Water Supply

March 2001

Operations Group
March 2001

Operations Group
Review of Operations for the Period Ended 31 March 2001

1. Items of Note

- The dry weather has resulted in extended periods of high demand on the supply system. No real operational problems have been experienced, as the treatment plants have continued to perform satisfactorily.

- A contract has been let to paint and maintain the exterior of all our installations. This will be an ongoing process, with work commencing on Ngauranga, Haywards and Warwick Street Pumping Stations. Attached on pages 15 and 16 are before and after photographs of those facilities where work has been completed.

2. Water Quality

A total of 252 samples from trunk mains were tested for coliform organisms. None of these samples tested positive.

A total of 98 samples of treated water from treatment plants were tested for faecal coliforms. None of these samples tested positive.

Secchi disc water clarity in the Te Marua north lake varied between 3.6 m and 54. m, and in the south lake between 3.7 m and 4.5 m. These are considered satisfactory.

The dominant phytoplankton were as follows:

- North Lake: *Oscillatoria*, *Staurastrum*, *Cosmarium*

- South Lake: *Oscillatoria*, and *Cosmarium*, *Staurastrum*

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

Asterionella and *Peridium* produce fishy odours.

Synedra produces a musty smell and slick tongue sensation when abundant.

Cosmarium and *Staurastrum* produces a grassy smell when abundant.

Dissolved oxygen (5.1 mg/L-9.5 mg/L) is satisfactory. pH values are satisfactory (6.8-7.6).

Giardia and *Cryptosporidium* results were as follows:

Te Marua

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

Wainuiomata

Treated Water	)	No *Giardia*
	)	No *Cryptosporidium*
Lower George Creek and George Creek south arm combined	)	Low *Giardia*
	)	Low *Cryptosporidium*
	)	
Orongorongo and Big Huia Intake combined	)	No *Giardia*
	)	No *Cryptosporidium*
Wainuiomata intake	)	Low *Giardia*
	)	Low *Cryptosporidium*

Guidelines Criteria

0-10 oocysts = low
10-50 oocysts = medium
>50 oocysts = high

3. Supply Situation

The bimonthly seasonal forecast for March and April 2001 issued by the Meteorological Service is as follows:

For Wellington:

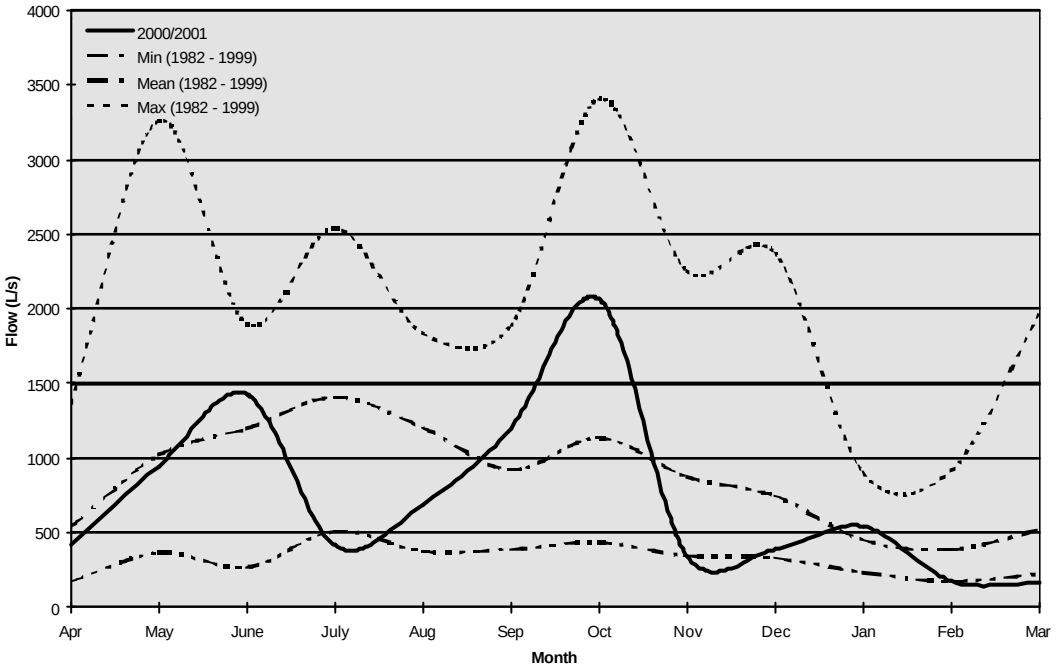
Rain:	About to below normal
Wind:	About normal
Temperature:	Above normal
Sunshine:	About to above normal
Confidence:	Low to moderate

The last few months have seen temperatures rise above, fall below, and then rise above the norm. This yoyo seems to have settled down now, and several warmer than normal days and nights are expected. Otherwise it looks like you are in for an average autumn, but maybe with less rain than normal since the cold fronts are

expected to be weak in their rainfall, even though they may bring a few days with strong winds. The best chance for rain is from a low coming towards the North Island from the Northwest Tasman Sea, and, using previous similar summers as a guide, the chances of this are less than 20%.

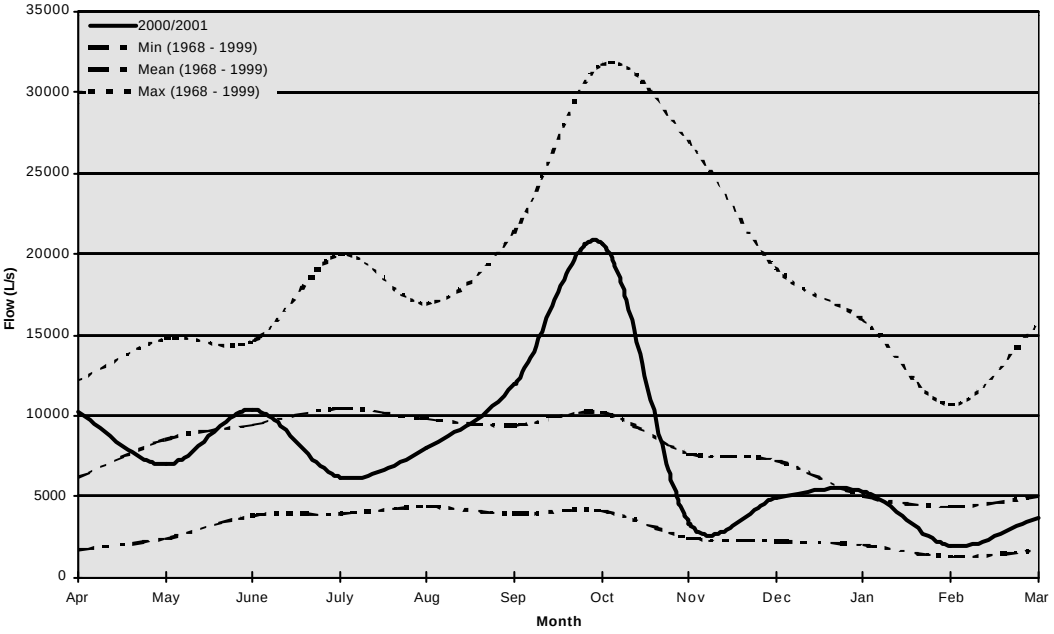
Hutt River Flows

The mean monthly flow in the Hutt River during March was well below average, although on the rise from the February figure.



