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DEPARTMENT OF WATER AFFAIRS AND FORESTRY DIRECTORATE OF OPTIONS ANALYSIS

## LUKANJI REGIONAL WATER SUPPLY FEASIBILITY STUDY

## **APPENDIX 1: WATER REQUIREMENTS**



## FINAL



January 2006

### **DEPARTMENT OF WATER AFFAIRS AND FORESTRY**

### DIRECTORATE OF OPTIONS ANALYSIS

### LUKANJI REGIONAL WATER SUPPLY FEASIBILITY STUDY

## **APPENDIX 1**

## WATER REQUIREMENTS

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## LUKANJI REGIONAL WATER SUPPLY FEASIBILITY STUDY WATER REQUIREMENTS EXECUTIVE SUMMARY

#### 1. INTRODUCTION

The Lukanji Regional Water Supply Feasibility Study, commissioned by the Department of Water Affairs and Forestry (DWAF), commenced in March 2003. The main aim of the study is to review the findings of earlier studies and, taking cognisance of new developments and priorities that have been identified in the study area, to make a firm recommendation on the next augmentation scheme to be developed for the supply of water to the urban complexes of Queenstown and Sada/Whittlesea following the implementation of a suitable water demand management programme. In addition, proposed operating rules will be identified for the existing water supply schemes and the augmentation scheme to provide for the ecological component of the Reserve and the equitable distribution of water between rural domestic and urban water supplies, and irrigators.

In a previous study, the Queenstown Regional Water Supply Feasibility Study (QRWSFS) (DWAF, 1997), the future water requirements of Queenstown and Sada to 2045 were projected from recorded water use to 1995. However, the actual growth in water requirements since 1995 has been significantly lower than predicted.

This document presents updated estimates of the future water requirements of Queenstown, Ilinge, Sada and rural villages that can conveniently be supplied from the town water supply schemes, as well as estimates of the requirements of other water users relying on the same sources of water. The latter estimates are generally those that were made for the QRWSFS, except where new data that justifies changing them has become available since the completion of that study.

#### 2. EXISTING WATER SUPPLY SCHEMES

The existing Lukanji Water Resources System consists of the Black Kei River and its major tributaries, the Klaas Smits River and the Klipplaat River and several dams that are situated on tributaries of the Black Kei River. Run-of-river flow is abstracted from all the rivers for irrigation. In addition, Xonxa Dam on the White Kei River, although not currently part of the system, may well become part of it in the future if it becomes the source of water for augmenting the supply to Queenstown. Therefore, in this study, Xonxa Dam and the main stem of the White Kei River are considered to be part of the System. The Lukanji Surface Water Resources System supplies raw water to the urban areas of Queenstown and Sada, the rural villages of Yonda and Mbekweni, and a number of irrigation schemes.

The town of Ilinge is currently supplied from boreholes, as are many of the rural villages in the area. Supplies to rural villages do not fall within the scope of this study, except where they are situated close to urban areas and can feasibly be included in the urban water supplies.

The water supply schemes that rely on the Lukanji Surface Water Resources System are:

- The Queenstown Water Supply Scheme
- The Sada Water Supply Scheme
- The Upper Klipplaat Irrigation Scheme
- The Klipplaat River Government Water Scheme
- The Zweledinga Irrigation Scheme
- The Oxkraal Irrigation Scheme
- The Nthabethemba and Associated Irrigation Schemes
- The Klaas Smits River Irrigation Scheme
- The Xonxa Irrigation Scheme

#### **3. WATER REQUIREMENTS**

The water requirements that affect the Lukanji Water Resources System are :

- Urban and rural domestic requirements supplied from the dams of the System or from runof-river flow.
- Irrigation requirements, supplied from the dams, run-of-river abstractions and boreholes.
- Afforestation, to the extent that it reduces natural runoff and, hence, the quantity of water available for other users.
- Invasive alien vegetation which has the same effect as afforestation.

The total projected raw water requirements from the urban water supply scheme are summarised in Table 1. It can be seen that the requirements are expected to increase from  $12,46 \text{ Mm}^3/a$  in 2005 to  $15,5 \text{ Mm}^3/a$  in 2045.

## TABLE 1 PROJECTED WATER REQUIREMENTS FOR QUEENSTOWN AND RURAL VILLAGES Image: Comparison of the second se

ADEA	WATER REQUIREMENTS (Mm <sup>3</sup> /a)							
AREA	1990	1995	2003	2005	2020	2045		
Queenstown complex	5,58	7,60	7,60	7,85	8,80	10,30		
Sada and rural villages	1,23	1,40	2,40	2,41	2,50	3,00		
Ilinge and Macibini villages	0,54	0,64	2,18	2,20	2,20	2,20		
Totals	7,35	9,64	12,18	12,46	13,50	15,5		

The irrigation developments that rely on water from the Lukanji Water Resources System may be categorised as :

- Schemes supplied from dams that are also existing or potential sources of urban supplies.
- Irrigation developments in the catchment areas of the main dams.
- Other irrigation developments.

The estimated field edge irrigation water requirements in these categories are shown in Table 2.

## TABLE 2SUMMARY OF FIELD EDGE WATER REQUIREMENTS FOR<br/>IRRIGATION

SOURCE OF SUPPLY	FIELD EDGE WATER REQUIREMENT (Mm <sup>3</sup> /a)
Dams with potential for urban water supply	30,3
Surface water in catchments of dams with potential for urban supply	10,8
Dams not used for urban supply and run-of-river flow not affecting main dams	40,4
Groundwater	5,5
Total requirement	87,0

#### 4. STREAMFLOW REDUCTION BY AFFORESTATION

There is little indigenous forest in the study area and less than 7 km<sup>2</sup> of the study area is covered by commercial timber plantations. Most of this is along the Amatola mountain range in the catchment of the Klipplaat River. The total reduction in streamflow caused by afforestation is estimated to be  $1,24 \text{ Mm}^3/a$ .

#### 5. INVASIVE ALIEN VEGETATION

The main occurrence of alien vegetation is in the catchment of Waterdown Dam where an estimated consolidated area of 5,5 km<sup>2</sup> of mainly black wattle is estimated to reduce streamflow by about  $0.8 \text{ Mm}^3/a$ .

### LUKANJI REGIONAL WATER SUPPLY FEASIBILITY STUDY

### WATER REQUIREMENTS

### CONTENTS

Page No.

1.	INTR	ODUCTION	1
2.	EXIS	TING WATER SUPPLY SCHEMES	2
3.	WAT	ER REQUIREMENTS	5
31	GENF	BRAL	5
3.2	URBA	AN AND RURAL DOMESTIC	5
	3.2.1	Queenstown	5
	3.2.2	Sada	6
	3.2.3	Ilinge	6
	3.2.4	Rural Villages	6
	3.2.5	Total Urban and Rural Domestic Requirements	8
	3.2.6	Potential for Water Conservation and Demand Management	9
3.3	IRRIC	GATION	9
	3.3.1	Schemes Supplied from Dams with Potential for Urban Water Supply	9
	3.3.2	Irrigation Water Requirements in the Catchment Areas of the Main Dams	11
	3.3.3	Other Irrigation Schemes	12
	3.3.4	Optimum Irrigation Water Requirements of the Klipplaat River Government Wa	ter
		Scheme	14
	3.3.5	Summary of Water Requirements for Irrigation	14
4.	STRE	AMFLOW REDUCTION BY AFFORESTATION	16
5.	INVA	SIVE ALIEN VEGETATION	17

### CONTENTS

### Page No.

#### TABLES

TABLE 2.1	EXISTING WATER SUPPLY SCHEMES	4
TABLE 3.1	MONTHLY DISTRIBUTION OF QUEENSTOWN WATER REQUIREMENTS	6
TABLE 3.2	RURAL VILLAGES THAT COULD BE SUPPLIED WITH RAW WATER	
	FROM THE XONXA PIPELINE	7
TABLE 3.3	PROJECTED WATER REQUIREMENTS FOR QUEENSTOWN AND	
	RURAL VILLAGES	8
TABLE 3.4	ASSUMED IRRIGATION WATER REQUIREMENTS FROM DAMS THAT	
	ARE POSSIBLE SOURCES OF ADDITIONAL URBAN WATER SUPPLY	11
TABLE 3.5	MONTHLY DISTRIBUTION OF QUEENSTOWN WATER	
	REQUIREMENTS	11
TABLE 3.6	IRRIGATION WATER REQUIREMENTS IN THE CATCHMENTS OF THE	
	MAIN DAMS	12
TABLE 3.7	IRRIGATION WATER REQUIREMENTS THAT DO NOT AFFECT THE	
	YIELDS OF THE MAIN DAMS	
TABLE 3.8	IRRIGATION WATER REQUIREMENTS OF THE KLIPPLAAT RIVER	
	GOVERNMENT WATER SCHEME IN EXCESS OF THE ALLOCATION	
	FROM WATERDOWN DAM	14
TABLE 3.9	SUMMARY OF FIELD EDGE WATER REQUIREMENTS FOR	
	IRRIGATION	
TABLE 4.1	ANNUAL WATER REQUIREMENTS FOR AFFORESTATION	16

### FIGURES

Figure 2.1	Water Supply Scheme	3
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### **ABBREVIATIONS**

DWAF	Department of Water Affairs and Forestry
QRWSFS	Queenstown Regional Water Supply Feasibility Study
NPV	Net Present Value
m <sup>3</sup>	cubic metres
Mm <sup>3</sup> /a	Million cubic metres per year
p.a.	per annum
km	kilometre
WASSA	Water and Sanitation Services South Africa
ha	hectare

### LUKANJI REGIONAL WATER SUPPLY FEASIBILITY STUDY

### WATER REQUIREMENTS

#### 1. INTRODUCTION

The Lukanji Regional Water Supply Feasibility Study, commissioned by the Department of Water Affairs and Forestry (DWAF), commenced in March 2003. The main aim of the study is to review the findings of earlier studies and, taking cognisance of new developments and priorities that have been identified in the study area, to make a firm recommendation on the next augmentation scheme to be developed for the supply of water to the urban complexes of Queenstown and Sada/Whittlesea following the implementation of a suitable water demand management programme. In addition, proposed operating rules will be identified for the existing water supply schemes and the augmentation scheme to provide for the ecological component of the Reserve and the equitable distribution of water between rural domestic and urban water supplies, and irrigators.

In a previous study, the Queenstown Regional Water Supply Feasibility Study (QRWSFS) (DWAF, 1997), several alternative phased schemes were identified to meet the predicted water requirements of Queenstown and Sada/Whittlesea to the year 2045. The future water requirements to 2045 were projected from recorded water use to 1995, and the schemes were compared on the basis of their calculated Net Present Values (NPVs). The scheme with the lowest NPV was found to be one for which the proposed first phase was the construction of a pipeline from Xonxa Dam to Queenstown.

The actual growth in water requirements since 1995 has been significantly lower than predicted and, in addition, the unutilised Oxkraal Dam has become available to augment the supply to existing users. In view of this, it was not certain that a scheme that would entail the construction of the Xonxa Pipeline as its first phase would still be the most advantageous. Consequently, a number of alternative schemes were again investigated, using updated estimates of the future water requirements of Queenstown, Ilinge, Sada and rural villages that can conveniently be supplied from the town water supply schemes.

This document presents the estimates of these water requirements, as well as estimates of the requirements of other water users relying on the same sources of water. The latter estimates are generally those that were made for the QRWSFS, except where new data that justifies changing them has become available since the completion of that study.

#### 2. EXISTING WATER SUPPLY SCHEMES

The existing Lukanji Water Resources System consists of the Black Kei River and its major tributaries, the Klaas Smits River and the Klipplaat River and several dams that are situated on tributaries of the Black Kei River. Run-of-river flow is abstracted from all the rivers for irrigation. In addition, Xonxa Dam on the White Kei River, although not currently part of the system, may well become part of it in the future if it becomes the source of water for augmenting the supply to Queenstown. Therefore, in this study, Xonxa Dam and the main stem of the White Kei River are considered to be part of the System. The Lukanji System is part of the larger Upper Kei System which includes the Doring River Dam and the Lubisi Dam, both on the Indwe River, a major tributary of the White Kei River (see Figure 2.1).

The Lukanji Surface Water Resources System supplies raw water to the urban areas of Queenstown and Sada, the rural villages of Yonda and Mbekweni, and a number of irrigation schemes.

The town of Ilinge is currently supplied from boreholes, as are many of the rural villages in the area. Supplies to rural villages do not fall within the scope of this study, except where they are situated close to urban areas and can feasibly be included in the urban water supplies.

The water supply schemes that rely on the Lukanji Surface Water Resources System are:

- The Queenstown Water Supply Scheme
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- The Oxkraal Irrigation Scheme
- The Nthabethemba and Associated Irrigation Schemes
- The Klaas Smits River Irrigation Scheme
- The Xonxa Irrigation Scheme

In addition, as mentioned above, Ilinge is supplied from boreholes. However, this supply has proved to be unreliable in recent years and it is understood that the Lukanji Municipality intends to eventually supply Ilinge from the Queenstown Water Treatment Works.

The supply areas of the different water supply schemes are shown on Figure 2.1 and their main characteristics are summarised in Table 2.1. Their present and expected future water requirements are discussed below.



