent complete.

4.2 Waterloo Water Treatment Plant

4.2.1 Quality

The separate sample point has greatly reduced the number of intermittent presumptive coliform results.

4.2.2 Safety

There are no accidents or incidents to report.

4.2.3 Production

8 December: Naenae No. 1 motor blew up. It requires a complete rewind.

14 December: There was a shutdown to replace the Naenae No. 1 pump suction isolation valve. The pump is also being overhauled after 19 years of service.

Plant Tours

There were no plant tours during the period.

4.2.4 General

There were no variable speed drive failures for this period.

A new high score for Waterloo was reached. A flow rate of 120 MLD was maintained for 45 minutes. We suspect this coincided with a high tide enabling us to get more water from the well field.

4.2.5 Projects

Capital Works

- Well field refurbishment preparations

Operational Projects

- Labelling of assets for the assessment management system is complete

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 Production

The main switchboard replacement has been completed.

The pump hall has been separated into two rooms. This will help stop the carbon dust from the DC motors getting into the switchboard.

Plant Tours

There were no tours during the period.

4.3.4 General

The plant has only been run so as to turn over 1 ML per week to avoid dead legs and to maintain the instant availability and quality of bore hole water.

4.3.5 Operational Projects

- Labelling of assets for the asset management system is complete

4.4 Te Marua

4.4.1 Quality

There are no quality transgressions to report.

4.4.2 Safety

There are no health and safety issues to report.

4.4.3 Operations

8 November:	A faulty chlorine residual analyser caused the plant to slam shut. The instrument was repaired and reinstated.
13 November:	A finished water high pH alarm was caused by flow fluctuations while in gravity flow mode. System tuning was modified.
18 November:	A communications failure caused the plant to slam shut during Y2K testing of the telemetry system. Sudden flow changes caused a streaming current detector (coagulant control instrument) high alarm.
26 November:	A streaming current detector high alarm was caused by a lime transfer fault.
30 November:	There was a fault with Filter No. 1 because of the filter inlet penstock failing to open within the allotted time. No cause was found.
1/2 December:	Process was performing badly, with filter outlet turbidities increasing. After all equipment had been checked the cause of the problem was found to be faulty batch of polyelectrolyte supplied by Fernz Chemicals. Treated water was discharged to Lake 1 while filter conditioning was reestablished. Fernz Chemicals is to report on analysis of the faulty product.
8 December:	A mains power surge caused the plant to slam shut. There was no apparent cause.

14 December: A fault with Filter No. 5 was caused by a backwash inlet valve failing to close. The feedback switch on the valve was adjusted.

4.4.4 General

Te Marua Pumping Station Generator

The new pumping station generator has been successfully installed and commissioned, and is now fully operational.

Kaitoke Generator

The upgrade of electrical controls on the Kaitoke generator has been completed.

Y2K

All equipment at Te Marua survived the Y2K transition without incident. Te Marua acted as an early warning site for the supplier of the main control system. At 12.30 am Te Marua was contacted for a status report, which appeared soon after on the supplier's European based internet site.

Lake Quality

The potentially toxic algae counts detected in Lake 1 during October 1999 quickly reduced to safe levels within two weeks, as predicted.

Lake Storage

In mid-November 1999 after a prolonged period of unsettled weather, storage in Lake 1 was reaching record low levels. With Y2K looming and summer's high demand period quickly approaching, all efforts were made to maximise filling and minimise draw-off. Limitations of river abstraction rate and continuing poor weather have required treatment plant outlet flows to be reduced to allow for increased lake filling.

Kaitoke Washwater Pumps

To eliminate the need for operator attendance during river start-up, two new submersible pumps have been installed at the Kaitoke strainer house.

Plant Tours

7 December: Hutt Valley High School : 50 people
8 December: Wellington Regional Council induction tour : 15 people
9 December: Christian Youth Group : 8 people

5. Distribution

5.1 Electrical Section

5.1.1 System Optimisation

Preparatory Work

- Flow meter signals from the Hutt City at Wainuiomata No. 1 Reservoir, Wainuiomata No. 2 Reservoir and Point Howard Reservoirs have been connected to our telemetry system.
- Line pressure transmitters at Randwick, Ngauranga and Thorndon Pumping Stations have been calibrated.

5.2 Pipeline Section

5.2.1 Rahui Branch Line

- The bypass valve from the 1050 mm main has been renewed
- The Rahui branch valve from the OK main at Korokoro has been changed
- The branch valve at Randwick has been repaired

5.2.2 525 mm Cast Iron Main

A leaking lead joint at Hutt Park Raceway has been repaired.

5.2.3 Te Marua to Karori Pipeline

A new 600 mm line valve and two bypass valves opposite Johnsonville Pumping Station have been installed.

5.2.4 Karori Decommissioning

There has been ongoing work with the contractor involving Messines Road and Kelburn Reservoirs.

5.2.5 Electromagnetic Flow Meters

New meters have been installed at the following locations:

- Porirua Low Level Reservoir inlet
- Porirua High Level Reservoir inlet

They have been connected to the telemetry system and commissioned.

6. Health and Safety

Total Injury/Illness/Incident Record

Production

There are no accidents or incidents to report.

Distribution

There was one case of minor bruising to the foot, with no time off work.

Network

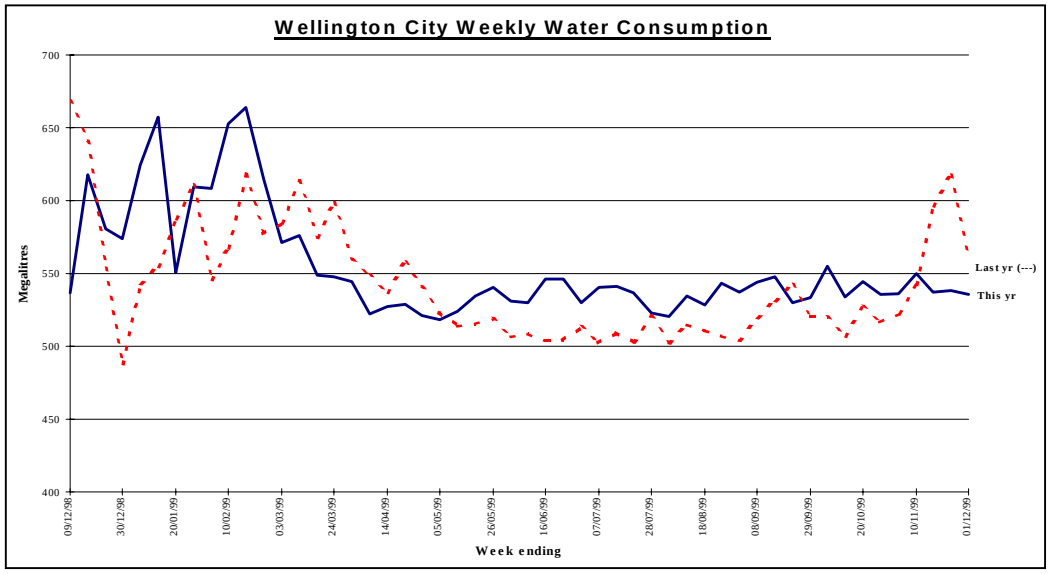
There were five minor incidents, with no time off work.