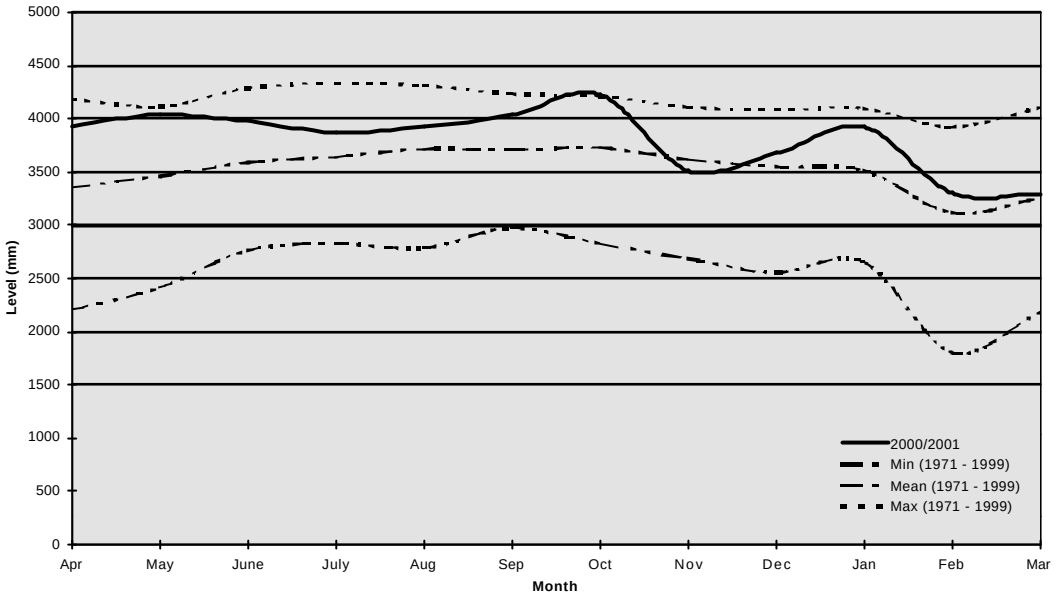
Wainuiomata River Flows

Flow in the Wainuiomata River during March was below minimum despite a relatively high maximum because of a couple of reasonable rainfall events.



Aquifer Levels

The water level in the Waiwhetu aquifer during March was about average.



4. Production

4.1 Wainuiomata

4.1.1 Quality

There are no quality issues to report

4.1.2 Safety

- There are no accidents or incidents to report.

4.1.3 Operations

19 March: The gabion baskets diverting water towards the Orongorongo intake were replaced. They were washed away in the October floods.

Both coagulant dose pumps have been modified to have chemical resistant dose pump heads and associated fittings.

4.1.4 Projects

- Capital Works

There are no capital works projects to report on.

- Operational Projects

  There are no operational projects to report on.

4..1.5 Plant Tours

14 March	Councillors' tour
30 March	Massey University students

4.1.6 General

- The rain on 27 Mach was more of a flash flood. The ground is so hard and dry that any rain that falls runs straight off.

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

5 March:	The fluoride was turned off for modifications required to make Petone fluoride free.
26 March:	The fluoride was turned back on after commissioning of modified fluoride plant. Supplies are only dosed in to Naenae and Gracefield only.

4.2.4 Plant Tours

14 March:	Councillors' tour

4.2.5 Projects

- Capital Works
  - Fluoride modifications were carried out.
- Operational Projects
  - Tenders for the Naenae/Gracefield motor control panel were received and the successful tenderer notified.

4.2.5 General

- As the river flows in Wainuiomata drop off, Waterloo's flow is increasing to make up the difference.

4.3 Gear Island

4.3.1 Quality

- Gear Island has been used a couple of times to supplement supply during planned shutdowns of pipelines.

4.3.2 Safety

There are no accidents or incidents to report.

4.3.3 Operations

There are no items to report on.

4.3.4 Plant Tours

14 March: Councillors' tour

4.3.5 Projects

- Capital Works
  - A new fluoride acid dosing plant is being built, so that water supplied to Wellington from Waterloo Water Treatment Plant will have a fluoride residual.
- Operational Projects
  - Tenders for a fence were received.

4.3.6 General

There are no general items to report on.

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

Date	Problem	Cause
1 March 2001	High treated water pH alarm	Process modulation in caustic control system
9 March 2001	Plant slam-shut	Communications error between chlorine controller and main control system
20 March 2001	Plant shutdown 0800 to 1400 hours	Distribution Section involved in pipeline maintenance at Silverstream.
30 March 2001	High treated water turbidity alarm	Bio film passing through instrument (false alarm)

4.4.4 Plant Tours

7 March	Upper Hutt Probus Club : 41 people
12 March	Wellington City Mission : 7 people
19 March	Opus Training Course : 9 people

4.4.5 General

- Drinking-Water Standards 2001

  Off-line testing and simulation of the new turbidity software has been delayed and will now occur during April.

- Kaitoke Shutdown for Pipeline and Tunnel Repairs (Te Marua control)

  The main control philosophy for the Te Marua Water Treatment Plant relies on a level signal measured at the Te Marua end of the No. 2 Tunnel. With the tunnel requiring to be drained, this signal will be unavailable and, as a result, an alternative control strategy is required.

  The development and testing of a new strategy based on plant inlet pressure is under way and will be completed in early April.

5. Distribution

5.1 Health and Safety

One employee suffered a minor sprain - no time off work.

5.2 Pipeline Section

5.2.1 Colgate Palmolive

A new branch valve and an air valve were installed to service Colgate Palmolive from the 1050 mm main.

5.2.2 1050 mm Main, Hutt Road

- There has been ongoing maintenance on the motorway, with the fitting of valve spindles, brackets and marker posts.

5.2.3 Kingsley Branch

- The Kingsley branch was shut and drained, and a new scour valve installed.

5.2.4 Silverstream Scour

- The Hutt main was shut down at Twiglands (Upper Hutt) and at Haywards, and a new bypass installed to the Kingsley branch.

5.2.5 Porirua High Level

- Shut down and removed the dall tube and orifice plate.

5.2.6 Tawa Branch

- Shut down and removed both orifice plates, globe valve and valve chambers.

5.3 Electrical Section

5.3.1 Johnsonville Pump No. 3

- The motor is still being repaired by Recon Ltd.

5.3.2 Plateau Road Reservoir

- A new telemetry unit has been installed and a level transmitter for the reservoir level. The flow meter and inlet valves were connected.

5.3.4 Karori Pumping Station

- The Kelburn Pump No. 2 motor has been rewound and returned to service. The protective devices on the pump and motor have been improved.

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

- Production

  There are no accidents or injuries to report.

- Distribution

  One employee suffered a minor sprain - no time off work.

- Network

  Two staff members are still on accident compensation because of earlier work related injuries.

  There was one near miss incident on 29 March.

Water Group Health and Safety Data 2001 : Total Injuries

PRODUCTION (+ 1 OPS ADMIN)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hours worked	2,214	2,468	2,526										Mar = breathed in chlorine fumes whilst opening HTH container
Employee numbers	16	16	15										Mar = Overalls caught on mixer shaft
Injuries	0	0	2										
Days lost	0	0	0										
Incidence rate (number of injuries per 100 workers)	0	0	13										
Frequency rate (injuries per 1,000,000 hours exposure)	0	0	792										
Severity rate (days lost to injury per 1,000,000 hours worked)	0	0	0										

DISTRIBUTION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hours worked	1,671	1,524	1,810										Feb = welding up pipe & received burn by arc splatter
Employee numbers	11.5	11.5	11.5										Mar = minor sprain
Injuries	0	1	1										
Days lost	0	0	0										
Incidence rate (number of injuries per 100 workers)	0	8.6	8.6										
Frequency rate (injuries per 1,000,000 hours exposure)	0	656	552										
Severity rate (days lost to injury per 1,000,000 hours worked)	0	0	0										

NETWORK	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hours worked	3,603	3,699	3,926										Jan/Feb /Mar = Days lost due to worker on ACC. Incident recorded in Dec 00
Employee numbers	24	24	24										Mar = Dislocated finger
Injuries	0	0	2										Mar = Body stress to trunk
Days lost	20	15	22										
Incidence rate (number of injuries per 100 workers)	0	0	8.3										
Frequency rate (injuries per 1,000,000 hours exposure)	0	0	509										
Severity rate (days lost to injury per 1,000,000 hours worked)	5551	4055	5604										

ENGINEERING CONSULTANCY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hours worked	1,757	1,977	2,209										Jan = Tree branch struck right elbow
Employee numbers	15	15	15										Feb = Tripped on road marker
Injuries	1	1	0										
Days lost	0	0	0										
Incidence rate (number of injuries per 100 workers)	6.6	6.6	0										
Frequency rate (injuries per 1,000,000 hours exposure)	569	506	0										
Severity rate (days lost to injury per 1,000,000 hours worked)	0	0	0										

UTILITY SERVCIES SUPPORT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hours worked	1,028	1,152	1,099										Mar = punctured elbow with staple whilst leaning on pile of documents
Employee numbers	8	8	8										
Injuries	0	0	1										
Days lost	0	0	0										
Incidence rate (number of injuries per 100 workers)	0	0	12.5										
Frequency rate (injuries per 1,000,000 hours exposure)	0	0	910										
Severity rate (days lost to injury per 1,000,000 hours worked)	0	0	0										