#### TABLE 2.1EXISTING WATER SUPPLY SCHEMES

Dump	SCHEME	(	CONSUMERS SUPPLIED	STORAGE	RECEIVING	
KIVER	NAME	DOMESTIC	IRRIGATION	DAMS	River	
Klipplaat	Upper Klipplaat Irrigation Scheme	-	Lands along the Klipplaat River (700 ha)	-		
Klipplaat	Klipplaat River Irrigation Scheme		Lands along Klipplaat and Black Kei to confluence with White Kei River Lands along Shiloh Irrigation Scheme Lands along Lower Black Kei (1 924 ha)	Waterdown Dam	Klipplaat	
Klipplaat	Queenstown Water Supply Scheme	Queenstown eZibeleni	-	Allocation from Waterdown Dam Bonkolo Dam Berry Reservoir	-pipeline-	
Klipplaat	Sada-Whittlesea Water Supply Scheme	Sada- Whittlesea	-	Allocation from Waterdown Dam	-pipeline-	
Klaas Smits	Klaas Smits River Irrigation Scheme	-	Lands along the Klaas Smits River and its tributaries (2 162 ha)	-		
Oxkraal	Zweledinga Irrigation Scheme	Villages on Upper Oxkraal River	Lands along the Upper Oxkraal River (259 ha originally but not irrigated at present)	Bushmanskrantz Dam	-pipeline-	
Oxkraal	Oxkraal Irrigation Scheme	-	Lands along the Lower Oxkraal River (566 ha planned but not implemented)	Oxkraal Dam Shiloh Dam	Oxkraal	
Upper Black Kei	Ntabethemba and Associated Irrigation Schemes	-	Lands along the Upper Black Kei River (1 202 ha originally but only 290 ha currently irrigated)	Thrift Dam Limietskloof Dam Thibet Park Diversion Tentergate Dam Mitford Dam GlenbrockDam	Black Kei and its tributaries	
White Kei	Xonxa Irrigation Scheme	-	Lands along the White Kei River downstream of Xonxa Dam (1 643 ha originally of which 60 ha currently irrigated).	Xonxa Dam	White Kei	

#### **3. WATER REQUIREMENTS**

#### 3.1 GENERAL

The water requirements that affect the Lukanji Water Resources System are :

- Urban and rural domestic requirements supplied from the dams of the System or from runof-river flow.
- Irrigation requirements, supplied from the dams, run-of-river abstractions and boreholes.
- Afforestation, to the extent that it reduces natural runoff and, hence, the quantity of water available for other users.
- Invasive alien vegetation which has the same effect as afforestation.

Each of these categories of water requirements is discussed below in the context of its implications for possible schemes to augment the water supply to Queenstown.

#### **3.2 URBAN AND RURAL DOMESTIC**

For the purpose of this investigation, the water requirement projections described below for Queenstown and Sada, as well as rural villages that are also likely to be supplied from the urban water supply scheme, were used.

#### 3.2.1 Queenstown

The population growth rate assumed for Queenstown in the QRWSFS was 3,5% p.a. The more recent demographic studies for the development of the National Water Resource Strategy (DWAF, 2000) have estimated a growth rate for Queenstown of 1,61% p.a. from 1995 to 2005, followed by a growth of 0,87% p.a. from 2005 to 2015 and subsequently a growth rate of 0,61% from 2015 to 2025. Recorded water use statistics for the period March 1997 to January 2003 are included as Appendix 1.1 to this document. These show a decrease in water use over the period. Even after allowing for the possible effects of water conservation and demand management, the statistics suggest that the lower population growth estimates are the more realistic. Therefore, these were used in the current studies to predict future water requirements.

The metered raw water-use in 2002 was 7,3  $Mm^3/a$ . At the end of 2002, a large low cost housing scheme was completed which is estimated by the Town Engineer of Queenstown to have increased water requirements by 0,3  $Mm^3/a$  to 7,6  $Mm^3/a$ . Using the estimates of future population growth rates from the National Water Resource Strategy given above, and assuming the growth rate between 2025 and 2045 to remain at 0,61% p.a., gives a water requirement in 2045 of 10,3  $Mm^3/a$ .

The approximate monthly distribution of water requirements in Queenstown, derived from the data contained in Appendix 1.1, is shown in Table 3.1.

	ОСТ	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
%	9,3	9,0	10,0	9,1	8,0	7,9	7,6	7,5	7,5	7,2	8,3	8,6

 TABLE 3.1
 MONTHLY DISTRIBUTION OF QUEENSTOWN WATER REQUIREMENTS

#### 3.2.2 Sada

The QRWSFS predicted that the water requirements of Sada would grow at 3,36% from 2,03  $Mm^3/a$  in 1995 to 2,42  $Mm^3/a$  in 2000. Thereafter, the growth rate was predicted to decrease to 2,73% p.a., to give a water requirement in 2005 of 2,77  $Mm^3/a$ . It appears that the actual water use in 2003 was 2,4  $Mm^3/a$ . This value was obtained from the Town Engineer of Queenstown. A rough check was performed by subtracting the quantity of water supplied from Waterdown Dam to Queenstown from the total quantity released from the dam into the pipelines to Sada and Queenstown between October 2002 and September 2003. This showed a water use of 2,01  $Mm^3$  in that twelve month period, which is in reasonable agreement with the value of 2,4  $Mm^3$  assumed for the 2003 calendar year.

The demographic studies commissioned by DWAF for the development of the National Water Resource Strategy (DWAF, 2000) predicted that the population of Sada would grow at 0,3% p.a. to 2020, and would remain virtually static thereafter. For the purposes of considering possible water augmentation schemes, it has been assumed that the future increases in water requirements will follow these predicted population growth rates. On this basis, water requirements will increase to 2,52 Mm<sup>3</sup>/a by 2020, and then remain almost static. However, the village of Zulukama and other rural villages in the vicinity of Sada are likely to be connected to the Sada water supply in the future. Therefore, in consultation with the Town Engineer of Queenstown, a water requirement of 2,40 Mm<sup>3</sup>/a in 2003, increasing to 2,50 Mm<sup>3</sup>/a by 2020, and 3,0 Mm<sup>3</sup>/a by 2045, was assumed.

#### 3.2.3 Ilinge

The small town of Ilinge, situated some 8 km south-east of Queenstown, had a water requirement of  $1,38 \text{ Mm}^3/a$  in 2002, according to the Town Engineer of Queenstown. This is expected to increase to  $1,44 \text{ Mm}^3/a$  by 2005, and remain static thereafter.

#### 3.2.4 Rural Villages

The water requirements of rural villages in the immediate vicinities of Ilinge are of interest in this study as the villages are likely to be connected to the urban water supply scheme. If a pipeline were constructed between Xonxa Dam and Queenstown, the possibility of supplying villages along the route with raw water from the pipeline could also be considered.

Estimates of the future water requirements of rural villages in the area vary significantly, as discussed below.

The demographic study conducted for the National Water Resource Strategy indicates rural population growth rates of 0,37% p.a. up to 2005, followed by a negative growth rate of 0,4% p.a. from 2005 to 2015 and a negative growth of 0,85% p.a. from 2015 to 2025. If these rates are used for projecting the water requirements of the rural villages (Macibini Villages) that are situated close to Ilinge, a water quantity of 0,74 Mm<sup>3</sup>/a in 2002 decreasing to 0,55 Mm<sup>3</sup>/a in 2025 is obtained. Based on recent population figures, a population growth rate of 1,5% p.a. was used for the latest study of the Xonxa Dam Transfer Scheme (Stewart Scott, 2003), and the water requirements of the Macibini Villages were predicted to be about 1,49 Mm<sup>3</sup>/a in 2045, based on 1997 water requirements of 0,73 Mm<sup>3</sup>/a. For purposes of this study, it has been assumed that the requirements will grow to 0,76 Mm<sup>3</sup>/a by 2005 and then remain static.

Xonxa Dam is situated in a valley surrounded by steep hills that limit the number of rural villages upstream of the dam wall that it might be feasible to supply from the dam to fourteen in number. The total number of people living in the villages is about 40 000 according to the figures provided by the National Demographic Study. Five of these villages to the north of Xonxa Dam are supplied or intended to be supplied by the Cacadu Regional Water Supply Scheme. The feasibility of supplying the other villages from the proposed Xonxa Dam to Queenstown pipeline was investigated in detail in 1996 by UWP in a study commissioned by DWAF. The estimated costs of supplying the villages from the proposed pipeline were compared with the estimated costs of groundwater supplies. It was found feasible to supply the six villages listed in Table 3.2, which also shows predicted future populations and estimated water requirements, including those of livestock.

VILLAGE NAME	CODE	POPULATION IN YEAR			LIVESTOCK	WATER REQUIREMENTS** (kℓ/d)			
		1995	2005	2015	(ELSU)^	1995	2005	2015	
Xonxa	E011	7 810	9 384	10 050	4 510	363	406	424	
Hatini	E010	1 469	1 765	1 890	1 716	96	104	108	
Egcibhala	E012	2 198	2 641	2 828	1 270	102	115	120	
Gandu	E013	1 266	1 521	1 629	732	59	66	69	
North of Ndenxe	E008	4 348	5 224	5 595	796	146	170	180	
Ndenxe	E009	1 068	1 283	1 374	848	58	63	66	
Totals	•	18 159	21 818	23 366	9 872	824	924	967	

TABLE 3.2RURAL VILLAGES THAT COULD BE SUPPLIED WITH RAW WATER<br/>FROM THE XONXA PIPELINE

\* ELSU = equivalent large stock unit. Water requirement assumed to be 30  $\ell/d/unit$  plus 10% losses.

\*\* Human requirement assumed to be 25 *l*/person/day plus 10% losses.

The village populations in 1995 were taken from the UWP report as they agreed approximately with the values given by the National Demographic Study which were correlated with the 1996 Census figures. Growth in population after 1995 was calculated using the growth rates predicted in the National Demographic Study. Equivalent large stock units were taken from the UWP report and assumed to remain constant, as the area is fully stocked.

It is assumed that water requirements will remain constant after 2015. The requirement of 967 k $\ell$ /day equates to 0,35 Mm<sup>3</sup>/a. For pipeline design purposes, a capacity of 970 k $\ell$ /day at a peak factor of 1,5 has been assumed. Thus the additional capacity required in the Xonxa pipeline to serve the rural villages would be a maximum of 16,8  $\ell$ /s. This requirement would reduce in stages along the pipeline as offtakes for groups of villages were reached.

The QRWSFS predicted that the rural water requirements that could be supplied from the Xonxa pipeline along its route would grow from a negligible quantity in 1990 to 1,2 Mm<sup>3</sup>/a in 2045.

UWP (1996) forecast a rural demand of about 0,8  $Mm^3/a$  in 2015, which would increase to 3,5  $Mm^3/a$  in 2045.

It has been proposed (Stewart Scott, 2003) that Ilinge and the Macibini Villages be supplied from the Queenstown Water Treatment Works. The requirements of the villages in the vicinity of the proposed Xonxa pipeline route shown in Table 3.2 have not been included in the analysis of possible augmentation schemes because a recent separate study commissioned by the Chris Hani District Municipality has determined boreholes to be the most economical way of supplying them. Therefore, it is unlikely that they would be supplied from the Xonxa pipeline.

#### 3.2.5 Total Urban and Rural Domestic Requirements

The total projected raw water requirements from the urban water supply scheme are summarised in Table 3.3. It can be seen that the requirements are expected to increase from 12,46  $Mm^3/a$  in 2005 to 15,50  $Mm^3/a$  in 2045.

ADEA	WATER REQUIREMENTS (Mm <sup>3</sup> /a)							
AREA	1990	1995	2003	2005	2020	2045		
Queenstown complex	5,58	7,60	7,60	7,85	8,80	10,30		
Sada and rural villages	1,23	1,40	2,40	2,41	2,50	3,00		
Ilinge and Macibini villages	0,54	0,64	2,18	2,20	2,20	2,20		
Totals	7,35	9,64	12,18	12,46	13,50	15,50		

## TABLE 3.3PROJECTED WATER REQUIREMENTS FOR QUEENSTOWN AND<br/>RURAL VILLAGES

#### 3.2.6 Potential for Water Conservation and Demand Management

It can be seen from Table 3.3 that the growth in the water requirements of the Queenstown Complex did not increase between 1995 and 2003. In fact, water use decreased in the intervening years to a low of  $5,96 \text{ Mm}^3/a$  in 2000 but has increased again as low cost housing schemes have been implemented. The decrease between 1995 and 2000 is attributed to the effects of water demand management.

According to figures supplied by the company that operates the Queenstown potable water supply scheme, water losses are about 22% of raw water requirements. Most of the losses occur in the potable water distribution system.

The above statistics suggest that there is little scope for reducing water consumption further by water demand management, but that significant savings could be made by reducing losses. However, this is likely to be a long-term process because of the difficulties of repairing old water reticulation systems. Therefore, any savings that could be achieved have not been allowed for in the estimates of future water requirements shown in Table 3.3.

#### 3.3 IRRIGATION

The irrigation developments that rely on water from the Lukanji Water Resources System are shown in Table 2.1. In terms of their water requirements they may be categorised as :

- Schemes supplied with water from dams that are also existing or potential sources of urban supplies.
- Irrigation developments in the catchment areas of the main dams.
- Other irrigation developments.

The present and expected future water requirements of the schemes in each of these categories are described below, together with water requirements for opportunistic irrigation, both in the catchments of the dams and in other areas.

#### 3.3.1 Schemes Supplied from Dams with Potential for Urban Water Supply

The dams with potential for urban water supply and the irrigation schemes that they supply are :

- Waterdown Dam which supplies the Klipplaat River Government Water Scheme;
- Oxkraal Dam which was constructed to supply the Oxkraal Irrigation Scheme, but can also release water to the river channel to supply the Klipplaat River Government Water Scheme;
- Shiloh Dam which was also constructed to supply a portion of the Oxkraal Irrigation Scheme;

• Bushmanskrantz Dam, which is located upstream of Oxkraal Dam on the same river, and which was built to supply the Zweledinga Irrigation Scheme. Water can be transferred from Bushmanskrantz Dam to Oxkraal Dam by means of river channel releases.

The irrigation schemes are described briefly in Table 2.1. For purposes of considering ways in which the urban water supply can be augmented it has been assumed that :

- The total scheduled area irrigated under the Klipplaat River Irrigation Scheme will, in the near future, be increased to 1 924 ha as a result of the development of an additional 394 ha of land between Waterdown Dam and Oxkraal River. The total irrigation water requirement from Waterdown Dam will then be 14,68 Mm<sup>3</sup>/a, including an allowance for conveyance losses of 25% of the allocation.
- An area of 541 ha of land will in the near future be developed for irrigation from Oxkraal Dam as part of the Oxkraal Irrigation Scheme. The quantity of water required from Oxkraal Dam to supply this area will be 4,13 Mm<sup>3</sup>/a, including an allowance of 25% of the allocation for conveyance losses.
- As part of the Oxkraal Irrigation Scheme, an additional area of 25 ha of land will, in the near future, be developed for irrigation by means of water supplied from Shiloh Dam. The quantity of water required will be 0,19 Mm<sup>3</sup>/a, including an allowance for conveyance losses of 25% of the allocation.
- No water will be required from Bushmanskrantz Dam for the foreseeable future for the defunct Zweledinga Irrigation Scheme. (This assumption is made for purposes of considering alternative operating rules, but in no way precludes the possibility of reviving irrigation below the dam at any time in the future).
- The area of irrigated land to be supplied with water from Xonxa Dam is unlikely to exceed 1 000 ha at any time in the future. The quantity of water required from Xonxa Dam to irrigate 1 000 ha of land would be 11,25 Mm<sup>3</sup>/a, including an allowance of 25% of the allocation for conveyance losses.