Operations Network
Review of Operations for the Period Ended 31 December 1999

1. Items of Note

- During the period 13 burst mains occurred. These were all attended to within 30 minutes and all repaired within eight hours.
- The vast improvement that has occurred in the backfilling and reinstatement operations has continued since the appointment of staff to carry out this type of work.
- The introduction of the job despatch system has continued to produce excellent results, not only with the reduction in paperwork but improvement in the ability to produce reports on all work activities.

2. Water Supply *(PT 30.1)*

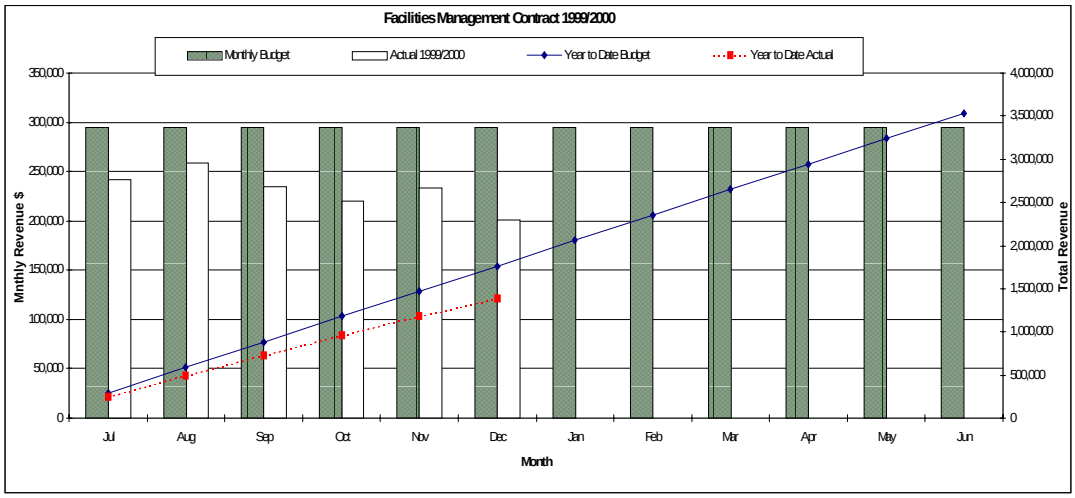


3. Financial

3.1 Facilities Management Contract

Contract Amounts : Wellington, including Tawa

Month	Actual $	Budget $	Variance %	Year To Date	Budget $	Variance %
November	233,003	294,314	-20.83%	1,188,358	1,471,570	-19.25%



December	200,449	294,314	-31.89%	1,388,807	1,765,884	-21.35%

4. Water Quality

Routine Testing *(PT 1.1)*

The water quality was monitored and the appropriate laboratory tests were completed for the months of November and December. There were 136 samples from the reticulation system tested for bacteriological compliance in November and 170 in December. Compliance for both months is 100 percent. Compliance for the year to date is 100 percent.

Water Tests Initiated by Customers *(PT 2)*

		November	December	Year to Date	Compliance (%) Year to Date
	Number received	12	4	52	-
(PT 2.2)	Within ability of Operations Network to control	2	4		-
(PT 2.1)	Formal response within five days	12	4	52	100%

5. Customer Services

5.1 Counter and Other Office Services *(PT 3.1), (PT 4.1), (PT 5.1)*

An enquiry/complaints register is being maintained. A breakdown of complaints and enquiries received during the reporting period is as follows:

		November	December
	Counter enquiries	84 + 7 encroachments	54 + 14 encroachments
	Proposals from other utilities	12	2
(PT 33.1)	Plan records : New services recorded	13	11
	Response time requirement compliance	100%	100%

5.2 Complaints Register (Monthly Summary) *(PT 5.1)*

An enquiry/complaints register is being maintained.

A breakdown of complaints and enquiries received during the reporting period is as follows:

	Complaints		
		November	**December**
(PT 2.2)	Water quality	12	5
(PT 16.1.2)	Pressure	9	23
(PT 20.1)	Reinstatement	1	0
(PT 16.1.4)	No-water	29	13
	Contractors	0	0
	Other	3	0

During November all of the “Pressure” and “Water Quality” complaints were responded to and completed within the performance criteria. Ninety percent of the “no-water” complaints, which were because of temporary loss of supply or broken mains, were responded to and completed within the performance criteria. The one call that was not responded to within the specified time frame failed by half an hour.

During December all of the “Pressure”, “Water Quality” and “No-water” complaints were responded to and completed within the performance criteria.

6. Response Maintenance

6.1 Compliance *(PTs 9.1, 9.1a, 9.2, 10.1, 16.1)*

	November			**December**		
	No. of Calls	**Completed to Standard**	**Compliance %**	**No. of Calls**	**Completed to Standard**	**Compliance %**

		November			December		
		No. of Calls	**Completed to Standard**	**Compliance %**	**No. of Calls**	**Completed to Standard**	**Compliance %**
(PT 9.1)	Stopcocks	365	334	92	364	346	95
(PT 9.1)	Hydrants	92	81	88	80	77	96
(PT 9.1a)	Valves	13	11	85	32	21	65
(PT 9.2)	Other leaks	246	228	93	218	194	89
(PT 10.1)	Mark-outs	30	30	100	28	28	100
(PT9.1a)	Value repacks	8	5	63	12	5	41
(PT 16.1.1)	Burst mains	8	8	100	5	5	100
(PT 2.1)	Water quality complaints	12	12	100	5	1	100
		774	**709**	**92**	**744**	**681**	**92**

Failures

	Jobs Failed by 1-24 Hours		Jobs Failed by 1-5 Working Days		Jobs Failed >5 Working Days	
	November	December	November	December	November	December
Fire hydrants	6	1	1	2	4	0
Mains	0	1	0	0	0	0
Valve repacks	0	0	1	0	2	7
Valves	0	0	0	1	2	10
Services	10	1	6	11	1	11
Tobies	9	5	5	10	17	3
Total	**25**	**8**	**13**	**25**	**26**	**31**

The installation of our new Autotrack/Dispatch system has been completed. The full operation of department commenced with Autotrack on 1 December 1999.