LABORATORY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hours worked	1,228	1,254	1,368										Jan/Feb = Days lost due to possible chemical exposure during acid washing
Employee numbers	10	10	10										Feb = cut thumb on sharp metal in sink
Injuries	0	1	0										
Days lost	3	3	0										
Incidence rate (number of injuries per 100 workers)	0	10	0										
Frequency rate (injuries per 1,000,000 hours exposure)	0	797.4	0										

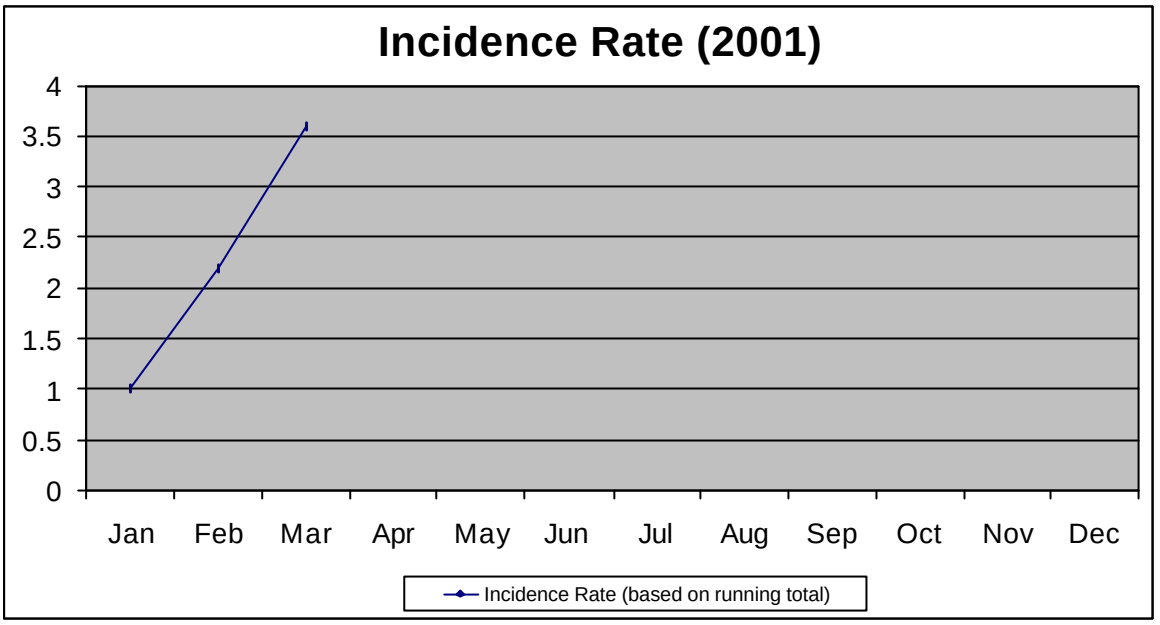
Severity rate (days lost to injury per 1,000,000 hours worked)	2,443	2,392	0

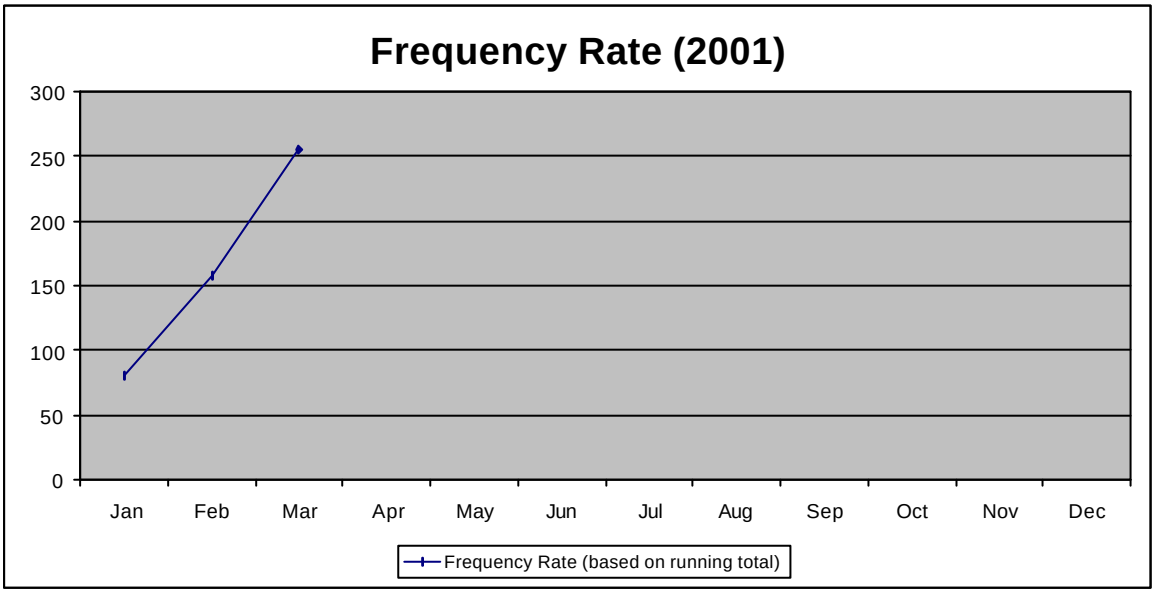
STRATEGY AND ASSET	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hours worked	504	544	620									
Employee numbers	4	4	4									
Injuries	0	0	0									
Days lost	0	0	0									
Incidence rate (number of injuries per 100 workers)	0	0	0									
Frequency rate (injuries per 1,000,000 hours exposure)	0	0	0									
Severity rate (days lost to injury per 1,000,000 hours worked)	0	0	0									

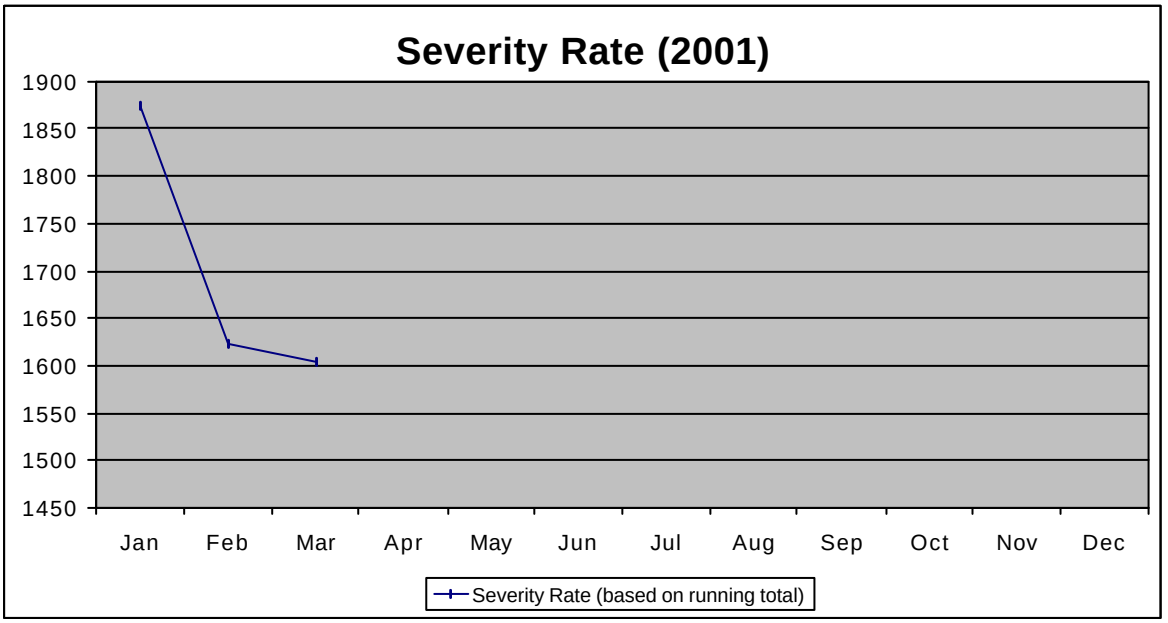
FORESTRY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hours worked	271	390	447									
Employee numbers	3	3	3									
Injuries	0	0	0									
Days lost	0	0	0									
Incidence rate (number of injuries per 100 workers)			0									
Frequency rate (injuries per 1,000,000 hours exposure)	0	0	0									
Severity rate (days lost to injury per 1,000,000 hours worked)	0	0	0									