The assumed quantities of water to be supplied for irrigation from the dams that are possible sources of additional urban water supply are summarised in Table 3.4 and the approximate monthly distribution of releases from Waterdown and Oxkraal Dams to meet the irrigation water requirements of the Klipplaat River Government Water scheme are shown in Table 3.5. The annual quantities of water released from the dams between 1995 and 2003 are shown in Appendix 1.2.

## TABLE 3.4ASSUMED IRRIGATION WATER REQUIREMENTS FROM DAMS THAT<br/>ARE POSSIBLE SOURCES OF ADDITIONAL URBAN WATER SUPPLY

SCHEME	DAM	ASSUMED AREA IRRIGATED (ha)	QUOTA (m <sup>3</sup> /ha/a)	ALLOWANCE FOR CONVEYANCE LOSSES (m <sup>3</sup> /ha/a)	WATER REQUIREMENTS (Mm³/a)
Klipplaat River Government Water Scheme	Waterdown	1 924	6 100	1 525	14,7
Oxkraal Irrigation Scheme	Oxkraal Shiloh	541 25	6 100 6 100	0,8 0,05	4,1 0,2
Zweledinga	Bushmanskrantz	0	-	-	0
TOTALS IN CATCHMENT OF BLACK KEI RIVER		2 490	-	-	19,0
Xonxa Irrigation Scheme	Xonxa	1 000	9 000	2 250	11,3

## TABLE 3.5MONTHLY DISTRIBUTION OF WATER REQUIREMENTS FOR<br/>IRRIGATION

SOURCE	ОСТ	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Waterdown Dam %	8,7	10,1	11,1	12,3	13,4	10,0	8,9	6,0	4,2	3,9	4,7	6,7
Oxkraal Dam %	10,7	11,4	11,4	12,9	10,7	9,3	7,9	5,7	5,0	4,3	3,6	7,1

#### 3.3.2 Irrigation Water Requirements in the Catchment Areas of the Main Dams

Irrigation developments in the catchment areas of the main dams reduce the runoff into the dams, and hence, the yields of the dams. Developments falling into this category are :

- The Upper Klipplaat Irrigation Scheme, which is situated in the catchment of Waterdown Dam, and which, for purposes of calculating the yield of Waterdown Dam, has been assumed to abstract 5,1 Mm<sup>3</sup>/a by means of farm dams and pumping from rivers.
- Irrigation in the catchment of the Bonkolo River upstream of Bonkolo Dam is assumed to use 0,68 Mm<sup>3</sup>/a from surface water resources and 0,5 Mm<sup>3</sup>/a from groundwater. The effect of the groundwater use on streamflow has been assumed to be negligible.
- Diffuse irrigation along the Upper White Kei River upstream of Xonxa Dam was estimated in QRWSFS to take place on 557 ha of land and to have a water requirement of 5 Mm<sup>3</sup>/a. These values were accepted for the current study. (The Water Resources Situation Assessment Report (DWAF, 2002) gives a water use of 3,67 Mm<sup>3</sup>/a, but the higher value given in the QRWSFS is considered more appropriate for this study as it reduces the risk of over-estimating the yield of Xonxa Dam).

The assumed water requirements for irrigation in the catchments are summarised in Table 3.6.

## TABLE 3.6 IRRIGATION WATER REQUIREMENTS IN THE CATCHMENTS OF THE MAIN DAMS

IRRIGATION DEVELOPMENT	DAM CATCHMENT AREA	ASSUMED WATER REQUIREMENT ( <b>Mm<sup>3</sup>/a</b> )
Upper Klipplaat	Waterdown Dam	5,1
Bonkolo River	Bonkolo Dam	1,2 *
Upper White Kei	Xonxa Dam	5,0
Total irrigation water requirement	ıt	11,3

\*  $0.5 \text{ Mm}^{3}/\text{a}$  is supplied from groundwater.

#### 3.3.3 Other Irrigation Schemes

Other irrigation developments that are of relevance to this study are those along the upper reaches of the Black Kei River, in the catchment of the Klaas Smits River, and opportunistic irrigation in the catchment of the Black Kei River downstream of its confluence with the Klipplaat River. The significance of these developments is that they reduce the quantity of water available from runof-river flow that can be used on irrigated land that is scheduled under the Klipplaat River Government Water Scheme. As mentioned previously, the quota supplied from Waterdown Dam is less than the optimum for irrigation. When the scheme was first established, the water from the dam supplemented water abstracted from run-of-river flow (DWAF, 1993), but, with the development of additional dams on the Oxkraal River and in the upper reaches of the Black Kei River, the reliability at which the required quantity of water can be abstracted may have decreased. If this were the case, it would be reasonable when considering the future apportionment of water from Waterdown and Oxkraaal Dams, to take into account the possible need to increase the quota for irrigation.

The assumptions made in this study on the water requirements of the various developments are the following :

• The Ntabethemba and associated schemes along the Black Kei River upstream of its confluence with the Klipplaat River are estimated to require 2,16 Mm<sup>3</sup>/a of water in their current state (290 ha of irrigated land). In the past, about 1 200 ha of land has been under irrigation, but there has been a drastic decline in irrigation farming, possibly because insufficient water is available at reasonable assurance for the original areas of irrigation. In addition, about 700 ha of diffuse irrigated area of approximately 1 900 ha with a water requirement of 12,6 Mm<sup>3</sup>/a. It has been estimated (DWAF, 1993) that the 1:10 year yield of the existing dams and the run-of-river flow, after allowing for the 700 ha of diffuse

irrigation, is about 2,5  $Mm^3/a$ , which is sufficient to irrigate about 380 ha of land (i.e. an increase of 90 ha). For purposes of this study, however, the irrigation requirement has been assumed to be the original 12,6  $Mm^3/a$ . This conservative approach has been adopted because irrigation of the original areas of the scheme might be re-instated in the future and this would affect the availability of water for the Klipplaat River Government Water Scheme downstream.

- Opportunistic irrigation in the catchment of the Klaas Smits River is estimated to take place on about 5 250 ha of land, of which 990 ha is irrigated from groundwater. The average field edge water requirement is approximately 5 600 mm/ha/a (DWAF, 1993), giving a water requirement of 29,4 Mm<sup>3</sup>/a. Of this, an estimated 5,5 Mm<sup>3</sup>/a is supplied from groundwater and 23,9 Mm<sup>3</sup>/a from surface water. Part of this requirement (0,7 Mm<sup>3</sup>/a from surface water and 0,5 Mm<sup>3</sup>/a from groundwater) is in the catchment of Bonkolo Dam. Therefore, the irrigation water requirements in the Klaas Smits River catchment, excluding the catchment of Bonkolo Dam, are estimated to be 23,2 Mm<sup>3</sup>/a from surface water and 5,0 Mm<sup>3</sup>/a from groundwater.
- Opportunistic irrigation in the catchment of the Black Kei River downstream of its confluence with the Klipplaat River occurs along small tributaries in areas remote from the Black Kei River itself. It is estimated (DWAF, 1993) that some 440 ha of land is irrigated in this way, and that the field edge requirement of the crops grown is approximately 5 400 m<sup>3</sup>/ha/a, giving a total water requirement of 2,4 Mm<sup>3</sup>/a.

The irrigation water requirements assumed in this study for developments that do not affect the yields of the main dams are summarised in Table 3.7.

IDDICATION		ASSUMED WATER REQUIREMENT				
DEVELOPMENT	LOCATION	FROM SURFACE WATER ( <b>Mm</b> <sup>3</sup> /a)	FROM GROUNDWATER ( <b>Mm<sup>3</sup>/a</b> )			
Ntabethemba and associated schemes	Black Kei River catchment upstream of Klipplaat River confluence	12,6	Negligible			
Opportunistic irrigation in catchment of Klaas Smits River	Catchment of Klaas Smits River excluding catchment of Bonkolo Dam	23,2	5,0			
Opportunistic irrigation in the Lower Black Kei River catchment	Black Kei River catchment downstream of Klipplaat River confluence	2,4	Negligible			
Total water requirements		38,2	5,0			

## TABLE 3.7IRRIGATION WATER REQUIREMENTS THAT DO NOT AFFECT THE<br/>YIELDS OF THE MAIN DAMS

## 3.3.4 Optimum Irrigation Water Requirements of the Klipplaat River Government Water Scheme

The optimum field edge water requirement of the mix of crops grown on the scheduled land under the Klipplaat River Government Water Scheme has been calculated (DWAF, 1993) to be approximately 7 500 m<sup>3</sup>/ha/a along the Klipplaat River and 7 000 m<sup>3</sup>/ha/a along the Black Kei River, while the quota supplied from Waterdown Dam is 6 100 m<sup>3</sup>/ha/a. Thus, there is a shortfall of 1 400 m<sup>3</sup>/ha/a and 900 m<sup>3</sup>/ha/a in the quantity of water supplied to the respective areas.

There is normally insufficient water in the Klipplaat River downstream of the dams for the irrigated lands along its banks to be supplied with significant quantities of water from run-of-river flow. Therefore the additional water, if supplied, would have to come from Waterdown Dam or Oxkraal Dam (if supplied from Oxkraal Dam, the water would have to be piped to the 600 ha of land that is located along the Klipplaat River upstream of the Oxkraal/Klipplaat River confluence). The additional water required along the Black Kei River could be abstracted from run-of-river flow in that river at an assurance of at least 1:10 years (see Appendix 4). The quantities of additional water required are shown in Table 3.8.

# TABLE 3.8IRRIGATION WATER REQUIREMENTS OF THE KLIPPLAAT RIVER<br/>GOVERNMENT WATER SCHEME IN EXCESS OF THE ALLOCATION<br/>FROM WATERDOWN DAM

SECTION OF SCHEME	ALLOCATION (mm/ha/a)	ADDITIONAL WATER REQUIREMENT (mm/ha/a)	SCHEDULED AREA (ha)	TOTAL WATER REQUIREMENT (Mm <sup>3</sup> /a)
Klipplaat River	6 100	1 400	915	1,3
Black Kei River	6 100	900	1 009	0,9
Total additional water	r requirement			2,2

#### 3.3.5 Summary of Water Requirements for Irrigation

The irrigation requirements from the various categories of sources of supply are summarised in Table 3.9 where it can be seen that the total field edge water requirement is some 77  $Mm^3/a$ , of which 30  $Mm^3/a$  are supplied from dams which are potential sources of additional urban water supply, and approximately 11  $Mm^3/a$  is abstracted from surface water sources in the catchment areas of the same dams.

### TABLE 3.9 SUMMARY OF FIELD EDGE WATER REQUIREMENTS FOR IRRIGATION

SOURCE OF SUPPLY	FIELD EDGE WATER REQUIREMENT (Mm <sup>3</sup> /a)
Dams with potential for urban water supply	30,3
Surface water in catchments of dams with potential for urban supply	10,8
Dams not used for urban supply and run-of-river flow not affecting main dams	40,4 *
Groundwater	5,5
Total requirement	87,0

\* Includes 38,2  $Mm^3/a$  from Table 3.7 and 2,2  $Mm^3/a$  from Table 3.8 that could be supplied from dams.

#### 4. STREAMFLOW REDUCTION BY AFFORESTATION

There is little indigenous forest in the study area and less than 7 km<sup>2</sup> of the study area is covered by commercial timber plantations (DWAF, 1996). Most of this is along the Amatola mountain range in the catchment of the Klipplaat River. The total reduction in streamflow caused by afforestation is estimated to be  $1,24 \text{ Mm}^3/a$ , from plantations located as shown in Table 4.1.

RIVER CATCHMENT	AFFORESTED AREA (ha)	WATER REQUIREMENT (Mm <sup>3</sup> /a)
Upper Klipplaat River	474	1,01
Middle Klipplaat River	20	0,02
Lower Klipplaat River	7	-
Upper Oxkraal River	146	0,21
Lower Oxkraal River	1	-
Total	648	1,24

#### TABLE 4.1 ANNUAL WATER REQUIREMENTS FOR AFFORESTATION

#### 5. INVASIVE ALIEN VEGETATION

According to the Water Resources Situation Assessment Report (DWAF, 2002), the main occurrence of alien vegetation is in the catchment of Waterdown Dam where there is reported to be a consolidated area of  $5,5 \text{ km}^2$  of mainly black wattle which is estimated to reduce streamflow by about  $0.8 \text{ Mm}^3/a$ .