Additional Work Carried Out

	November	December
New services	17	19
Damages by contractors	29	20
Variations	11	11

6.2 Burst Mains *(PT 16.1)*

There were eight burst mains during the month of November and five burst mains in December. They were as follows:

102 Kenmore Street	1 November 1999
20 Fox Street	4 November 1999
10 Spicer Place	5 November 1999
38 Taylor Terrace	12 November 1999
9 Shalimar Terrace	12 November 1999
23 Taylor Terrace	13 November 1999
151 Hobart Street	14 November 1999
94 Sutherland Road	24 November 1999
Cnr George Bolt and Cochrane Streets	6 December 1999
163 Happy Valley Road	9 December 1999
Cnr Hillary Street and Franklyn Road	9 December 1999
155 Vivian Street	11 December 1999
39 Duthie Street	29 December 1999

All of the burst mains were attended to within 30 minutes and repaired within eight hours.

6.3 Supply *(PT 16.1)*

	November	December
Total calls received regarding loss of or temporary loss of supply because of broken mains or supply failure	10	10
Total calls attended within 30 minutes	9	10
Total Compliance	90%	100%

6.4 Reinstatement *(PT 20.1)*

There was one complaint received in November regarding trench reinstatements. No complaints were received in December. The Facilities Management Contract target is less than 12.

6.5 Shutdown Notification *(PT 6.1)*

There were 16 planned shutdowns during November and 8 planned shutdowns during December. All identifiable customers received notification within 24 hours prior to the shutdown.

6.6 Locates and Investigations *(PT 10.1)*

Work completed during the two month period comprised:

	November	December
Locate stopcocks	72	64
Leak location	79	98
Flow tests	0	0
Seepage/Investigations	4	6
Miscellaneous supply jobs	8	8

7. Health and Safety

There were three minor incidents reported in November. Two minor incidents were reported in December.

8. Meters *(PT 13.1)*

A total of 1,496 suburb and high use meters were read and entered into the system

by 23 November 1999.

A total of 1,399 city and high use meters were read and entered into the system by 23 December 1999.

9. Pumping Stations, Reservoirs and System Control

9.1 General

Normal routine maintenance has resulted in the Wellington City system operating satisfactorily.

9.2 Control System *(PT 30.1)*

The new *Realflex* 4 Scada system was commissioned to replace the non-compliant older system at Mabey Road and The Regional Council Centre. New Year's Y2K event passed without incident.

9.3 Johnsonville Pumping Station

The No. 1 pump motor burnt out and is beyond repair.

9.4 Chester Road Reservoir

A new pressure bulb was installed to improve the level measuring system.

9.5 Maintenance Checks (*PT 17.4)*

Maintenance has been carried out as follows:

November 1999	
Round A	**Round B**
Rajkot Terrace	Huntington Street
Nassau Avenue	Warwick Street
Mark Avenue	Hay Street
Chapman Street	Epuni Street
Burnside Road	Mapuia Street/Mt Crawford
Ruskin Road	Sar Street
Broderick Road	Alexander Road
Broadmeadows High Pump Station	Redwood
Satara Street	Greyfriars Road
Kitchener Terrace	Bell Road CV
Davies Road CV	Webb Street CV
Birch Street CV	Prince of Wales CV
Ohariu CV	Vasanta CV
Glover Street CV	
Ironside CV	

December 1999	
Round E	**Round F**
Johnsonville Pumping Station Ngauranga Reservoir/Pumping Station	Randwick Pumping Station Tunnel Grove Chamber
Kaiwharawhara Pumping Station Thorndon Pumping Station Karori Reservoir/Pumping Station Macalister Park Reservoir Churton Park CV Maldive Reg./Abb. CV Tawa Linden	Rocky Point Chamber Korokoro Valve Chamber Wainuiomata Pumping Station Moores Valley Pumping Station Mabey Road Generator Naenae Reservoir Gracefield Reservoir Rahui Reservoir

10. Development

10.1 Development Statistics

Subdivisions	November	December	Year to Date
Construction plans approved (lots/units)	44	22	130
Scheme plans approved	27	31	183
Subdivisions cleared (lots/units)	32	32	252

10.2 Development Projects

10.2.1 Woodridge Reservoir

Hydroseeding, channel and minor details are now complete. The reservoir has been fully taken over from the subdivider.

10.2.2 Churton North Reservoir

The reservoir is largely complete. The TDI hut, control system and power are yet to be installed.

10.2.3 Westchester Drive Pumping Station

Consultants have submitted an amended design. Final approval is now

proceeding.

10.2.4 Major Subdivisions

Construction plans for the following major subdivisions were submitted for approval:

- de Bes Subdivision, Beacon Hill (five lots). Interim approval only has been given. We are waiting for amended plans.
- 42 Horokiwi Road West (four lots).
- 33 Parkvale Road, Karori (four lots). Interim approval only has been given. We are waiting for amended plans.
- Lots 5, 6 and 31, Waverton Terrace, Churton North (three lots). Interim approval only has been given.
- Lots 33, 36, 39 and 246 to 255 Waverton Terrace, Churton North (15 lots). Interim approval only has been given.
- Apu Crescent and Bould Street. Considerable work has been carried out over the last few months in dealing with two proposed Housing New Zealand subdivisions at Apu Crescent and Bould Street. The decision was made by a Wellington City Council Hearings Committee to allow the private reticulation system to remain as it is.

No as-built plans for major subdivisions were submitted.