Incidence rate = (number of injuries/number of employees) x 100
Frequency rate = (number of injuries/person hours worked) x 1,000,000
Severity rate = (days lost/person hours worked) x 1,000,000

Utility Services Division Combined	**Jan**	**Feb**	**Running Total from 1/1/01**	**Mar**	**Running Total from 1/1/01**	**Apr**	**Running Total from 1/1/01**	**May**	**Running Total from 1/1/01**	**Jun**	**Running Total from 1/1/01**	**Jul**	**Running Total from 1/1/01**	**Aug**	**Running Total from 1/1/01**	**Sep**	**Running Total from 1/1/01**	**Oct**	**Running Total from 1/1/01**	**Nov**	**Running Total from 1/1/01**	**Dec**	**Running 12 month Total**
Hours worked	12,274	13,007	25,282	0	25,282	0	25,282	0	25,282	0	25,282	0	25,282	0	25,282	0	25,282	0	25,282	0	25,282	0	25,282
Employee numbers	92	92	92	0		0		0		0		0		0		0		0		0		0	
Injuries	1	3	4	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3
Days lost	23	18	41	0	41	0	41	0	41	0	41	0	41	0	41	0	41	0	41	0	41	0	41
Incidence rate (number of injuries per 100 workers)	1	3	2.2																				
Frequency rate (injuries per 1,000,000 hours exposure)	81	231	158																				
Severity rate (days lost to injury per 1,000,000 hours worked)	1,874	1,384	1,622																				


Incidence Rate (2001)
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Incidence Rate (based on running total)


Frequency Rate (2001)
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Frequency Rate (based on running total)


Severity Rate (2001)
1900
1850
1800
1750
1700
1650
1600
1550
1500
1450
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Severity Rate (based on running total)

Exterior Refurbishment of Production and Distribution Facilities

BEFORE	AFTER

NGAURANGA PUMPING STATION

HAYWARDS PUMPING STATION

WATERLOO WATER TREATMENT PLANT

BEFORE	AFTER

WARWICK STREET PUMPING STATION

GEAR ISLAND TREATMENT STATION

Operations Network
Review of Operations for the Period Ended 31 March 2001

1. Items of Note

- Five mains bursts were attended to and repaired within the requisite timeframe.

2. Water Quality

2.1 Routine Testing (A1)

The water quality was monitored and the appropriate laboratory tests were completed for March. There were 164 samples from the reticulation system tested for bacteriological compliance during March.

Compliance for the month is 100 percent. Compliance for the year to date is 99.9 percent.

2.2 Water Tests Initiated by Customers (A2)

	March	Year to Date	Compliance Year to Date (%)
Number received	4	53	-
Within ability of Operations Network to control	0	20	-
Formal response within five days	4	52	98.1%

3. Customer Services

3.1 Counter and Other Office Services (E)

Information has been provided to customers requesting information by letter, telephone and over the public counter.

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

March	
Counter enquiries	100 + 14 encroachments
Proposals from other utilities	12
Plan records : New services recorded	20
Response time requirement compliance	100%

3.2 Performance Standards (G)

March 2001				
	Expected Compliance	**Number of Activities**	**Completed to Standard**	**Compliance Achieved**
Miscellaneous				
A Quality complaints (samples)	85-95%	4	4	100%
A System Flushing **(M1.4)**	85-95%	212	211	99%
B Pressure and flow	85-95%	20	19	95%
B Loss of Supply **(M1.5)**	85-95%	22	22	100%
C Planned Shutdowns	95%	24	24	100%
C Unplanned Shutdowns	95%	58	58	100%
D Mark-outs	90-95%	49	46	94%
G Workmanship (joint audit results for February 2001)	90-95%	63	61	97%
O Meter Reading	*100%*	*Achieved*	*Achieved*	*Achieved*
Significant Leaks (M1.2 or o/e)				
H Burst Mains (1 O&E)	85-95%	5	5	100%
H Other	85-95%	-	-	-
Non-significant Leaks				
H Mains **(M1.2)** (Includes 2 O&E)	85-95%	31	27	87%
H Valves **(M1.3)**	85-95%	32	30	94%
H Hydrants **(M1.4)**	85-95%	96	88	92%
H Domestic Services **(M1.5)** (Includes 1 O&E**)**	85-95%	224	210	94%
H Stopcocks **(M1.6)**	85-95%	411	385	94%
H Water Meters **(M2.1)**	85-95%	19	19	100%
L Damages (Variation)	85-95%	27	24	89%

Locates and Investigations (Wellington Regional Council Internal Target of Three Working Days)

March 2001		
Locate stopcocks	52/72	72%
Leak locations	61/126	43%
Flow tests	2/2	100%
Seepage/investigations	3/4	75%

Failures

	Jobs Failed by 1-24 Hours	**Jobs Failed by 1-5 Working Days**	**Jobs Failed >5 Working Days**
Burst mains			
Stopcocks	2	11	10
Hydrants	2	7	3
Valves	1	1	4
Mains		2	1
Domestic services	1	13	13

	Jobs Failed by 1-24 Hours	Jobs Failed by 1-5 Working Days	Jobs Failed >5 Working Days
Water meters			
Damages	15		
Quality complaints			
System flushing			
Pressure and flow			
Loss of supply			
Mark-outs		5	
Workmanship			

Additional Work Carried Out

Variations (exclusive of burst mains)	2
Service renewals >4m	3

Burst Mains

There was a total of five burst mains during March 2001. These were as follows:

84 Raroa Road	5 March 2001
Cnr Ohariu and Monowai Roads	20 March 2001
7 Cunliffe Street	24 March 2001
12 Anthony Street	24 March 2001
19-21 Stephen Street	28 March 2001

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

Overs and Extras

Cnr Ohariu and Monowai Roads	Burst main
25 Allen Terrace (January over and extra that was not recorded)	Blown service off main
Cnr Elphinstone and Kinghorne Streets	Major mains repair
59 The Drive	Major mains repair

4. Health and Safety

Two staff members are currently on accident compensation because of work related injuries. One worker continues to receive treatment for lower back problems. He may return at end of April 2001. The other worker has had treatment for carpal tunnel release and is not expected back until the end of April 2001.

One near miss incident occurred on 29 March 2001. A contract labourer working with the reinstatement gang suffered an epileptic seizure in the vehicle, causing the vehicle to roll downhill into a private property in Ramphal Terrace, Khandallah. There was damage to the property owner's garage and landscaping. No physical damage occurred.

5. Meters

A total of 1,512 suburb and high use meters were read and entered into the system by 23 March 2001.

6. Pumping Stations, Reservoirs and System Control

6.1 General

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

6.2 Control System

The control system continues to operate satisfactorily.

6.3 Woodridge Reservoir

The UPS for the emergency shut-off has failed. A new unit has been installed.

6.4 Epuni Street Pumping Station

The No. 3 pump at Epuni Street Pumping Station has been overhauled, reinstalled and returned to service. Subsequently the mechanical seal failed and was repaired by Pump and Machinery.

The mechanical seal failed again. It has been repaired under warranty and is now okay.

6.5 Broderick Road

A bearing in Pump No. 1 motor was replaced and the o-ring in the mechanical seal was changed.

6.6 Tawa and Linden Reservoirs

Water level probes were installed in these two reservoirs to give back-up level indication.

6.7 Maintenance Checks

Maintenance was carried out as follows:

March	
Round E	**Round F**

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

7. Development

7.1 Development Statistics (F2)

Subdivisions	March	Year to Date
Construction plans approved (lots/units)	4	226
Scheme plans approved	40	318
Subdivisions cleared (lots/units)	170	683
Total subdivisions processed	76	527
Subdivisions processed on time	72	513
Response time compliance	94.7%	97.3%

The monthly returns for subdivision processing included in the Performance Requirement table as at March 2001 has been revised this month for the whole year in order to report more accurately on subdivisions processed during the months rather than subdivisions plan approval and clearance.