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## **ADDENDUM 1.1**

Queenstown Water Use 1997 to 2002

QUEENSTOWN VOLUMES	1997												
MONTH			Mar-97	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97	
			31	30	31	30	ACTUAL	31	30	31	30	31	
VOLUME IN KI			Mar-97	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97	TOTAL
RAW WATER IMPORTATION	790877	798770	576047	601804	568498	602911	562182	554218	700849	565249	566010	651786	7539201
RAW WATER INTO WIW			576047 543172	592804 577731	566500 534444	590000 553325	554000 #N/A	532965 512200	700767	553056 549080	563382 558910	664977 644180	
WATER SOLD			441249	466425	447751	450017	439664	487621	535176	562028	500833	558591	
QUEENSTOWN			193693	191629	159911	184312	173258	190050	222628	215000	219841	252439	
MLUNGISI			138057	156816	166468	149014	149887	177100	176590	204290	160370	178048	
			352333	413657	398006	385435	#N/A	282785	419887	339936	319492	374769	
WATER BALANCE			002000	110001	000000	000100	ACTUAL	202100	110001	000000	010102	011100	
VOLUME IN KI			Mar-97	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97	-
RAW WATER IMPORTATION ACTUAL			576047	601804	568498	602911	#N/A	554218	700849	565249	566010	651786	_
			58800	601804	403823	432211	#N/A #N/A	394618	420849	393749	514910	651786	-
WATERDOWN DAM CAPACITY			100%	100%	104075	100%	#N/A #N/A	100%	100%	100%	100%	100%	-
BONGOLA DAM CAPACITY			65%	60%	60%	53%	#N/A	52%	48%	42%	42%	40%	-
BERRY DAM CAPACITY			100%	100%	100%	100%	#N/A	83%	78%	50%	25%	50%	-
RAW WATER SOLD RAW INTO WTW (RERRY) ACTUAL			576047	592804	566500	590000	554000	532065	700767	553056	563382	66/077	-
TREATED WATER ACTUAL			543172	577731	534444	553325	#N/A	512200	679200	549080	558910	644180	-
LOW LEVEL			36785	38533	38709	41182	#N/A	35150	43780	33160	35520	44790	-
HIGH LEVEL (300)			174600	176522	145000	174900	100000	120000	165000	110000	130000	180000	-
FINGRAMS NEK ¢7ERELENI			29290 134778	00020 144328	0/984	98092 125028	#IN/A 124000	22040 143350	103880	144500	157880	0100U 146120	-
MLUNGISI			137419	151520	147022	112723	#N/A	158060	205750	195290	166360	191690	-
WATER SOLD ACTUAL			441249	466425	447751	450017	439664	487621	535176	562028	500833	558591	-
			193693	191629	159911	184312	173258	190050	222628	215000	219841	252439	_
			138057	117980	100408	149014	149887	120471	135958	204290	120622	128104	-
MLUNGISI - METERED			100400	117300	121012	110001	110010	120471	100000	142700	120022	120104	-
eZEBELENI - METERED													-
LOSS IN WTW			6%	3%	6%	6%	#N/A	4%	3%	1%	1%	3%	-
LOSS UPTO WTW LOSS IN NETWORK (HL & LL & EN)			5% 34%	4% 37%	35%	36%	#N/A #N/A	8% 11%	3%	-6%	21%	25%	-
LOSS TOWN RUNNING AVE (3 mths)			#N/A	#N/A	35%	36%	#N/A	#N/A	#N/A	15%	18%	13%	-
LOSS IN MLUNGISI													-
LOSS IN EZIBELENI								100/			100/		-
TOTAL LOSS			23%	22%	21%	25%	#N/A	12%	24%	1%	12%	14%	
QUEENSTOWN VOLUMES 1998	1998												
MONTH	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98	
	31	28	31	30	31	30	31	31	30	31	30	31	
VOLUME IN KI	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98	
RAW WATER IMPORTATION	669071	675749	487328	571851	491802	584005	544553	518247	585092	570829	545090	514839	6758456
RAW WATER INTO WTW	638918	610751	523865	569467	568027	634425	544553	542314	520814	559820	526114	505000	
WATER SOLD	606974	546764	494000 477000	202110 488029	582950 430468	574030 478624	368034	527930 384550	507590 352472	552979 405151	535950 403442	513560 404965	
QUEENSTOWN	264542	233279	229000	212534	169544	219532	192760	209564	221446	231921	217788	228617	
MLUNGISI	207490	188910	158000	174000	167000	166509	117640	108330	101470	109980	126710	123370	
	134942	124575	90000	101495	93924	92583	94388	102471	83646	106320	116700	88280	
WATER BALANCE	300207	300000	570157	401029	370704	300300	300300	340013	511440	210002	512021	201905	
VOLUME IN KI	Jan-98	Feb-98	Mar-98	Apr-98	May-98	lun_98	1.1.08	Aug 09	Son-08	Oct-98	Nov-98	D 00	-
RAW WATER IMPORTATION ACTUAL	669071					0011 30	Jui-30	Aug-90	0ep-30	001.00		Dec-98	
	003071	675749	487328	571851	491802	584005	544553	518247	585092	570829	545090	Dec-98 514839	-
	669071	675749 675749	487328 487328	571851 571851	491802 491802	584005 584005	544553 544553	518247 518247	585092 585092	570829 570829	545090 545090	514839 514839	- - -
BONGOLA WATERDOWN DAM CAPACITY	669071 0 81%	675749 675749 0 77%	487328 487328 0 87%	571851 571851 0 92%	491802 491802 0 91%	584005 584005 0 87%	544553 544553 0 86%	Aug-98 518247 518247 0 83%	585092 585092 0 100%	570829 570829 0 100%	545090 545090 0 93%	Dec-98 514839 514839 0 95%	- - -
WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY	003071 669071 0 81% 39%	675749 675749 0 77% 37%	487328 487328 0 87% 41%	571851 571851 0 92% 48%	491802 491802 0 91% 47%	584005 584005 0 87% 46%	544553 544553 0 86% 46%	Aug-36 518247 518247 0 83% 45%	585092 585092 0 100% 45%	570829 570829 0 100% 43%	545090 545090 0 93% 43%	Dec-98 514839 514839 0 95% 52%	- - - -
WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY	669071 0 81% 39% 63%	675749 675749 0 77% 37% 100%	487328 487328 0 87% 41% 88%	571851 571851 0 92% 48% 75%	491802 491802 0 91% 47% 100%	584005 584005 0 87% 46% 88%	544553 544553 0 86% 46% 97%	Aug-36 518247 518247 0 83% 45% 100%	Sep-30           585092           585092           0           100%           45%           97%	570829 570829 0 100% 43% 100%	545090 545090 0 93% 43% 100%	Dec-98 514839 514839 0 95% 52% 98%	- - - - -
WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD	669071 0 81% 39% 63%	675749 675749 0 77% 37% 100%	487328 487328 0 87% 41% 88%	571851 571851 0 92% 48% 75%	491802 491802 0 91% 47% 100%	584005 584005 0 87% 46% 88%	544553 544553 0 86% 46% 97% 2082	Aug-36 518247 518247 0 83% 45% 100% 2100	36p-30           585092           585092           0           100%           45%           97%           2678           520214	570829 570829 0 100% 43% 100% 2480	545090 545090 0 93% 43% 100% 2453	Dec-98 514839 514839 0 95% 52% 98% 2155 5000	- - - - - -
WATERDOWN DAM CAPACITY BONGOLA BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL	669071 0 81% 39% 63% 638918 619310	675749 675749 0 77% 37% 100% 610751 618600	487328 487328 0 87% 41% 88% 523865 494000	571851 571851 0 92% 48% 75% 569467 562116	491802 491802 0 91% 47% 100% 568027 582950	584005 584005 0 87% 46% 88% 634425 574030	544553 544553 0 86% 46% 97% 2082 544553 510262	Aug-36 518247 518247 0 83% 45% 100% 2100 542314 527930	585092           585092           0           100%           45%           97%           2678           520814           507590	570829 570829 0 100% 43% 100% 2480 559820 552979	545090 545090 0 93% 43% 100% 2453 526114 535950	Dec-98 514839 514839 0 95% 52% 98% 2155 505000 513560	- - - - - -
WATERDOWN DAM CAPACITY BONGOLA BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL	669071 0 81% 39% 63% 638918 619310 54300	675749 675749 0 77% 37% 100% 610751 618600 54720	487328 487328 0 87% 41% 88% 523865 494000 47320	571851 571851 0 92% 48% 75% 569467 562116 45290	491802 491802 0 91% 47% 100% 568027 582950 49660	584005 584005 0 87% 46% 88% 634425 574030 53170	544553 544553 0 86% 46% 97% 2082 544553 510262 43089	Aug-36 518247 518247 0 83% 45% 100% 2100 542314 527930 49420	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890	570829 570829 0 100% 43% 100% 2480 559820 552979 39250	545090 545090 0 93% 43% 100% 2453 526114 535950 41000	Dec-98           514839           514839           0           95%           52%           98%           2155           505000           513560           35540	- - - - - - -
WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300)	633071 0 81% 39% 63% 638918 619310 54300 150000	675749 675749 0 77% 37% 100% 610751 618600 54720 162700	487328 487328 0 87% 41% 88% 523865 494000 47320 106900	571851 571851 0 92% 48% 75% 569467 562116 45290 111756	491802 491802 0 91% 47% 100% 568027 582950 49660 118800	584005 584005 0 87% 46% 88% 634425 574030 53170 127800	544553 544553 0 86% 46% 97% 2082 544553 510262 43089 155100	Aug-98 518247 0 83% 45% 100% 2100 542314 527930 49420 163200	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000	570829 570829 0 100% 43% 100% 2480 559820 552979 39250 177039	545090 545090 0 93% 43% 100% 2453 526114 535950 41000 149000	Dec-98           514839           514839           0           95%           52%           98%           2155           505000           513560           35540           141229	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK	633071 0 81% 39% 63% 638918 619310 54300 150000 73540 73540	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 120260	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 69560	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 447600	491802 491802 0 91% 47% 100% 568027 582950 49660 118800 95560 95560	584005 584005 0 87% 46% 88% 634425 574030 53170 127800 94510	544553 544553 0 86% 46% 97% 2082 544553 510262 43089 155100 92230 92462	Aug-36 518247 0 83% 45% 100% 2100 542314 527930 49420 163200 85160 85160	360-50           585092         585092           585092         0           100%         45%           97%         2678           520814         507590           47890         155000           85770         85770	570829 570829 0 100% 43% 100% 2480 559820 552979 39250 177039 88270 429440	545090 545090 0 93% 43% 100% 2453 526114 535950 41000 149000 80060 80060	Dec-93           514839           0           95%           52%           98%           2155           505000           513560           35540           141229           70510	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MI LINGISI	669071 0 81% 39% 638918 619310 54300 150000 73540 153770 183770	675749 675749 0 77% 100% 610751 618600 54720 162700 80510 139260 181410	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150	491802 491802 0 91% 47% 100% 568027 582950 49660 118800 95560 130600 188330	384005           584005           584005           0           87%           46%           88%           634425           574030           53170           127800           94510           141610           156940	544553 544553 0 86% 46% 2082 544553 510262 43089 155100 92230 98163 121680	Aug-96 518247 518247 0 83% 45% 100% 2100 542314 527930 49420 163200 85160 121820 108330	360-30           585092         585092           585092         0           100%         45%           97%         2678           520814         507590           47890         155000           85770         117460           101470         101470	570829 570829 0 100% 43% 100% 2480 559820 552979 39250 177039 88270 138440 109980	545090 545090 0 93% 43% 100% 2453 526114 535950 41000 149000 80060 139180 126710	Dec-93           514839           0           95%           52%           98%           2155           505000           513560           35540           141229           70510           118610           147671	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL	669071 0 81% 39% 638918 619310 54300 150000 73540 153770 187700 606974	675749 675749 0 77% 100% 610751 618600 54720 162700 80510 139260 139260 139240	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 477000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 488029	491802 491802 0 91% 47% 100% 568027 582950 49660 118800 95560 130600 188330 430468	584005 584005 0 87% 46% 88% 634425 574030 53170 127800 94510 141610 156940 478624	544553 544553 544553 0 86% 46% 97% 2082 2082 544553 544553 544553 544553 544553 510262 43089 155100 92230 98163 121680 368034	Aug-so 518247 518247 0 83% 45% 100% 2100 542314 527930 49420 163200 85160 121820 108330 384550	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           101470           352472	570829 570829 0 100% 43% 100% 2480 559820 552979 39250 177039 88270 138440 109980 405151	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442	Dec-93           514839           0           95%           52%           98%           2155           505000           513560           35540           141229           70510           118610           147671           404965	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN	668071           0           81%           39%           638918           638918           638918           54300           150000           73540           153770           187700           606974           264542	675749 675749 0 777% 100% 610751 618600 54720 162700 80510 139260 139260 139260 139260 139267 139267 4 139267 13927 139267 139267 139267 13927 139267 139267 13927 139267 13927 139267 13927 139267 13927 13977 13977 10077 10077 10077 10077 10077 10077 10077 10070	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 477000 229000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 488029 212534	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118803 949660 118803 130600 138330 430468 169544	584005 584005 584005 0 87% 46% 88% 634425 574030 53170 127800 94510 141610 156940 478624 219532	544553 544553 0 86% 46% 2082 544553 510262 43089 155100 92230 98163 121680 368034 192760	Aug-90 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108350 384550 209564	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           101470           352472           221446	570829 570829 0 100% 43% 100% 2480 559920 552979 39250 177039 88270 138440 109980 405151 231921	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442           217788	Dec-96           514839           514839           0           95%           2155           505000           513550           505000           513550           35540           141229           70510           148610           147671           404965           228617	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK oZEBELENI	668071           0           81%           39%           638918           638918           638918           54300           150000           73540           153770           187700           606974           264542           2074904	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 139260 139260 139260 13946764 233279 188410 546764	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 477000 229000 158000	571851 571851 0 92% 48% 75% 569467 552116 45290 111756 88320 147600 169150 488029 212534 174000	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118800 95560 1306000 130000000000	584005 584005 584005 0 87% 46% 88% 634425 574030 53170 127800 94510 141610 15690 478624 219532	544553 544553 0 86% 46% 2082 544553 510262 43089 155100 92230 98163 121680 368034 192760 117640	Aug-so 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108350 209564 108330 109274	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           101470           352472           221446           101470           82646	570829 570829 0 100% 43% 100% 2480 559920 552979 39250 177039 88270 138440 109980 405151 231921 109980	545090 545090 0 93% 43% 100% 2453 526114 535950 41000 149000 80060 139180 126710 403442 217788 126710	Dec-96 514839 514839 0 95% 52% 98% 2155 505000 513560 35540 141229 70510 147671 404965 228617 123370 89200	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - METERED	668071           0           81%           39%           638918           638918           638910           54300           150000           73540           153770           187700           606974           264542           207490           134942	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 139260 139260 139260 139260 13946764 233279 188910 124575	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 229000 158000 90000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 212534 174000 101495	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118800 95560 13060000000000	