10.2.5 Fire Services Recently Connected (PT 12.1)

25-27 Vivian Street (100 mm diameter)

10.3 Building Development Appraisals

	November		**December**	
	Commercial	**Domestic**	**Commercial**	**Domestic**
Building consents	18	31	11	47
PIMS applications	19	32	11	47
Compliance with response time requirement	100%	100%	100%	100%

10.4 Land Information Memoranda

	November	**December**
Applications processed	49	35

Compliance with response time requirement	100%	100%

11. Capital Works

11.1 Main Laying City

11.1.1 Contracts in Maintenance Period

The Terrace pipe replacement contract is in the maintenance period.

11.1.2 Taranaki Street

Ductile iron pipe for the replacement of the 150 mm cast iron main in Taranaki Street has been received and is stored at the Raroa Road pipe stack area.

11.1.3 Manners Street

Contract Documents have been prepared for a pipeline to replace the 300 mm cast iron main from Willis to Cuba Street. Tenders have been invited and close on 19 January 2000.

11.1.4 Cuba Street

Contract Documents were prepared for the replacement of the 100 mm and 200 mm cast iron mains from Ghuznee to Webb Streets. Tenders closed on 20 December 1999 and a report has been forwarded to Wellington City Council recommending acceptance of the lowest tender.

11.2 Main Laying Suburbs

11.2.1 Contracts in Maintenance Period

The following pipelaying contracts are in the maintenance period.

- Tirangi Road, McGregor, Kingsford Smith and George Bolt Streets
- Bracken Road
- Breaker Bay Road
- Makara Road Rising Main
- Owhiro Bay Parade
- Helston Road
- Rider Main Renewals
- Fox Street

The maintenance period for Johnsonville Road Contract has expired. Arrangements are being made to rectify minor maintenance issues and to release

the maintenance retentions.

The maintenance retention on the Chelmsford Street Contract has been released.

11.2.2 Fox Street, Ngaio

The Contract for replacement of the 100 mm asbestos cement pipeline in Fox Street from Awarua Street to Vasanta Avenue was awarded to C M Contracting Ltd. The works were successfully completed on 18 December 1999. The Contract is now in the maintenance period.

11.3 High Level Distribution and Storage

11.3.1 Karori South Reservoir

The Karori South Reservoir construction contract is in maintenance. The options to supply the Allington Road Zone from the new reservoir are being reviewed.

11.3.2 Wadestown Reservoir

The resource consent for the construction of the new reservoir was issued. The consent conditions require the reservoir to be fully buried, significantly increasing the cost of construction.

11.3.3 Grenada North High Level Reservoir

A design report has been prepared and forwarded to Wellington City Council for the proposed Grenada North High Level Reservoir. Wellington City Council is considering whether to proceed with the detailed design and application for resource consent.

11.4 Low Level Zone Storage

11.4.1 Eastern Suburbs Storage Enhancement

Further investigations are underway in preparation for an Environmental Impact Assessment for the three potential sites.

Analysis - December 1998 to December 1999																			
	Quality Reports PT 2.1			No of Planned Shut-downs PT 6.1			Stopcocks PT 9.1			Leaking Hydrants PT 9.1		Leaking Valves PT 9.1a		Leaks PT 9.2			Mark-outs PT 10.1	
	Calls Received	5 Day Response	% Compl.	Completed			Calls Received	Completed	% Compl.		% Compl.		% Compl.	Calls Received	Completed	% Compl.	Received	% Compl.
July 1998	8	8/8	100%	2			371	359	96%	90	94%	24	100%	231	213	95%	61	95%
August 1998	10	17/18	94%	2			304	243	87%	91	86%	25	100%	216	183	85%	74	100%
September 1998	11	26/29	90%	4			289	211	81%	71	77%	13	100%	219	183	84%	74	100%
October 1998	6	32/35	91%	3			385	293	73%	107	73%	6	100%	216	147	68%	67	100%
November 1998	7	37/42	88%	3			421	382	76%	70	75%	13	100%	228	198	86%	91	100%
December 1998	9	46/51	92%	2			365	362	90%	79	78%	9	100%	234	233	99%	16	100%
January 1999	13	59/64	93%	25			431	429	99%	77	64%	15	93%	275	271	98%	21	100%
February 1999	10	69/74	93%	30			343	336	97%	106	81%	18	94%	176	170	96%	11	100%
March 1999	5	74/79	94%	34			488	359	74%	118	94%	12	92%	324	282	84%	108	100%
April 1999	5	79/84	94%	18			430	367	85%	129	91%	20	95%	259	221	85%	94	100%
May 1999	8	86/92	93%	18			366	285	78%	110	78%	10	80%	239	200	84%	140	100%
June 1999	5	90/97	93%	18			364	269	74%	90	68%	21	95%	262	204	77%	86	100%
Summary (1998-99)	**97**	**90/97**	**93%**	**159**			**4557**	**3915**	**86%**	**1138**	**81%**	**186**	**96%**	**2879**	**2505**	**87%**	**823**	**99%**

July1999	16	15/16	94%	18			385	345	92%	72/78	92%	18/19	95%	267	258	96%	47	100%
August 199	6	6/6	100%	15			347	333	91%	85/89	96%	16/19	84%	241	225	98%	51	100%
September 1999	1	1/1	100%	12			356	275	82%	68/72	94%	18/20	90%	276	226	82%	41	100%
October 1999	13	13/13	100%	21			320	241	75%	71/87	81%	19/20	95%	234	198	85%	40	100%
November 1999	12	12/12	100%	16			365	334	92%	81/92	88%	11/13	85%	246	228	93%	30	100%
December 1999	4	4/4	100%	8			364	346	95%	17/80	96%	21/32	66%	218	194	89%	28	100%
Running Total for Current Year	**52**	**51/52**	**98%**	**90**			**2,137**	**1,874**	**88%**	**454/508**	**90%**	**103/123**	**84%**	**1,482**	**1,329**	**90%**	**237**	**100%**

Analysis - December 1998 to December 1999

	Loss of Supply PT 16.1		**Burst Mains PT 16.11**		**Reinstatements PT 20.1**		**Toby Locates**	**Damage Repairs**	**Total Calls**		
	Complaints Received	**% Compl.**	**Occurred**	**% Compl.**	**Occurred**	**% Compl.**			**Calls Received**	**Completed**	**% Compl.**
July 1998	29	97%	6	100%	3	100%	81	91	791	753	95%
August 1998	31	97%	2	100%	4	100%	89	100	703	613	81%
September 1998	30	100%	8	100%	1	100%	97	98	683	553	81%
October 1998	29	83%	5	100%	0	100%	72	57	795	605	76%
November 1998	24	96%	9	90%	3	100%	89	103	838	751	90%
December 1998	15	80%	4	100%	1	100%	101	26	770	763	99%
January	21	100%	7	100%	1	100%	92	23	875	868	99%