7.2 Development Projects

7.2.1 Churton North Reservoir

Some minor maintenance items are outstanding.

7.2.2 Westchester Drive Pumping Station and Rising Main

Some minor maintenance items are outstanding.

7.2.3 Subdivisions General Items

- Rossaveel Heights, Takapu Road, Grenada North. Construction has started on-site, with earthworks associated with placing the power lines underground. Approvals for work over the wholesale water mains was given. The next Hearing is on 9 April.

- Considerable investigation was carried out associated with approvals of a three lot subdivision at 128 Weld Street. The decision is currently with Wellington City Council for resolution. An important principle of

minimum pressure requirements is a key issue.

- Investigations are continuing into a subdivision at 130 Fraser Avenue, Johnsonville. This subdivision requires a firefighting main. Checks into network calculations are continuing.

7.2.4 Construction and As-built Plans

7.2.4.1 Construction Plans

Construction plans were considered for approval of the following subdivisions:

- 12 Frankmoore Avenue, Johnsonville (5 lots). Amended plans were received on 16 March and are currently under consideration.

- 14 Glenmore Street, Kelburn (4 lots). Amendments to plans were approved on 7 March.

7.2.4.2 As-built Plans

As-built plans were considered for approval of the following subdivisions:

- George Subdivision, Rangiora Avenue (12 lots). This as-built plant was approved on 15 March.

- Tamworth Crescent, Newlands (Bellevue Stage 4) (23 lots). Certification of pressure reducing valve settings was received on 20 March. These plans have not yet been finally approved, as they are under consideration.

- 14 Glenmore Street, Kelburn (4 lots). These plans have not yet been approved, as remedial work has been requested.

7.2.5 Fire Services Recently Connected

The following fire service connection was installed during March:

- 66 Coutts Street, Kilbirnie (100 mm)

Processed	Complying	Compliance
1	1	100%

7.2.6 New Commercial Metered Services

The following new metered services were connected during March:

- 409 Adelaide Road, Newtown (temporary) (20 mm)
- 235-237 Willis Street (80 mm)
- 53 Rintoul Street, Newtown (temporary) (20 mm)
- 109-111 Vivian Street, Te Aro (32 mm)
- 33-35 Dixon Street, Te Aro (40 mm)

- 253 Riddiford Street, Newtown (40 mm)
- 66 Coutts Street, Kilbirnie (100 mm)
- 58A Karepa Street, Brooklyn (20 mm)
- 88 Riddiford Street, Newtown (40 mm)

Processed	Complying	Compliance
2	2	100%

7.3 Building Development Appraisals (F1)

	March	
	Commercial	Domestic
Building consents	9	41
PIMS applications	11	44
Compliance with response time requirement	100%	100%

7.4 Land Information Memorandum (F1)

	March
Applications processed	45
Compliance with response time requirement	100%

8. Capital Works

8.1 Main Laying

8.1.1 Contracts in Maintenance Period

The following pipelaying contracts are in the maintenance period:

- Manners Street
- Cuba Street
- Bell Road Zone Improvements
- Karori South and Allington Road Zones Amalgamation
- Percival Street
- Oriental Terrace
- Taranaki Street

The maintenance period for the Rider Main Renewals Contract has expired. The Contractor has been instructed to rectify some road surface defects before the maintenance retentions are released.

8.1.2 Taranaki Street

The Contractor completed the connections and reinstatement of the site and attained Practical Completion on 27 March 2001. This Contract is now in the defects liability period.

8.1.3 Oriental Terrace

The Contractor completed the connections and reinstatement of the site and attained Practical Completion on 22 March 2001. This Contract is now in the defects liability period.

8.1.4 Tirangi Road and Lyall Parade

The Contract to replace the existing 200 mm and 150 mm asbestos cement pipes in Tirangi Road and Lyall Parade is progressing satisfactorily after a late start on-site.

8.1.5 Tanera Crescent, Brooklyn

The Contract Documents and Drawings for the replacement of the 150 mm asbestos cement main in Tanera Crescent are almost complete.

8.1.6 Rex Street, Miramar

The Contract Documents and Drawings for the replacement of the 75 mm cast iron main in Rex Street are complete, and are about to be sent out to contractors for pricing.

8.2 Reservoirs

8.2.1 Wadestown Reservoir Replacement

The floor and walls of the new reservoir have been formed. The Contractor is expecting to pour the roof soon after Easter.

The Contract Documents for the scour/overflow drain for the reservoir have been sent out to contractors for pricing.

8.2.2 Grenada North High Level Reservoir

Construction of the reservoir is nearing completion. Preparations are being made for the pipework connections, filling and testing of the reservoir.

8.2.3 Kelburn Reservoir Replacement

Design is progressing for the replacement of the two Kelburn Reservoirs. The existing reservoirs have insufficient capacity and do not comply with current building standards. Drawings of the inlet and outlet pipework are being prepared.

8.2.4 Eastern Suburbs Reservoir

The preferred site for this reservoir is being investigated in more detail. The

planning and resource consent issues surrounding the preferred site are being assessed.

8.2.5 Southern Suburbs Reservoir

Investigations into the site of this proposed reservoir are about to get under way.

Strategy and Asset Group

March 2001

Strategy and Asset Group
Review of Operations for the Period Ended 31 March 2001

1. Items of Note

- Water integration issues have been the prime area of focus over the period.

- The summer water conservation television advertisements were not scheduled after the end of February. Consideration was given to extending them because of the continuing dry spell. However, as water supplies were adequate, it was decided not to. Post-television campaign consumer research was started during the period.

- The process of determining the easement value for Hutt City Council to use the Wainuiomata Tunnel for a waste water pipe has started.

- The Ministry of Health has published new Drinking-Water Standards. The new Standards contain a number of significant changes and came into effect on 1 January 2001. The criteria by which an underground source may be classified as "secure" have been considerably tightened. To achieve protozoa (*Giardia* and *Cryptosporidium*) compliance, an untreated groundwater supply such as Waterloo must be secure. Work is under way at present to establish the age of the water in the Waiwhetu aquifer. If 99.995 percent of the water is shown to be more than one year old, it is considered to be "secure". Failure to comply with these new criteria would result in the Waterloo Water Treatment Plant not meeting the Standard. Results of the groundwater ageing are expected in October or November this year.

- Good progress is being made on the Capital Works Programme for the financial year.

- A number of plants have been introduced to the Orongorongo Catchment over a period, mainly in the area surrounding the caretaker's house, which has since been demolished. These plants will now be removed.

- A draft National Energy Efficiency and Conservation Strategy has been published by the Government. A Regional Council submission will be considered at the next Policy and Finance Committee meeting. The Water Group has made a contribution and this will be included in an abridged form in the Committee report, with information from other Council divisions. The text of the information provided is as follows:

  1. ***Introduction***

  The Water Group of the Regional Council, as the water wholesaler in the Wellington area, uses approximately 20 GWh of electrical energy

a year. A very high portion of this is used in electric motors to drive pumps for the distribution of water and motor driven equipment in our water treatment plants.

2. ***Efficiency Measures***

The Water Group is constantly looking for new efficiency measures because it makes good business sense to do so. Some of the efficiency measures we have undertaken in recent times include:

- *converting some fixed drive motors to variable speed AC motors;*
- *introducing power factor correction equipment for all significant new electrical installations and when existing installations are upgraded;*
- *developing a system optimiser which takes into account electrical energy and network charges, chemical costs and waste disposal, and then optimises the production of water. This has resulted in shifting some day-time water treatment to night-time and making better use of reservoirs for daytime demand;*
- *upgrading system controls as appropriate with new electronic controls. In many cases these have replaced mechanical control systems.*

The Water Group has achieved ISO 14001, which concerns environmental management.

3. ***The Energy Intensity Problem***

The Water Group has three water treatment plants which collectively give the system spare capacity. Each plant has a different marginal cost of production which, as explained above, is based on power, chemicals and waste disposal. At present the lowest marginal cost of production is achieved at one of the plants which has a high electricity input and a low chemical input. The two other plants could be favoured if the power and chemical cost balance was to change. A complicating factor is that power costs change through the year and some chemical costs are influenced by the US/NZ dollar exchange rate. The waste disposal is a relatively low factor in the cost of production. What we are not aware of though is the energy usage in production of the various water treatment chemicals. Unless the cost of power was to increase, or some incentives were offered, it seems unlikely that in the foreseeable future there would be any reason to change from producing treated water from a process which has a high power and low chemical cost input.