081705           584005           584005           0           87%           46%           88%           634425           574030           53170           53170           127800           94510           141610           156942           219532           166509           92583	544553 544553 0 86% 46% 2082 544553 510262 43089 155100 92230 98163 121680 368034 192760 117640 943850	Aug-90 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108330 384550 209564 108330 102471 105657	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           101470           352472           221446           101470           83646           54766	570829 570829 0 100% 43% 100% 2480 559920 552979 39250 177039 88270 138440 109980 405151 231921 109980 106320 88279	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442           217788           126710           116700           89142	Dec-93 514839 514839 0 95% 52% 98% 2155 505000 5135540 141229 70510 141229 70510 141671 404965 228617 123370 88280 93822	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - METERED eZEBELENI - METERED eZEBELENI - METERED	633071           0           81%           39%           638918           613300           54300           73540           150700           73540           163770           187700           187700           187700           187700           187701           187702           187972           187972           187972           187972           187972           187972           187972           187972           187972           187972           187972           187972	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 139260 162700 80510 1394610 546764 233279 188910 124575	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 229000 158000 90000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 212534 174000 101495	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118800 95560 130600 130600 130600 1308030 49630 49640 169544 167000 93924	04105           584005           584005           0           87%           46%           88%           634425           574030           53170           127800           94510           141610           15690           478624           219532           166509           92583	544553 544553 0 86% 46% 2082 544553 510262 43089 155100 92230 98163 121680 386034 192760 117640 994388 996350 78924	Aug-90 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108330 384550 209564 108330 1026471 105657 69329	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           352472           221446           101470           352472           221446           101470           83646           54766           76260	570829 570829 0 100% 43% 100% 2480 559820 552979 39250 177039 88270 138440 109980 105151 231921 109980 106320 88279 84951	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442           217788           126710           116700           89142           96512	Dec-96           514839           514839           0           95%           2155           505000           5135540           141229           70510           118610           404965           228617           123370           88280           93822           82526	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - METERED eZEBELENI - METERED eZEBELENI - METERED UCSS IN WTW	633071           0           81%           39%           638918           613300           54300           54300           73540           153770           187700           187700           187700           187700           187701           187702           187702           187701           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187702           187972           187972           187972           187972           187972           187972           187972           187972           187972           187972           187972           187972	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 139260 139260 139260 139260 13946764 233279 188910 124575	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 229000 158000 90000 90000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 488029 212534 174000 101495	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118800 95560 130600 130600 138330 430460 169544 167000 93924	04105 584005 584005 0 87% 46% 88% 634425 574030 53170 127800 94510 141610 15690 94512 166509 92583 10%	301930 544553 544553 0 86% 46% 2082 544553 510262 43089 155100 92230 98163 121680 386034 192760 117640 994388 996350 78924 6%	Aug-90 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108330 384550 209564 108330 1026471 105657 69329 3%	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           352472           221446           101470           352472           221446           101470           33646           54766           76260           3%	570829 570829 0 100% 43% 100% 2480 559820 552979 39250 177039 88270 138440 109980 105151 231921 109980 106320 88279 84951	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442           217788           126710           116700           89142           96512           -2%	Dec-96 514839 514839 0 95% 52% 98% 2155 505000 513560 35540 141229 70510 141229 70510 141229 70510 147671 404965 228617 123370 88280 93822 82526 -2%	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - METERED eZEBELENI - METERED eZEBELENI - METERED LOSS IN WTW LOSS UPTO WTW	633071           0           81%           39%           638918           619310           54300           73540           153770           187700           187700           187700           187700           187700           187701           187702           30%           73540           3%           7%	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 139260 139260 139260 139260 139260 139470 546764 233279 188910 124575	487328 487328 0 87% 41% 88% 523865 523865 494000 47320 106900 69560 124410 145810 229000 158000 90000 90000 90000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 488029 212534 174000 101495 1% 28%	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118800 95560 118803 93924 169544 167000 93924	04105 584005 584005 0 87% 46% 88% 634425 574030 53170 127800 94510 141610 156940 478624 219532 166509 92583 10% 2%	301930 544553 544553 0 86% 46% 97% 2082 544553 510262 43089 510262 43089 98163 121680 386034 192760 117640 994388 96350 78924 6% 0%	Aug-90 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108330 384550 209564 108330 102471 105657 69329 3% -5%	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           352472           221446           101470           352472           221446           101470           33646           54766           76260           3%           11%	570829 570829 0 100% 43% 100% 2480 559820 552979 39250 177039 88270 138440 109980 405151 231921 109980 106320 88279 84951 1% 2%	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442           217788           126710           116700           89142           96512           -2%           3%           40%	Dec-96 514839 514839 0 95% 52% 98% 2155 505000 513560 35540 141229 70510 118610 147671 404965 228617 123370 88280 93822 82526 -2% 2% 49%	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - METERED eZEBELENI - METERED eZEBELENI - METERED LOSS IN WTW LOSS UPTO WTW LOSS IN NETWORK (HL & LL & FN) LOSS TOWN RUNNING AVE (3 mths)	0336         669071           0         81%           39%         638918           638918         619310           54300         73540           150000         73540           153770         187700           18770         187700           18770         134942           3%         7%           4%         17%	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 139260 162700 80510 139260 1139260 1139260 1139260 1139260 1139260 1139260 13920	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 229000 158000 90000 90000 158000 90000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 10169150 101495 122534 174000 101495 1% 2% 28% 19%	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118800 95560 118800 93524 169544 167000 93924 -3% -3% -19% 36% 23%	04105 584005 584005 0 87% 46% 88% 634425 574030 53170 127800 94510 141610 15690 92583 10% 2% 20% 27%	301930 544553 544553 0 86% 46% 2082 544553 510262 43089 510262 43089 98163 121680 386034 192760 117640 994388 96350 117640 994388 96350 378924 6% 0% 34%	Aug-90 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108330 384550 209564 108330 1026471 105657 69329 3% -5% 30% 28%	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           352472           221446           101470           352472           221446           101470           33646           54766           76260           3%           11%           23%           29%	570829 570829 0 100% 43% 100% 2480 559820 552979 39250 177039 88270 138440 109980 105151 231921 109980 106320 88279 84951 1% 2% 2%	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442           217788           126710           116700           89142           96512           -2%           3%           19%           22%	Dec-96           514839           514839           0           95%           52%           98%           2155           505000           513860           35540           141229           70510           118610           404965           228617           123370           88280           93822           82526           -2%           2%           18%           20%	-
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - METERED eZEBELENI - METERED eZEBELENI - METERED LOSS IN WTW LOSS UPTO WTW LOSS IN NETWORK (HL & LL & FN) LOSS TOWN RUNNING AVE (3 mths) LOSS IN MLUNGISI	0336         669071           0         81%           39%         638918           638918         619310           54300         73540           150000         73540           153770         187700           18770         187700           18770         134942           3%         7%           4%         17%	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 139260 162700 80510 139260 1139260 1139260 1139260 1139260 1139260 1139260 140560 1400000000000000000000000000000000000	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 229000 158000 90000 158000 90000 158000 90000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 101495 212534 174000 101495 1% 2% 26%	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118800 95560 118800 93524 169544 167000 93924 -3% -3% -19% 36% 23%	04105 584005 584005 0 87% 46% 88% 634425 574030 53170 127800 94510 141610 15690 94510 14166509 92583 10% 2% 20% 27%	30193 544553 544553 0 86% 46% 2082 544553 510262 43089 510262 43089 98163 121680 92230 98163 121680 368034 192760 117640 994388 96350 117640 994388 96350 117640 978924 6% 0% 34% 30% 18%	Aug-90 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108330 384550 209564 108330 102471 105657 69329 3% -5% 30% 28% 0%	360-30           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           352472           221446           101470           352472           221446           101470           33646           54766           76260           3%           21%           46%	0         0           570829         0           100%         43%           43%         100%           2480         559820           552979         39250           177039         88270           138440         109980           405151         231921           109980         405151           109840         88279           88270         138440           109980         405151           21921         109980           106320         88279           84951         1%           2%         24%           26%         20%	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442           217788           126710           116700           89142           96512           -2%           3%           19%           22%           30%	Dec-96           514839           514839           0           95%           52%           98%           2155           505000           513860           35540           141229           70510           118610           147671           404965           228617           123370           88280           93822           82526           -2%           2%           18%           20%           24%	
WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - METERED eZEBELENI - METERED eZEBELENI - METERED LOSS IN WTW LOSS UPTO WTW LOSS IN NETWORK (HL & LL & FN) LOSS TOWN RUNNING AVE (3 mths) LOSS IN MLUNGISI	633071           0           81%           39%           638918           619310           54300           73540           150700           73540           153770           187700           187700           187700           187700           133770           187700           133770           134942           3%           7%           4%           17%	675749 675749 0 77% 37% 100% 610751 618600 54720 162700 80510 139260 162700 80510 139260 1124575	487328 487328 0 87% 41% 88% 523865 494000 47320 106900 69560 124410 145810 229000 158000 90000 90000 90000 158000 90000	571851 571851 0 92% 48% 75% 569467 562116 45290 111756 88320 147600 169150 10169150 101495 212534 174000 101495 1% 2% 26% 19%	491802 491802 0 91% 47% 47% 568027 582950 49660 118800 95560 118800 95560 118800 95560 118800 95560 130600 188330 430468 169544 167000 93924 -3% -3% -3% -3%	04105           584005           584005           0           87%           46%           88%           634425           574030           53170           94510           141610           156904           478624           219532           166509           92583           10%           2%           20%           27%	301930 544553 544553 0 86% 46% 2082 544553 510262 43089 510262 43089 98163 155100 92230 98163 121680 386034 192760 117640 994388 96350 117640 994388 96350 117640 943488 96350 117640 11	Aug-90 518247 0 83% 45% 2100 542314 527930 49420 163200 85160 121820 108330 384550 209564 108330 102471 105657 69329 3% -5% 30% 28%	360-50           585092           585092           0           100%           45%           97%           2678           520814           507590           47890           155000           85770           117460           352472           221446           101470           352472           221446           101470           33646           54766           76260           3%           11%           23%           29%           46%           n/a	0         0           570829         0           100%         43%           43%         100%           2480         559820           552979         39250           177039         88270           138440         109980           405151         231921           109980         84951           1%         2%           24%         26%           20%         20%	545090           545090           0           93%           43%           100%           2453           526114           535950           41000           149000           80060           139180           126710           403442           217788           126710           116700           89142           96512           -2%           3%           19%           22%           30%           17%	Dec-96           514839           514839           0           95%           52%           98%           2155           505000           513860           35540           141229           70510           118610           147671           404965           228617           123370           88280           93822           82526           -2%           2%           18%           20%           24%           7%	-