1999											
February 1999	25	96%	5	100%	0	100%	100	29	647	630	97%
March 1999	32	97%	8	100%	0	100%	102	102	1073	884	82%
April 1999	46	94%	7	100%	1	100%	64	46	945	831	88%
May 1999	32	100%	2	100%	1	100%	81	109	875	729	83%
June 1999	33	85%	7	100%	3	100%	80	105	837	655	78%
Summary (1998/9)	347	94%	70	99%	18	100%	1048	889	9832	8635	88%
July1999	19/22	86%	8	100%	4	100%	91	75	830	767	92%
August 1999	14/16	88%	9	100%	0	100%	85	34	807	735	91%
September 1999	50/50	100%	9	100%	1	100%	75	54	777	640	82%
October 1999	17/17	100%	4	75%	0	100%	76	22	724	591	82%
November 1999	9/10	90%	8	100%	1	100%	72	29	774	709	92%
December 1999	23/23/	100%	5	100%	1	100%	64	20	744	681	92%
Running Total for Current Year	**132/137**	**96%**	**43**	**98%**	**7**	**100%**	**463**	**234**	**4,654**	**4,123**	**89%**

Strategy and Asset Group
(December 1999)

Strategy and Asset Group
Review of Operations for the Period Ended 31 December 1999

1. Items of Note

- Valuing our assets at component level (approximately 4,000) was a major achievement. This enables us to refine the depreciation values and future capital works.

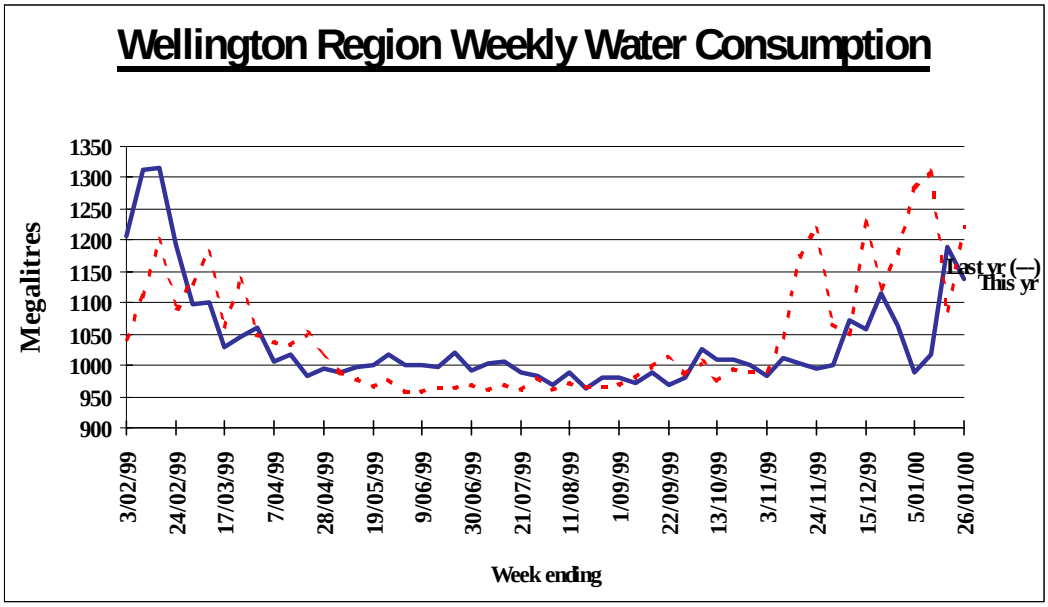
- A draft network agreement has been received from UnitedNetworks. This will allow our energy contract to be split into two contracts, one for energy with TrustPower and the other with UnitedNetworks for network services. It is expected it will be February before an agreement is finalised.

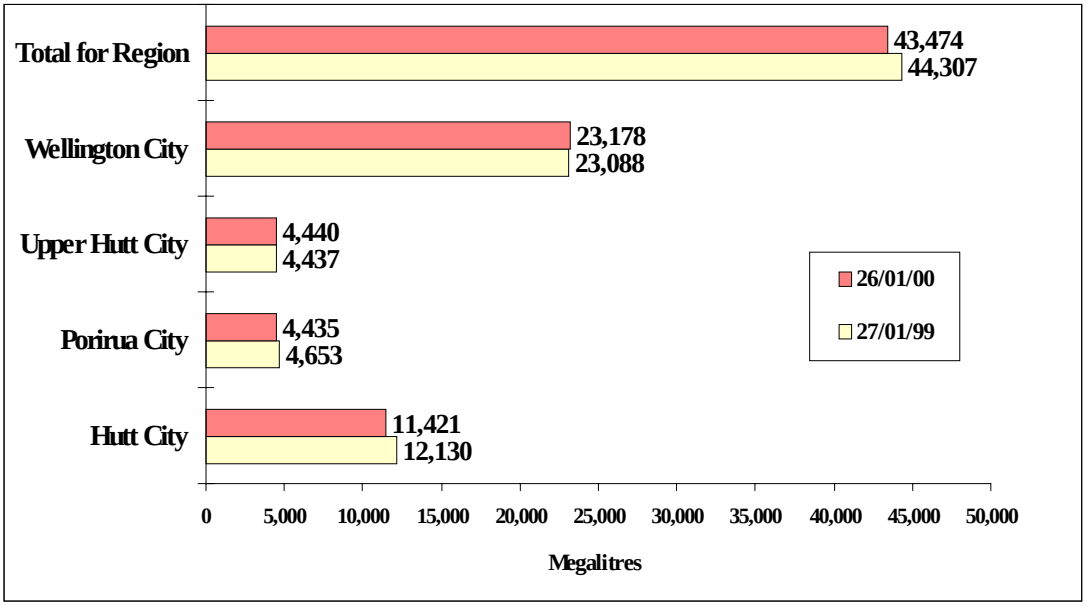
- The Long Term Financial Strategy was completed. It included information from the valuation exercise and an analysis of potential new water sources.