4. ***Proposed Action on Energy Efficiency***

In addition to the energy efficiency measures mentioned above which

are on going, the Water Group will continue to look at other energy efficiency measures. The incremental change though is likely to be small. Some slight improvements in AC variable speed drive motors is to be expected, however, the energy efficiency of these motors is already very high.

The optimiser at present only controls half of the water produced from the system. Work is continuing to see whether this should be extended to the whole system, which would shift further water production from day-time to night-time.

The Water Group has an ISO 14001 objective to reduce power consumption per mega-litre of water produced and delivered by 3% by 31 December 2004. Although this is quite a low percentage reduction in energy intensity, we still believe it will be very difficult to meet. Unfortunately the draft target of a 20% improvement in energy efficiency by 2012 is beyond us. The reason principally is that electric drive motors are already close to 100% efficient and the pumps that we currently purchase, which are usually over 80% efficient, are the best that are currently available. While we would expect some improvement in the efficiency of the pumps, this will be a very low figure over the next 10 years.

5. ***Energy Intensity***

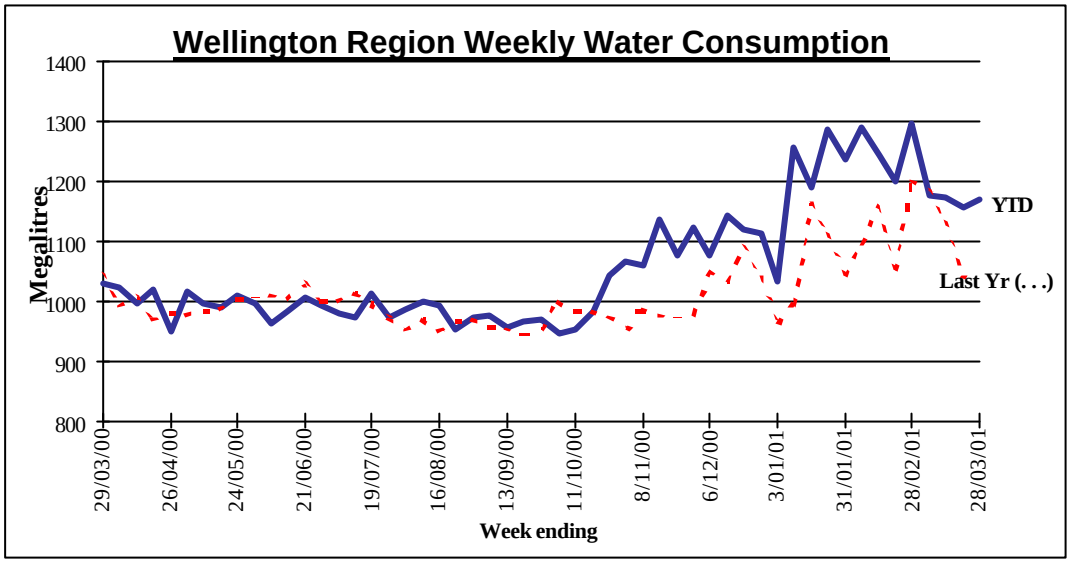
A significant reduction in energy intensity in the Wellington metropolitan area could be achieved by reducing water consumption. Documented research has shown that water consumption will reduce by 20 –25 % if universal metering is undertaken. At present very few properties are metered in the Wellington area. Metering would have a capital cost of approximately $25 million and there would be on-going transactional costs for meter reading and billing, as well as meter replacements after a period of time. Power savings of approximately 5GWh could be expected giving a reduction of energy and network charges of approximately $400,000 a year. There would also be some follow on affects with less energy used for waste water pumping and treatment. The Regional Council is not directly involved in wastewater collection and treatment. At present though, from a strictly economic point of view, the savings from introducing universal water metering do not produce a satisfactory return on the capital that would need to be invested.

6. ***Summary***

The Water Group supports a national objective of improving energy efficiency and reducing energy intensity. Our target is to reduce energy intensity by 3% over the next three years. Anything more ambitious would require a significant reduction in water usage. At present it is not economic to install metering which

would produce such a reduction.

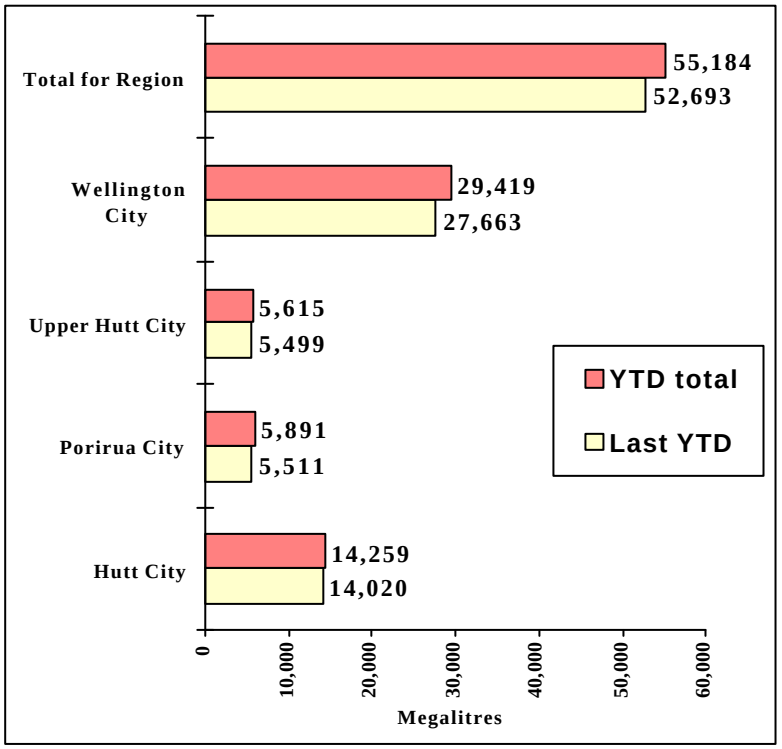
2. Sales Volume

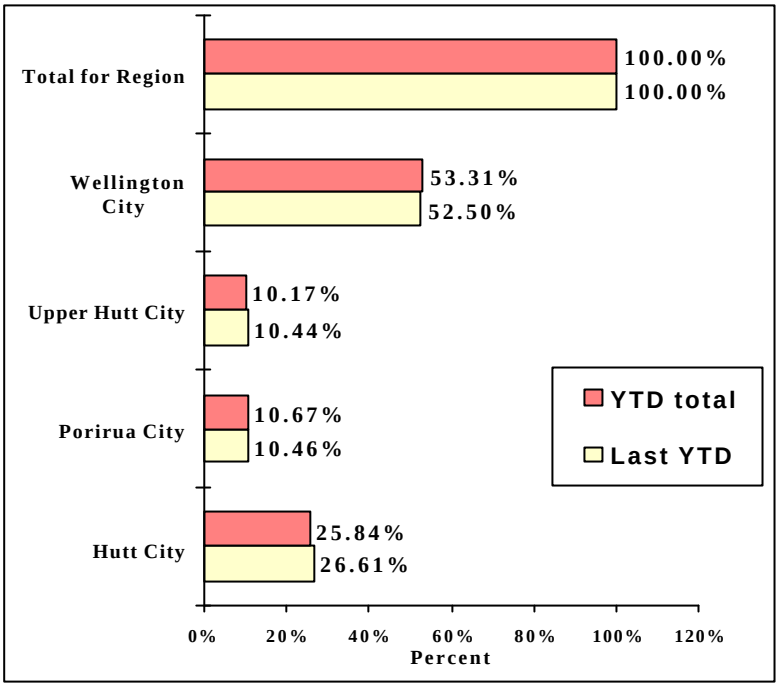


Water Sold Over the Last 12 Months

Sales volumes to the beginning of November 2000 were similar to the previous year. Consumption in the period November 2000 to the end of February 2001 is reflective of the very low rainfall in this period.

Water Sold from 1 April 2000 to 28 March 2001





3. Asset Management

- Production of financial report templates that will extract financial information from the Hansen AMS has been delayed by technical difficulties being experienced by Hansen Australasia in Melbourne. The continued delays are causing some concern. In the meantime, Finance is using estimates of depreciation for the monthly balance sheets.