QUEENSTOWN VOLUMES	1999												
MONTH	Jan-99	Feb-99	Mar-99	Apr-99	May-99	Jun-99	Jul-99	Aug-99	Sep-99	Oct-99	Nov-99	Dec-99	
DAYS	31	28	31	30	31	30	31	31	30	31	30	31	
VOLUME DATA													
VOLUME IN KI	Jan-99	Feb-99	Mar-99	Apr-99	May-99	Jun-99	Jul-99	Aug-99	Sep-99	Oct-99	Nov-99	Dec-99	TOTAL
RAW WATER IMPORTATION	487460	521377	520170	524871	518798	523754	498745	516707	593695	575072	602652	635529	6518830
RAW WATER INTO WIW	485000 479810	498000 478336	500000 462914	510000 473391	504000 464349	499822	497000 478385	4/008/ 467678	565159	474000 471231	579874	520247 534024	
WATER SOLD	389377	371029	365000	440243	345148	326272	345948	361294	405982	370303	509373	450616	
QUEENSTOWN	217743	193879	198000	214101	191489	172464	192289	202138	232777	217583	307156	254009	
	141320	127640	116490 81850	128530	113460	118030	105280	114200	123210	111980	124790	95848 100750	
SEWAGE TREATED	269868	300937	281015	273405	259008	248134	233872	242888	278296	262127	280048	309302	
WATER BALANCE													
VOLUME IN KI	Jan-99	Feb-99	Mar-99	Apr-99	May-99	Jun-99	Jul-99	Aug-99	Sep-99	Oct-99	Nov-99	Dec-99	
	487460	521377	520170	524871	518798	523754	498745	516707	593695	575072	602652	635529	
BONGOLA	407400	35000	0	140000	190000	0	496745	0	093090	575072	002052	033329	1
WATERDOWN DAM CAPACITY	89%	84%	80%	77%	73%	68%	65%	61%	57%	66%	56%	56%	
	50%	55%	55%	56%	53%	52%	52%	52%	50%	46%	42%	69%	-
BERRY DAM CAPACITY RAW WATER SOLD	2363	2420	2000	2407	2033	2695	2030	3880	5082	3233	95% 2457	3152	
RAW INTO WTW (BERRY) ACTUAL	485000	500000	500000	510000	504000	499822	497000	505000	582638	508929	590721	562202	
TREATED WATER ACTUAL	479810	478336	462914	473391	464349	460500	478385	467678	565159	471231	579874	534024	
	42270	47110	44670	47150	46910	44810	46160	46040	53860	48550	55500	47540	
FINCHAMS NEK	68830	69780	66000	67830	66640	61730	67550	63920	79730	62090	80760	77780	
eZEBELENI	106000	125660	111960	115800	112680	116360	119470	115300	132400	119690	143060	139570	
	132710	127340	118110	122770	112170	111650	113860	113950	127360	106450	124790	124860	
QUEENSTOWN	217743	193879	198000	214101	191489	172464	343948 192289	202138	232777	217583	307156	254009	•
MLUNGISI - BULK	141320	127640	116490	128530	113460	118030	105280	114200	123210	111980	124790	124860	
eZEBELENI - BULK	115040	90440	81850	95450	84250	92190	85720	94260	101790	104620	126000	113640	
eZEBELENI - METERED	82298	91726 85424	90000 77000	14 1982 84160	68012	80997 72811	68012	83894 75262	94258 78947	75958	103094 99123	95848 100759	
LOSS IN WTW	1%	4%	7%	7%	8%	8%	4%	7%	3%	7%	2%	5%	
	1%	4%	4%	3%	3%	5%	0%	2%	2%	12%	2%	12%	
LOSS IN NETWORK (HL & LL & FN) LOSS TOWN RUNNING AVE ( 3 mths )	6% 14%	26%	25%	22%	29%	33% 26%	31%	22%	31% 28%	23%	7% 18%	14%	
LOSS IN MLUNGISI	37%	28%	23%	-10%	25%	31%	19%	27%	23%	31%	17%	23%	•
LOSS IN EZIBELENI	28%	6%	6%	12%	19%	21%	21%	20%	22%	27%	21%	11%	
TOTAL LOSS	20%	28%	29%	16%	33%	37%	30%	29%	31%	35%	15%	29%	
QUEENSTOWN VOLUMES 1998	2000	5 1 00	M 00				1.1.00	A 00	0 00 1	0 1 00	NL 00	<b>D</b> 00	
QUEENSTOWN VOLUMES 1998 MONTH	<b>2000</b> Jan-00 31	Feb-00 29	Mar-00 31	Apr-00	May-00 31	Jun-00 30	Jul-00 31	Aug-00	Sep-00	Oct-00 31	Nov-00 30	Dec-00	
QUEENSTOWN VOLUMES 1998 MONTH DAYS	<b>2000</b> Jan-00 31	Feb-00 29	Mar-00 31	Apr-00 30	May-00 31	Jun-00 30	Jul-00 31	Aug-00 31	Sep-00 30	Oct-00 31	Nov-00 30	Dec-00 31	
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA	<b>2000</b> Jan-00 31	Feb-00 29	Mar-00 31	Apr-00 30	May-00 31	Jun-00 30	Jul-00 31	Aug-00 31	Sep-00 30	Oct-00 31	Nov-00 30	Dec-00 31	
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI DAW WATER IMPORTATION	<b>2000</b> Jan-00 31 Jan-00	Feb-00 29 Feb-00	Mar-00 31 Mar-00	Apr-00 30 Apr-00	May-00 31 May-00	Jun-00 30 Jun-00	Jul-00 31 Jul-00 451341	Aug-00 31 Aug-00	Sep-00 30 Sep-00	Oct-00 31 Oct-00	Nov-00 30 Nov-00	Dec-00 31 Dec-00	50/1283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW	2000 Jan-00 31 Jan-00 476335 506000	Feb-00 29 Feb-00 498493 495000	Mar-00 31 Mar-00 474813 459000	Apr-00 30 Apr-00 498804 473169	May-00 31 May-00 460063 443765	Jun-00 30 Jun-00 457908 441398	Jul-00 31 Jul-00 451341 392097	Aug-00 31 Aug-00 488616 466348	Sep-00 30 Sep-00 526018 509353	Oct-00 31 Oct-00 514433 508169	Nov-00 30 Nov-00 540586 518394	Dec-00 31 Dec-00 553873 543183	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER	2000 Jan-00 31 Jan-00 476335 506000 496802	Feb-00 29 Feb-00 498493 495000 485050	Mar-00 31 Mar-00 474813 459000 443748	Apr-00 30 Apr-00 498804 473169 466390	May-00 31 May-00 460063 443765 418037	Jun-00 30 Jun-00 457908 441398 435679	Jul-00 31 Jul-00 451341 392097 427873	Aug-00 31 Aug-00 488616 466348 466587	Sep-00 30 Sep-00 526018 509353 497268	Oct-00 31 Oct-00 514433 508169 497639	Nov-00 30 540586 518394 489152	Dec-00 31 Dec-00 553873 543183 522174	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD OLIFENSTOWN	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217	Feb-00 29 Feb-00 498493 495000 485050 341512 195587	Mar-00 31 Mar-00 474813 459000 443748 384756 211608	Apr-00 30 Apr-00 498804 473169 466390 325951 176839	May-00 31 460063 443765 418037 333934 177337	Jun-00 30 Jun-00 457908 441398 435679 341559 202072	Jul-00 31 451341 392097 427873 394767 230141	Aug-00 31 Aug-00 488616 466348 466587 341829 201915	Sep-00 30 526018 509353 497268 373526 227894	Oct-00 31 Oct-00 514433 508169 497639 424645 265349	Nov-00 30 540586 518394 489152 407325 237736	Dec-00 31 Dec-00 553873 543183 522174 414045 263439	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750	Feb-00 29 Feb-00 498493 495000 485050 341512 195587 117140	Mar-00 31 474813 459000 443748 384756 211608 109790	Apr-00 30 498804 473169 466390 325951 176839 111690	May-00 31 460063 443765 418037 333934 177337 101450	Jun-00 30 Jun-00 457908 441398 4435679 341559 202072 107030	Jul-00 31 451341 392097 427873 394767 230141 100900	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510	Sep-00 30 526018 509353 497268 373526 227894 116480	Oct-00 31 0ct-00 514433 508169 497639 424645 265349 116720	Nov-00 30 540586 518394 489152 407325 237736 120920	Dec-00 31 553873 543183 522174 414045 263439 125380	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300	Feb-00 29 Feb-00 498493 495000 485050 341512 195587 117140 98650	Mar-00 31 <u>Mar-00</u> 474813 459000 443748 384756 211608 109790 81270	Apr-00 30 Apr-00 498804 473169 466390 325951 176839 111690 97200	May-00 31 460063 443765 418037 333934 177337 101450 80130	Jun-00 30 Jun-00 457908 441398 445679 341559 202072 107030 83890	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480	Sep-00 30 526018 509353 497268 373526 227894 116480 90800	Oct-00 31 508169 497639 424645 265349 116720 88890	Nov-00 30 540586 518394 489152 407325 237736 120920 88090	Dec-00 31 553873 543183 522174 414045 263439 125380 99355	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935	Feb-00 29 Feb-00 498493 495000 345050 341512 195587 117140 98650 337666	Mar-00 31 Mar-00 474813 459000 443748 384756 211608 109790 81270 345955	Apr-00 30 498804 473169 466390 325951 176839 111690 97200 462012	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093	Jun-00 30 Jun-00 457908 441398 443679 341559 341559 202072 107030 83890 264750	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070	Sep-00         30           30         30           526018         509353           497268         373526           227894         116480           90800         310457	Oct-00 31 0ct-00 514433 508169 497639 424645 265349 265349 116720 88890 280417	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI	2000 Jan-00 31 476335 506000 496802 408291 218217 218217 114750 103300 328935	Feb-00 29 Feb-00 498493 495000 341512 195587 117140 98650 337666 Eeb-00	Mar-00 31 Mar-00 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00	Apr-00 30 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 May-00	Jun-00 30 Jun-00 457908 441398 435679 341559 202072 107030 83890 264750 Jun-00	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00	Sep-00 30 526018 509353 497268 373526 227894 116480 90800 310457 Sep.00	Oct-00 31 0ct-00 514433 508169 497639 424645 265349 116720 88890 280417 Oct-00	Nov-00 30 540586 518394 489152 237736 120920 88090 371203	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL	2000 Jan-00 31 Jan-00 476335 506000 496802 408201 218217 114750 103300 328935 Jan-00 476335	Feb-00 29 Feb-00 498493 495000 485050 331512 195587 117140 98650 337666 Feb-00 498493	Mar-00 31 Mar-00 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813	Apr-00 30 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804	May-00 31 400063 443765 418037 333934 177337 101450 80130 283093 May-00 460063	Jun-00 30 Jun-00 457908 441398 435679 202072 107030 83890 264750 Jun-00 457908	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616	Sep-00         30           Sep-00         526018           509353         497268           497268         227894           116480         90800           310457         Sep-00           526018         520318	Oct-00 31 Oct-00 514433 508169 497639 424645 265349 116720 88890 280417 Oct-00 514433	Nov-00 30 540586 518394 489152 237736 120920 88090 371203 Nov-00 540586	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERROWN	2000 Jan-00 31 Jan-00 476335 506000 496802 408201 218217 114750 103300 328935 Jan-00 476335 476335	Feb-00 29 Feb-00 498493 495000 485050 331512 195587 117140 98650 337666 Feb-00 498493 469093	Mar-00 31 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813 18813 18813	Apr-00 30 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 258804 2498804	May-00 31 400063 443765 333934 177337 101450 80130 283093 May-00 460063 385063 37700	Jun-00 30 30 457908 441398 435679 202072 107030 83890 264750 Jun-00 457908 415998	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 296616	Sep-00         30           Sep-00         526018           509353         497268           497268         227894           116480         90800           310457         Sep-00           526018         336018           336018         490280	Oct-00 31 Oct-00 514433 508169 497639 424645 265349 116720 88890 280417 Oct-00 514433 374433	Nov-00 30 540586 518394 489152 237736 120920 88090 371203 Nov-00 540586 380586	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CARACITY	2000 Jan-00 31 476335 506000 496802 408201 218217 114750 103300 328935 Jan-00 476335 0 7794	Feb-00 29 Feb-00 498493 495000 485050 331512 195587 117140 98650 337666 Feb-00 498493 469093 29400	Mar-00 31 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813 18813 456000 400%	Apr-00 30 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 258804 258804 240000	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 May-00 460063 385063 75000 100%	Jun-00 30 30 457908 441398 435679 202072 107030 83890 264750 Jun-00 457908 415908 415908 42000 100%	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 100%	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000	Sep-00         30           Sep-00         526018           509353         497268           497268         227894           116480         90800           310457         Sep-00           526018         336018           190000         10090	Oct-00 31 0ct-00 514433 508169 497639 424645 265349 116720 88890 280417 0ct-00 514433 374433 140000	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 380586 160000	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY	2000 Jan-00 31 Jan-00 476335 506000 496802 408201 218217 114750 103300 328935 Jan-00 476335 0 72%	Feb-00 29 Feb-00 498493 495000 485050 341512 195587 117140 98650 337666 Feb-00 498493 469093 29400 81%	Mar-00 31 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813 18813 456000 100%	Apr-00 30 498804 473169 466390 111690 97200 462012 Apr-00 498804 258804 258804 240000 100%	May-00 31 460063 443765 418037 101450 80130 283093 May-00 460063 385063 75000 100%	Jun-00 30 Jun-00 457908 441398 435679 202072 107030 83890 264750 Jun-00 457908 415908 42000 100%	Jul-00 31 31 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 100%	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100%	Sep-00         30           Sep-00         526018           509353         497268           373526         227894           116480         90800           310457         526018           Sep-00         526018           336018         190000           100%         100%	Oct-00 31 0ct-00 514433 508169 424645 265349 116720 88890 280417 0ct-00 514433 374433 140000 100%	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 380586 160000 100%	Dec-00 31 543183 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100%	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY	2000 Jan-00 31 476335 506000 496802 408201 218217 114750 103300 328935 32835 103300 476335 0 476335 0 72% 100%	Feb-00 29 Feb-00 498493 495000 341512 195587 117140 98650 337666 Feb-00 498493 469093 29400 81% 95% 100%	Mar-00 31 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813 18813 456000 100% 100%	Apr-00 30 498804 473169 466390 111690 97200 462012 Apr-00 498804 258804 240000 100% 100%	May-00 31 460063 443765 418037 101450 80130 283093 May-00 460063 385063 75000 100% 100%	Jun-00 30 457908 441398 435679 341559 202072 107030 83890 264750 Jun-00 457908 415908 415908 42000 100% 80%	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 100% 80%	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 488616 296616 192000 100% 100% 80%	Sep-00         30           Sep-00         526018           509353         497268           373526         227894           116480         90800           310457         526018           336018         190000           100%         80%	Oct-00 31 0ct-00 514433 508169 424645 265349 116720 88890 280417 Oct-00 514433 374433 140000 100% 80%	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 380586 160000 100% 85%	Dec-00 31 543183 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 90%	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATER DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW WATER SO	2000 Jan-00 31 Jan-00 476335 506000 496802 498802 498291 218217 114750 103300 476335 328935 Jan-00 476335 0 72% 72% 72% 100% 2980 506000	Feb-00 29 Feb-00 498493 495000 485050 341512 195587 117140 98650 337666 Feb-00 498493 469093 29400 81% 95% 100% 3152 405000	Mar-00 31 474813 459000 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813 18813 456000 100% 100% 100% 8971 459000	Apr-00 30 Apr-00 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 258804 240000 100% 100% 100% 7948 473169	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 May-00 460063 385063 75000 100% 100% 100% 3527 443765	Jun-00 30 Jun-00 457908 441398 435679 202072 107030 83890 264750 Jun-00 457908 415908 415908 42000 100% 80% 8101 441328	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 100% 100% 80% 4203 80%0	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 488616 296616 192000 100% 100% 100% 80% 4203 466348	Sep-00         30           30         526018           509353         497268           373526         227894           116480         90800           310457         526018           336018         190000           100%         100%           80%         2526           509252         502263	Oct-00 31 0ct-00 508169 497639 424645 265349 116720 88890 280417 0ct-00 514433 374433 140000 100% 100% 80% 1620 508162	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 380586 160000 100% 100% 85% 2699	Dec-00 31 Dec-00 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 90% 5587 542182	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATER DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 476335 0 72% 72% 100% 2980 506000	Feb-00 29 Feb-00 498493 495000 485050 341512 195587 117140 98650 337666 Feb-00 498493 469093 29400 81% 95% 100% 3152 495000	Mar-00 31 474813 459000 474813 84756 211608 109790 81270 345955 Mar-00 474813 18813 456000 100% 100% 100% 100% 8971 459000	Apr-00 30 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 258804 240000 100% 100% 100% 100% 7948 473169	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 May-00 460063 385063 75000 460063 385063 75000 100% 100% 100% 100% 100% 443765	Jun-00 30 Jun-00 457908 441398 435679 202072 107030 83890 264750 Jun-00 457908 415908 415908 42000 100% 100% 80% 8101 441398 435679	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 100% 100% 100% 80% 4203 392097	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 480% 4203 466348	Sep-00         30           30         526018           509353         497268           373526         227894           116480         90800           310457         526018           336018         190000           100%         100%           2526         509353           497268         509353	Oct-00 31 0ct-00 508169 497639 424645 265349 116720 88890 280417 Oct-00 514433 374433 140000 100% 100% 80% 1620 508169 497639	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 380586 160000 100% 100% 85% 2699 518394 489152	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 100% 5587 543183	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 0 72% 72% 100% 2980 506000 496802 45360	Feb-00 29 Feb-00 498493 495000 341512 195587 117140 98650 337666 Feb-00 498493 469093 29400 81% 95% 100% 3152 495000 485050 46520	Mar-00 31 474813 459000 474813 459000 443748 384756 211608 109790 81270 81270 81270 4345955 Mar-00 474813 18813 456000 100% 100% 100% 100% 100% 100% 43748 43090	Apr-00 30 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 258804 240000 100% 100% 100% 100% 100% 100% 100%	May-00 31 460063 443765 418037 101450 80130 283093 May-00 460063 385063 75000 100% 100% 100% 100% 100% 443765 418037 46460	Jun-00 30 Jun-00 457908 441398 435679 202072 107030 83890 