- Agreement was reached with Hutt City Council for use of a disused water supply tunnel through the Wainuiomata Hill. Hutt City Council will now complete their investigations into laying a sewer pipe through it. Wainuiomata sewage will be pumped to the new Seaview plant. Details were provided to the Policy and Finance Committee meeting on 1 February 2000.

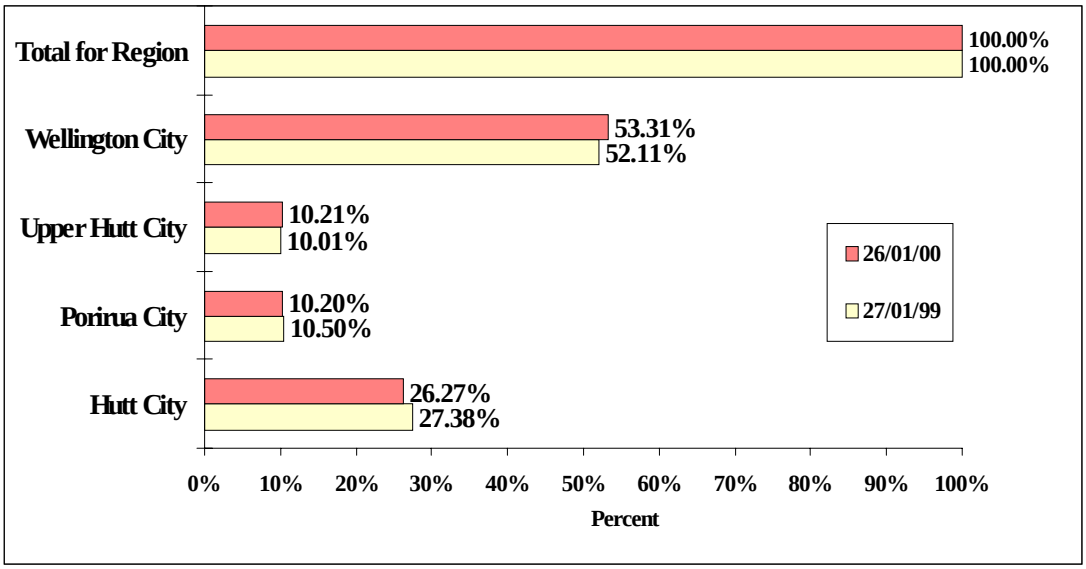
- Water sales volume for the four weeks ending 29 December 1999 was 4,307 ML. This compares with 4,581 ML in the equivalent period the year before. The 6 percent difference is probably accounted for by higher rainfall in last December and hence reduced garden watering.

2. Sales Volume : Water Consumed from 1 April to 26 January 2000





- A 2 percent overall decrease over the previous corresponding period.
- Percentage changes are represented below.



Note: The above charts are for the period ending 26 January 2000 as the system had been updated.

3. Asset Management

- The Revaluation of Wholesale Water Assets has been completed. The total value of infrastructure assets is $247 million, an increase of approximately 35 percent on the current book value. Details of how future depreciation, based on this valuation, is to be calculated using the Hansen Asset Management System (AMS) are to be discussed with the Finance Department and Audit New Zealand in the new calendar year.

- A review of the June 1998 Asset Management Plan has been commenced. It is expected that this review will result in minor changes only, principally in the financial area.

- A student has been employed to update and reconcile pipeline locator diagrams with data contained in the Hansen AMS to make the latter easier to interpret.

- Capital works for 1999/00 are progressing. The new switchboard at Gear Island has been commissioned and the slip lining of the OK main in Glenmore Street will be completed in early January. A Contract to reline various pipelines at Te Marua has been let.

- A programme of capital works for the period 2000 to 2020 has been compiled and incorporated into the Long Term Financial Strategy.

- A resource consent application for a new well tapping the Moera aquifer at Gear Island is being prepared. A consultant's report on the possible effects of this well on the IBM building firefighting system has been received.

- Applications and environmental assessments for new surface water take consents have been prepared. Little response has been received from the parties consulted. A review of the operational impacts of the proposed new consent regime is being undertaken prior to submitting the applications.

- An application for a resource consent to discharge supernatant into the Wainuiomata River intermittently has been lodged. The application has been notified to interested parties and submissions close on 21 January. Concurrently a proposal has been put to the public health authorities to enable most supernatant to be recycled back through the treatment plant.

- Commissioning of stage 1 of the system optimiser is to commence in early February. The system optimiser will select water sources and manage pump use to minimise the cost of the production and distribution of water.

- Detailed seismic review and risk assessment work has been carried out for a number of network elements. These reports will be reviewed and summarised, and a programme of proposed strengthening or remedial works compiled.

- Statistical analyses of turbidity readings to demonstrate compliance with the rule that requires turbidity to be less than 0.5 NTU for 95 percent of the time have been carried out. The results for November and December are set out below. The percentage of the time turbidity is less than 0.1 NTU has also been calculated.

Percentage Compliance	Turbidity <0.5 NTU	Turbidity <0.1 NTU	Turbidity <0.5 NTU	Turbidity <0.1 NTU
Plant	**November**	**December**	**November**	**December**
Te Marua	TBA	TBA	TBA	TBA
Wainuiomata	TBA	TBA	TBA	TBA

This rule is intended to reduce the risk of *Giardia* and *Cryptosporidium* passing through the plant. The plants incorporate "slam shut" valves so that any water that does not comply with the 0.5 NTU rule is not delivered to the customers.

- A computer program called *Q-Pulse* has been installed. This program is specifically designed to manage all aspects of the documentation associated with the ISO 9002 Quality Management System. It will also be used to mange the documentation for the Environmental Management System. It is accessible at all Water Group sites, providing direct on-line access to the latest version of procedures and manuals.

- Work is continuing on the proposed Environmental Management System (EMS) being developed under the provisions of ISO 14001. Procedures have been developed and put in place, and internal audit training is to be carried out in early February. Our target is to undertake a certification audit before 31 March 2000.

5. Marketing

5.1 Summer Water Conservation Campaign

- Maggie Barry's involvement was confirmed. The script and storyboard for the commercial was finalised, with assistance from a local garden consultant and Ms Barry. The four territorial authorities were provided with the advertisement concept for approval. Kapiti Coast District Council requested involvement. An appropriate contribution to costs was agreed. Filming and post-production work for the commercial was completed prior to Christmas.