- A review of the June 1998 Asset Management Plan has been commenced but no significant changes will be made until the 2001/2 year.

- At 31 March the forecast full year expenditure on capital works is $3.443 million. The approved budget is $4.047 million. Most of the savings have come from reduced project cost or from project deferral, rather than project delays. Refurbishment of the Orongorongo/Karori main between Thorndon and Karori is completed, installation of the new fluoridation equipment at Gear Island is close to completion and work on developing a computer model of the distribution network is progressing well. Construction of the new branch main to the Plateau Reservoir is nearing completion and the technical difficulties have now been overcome.

- Survey work and subdivision plans for Karori Reservoir land have been delayed by the Chief Surveyor who is querying ownership of the stream bed.

- IBM has objected to our application for a resource consent to take water from the Moera aquifer during peak demand times. Their objection raises complex technical and legal issues, which are being worked through with Environment Division staff and IBM.

- Draft conditions for the new consents to abstract water from surface sources are close to being finalised. A peripheral agreement covering fishery issues has been set up with Fish and Game New Zealand and another facilitating winter weekend rafting agreed with Top Adventures. Since these two parties are the only objectors, these agreements will enable the consent to be granted without a formal hearing. The current consents expire on 1 October 2001.

- The Wainuiomata Catchment Ranger has encountered several people in the catchment area during March and a live cannabis plot on the fringe of the catchment area has been discovered. The ballot for public hunting in April has been conducted. The Upper Hutt Forest and Bird Society visited the catchment in March. A survey of introduced weeds in the catchment has been completed and some purple pampas grass removed. Construction of speed humps on the plant access road has improved traffic safety.

4. Quality Assurance

- Statistical analyses of turbidity readings to demonstrate compliance with the *Drinking-Water Standards for New Zealand* rule that requires turbidity to be less than 0.5 NTU for 95 percent of the time have been carried out. The results for March are set out below. The percentage of the time turbidity is less than 0.1 NTU has also been calculated, as this standard will apply in the future.

Percentage Compliance	Turbidity < 0.5 NTU	Turbidity < 0.1 NTU
Plant	**March**	**March**
Te Marua	100%	100%
Wainuiomata	99.94%	98.35%

The >0.2 NTU change within 10 minutes rule has been tested for both plants. This rule identifies "spikes" in the turbidity results, which have the potential to carry protozoa into the treated water. The results are as follows:

No. of Exceedances	March
Te Marua	0
Wainuiomata	1

These rules are 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 *Drinking-Water Standards for New Zealand* is not normally delivered to the customers.

5. Marketing

5.1 Report of Business Activity

- Screening of our Summer Water Conservation Campaign advertisement concluded on 3 March. Ratings for the campaign indicate that at least 90 percent and up to 97 percent of our three main target groups would have seen the advertisement.

- Research into the effectiveness of the conservation campaign was commissioned. Interviewing commenced on 19 March and is due to be completed in early April. Results will be available at the end of April.

- *Water Watch*, the weekly update of the water supply situation, has been produced for our customers, Councillors and Wellington Regional Council water supply staff. Our Environment Division has supplied water catchment rainfall and river flow data.

- It was noted in the report for February that a steady trickle of public enquires relating to water conservation issues since mid-January had been received. This indicates an increased level of awareness about the need for water conservation. A similar level of enquiry continued during March.

5.2 Other Activities

- Work on development of new external signage at main Wellington Regional Council water treatment plants and pumping stations.

- Further work to update the water supply section of the Wellington Regional Council Internet site.

6. Economics

- A separate report to the Committee is about the way the water levy is set.

- The metering year ended on the last Wednesday in March. Customers are currently being consulted to see if there are any irregularities before the consumption figures for the year are finalised. Sales to the four city councils for the year ended March were 55,184 million litres. This compares with 52,693 million litres in the previous year, an increase of 4.7 percent. As there was minimal change for the first six months, most of the increase is put down to garden watering during the dry summer.

7. Projects Undertaken by Engineering Consultancy for Strategy and Asset

- Big Huia Pipeline Joints

  All joints on the Big Huia intake pipeline have been cleaned and wrapped.

- Kaitoke and Te Marua Roads Reseal

The roads at Kaitoke and Te Marua have been resealed.

- *Te Marua Lakes Emergency Action Plan*

  Proposed amendments to the *Te Marua Lakes Emergency Action Plan* are being reviewed.

- Wainuiomata Water Treatment Plant Slam-shut Scour

  The design is complete and a butterfly valve has been ordered for a scour immediately upstream of the slam-shut valve. Quotations are being obtained for the supply of the pipe.

- Waterloo and Gear Island Fluoride Dosing

  The new fluoride dosing system at Waterloo was commissioned and is operating satisfactorily. Installation of the dosing system at Gear Island is almost complete.

- Waterloo Water Treatment Plant Vibration and Noise

  The report on the cause of vibration and noise within Waterloo Water Treatment Plant has been reviewed. Negotiations are being held with Sinclair Knight Merz for detailed design and Contract supervision.

- Silverstream Scour on Kaitoke Main

  The Distribution Section has installed the new scour on the Stokes Valley branch line and a new branch on the Kaitoke main.

- Refurbishment of the OK Main, Thorndon/Karori

  The Contract for cement mortar lining the OK main is complete. Arrangements are being made to commission the main.

- Orongorongo Pipeline Replacement at George Creek

  The pipe for replacing approximately 140 m of the OK main in the Wainuiomata Water Collection Area has been ordered.

- Plateau Reservoir Inlet Main

  Installation of the new inlet main to Upper Hutt City Council's Plateau Reservoir is complete. The Contractor is arranging testing, connections and reinstatement.

- Pumping Stations Power Factor Investigation

Power factor correction equipment has been installed in Moores Valley, Wainuiomata and Randwick Pumping Stations.

- Johnsonville Pumping Station Switchboard

A preliminary design has been prepared for the replacement switchboard at Johnsonville Pumping Station.

- Ascot Park Pumping Station

Investigations have begun on a proposed pumping station to improve the supply to Ascot Park Reservoir during periods of high demand.

- Kaitoke Pipeline Either Side of Strainer Building

The start date for refurbishing the concrete pipeline between the Kaitoke Flume Bridge and the No. 2 Tunnel entrance was postponed because of the continuing high demand for water and the low river flows in the Wainuiomata and Orongorongo Rivers. Work is expected to start mid-April 2001.

- Kaitoke Pipeline on Haywards Hill

Opus International Consultants Ltd has been commissioned to provide a report on the effect of the proposed State Highway 58 realignment on the ground stability along the route of the Kaitoke pipeline.

- Hutt Estuary Bridge Pipelines

Flexible couplings have been installed on the two pipelines crossing the Hutt Estuary Bridge. This allows the pipelines to move with the bridge in a seismic event. Arrangements are being made to strengthen the holding down bolts on the pipe supports.

- Wainuiomata Main Valve Chambers

A proposal to rationalise the pipework within the Korokoro valve chamber on the Wainuiomata main has been prepared. This will remove unused pipe, reducing the risk of contamination.

- Te Marua Towers Valve Shut-off

The air receivers have been installed for the pneumatic cylinder actuators on the lake inlet and outlet valves. The air compressors have been ordered and arrangements are being made to install the actuators.

- Pipe Holding Down Straps in Tunnels

A review is being undertaken of pipe securing straps in the Kaitoke and Rock Point Tunnels.

- Flow Meters

A report has been prepared reviewing the flow meter replacement programme.

Engineering Consultancy Group

March 2001

Engineering Consultancy Group
Review of Operations for the Period Ended 31 March 2001

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 Taranaki Street Pipeline

Work is complete on the Contract for the laying of a replacement main on the east side of Taranaki Street from Courtenay Place to Webb Street. On the west side a polyethylene pipe has been laid by pipe bursting between Abel Smith and Webb Streets.

3.3 Percival Street Pipeline

The Contract for the replacement of the 100 mm cast iron main and 40 mm galvanised iron main in Percival Street, Upper Dixon Street and Allenby Terrace is now complete and commissioned. This Contract presented some difficulties because of the narrow access paths and flights of steps.