264750 Jun-00 457908 415908 42000 100% 100% 100% 80% 8101 441398 435679 46950	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 451341 391341 60000 100% 100% 100% 80% 4203 392097 427873 45790	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 100% 4203 466348 466587 47970	Sep-00         30           30         526018           509353         497268           373526         227894           116480         90800           310457         526018           336018         190000           100%         100%           100%         2526           509353         497268           49700         497208	Oct-00 31 0ct-00 514433 508169 424645 265349 116720 88890 280417 Oct-00 514433 374433 140000 508169 100% 100% 100% 100% 100% 100% 100% 100	Nov-00         30           540586         518394           489152         407325           237736         120920           88090         371203           Nov-00         540586           380586         160000           100%         100%           100%         518394           489152         55650	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 100% 5587 543183 522174 55350	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BERRY DAM CAPACITY BUNGUAL UNTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) EVENTM	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 0 72% 72% 100% 2980 506000 496802 45360 436622 45360	Feb-00 29 Feb-00 498493 495000 341512 195587 117140 98650 337666 Feb-00 498493 469093 29400 81% 95% 100% 3152 495000 485050 46520 1102220 82500	Mar-00 31 474813 459000 443748 211608 109790 81270 345955 45270 474813 18813 456000 100% 100% 100% 100% 100% 43748 43090 101038 74470	Apr-00 30 496804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 258804 240000 100% 100% 100% 100% 100% 100% 100%	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 80130 460063 385063 75000 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 435679 202072 107030 83890 264750 Jun-00 457908 415908 42000 100% 100% 80% 8101 441398 435679 46950 105539 74665	Jul-00 31 31 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 100% 100% 100% 80% 4203 392097 427873 45790 102133 77460	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 100% 4203 466348 466587 47970 117797 117797	Sep-00         30           30         526018           509353         497268           373526         227894           116480         90800           310457         310457           Sep-00         526018           336018         190000           100%         100%           100%         2526           5093533         497268           497208         497208           497700         127738           73770         73770	Oct-00 31 0ct-00 514433 508169 497639 424645 265349 116720 88890 280417 Oct-00 514433 374433 140000 100% 100% 100% 100% 100% 100% 10	Nov-00         30           540586         518394           489152         407325           237736         120920           88090         371203           371203         371203           160000         100%           160000         100%           18394         489152           518394         489152           55650         106982           050650         106982	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 100% 5587 543183 522174 55350	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATER DAM CAPACITY BERRY DAM CAPACITY BIT DAM CAPACITY BERRY DAM CAPACITY BIT DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BIT DAM CAPACITY BERRY DAM CAPACITY	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 0 72% 72% 100% 2980 506000 496802 45360 133622 70030	Feb-00 29 Feb-00 498493 495000 341512 195587 117140 98650 337666 Feb-00 498493 469093 29400 81% 95% 100% 3152 495000 485050 46520 110220 82500	Mar-00 31 474813 459000 474813 459000 443748 384756 211608 109790 81270 345955 45270 474813 18813 456000 100% 100% 100% 100% 100% 100% 100%	Apr-00 30 496804 473169 466390 325951 176839 111690 97200 462012 462012 462012 462012 462012 462012 462010 100% 100% 100% 100% 100% 100% 100%	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 80130 460063 385063 75000 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 435679 341559 202072 107030 83890 264750 Jun-00 457908 415908 42000 100% 100% 100% 80% 8101 441398 405679 46950 105539 74860 101300	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 451341 391341 60000 100% 100% 100% 100% 100% 100% 10	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 480348 466587 47970 117797 84000 105310	Sep-00         30           30         526018           509353         497268           373526         227894           116480         90800           310457         310457           Sep-00         526018           336018         190000           100%         100%           100%         2526           5093533         497268           497208         497208           497700         127738           97770         105580	Oct-00 31 0ct-00 514433 508169 497639 424645 265349 116720 88890 280417 Oct-00 514433 374433 140000 100% 100% 100% 100% 100% 100% 10	Nov-00         30           540586         518394           489152         407325           237736         120920           88090         371203           371203         371203           160000         100%           160000         100%           18099         518394           489152         55650           106982         95090           110510         110510	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 100% 100% 5587 543183 522174 55350 126574 97470	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATER DOWN DAM CAPACITY BERRY DAM CAPACITY BUNGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BUNGOLA DAM CAPACITY BUNGOLA DAM CAPACITY BERRY DAM CAPACITY	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 0 72% 72% 100% 2980 506000 496802 45360 133622 70030 133642 133040 114750	Feb-00 29 Feb-00 496493 495000 341512 195587 117140 98650 98650 337666 Feb-00 498493 469093 29400 81% 95% 100% 3152 49500 485050 485050 46520 110220 82500 128670 117140	Mar-00 31 474813 459000 43748 384756 211608 109790 81270 345955 45270 474813 18813 456000 100% 100% 100% 100% 8971 455000 443748 43090 101038 74470 115380 109790	Apr-00 30 Apr-00 496804 473169 466390 325951 176839 111690 97200 420012 Apr-00 498804 258804 240000 100% 10% 1	May-00         31           460063         443765           418037         333934           177337         101450           80130         283093           May-00         460063           480063         385063           75000         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100%         100%           100380         101450	Jun-00 30 Jun-00 457908 441398 435679 341559 202072 107030 83890 264750 Jun-00 457908 415908 42000 100% 100% 100% 80% 8101 441398 40507 100%	Jul-00 31 Jul-00 451341 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 60000 100% 100% 80% 42037 392097 427873 45790 102133 77150 101900	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 466348 466587 47970 117797 84000 105310 111510	Sep-00         30           Sep-00         526018           509353         497268           373526         227894           116480         90800           90800         310457           Sep-00         526018           336018         190000           100%         100%           100%         509353           497268         497206           497208         497208           497700         127738           97770         1005580           116480         116480	Oct-00 31 0ct-00 514433 508169 497639 424645 265349 116720 88890 280417 Oct-00 514433 374433 140000 100% 100% 100% 100% 100% 100% 10	Nov-00           30           540586           518394           489152           407325           237736           120920           88090           3071203           Nov-00           540586           380586           160000           100%           518394           489152           55650           106982           95090           110510           120920	Dec-00 31 553873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 100% 100% 543183 522174 55350 126574 97470 117400 117400 125380	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATER DOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BORGOLA DAM CAPACITY BERRY DAM CAPACITY BORGOLA DAM CAPACITY BERRY DAM CAPACITY BERY DAM CAPACITY BERRY DAM CAPACITY BERY	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 0 72% 72% 72% 100% 2980 506000 496802 45360 133622 70030 1133040 114750	Feb-00         29           498493         495000           485050         341512           195587         117140           98650         337666           Feb-00         498493           469093         29400           81%         95%           100%         3152           495000         485050           485050         46520           110220         82500           428670         117140           341512         10557	Mar-00 31 474813 459000 43748 384756 211608 109790 81270 345955 Mar-00 474813 18813 78813 18813 456000 100% 100% 8971 459000 443748 43090 101038 74470 115360 109790 384756	Apr-00 30 Apr-00 498804 473169 176839 111690 97200 462012 Apr-00 498804 258804 240000 100% 10%	May-00 31 460063 443765 418037 333934 177337 101450 80130 80130 283093 May-00 460063 385063 75500 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 441398 341559 202072 107030 83890 264750 Jun-00 457908 415908 422000 100% 100% 81011 413988 435679 441398 435679 441398 435679 105339 74860 101300 107030 341559	Jul-00 31 Jul-00 451341 392097 230141 100900 80380 261299 Jul-00 451341 391341 60000 100% 100% 80% 4203 392097 427873 45790 102133 77150 101900 100900 394767	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 80% 4203 466348 466587 47970 117797 84000 105310 111510 341829 201045	Sep-00         30           526018         509353           509353         497268           373526         227894           116480         90800           310457         526018           336018         1990800           100%         100%           100%         2526           503353         497268           497268         49700           127738         97770           116480         373526           297264         27269	Oct-00 31 Oct-00 514433 508169 424645 265349 116720 88890 280417 Oct-00 514433 374433 374433 374433 374433 374433 140000 100%	Nov-00           30           540586           518394           489152           407325           237736           120920           88090           371203           Nov-00           540586           380586           160000           100%           160000           100%           55650           16829           95090           110510           120920           4073225	Dec-00 31 53873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 100% 100% 100% 5587 543183 552774 5587 543183 552774 5587 543183 552774 17400 125380 414045 264404 265404 17400 125380 107405	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BORGOLA DAM CAPACITY BERRY DAM CAPACITY BERY DAM CAPA	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 0 72% 72% 72% 100% 2980 506000 496802 45360 133622 70030 133040 114750 408291 218217 114750	Feb-00         29           29         29           498493         495000           345050         341512           195587         117140           98650         337666           7         7649093           29400         81%           95%         100%           3152         495000           485050         46520           110220         82500           428670         117140           341512         195587           117140         341512	Mar-00 31 474813 459000 43748 384756 211608 109790 81270 345955 Mar-00 474813 18813 18813 456000 100% 100% 100% 8971 459000 443748 43090 101038 74470 115360 109790 384756 211608 109790	Apr-00 30 Apr-00 498804 473169 176839 111690 97200 462012 Apr-00 498804 258804 240000 100% 10%	May-00 31 460063 443765 418037 333934 177337 101450 80130 880130 283093 May-00 460063 385063 385063 75000 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 441398 341559 202072 107030 83890 264750 Jun-00 457908 415908 441398 42000 100% 80% 81011 441398 435679 46950 105539 74860 101300 107030 341559 202072 1007030	Jul-00 31 31 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 391341 391341 391341 391341 391341 300% 4203 392097 427873 45790 100% 392097 427873 45790 101900 100900 394767 230141 100900	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 80% 4203 466348 466587 47970 117797 84000 105310 111510 341829 201915 111510	Sep-00         30           526018         509353           509353         227894           116480         90800           310457         526018           336018         500353           100%         100%           100%         2526           500353         497268           497208         497208           497268         49700           105580         116480           373526         227894           116480         373526           227894         116480	Oct-00 31 Oct-00 514433 508169 424645 265349 116720 88890 280417 Oct-00 514433 374433 374433 374433 374433 140000 100% 10	Nov-00           30           540586           518394           489152           407325           237736           120920           88090           380586           380586           160000           100%           160000           100%           2699           518394           489152           55650           106982           95090           110510           120920           407325           237736           120920	Dec-00 31 53873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 100% 100% 100% 5587 543183 552774 5587 543183 552774 97470 125380 414045 263439 1725380 414045 263439 1725380 1725580 1725580 1725580 1725580 1725580 1725580 1725580 1725580 1725580 1725580 1725580 1725580 1	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BERRY DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BORGOLA DAM CAPACITY BERRY DAM CAPACITY BERY	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 0 72% 72% 103300 328935 Jan-00 476335 0 72% 72% 72% 100% 2980 506000 496802 45360 133622 70030 133040 114750 408291 218217 114750	Feb-00         29           498493         495000           485050         341512           195587         117140           98650         337666           Feb-00         498493           469093         29400           81%         95%           100%         3152           495000         485050           485050         46520           110220         82500           28400         117140           341512         195587           117140         98650	Mar-00 31 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813 18813 455000 100% 100% 100% 459000 443748 459000 443748 459000 443748 459000 443748 459000 38971 115360 109790 384756 211608 109790 381270	Apr-00 30 Apr-00 498804 473169 11690 325951 176839 111690 97200 462012 Apr-00 498804 258804 240000 100%	May-00 31 460063 443765 418037 333934 177337 101450 80130 80130 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 441398 341559 202072 107030 83890 264750 Jun-00 457908 415908 4415908 422000 100% 80% 81011 441398 435679 49550 105539 74860 107030 341559 202072 107030 341559 202072 107030	Jul-00 31 31 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 391341 391341 60000 100% 100% 80% 4203 392097 427873 45790 102133 77150 101900 100900 394767 230141 100900	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 80% 4203 466348 466587 47970 117797 84000 105310 111510 341829 201915 111510 86480	Sep-00         30           526018         509353           509353         497268           373526         227894           116480         90800           310457         526018           336018         509353           100%         2526           50000         100%           100%         2526           509353         497268           49700         127738           97770         105580           116480         373526           227894         116480           373526         227894           116480         390800	Oct-00 31 0ct-00 514433 508169 424645 265349 116720 88890 280417 0ct-00 514433 374433 374433 140000 100% 100% 100% 100% 100% 100% 10	Nov-00           30           540586           518394           489152           407325           237736           120920           88090           371203           Nov-00           540586           380586           160000           100%           160000           100%           2699           518394           489152           55650           106982           95090           110510           120920           407325           237736           120920           88090	Dec-00 31 53873 543183 522174 414045 263439 125380 99355 366355 Dec-00 553873 433873 120000 100% 100% 100% 100% 100% 100% 5587 543183 5587 543183 5522174 55350 126574 97470 117400 125380 414045 263439 125380 99355	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BORGOLA DAM CAPACITY BORGOLA DAM CAPACITY BORGOLA DAM CAPACITY BERRY DAM CAPACITY BERY DAM	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 0 72% 72% 100% 2980 506000 496802 45360 133622 70030 133040 114750 408291 218217 114750 103300 114750 103300 107074 92602	Feb-00         29           498493         495000           485050         341512           195587         117140           98650         337666           Feb-00         498493           469093         29400           81%         95%           100%         3152           495000         485050           485050         46520           110220         82500           28670         117140           341512         195587           117140         98650           75457         70.000	Mar-00 31 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813 18813 18813 