- The content for an Internet site was developed, carrying detailed water conservation advice and the watering bylaws of Wellington, Porirua, Hutt and Upper Hutt City Councils, and Kapiti Coast District Council. This site is referred to in the television advertisement.

5.2 Public Relations

- A water conservation article was provided to the Appropriate Technology for Living Association for their publication *ATLA News* (December issue).

- A press release, *Disruption minimal from mains upgrade* was released on 20 December 1999. This gave notice of possible delays because of work on the OK main through the Karori Tunnel commencing on 29 December and details of traffic management arrangements.

- A press release, *No New Year watering if power is off urges WRC,* was released on 23 December 1999. This release reminded the public to prepare to conserve water at New Year if supply problems occurred.

- Arrangements were made for four group visits to treatment facilities.

5.3 Other Activities

- *Water Watch* notices, detailing daily water production and supply, were produced on a weekly basis to keep customers and Councillors informed of the summer water supply situation.

- Y2K preparation for 31 December 1999/1 January 2000 was carried out.

- An investigation of posting monthly water quality figures to the Water Supply Internet site was carried out.

5.4 Economics

- A new water meter database is now up and running. This has now entirely replaced the old database, which was not Y2K compatible. Minor teething problems are currently being rectified and user manuals compiled.

- A cost/benefit analysis of pumping station power consumption is progressing. Maximum benefit from the utilisation of differential power pricing is currently being determine. This involves the supply of time of use information by TrustPower (the new supplier), producing load duration curves and resultant consumption patterns.

- Further investigations using the Sustainable Yield Model have been carried out. Current demands are being scrutinised using the model to determine future demands and resultant resource management implications, particularly with regard to the change in demographic patterns in the Wellington Region.

6. Projects undertaken by Engineering Consultancy for the Strategy and Asset Group

- Te Marua Lakes to Treatment Plant Pipelines

  The tender submitted by C M Contracting Ltd for the cement mortar lining of the relaid bitumen lined pipes was accepted. Work is due to start on-site on 1 March 2000.

- Wainuiomata Reaction Tank

  Construction and commissioning of the reaction tank is complete. The final payment has been made to the Contractor.

- OK Main Slip Lining : Waiapu Road to The Rigi

  The OK main is to be recommissioned between Thorndon and Karori Pumping Stations. This main is required to supply water to Karori and Kelburn when the Kaitoke main is shut down for maintenance and repair work. A section of 300 m between The Rigi and Waiapu Road (through the Karori Tunnel) will be slip lined with a 400 mm diameter polyethylene pipe. Work started on-site on 27 December 1999 and will be completed in January 2000.

- OK Main Cement Mortar Lining : Thorndon to Karori

  The Contract Documents for the cement mortar lining of the OK main between Thorndon and Karori are being prepared.

- OK Main Crossing of Korokoro Stream

  The OK main between Randwick and Korokoro has been recommissioned to supply water to the new Rahui Reservoir. The pipe crossing the Korokoro Stream is corroded and poorly supported. It could fail during a moderate earthquake. A draft predesign report has been prepared outlining the options for replacing this crossing.

- Waterloo Capacity Increase

  The new Wellington pumps continue to work satisfactorily. The Contractor has installed cooling fans in the variable speed drive cabinets to reduce the heat build-up. Modifications to the internal pipework at the Randwick valve chamber has been completed.

- Plimmerton/Pukerua Bay Branch Pipeline Shut-off Valve

  The floor slab for the valve chamber for this shut-off valve was poured and the valve and pipework installed.

- Hutt Estuary Bridge Pipelines

  This strengthening work is on hold pending Hutt City Council finalising the design of the strengthening work on the Hutt Estuary Bridge.

- Wainuiomata River Bridge

The Contract for removal of the old deck and strengthening of the abutments and central pier is in the maintenance period.

- Karori Reservoir Rationalisation

All major pipework alterations are complete and the site has been cleaned up. A number of outstanding items will be attended to in February/March 2000.

- Haywards Reservoir Utilisation

New control valves and pipework are proposed for Haywards Reservoir. This is to allow remote control, turnover in the reservoir to maintain water quality and greater utilisation of the available water storage. Pipes, valves and couplings have been ordered.

- Water Meter Replacement Programme

The programme of replacing the existing revenue meters is progressing satisfactorily. An order has been placed for the supply of 14 high accuracy electromagnetic flow meters. They will be delivered in February 2000 and will be installed by the Distribution Section. Work is continuing on the detailed design of the installations.

Engineering Consultancy Group
(December 1999)

Engineering Consultancy Group
Review of Operations for the Period Ended 31 December 1999

1. Work carried Out for the Strategy and Asset Group

The main capital projects are itemised in the Strategy and Asset Group report.

Most of the plans produced prior to CAD have now been scanned. This will enhance plan security and access, as previously microfilms were the only back-up available. The task of attaching file names and linking to the plan index has now been completed. This enables the plans to be viewed from PCs in the office and at the plants.

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 Pipeline Projects

Tenders were invited for the replacement of a water main in Fox Street, Ngaio, and for two difficult inner city projects. These are Manners Street, from Cuba to Willis Street, and Cuba Street, from Ghuznee to Webb Street.

The Fox Street Contract was completed just prior to Christmas and a Contract awarded for Cuba Street to commence early in the New Year when traffic volumes are lower.

A commission has also been received for main laying in Rolleston Street, Salisbury Terrace and adjustment to the Bell Road zone.

3.3 Grenada North High Level Reservoir

This permanent reservoir, 150 m^3 capacity, will replace the Grenada North temporary tanks. The site is at a higher level to the east of Nassau Avenue on land that is being transferred from TransPower to Wellington City Council. The

intention of this reservoir and associated pipework is the second stage in the upgrade of the Grenada North water supply following the contamination incident in early 1998.

Consultants have been engaged and a design report received just before Christmas.

3.4 Wadestown Reservoir

Montgomery Watson Ltd has been engaged for the design of a replacement reservoir, capacity 1,800 m^3, along with the obtaining of resource consents necessary for the completion of the reservoir on the Town Belt, as well as for access across the Town Belt.

The application for a notified resource consent has been lodged. This included the AEE and design report. The resource consent hearing was held on Thursday, 2 December 1999. The Commissioners released their decision just prior to Christmas. The conditions on the consent are much more stringent than expected, with the requirement that the reservoir be totally buried and the surface contoured. This will add significantly to the project cost.