3.4 Oriental Parade and Oriental Terrace

Construction is complete for the installation of these pipelines, which replace a pipeline with a very poor service record.

3.5 Tirangi Road and Lyall Parade

Work has commenced on replacement of the asbestos cement mains. This will complete the work in this area.

3.6 Other Wellington City Council Capex Projects

Design work is complete and tenders have been invited for a replacement main in Rex Street, Miramar. Design is complete for Tanera Crescent, Brooklyn.

3.7 Grenada North High Level Reservoir

This permanent reservoir, 160 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 has recently been 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.

The Contractor has completed the construction of a long access road from Caribbean Avenue and for the reservoir site. The pipelines from Nassau Avenue have been laid to the reservoir site, and the construction of the reservoir is nearing completion.

3.8 Wadestown Reservoir

Montgomery Watson Ltd was 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 Contractor has made substantial progress with the construction of the reservoir works. The access across the Town Belt from Northland has minimised impacts on Wadestown residents.

Design of an insertion pipeline to convert the old rising main to an overflow is complete and tenders have been invited.

3.9 Eastern Suburbs Storage

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). A preliminary analysis of the three potential sites has been made, which has indicated that one site has significant advantages. This site is now being investigated in more detail.

3.10 Southern Suburbs Reservoir

Further investigations are under way to identify a site that meets land-ownership and water supply requirements.

3.11 Kelburn Reservoir

A commission has been awarded to consultants for the investigation and design of a new reservoir, which will replace two existing reservoirs that are adjacent to the Karori Wildlife Sanctuary. Good progress has been made with the preliminary planning and preparation of the design report.

3.11 Water Services Agreement

Under the new agreement, which came into effect on 1 July, the group is carrying out similar functions as were required under the Facilities Management Contract. These are as follows:

- Building consents
- Subdivisions
- System records
- Counter service
- New services and fire services

The scope of work relating to the maintenance of the system records may alter during the year, as Wellington City Council moves away from paper based record keeping.

The new agreement also contains a performance related bonus and penalty system related to response times.

4. Other Projects

4.1 Puketiro Bridge

This small bridge replaces an existing ford on a forestry access road. Tenders have been received and analysed. A Contract has been awarded and work is about to commence.

4.2 Karori Wildlife Sanctuary

The replacement of the scour valve on the Upper Dam was delayed because of an extended manufacturing time. The valve has arrived and has now been modified and installation is under way.

Laboratory Services
March 2001

Laboratory Services Department
Review of Operations for the Period Ended 31 March 2001

1. Items of Note

- The financial bottom line was impacted upon by higher chemical and consumable expenditure, due in part to "stocking up". The use of external agencies for subcontracted work was also significant and is figuring increasingly.

- Shellfish sampling and analysis was undertaken for the Resource Investigations Section and offers a prime example of how some of the larger budget projects are now shaping up. In this case about 93 percent of the work was beyond the scope of our laboratory and was therefore subcontracted. Our in-house component amounted to a meagre 7 percent.

- Monitoring of the Te Marua Lakes for algae continued into this period but tailed off as phytoplankton levels, mainly *Oscillatoria*, stabilised and returned to normal.

- Finally, the day trip to Gear Island, Waterloo and Wainuiomata Water Treatment Plants was both enjoyable and enlightening. Thank you Operations Group and others.

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 during the month.

Plantation Forestry

March 2001

Plantation Forestry Department
Review of Operations for the Period Ended 31 March 2001

1. Log Harvest Contract

March ended up as the best month so far in terms of both total tonnage and net revenue. A total of 8,847 tonnes were felled for a net income of $203,285

Recent grade outputs have been:

February (whole month)

Grade		Tonnes	%
Pruned Domestic		218.72	3.16
Pruned Export			
Partial Pruned		151.18	2.18
S/A Grade		895.58	12.94
L Grade		366.97	5.30
R Grade		692.85	10.01
K Sawlog		1,035.68	14.96
K Rough		901.79	13.03
Pulp		1,707.91	24.67
O/S Pulp		223.96	3.23
Other		728.81	10.53
		6,923.44	

March

Grade		Tonnes	%
Pruned Domestic		193.27	2.18
Pruned Export			
Partial Pruned		252.82	3.20
S/A Grade		1,336.55	15.11
L Grade		690.88	7.81
R Grade		1,405.34	15.88
K Sawlog		1,490.08	16.84
K Rough		775.21	8.76
Pulp		2,109.53	23.84
O/S Pulp		76.55	4.26
Other		187.23	2.12
		8,847.46	

March has been another good month, with 8,847 tonnes felled for an income of $203,285. This month has seen all the logging to the west of the incline walkway above Ladle Bend completed. This includes the two stands across the Pakuratahi River. Access was by way of an existing ford. Water run-off areas were constructed on each side and the logging trucks had no difficulty with access during the whole period of the harvest. This was in part because of the unusually good weather we have experienced since Christmas.

With the large hauler now working Gorse Knob, it has been necessary to impose weekday closures of the walkway between the hours of 6 am and 4 pm. Although the stay wires do not foul the walkway, they are visible to walkers and on occasions walkers left the walkway for a better view and walked among the stay wires. As these tighten and slacken as a load is placed on the haul ropes, this was a very dangerous practice and could not be permitted to continue.

Prices from 1 April have been reduced by around $5 per tonne. This reduction is attributed to a downturn in Australian demand, with the completion of the Olympics' construction and the effects of GST being introduced. The Korean market is soft, with good stocks on hand and little immediate expectation of improved demand.

It is interesting that the downturn in demand does not apply to pruned logs, where prices locally are steady and with South Island prices on the increase. Rayonier states that they could sell all the pruned logs we could offer. Unfortunately we have harvested all the pruned trees in Pakuratahi.

2. Silviculture Contracts

Of the 515.8 hectares put out to contract for the current year, 394.6 hectares have been completed. It is anticipated that all the contracts will be completed by 30 June.

3. Plantation Forestry Operations

Although Wellington City has suffered with a "100 year drought", there has been more rain in the plantation areas, as there is little sign of stress or wilting in the trees.

A bonus consequence of the dry spell is that there has been little requirement for track maintenance and access has been good. What we need now is a steady increase in rainfall through to June to allow replanting to commence on time.

Although the lack of rain has assisted with access and harvesting, it has produced some drought codes in excess of 600. When it is considered that 325 is considered extreme we have been fortunate that our activities have not been compromised. Forestry staff members have been carrying fire equipment on their vehicle through this period and all contractors were reminded of the need to be doubly vigilant and careful.
The bridge across the Wainui Stream at Puketiro is progressing well, with both abutments completed and the deck beams in place as this report is written. The bridge should be well finished by the end of May and the builders have met the resource consent requirement to complete all works in the stream before spawning (15 May)

Tenders have been awarded for the completion of the upgrade and construction of the access road through Rallywoods.

Discussions are continuing through O'Brien Property Consultants on three land related issues:

- The purchase of approximately 4 hectares of the Kaitoke block as part of the realignment of State Highway 2
- The purchase of a reservoir site at Maymorm and a pipe easement to feed it
- A land purchase settlement with a neighbour at Plateau

4. 2001-2005 Harvest Contract

Tenders have been invited for the harvest of blocks in the Puketiro, Valley View and Pakuratahi West Forests as part of the next harvest contract. The tenders have been sent to all major logging companies, as well as those who tendered in the last round. Tenders close on 31 May. As tenderers are required to submit comprehensive harvest plans for the first two years of the Contract, it is not expected that all companies invited to tender will submit bids.

5. Forest Access

Because of the dry weather, forest access is good to all working areas. Only Maungakotukutuku remains as a problem.

It has been necessary to widen a short section of the new road into Pakuratahi East to maintain sufficient road width for the logging trucks. This section also required millings to be spread to provide traction while the new surface bedded in.

The road between the Valley View/Airstrip Drive intersection and our boundary on Parry's Bush Road has been upgraded as part of the preparation for the next harvest contract.

6. Market Trends

Only pruned logs have held their value with reductions in other grades of $1 to $5. Local mills have reduced their throughput and have closed to deliveries, as their inventory has become excessive. The pundits do not see any early relief from this situation.
The only hope on the horizon is the suggestion that house starts in the United States were higher than market expectations and this could be sufficient to cause a resurgence in that market, which could soak up some product and allow a price rise all round.