3.5 Karori South Reservoir

Alternative proposals have been prepared to carry out the various interconnections to create the new larger zone and to allow the decommissioning of the Allington Road Pumping Station and removal of the associated precast concrete tanks.

3.6 Eastern Suburbs Storage1

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).

Because these reservoirs will balance on the Low Level Zone, a very careful analysis is required to establish the optimum reservoir levels. Additional pressure monitoring points have been established at the Moa Point Sewage Treatment Plant and Kilbirnie Crescent. Network modelling was undertaken to establish levels for the reservoir at different sites, as well as enhancement required to the pipe network. Approval has now been received to proceed with the next stage of this project.

3.7 Work Related to the Facilities Management Contract

An instruction was received from Wellington City Council that the Engineering Consultancy Group would not be involved in some aspects of the Facilities Management Contract after 31 December 1999. This mainly related to the maintenance of the plan record system and the provision of information to the

public. However, after discussing the matter with Wellington City Council, this decision was reversed, as they realised they did not have enough facilities or staff to carry out the work.

Subdivisions are assessed for compliance with the *Code of Practice for Land Development* and approval given.

Project Information Memoranda (PIMs) and Land Information Memoranda (LIMs) are processed on a regular basis for the City Council.

4. Other Projects

4.1 Rallywood Bridge

This bridge project for the Plantation Forestry Department has been investigated, designed and tenders invited.

4.2 Waterloo Car Parks

An investigation is underway to fit in some more parking spaces at the Waterloo Bus/Rail Interchange and prices have been obtained.

Laboratory Services
(December 1999)

Laboratory Services Department
Review of Operations for the Period Ended 31 December 1999

1. Items of Note

- Summer sampling started and will continue until February 2000.
- *Giardia* and *Cryptosporidium* in small numbers were again detected at Wainuiomata River intake. The numbers are low and appear to be consistent with the trend for this area.
- Algae numbers have dropped in the Te Marua Lakes.
- The implementation of the laboratory information system is on track. Training will be given to internal clients once the web page has been set up. This will allow results to be accessed from remote sites. Turnaround time will be improved using this facility.

2. Financial

The operating surplus is slightly under budget at this stage. Expenditure for December is up as a result of contingency chemical supplies acquired in case of a Y2K problem. The supplies order will be used in the next month.

3. Business Summary

3.1 Quality

There were no requests for retesting samples and test reports are being sent out within the agreed time frames.

3.2 Health and Safety

There are no incidents to report.

3.3 Number of Samples Analysed

November		**December**	
Samples	1,036	Samples	964
Approximate tests	4,100	Approximate tests	3,900

Plantation Forestry
(December 1999)

Plantation Forestry Department
Review of Operations for the Period Ended 31 December 1999

1. Log Harvest Contract

Three excellent months with a total of 17,710 tonnes for a net revenue of $443,912. Individual monthly totals were:-

- November 7,169 tonnes $168,161
- December 5,994 tonnes $172,587
- January 4,547 tonnes $103,164

During this period logging was completed in Whakatikei, with the block producing a total of 39,582 tonnes against a budget of $33,000.

All logging is now taking place at Pakuratahi East above Ladle Bend. There is still 7,000 tonnes to be harvested at lower Pakuratahi East but the hauler operator has pulled out and we are still awaiting a replacement.

There have been further minor price increases in export grades and increases in both S and l grades. Pruned fell by $2 but, given the lack of pruned stands in Pakuratahi, this will not be a major issue.

NDG in Wanganui, which purchased large branched logs have acquired their own stands and thus no longer buy from us. It is anticipated that they will return as customers in winter and will prove a good outlet for the fringe trees. Unfortunately the additional cartage costs will make them less attractive than they were from Whakatikei.

We are still awaiting the completion of the assembly of the new mill at Renalls at Masterton. This mill is to produce a rough “Japanese square” and the type of timber they require, together with the short haul from Pakuratahi, will make them a good market for us.

There have been minor price increases in export grades and minor decreases in domestic grades, which have tended to cancel each other out. Pruned logs have been sent as far as Thames and Te Kuiti, with some pulp going to Kinleith.

The move into the old crop at Whakatikei has increased roading costs as temporary tracks and skid sites where constructed. In some places logs were double handled as a less expensive option than constructing a track for logging trucks.

2. Silviculture Contracts

Ninety-four hectares of a total 306 hectares of the current year's contract have been completed.

3. Plantation Forestry Operations

The high level of activity has taken up most of the staff's time, with up to four logging crews and four silviculture gangs requiring monitoring and quality control checks.

Further assessments have been completed to ascertain a suitable road line through Rallywoods and to upgrade Puketiro Road.

With the regular rain and warm temperatures, good growth of the new plantings has continued. Unfortunately the weeds and gorse have exhibited similar growth.

The return of *Cyclaneusma*, which was predicted in November by Vigil (ex-MoF forest health advisors), has not been anywhere near as severe as predicted.

4. Forest Access

The only access problem is Maungakotukutuku, where the approach road is still washed out. All other blocks are accessible, although weed growth is becoming a problem in some areas.

The new road into Pakuratahi East has now been in use since October and apart from one or two soft spots has settled down well. We had a problem with heavy rainfall towards the end of last year, where the water flows were so strong they dragged sufficient metal with them to block the grills on the culvert intakes. These grills have since been removed and no further problems have occurred. The grills are to be modified and reinstated. Internal roading within Pakuratahi now extends all the way up the Back Road and back along Centre Ridge Road to the top of the grade. This will be the main access out of the block.

Negotiations are continuing with Rallywoods on an agreement to permit logging trucks to pass through their land from Puketiro Forest. The negotiations have been complicated by the need to amend our present agreements with Craigs Flat and Martyn Bradley to include Rallywoods' personnel.

Tenders have been called for the construction of the new bridge and these are under consideration at the moment.

Curve easement and road widening has commenced on Puketiro Road in preparation for logging in 2002.

5. Market Trends

Export markets appear to be firming with the elimination of stocks in Korea and no easing of the New Zealand dollar. Local markets have also firmed but there appears to be large fluctuations in demand, with mills at short notice requesting additional logs. Given that we are almost logging to capacity, we sometimes have difficulty in producing additional product.

We anticipate further increases in export prices in the next few months.