456000 100% 100% 100% 100% 459000 443748 43090 101038 74470 115360 109790 384756 211608 109790 81270 94507 790457	Apr-00 30 Apr-00 498804 473169 176839 111690 97200 462012 Apr-00 498804 258804 258804 258804 258804 240000 100% 10%	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 May-00 460063 385063 385063 385063 385063 75000 100% 10	Jun-00 30 Jun-00 457908 441398 441398 341559 202072 107030 83890 264750 Jun-00 457908 415908 4415908 422000 100% 80% 81011 441398 435679 46950 105339 74860 107030 341559 202072 107030 83890 82989 52425	Jul-00 31 31 392097 427873 394767 230141 100900 80380 261299 Jul-00 451341 391341 391341 391341 60000 100% 100% 80% 4203 392097 427873 45790 102133 77150 101900 100900 394767 230141 101900 100900 394767 230141	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 80% 4203 466348 466587 47970 117797 84000 105310 111510 341829 201915 111510 86480 79210 66248	Sep-00         30           30         526018           509353         509353           373526         227894           116480         90800           310457         526018           336018         509353           190000         100%           100%         2526           509353         497268           49700         127738           97770         105580           116480         373526           227894         116480           90800         76672           509278         490800	Oct-00 31 0ct-00 514433 508169 424645 265349 116720 88890 280417 0ct-00 514433 374433 374433 140000 100% 100% 100% 100% 100% 100% 10	Nov-00           30           540586           518394           489152           407325           237736           120920           88090           371203           Nov-00           540586           380586           160000           100%           2699           518394           489152           55650           106982           95090           110510           120920           407325           237736           120920           88090           84763	Dec-00 31 53873 543183 522174 414045 263439 125380 Dec-00 553873 433873 120000 100% 100% 100% 100% 100% 100% 5587 543183 522174 5587 543183 522174 5587 543183 522174 5587 543183 522174 125380 414045 263439 125380 97470 117400 125380 9414045 263439 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 125574 125587 1255	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BORGOLA DAM CAPACITY BORGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BUNGOLA WATER SOLD RAW WATER SOLD RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - BULK	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 476335 0 72% 72% 100% 2980 506000 496802 45360 133622 70030 133040 114750 133040 114750 103300 107074 83000 29%	Feb-00         29           498493         495000           485050         341512           195587         117140           98650         337666           Feb-00         498493           469093         29400           81%         95%           100%         3152           495000         485050           485050         110220           82500         128670           117140         98650           75457         70468           2%         2%	Mar-00 31 474813 459000 443748 384756 211608 109790 81270 345955 Mar-00 474813 18813 18813 456000 100% 100% 100% 100% 43748 43090 101038 74470 115360 109790 384756 211608 109790 81270 94507 78641 3%	Apr-00 30 Apr-00 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 258804 258804 240000 100% 10%	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 May-00 460063 385063 385063 385063 385063 385063 385063 385063 38507 100% 100% 100% 100% 100% 100% 100% 10	Jun-00 30 Jun-00 457908 441398 441398 341559 202072 107030 83890 264750 Jun-00 457908 415908 415908 415908 415908 415908 415908 415908 4000 100% 80% 81011 441398 435679 46950 10539 74860 101300 107030 341559 202072 107030 341559 202072 107030 83890 82989 564980 1%	Jul-00 31 31 392097 4251341 392097 230141 100900 80380 261299 Jul-00 451341 391341 391341 391341 391341 391341 391341 45790 100% 80% 4203 392097 427873 45790 102133 77150 101900 100900 3934767 230141 100900 3934767 230141	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 80% 4203 466348 466587 47970 117797 84000 105310 111510 341829 201915 111510 86480 79210 60704 0%	Sep-00         30           30         30           526018         509353           509353         373526           227894         116480           310457         336018           Sep-00         526018           336018         190000           100%         80%           2526         509353           497268         49700           127738         97770           105580         116480           373526         227894           116480         90800           76672         689600           9%         1	Oct-00 31 0ct-00 514433 508169 497639 424645 265349 116720 88890 280417 0ct-00 514433 374433 374433 374433 374433 140000 100% 100% 100% 100% 100% 100% 10	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 160000 100% 100% 160000 100% 100% 2699 518394 489152 55650 106982 95090 110510 120920 407325 237736 120920 88090 84763 84266 6%	Dec-00 31 Dec-00 553873 543183 522174 414045 263439 125380 Dec-00 553873 366355 Dec-00 553873 126355 Dec-00 100% 100% 100% 100% 100% 100% 5587 543183 552174 5587 543183 5522174 55350 126574 97470 117400 125380 414045 263439 97470 125380 99355 86716 63890 4%	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER INTO WTW TREATED WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - BULK	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 476335 0 72% 72% 72% 72% 980 506000 496802 496802 495800 133622 2980 506000 496802 495800 133622 133622 133620 133600 133620 133620 133620 133620 133620 133620 133620 133620 133620 133620 133620 133620 133600 133620 133620 133620 133620 133620 133620 133620 133620 133600 133620 133620 133600 133620 133620 133620 133600 133620 133600 133620 133600 133620 133620 133600 133620 133600 133620 133620 133620 133620 133620 133600 133620 133600 133620 133620 133600 133620 133600 133620 133600 133620 133620 133600 133620 133600 136600 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 136000 1360000 1360000 1360000000000	Feb-00         29           498493         495000           485050         341512           195587         117140           98650         337666           Feb-00         498493           4969033         29400           81%         95%           100%         3152           495000         485050           485050         110220           82500         128670           117140         98650           75457         70468           2%         1%	Mar-00 31 474813 459000 443748 384756 211608 109790 34270 345955 Mar-00 474813 18813 456000 100% 100% 100% 100% 100% 100% 100%	Apr-00 30 Apr-00 498804 473169 116390 325951 176839 111690 97200 462012 Apr-00 498804 258804 258804 258804 258804 268804 268804 268804 268804 268804 268804 268804 268804 268804 100% 1	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 May-00 460063 385063 385063 375000 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 435679 341559 202072 107030 202072 Jun-00 457908 415908 415908 415908 415908 415908 415908 415908 415908 415908 400% 80% 81011 441398 435679 46950 100% 81011 441398 435679 46950 105539 74860 101300 107030 3341559 202072 107030 83890 82989 56498 1% 2%	Jul-00 31 31 392097 4251341 392097 230141 100900 80380 261299 Jul-00 451341 391341 391341 391341 391341 391341 391341 391341 391341 100% 80% 4203 392097 427873 45790 102133 777150 101900 100900 80380 92147 72479 -9% 12%	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 100% 4203 466348 466587 47970 117797 84000 105310 111510 341829 201915 111510 86480 79210 60704 0% 4%	Sep-00         30           30         30           526018         509353           509353         373526           227894         116480           310457         336018           Sep-00         526018           336018         336018           190000         100%           100%         2526           509353         497268           49700         127738           97770         105580           116480         373526           227894         116480           90800         76672           689600         72672           68960         2%           3%         3%	Oct-00 514433 508169 497639 424645 265349 116720 28890 280417 Oct-00 514433 374433 374433 374433 374433 374433 50760 100% 80% 100% 100% 100% 100% 124739 94380 116720 424645 265349 116720 88890 116720 88890 88634 70662 2% 1%	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 160000 100% 10%	Dec-00 31 Dec-00 553873 543183 522174 414045 263439 125380 Dec-00 553873 126355 Dec-00 553873 126355 Dec-00 100% 100% 100% 100% 100% 100% 100% 125380 126574 97470 117400 125380 97470 117400 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 97470 125380 125580 125580 125580 125580 125580 125580 125580 125580 125580 125580 125580 125580 12	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BORGOLA DAM CAPACITY BORGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERY DAM CAPACITY	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 476335 0 72% 72% 72% 72% 72% 980 506000 496802 496802 496802 496802 495800 133622 70030 133040 114750 133040 114750 103300 114750 103300 107074 83000 22%	Feb-00         29           498493         495000           485050         341512           195587         117140           98650         337666           Feb-00         498493           4969033         29400           81%         95%           100%         3152           495000         485050           485050         110220           82500         128670           117140         98650           75457         70468           2%         1%           2%         1%	Mar-00 31 474813 459000 443748 384756 211608 109790 34270 345955 Mar-00 474813 18813 18813 456000 100% 100% 100% 100% 100% 100% 100%	Apr-00 30 Apr-00 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 258804 258804 268804 268804 268804 268804 268804 268804 100% 10% 1	May-00 31 460063 443765 443765 443765 418037 333934 177337 101450 80130 283093 May-00 460063 385063 385063 385063 385063 385063 375000 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 435679 341559 202072 107030 264750 Jun-00 457908 415908 415908 415908 415908 415908 415908 415908 415908 4000 100% 800% 81011 441398 435679 469503 100% 81011 441398 435679 469503 101300 107030 3341559 202072 107030 83890 82989 56498 1% 2% 1% 2% 1%	Jul-00 31 31 392097 4251341 392097 230141 100900 80380 261299 Jul-00 451341 391341 391341 391341 391341 391341 391341 391341 100% 80% 4203 392097 427873 45790 102133 77150 101900 100900 80380 92147 72479 -9% 12% 7%	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 100% 4203 466348 466587 47970 117797 84000 105310 111510 341829 201915 111510 86480 79210 60704 0% 4% 25%	Sep-00         30           30         30           526018         509353           509353         373526           227894         116480           310457         336018           Sep-00         526018           336018         190000           100%         80%           2526         509353           497268         49700           127738         97770           105580         116480           373526         227894           227894         116480           90800         76672           689600         76672           2%         3%           21%         2%	Oct-00 514433 508169 497639 424645 265349 116720 88890 280417 Oct-00 514433 374433 374433 374433 374433 374433 50760 100% 80% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 124739 94380 116720 88890 116720 88890 116720 88890 116720 88890 116720 88890 116720 88890 116720 116720 116720 124739 94380 116720 124739 116720 124739 116720 124739 124749 124749 124749 124749 124749 124749 124	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 160000 100% 10%	Dec-00 31 Dec-00 553873 543183 522174 414045 263439 125380 Dec-00 553873 126355 Dec-00 553873 126355 Dec-00 100% 100% 100% 100% 100% 100% 100% 125380 126574 97470 117400 125380 97470 117400 125380 99355 86716 63890 44% 1% 1%	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA UNTER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK eZEBELENI - BULK MLUNGISI - BULK eZEBELENI - BULK EZEBELENI - BULK MLUNGISI N WTW LOSS IN NETWORK (HL & LL & FN) LOSS IN NETWORK (HL & LL & FN) LOSS TOWN RUNNING AVE ( 3 mths ) LOSS IN NETWORK (HL & LL & FN) LOSS TOWN RUNNING AVE ( 3 mths )	2000 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 72% 72% 100% 72% 72% 100% 2980 506000 496802 45360 133622 70030 133040 114750 103300 133040 114750 103300 133040 114750 103300 107074 83000 22% -6% 22%	Feb-00         29           498493         495000           495050         341512           195587         117140           98650         337666           Feb-00         498493           469093         29400           81%         95%           100%         3152           495000         485050           485050         110220           82500         128670           117140         98650           75457         70468           2%         1%           2%         1%           27%         21%           36%         11%	Mar-00 31 474813 459000 4343748 384756 211608 109790 34270 345955 Mar-00 474813 18813 456000 100% 100% 100% 100% 100% 100% 100%	Apr-00 30 Apr-00 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 240000 100% 1	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 May-00 460063 385063 75000 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 435679 341559 202072 107030 457908 425908 42000 100% 80% 81011 441398 435679 42000 100% 80% 81011 441398 435679 44950 105539 202072 107030 3341559 202072 107030 83890 82989 56498 1% 2% 17% 2% 17% 22%	Jul-00 31 31 32097 334767 230141 100900 80380 261299 Jul-00 451341 391341 391341 391341 391341 391341 391341 391341 100% 80% 4203 392097 427873 45790 102133 777150 101900 100900 80380 92147 72479 12% 7% 12% 7%	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 100% 466348 466587 47970 10797 84000 105310 111510 341829 201915 111510 86480 79210 60704 0% 4% 25% 16% 29%	Sep-00         30           30         30           526018         509353           509353         497268           373526         227894           116480         90800           310457         526018           336018         190000           100%         80%           2526         509353           497268         49700           127738         97770           105580         116480           373526         227894           227894         116480           90800         76672           689600         76672           68960         2%           3%         21%           18%         34%	Oct-00 514433 508169 497639 424645 265349 116720 508469 280417 Oct-00 514433 374433 374433 374433 374433 374433 374433 374433 50760 100% 80% 1620 508169 497639 50760 124739 50760 124739 50760 116720 88890 84634 70662 22% 1% 9% 18% 2494	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 160000 100% 80586 160000 100% 85% 2699 518394 489152 55650 106982 95090 110510 120920 407325 237736 120920 88090 84763 84826 6% 4% 15% 30%	Dec-00 31 Dec-00 53873 543183 522174 414045 263439 125380 Dec-00 553873 126574 366355 Dec-00 100% 100% 100% 100% 100% 100% 100% 125380 126574 5587 543183 552174 5587 543183 5522174 126574 5587 543183 5522174 126574 126574 126574 126576 126577 12770 12770 127580 1411% 1278 1278 176 176 176 176 176 176 176 176	5941283
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER IMPORTATION ACTUAL WATEROWN BONGOLA WATER IMPORTATION ACTUAL WATEROWN DAM CAPACITY BONGOLA WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - METERED eZEBELENI - METERED LOSS IN WTW LOSS UPTO WTW LOSS IN NETWORK (HL & LL & FN) LOSS IN MELWINGISI LOSS IN EZIBELENI	2000 Jan-00 31 Jan-00 476335 506000 496802 408291 218217 114750 103300 328935 Jan-00 476335 476335 0 72% 72% 72% 72% 72% 72% 72% 100% 100% 100% 100% 100% 133622 45360 133620 496802 45360 133620 133620 133040 114750 103300 1134750 103300 114750 103300 218217 218217 114750 103300 218217 218217 21827 70030 133040 114750 103300 22% -6% 22%	Feb-00         29           498493         495000           485050         341512           195587         117140           98650         337666           Feb-00         498493           469093         29400           81%         95%           100%         3152           495000         485050           485050         102%           110220         110220           110220         117140           98650         75457           70468         2%           1%         27%           21%         36%	Mar-00 31 474813 459000 4343748 384756 211608 109790 34270 345955 Mar-00 474813 18813 456000 100% 100% 100% 100% 100% 100% 100%	Apr-00 30 Apr-00 498804 473169 466390 325951 176839 111690 97200 462012 Apr-00 498804 240000 100% 1	May-00 31 460063 443765 418037 333934 177337 101450 80130 283093 75000 100% 100% 100% 100% 100% 100% 100%	Jun-00 30 Jun-00 457908 441398 435679 341559 202072 107030 457908 42000 100% 415908 42000 100% 80% 415908 42000 100% 80% 100% 100% 80% 100% 100% 80% 100% 100% 80% 100% 100% 80% 100% 100% 100% 80% 100% 100% 80% 100% 100% 100% 80% 100% 100% 80% 100% 100% 80% 100% 100% 80% 100% 100% 80% 101% 100% 80% 100% 100% 80% 100% 100% 80% 100% 100% 80% 10	Jul-00 31 Jul-00 451341 392097 230141 100900 80380 261299 Jul-00 451341 391341 391341 391341 391341 391341 391341 39334767 100% 80% 4203 392097 427873 45790 100% 80% 77150 101900 80380 92147 772479 -9% 12% 7% 16%	Aug-00 31 Aug-00 488616 466348 466587 341829 201915 111510 86480 278070 Aug-00 488616 296616 192000 100% 100% 100% 100% 4203 466348 466587 47970 117797 84000 105310 111510 341829 201915 111510 86480 79210 60704 0% 4% 25% 16% 29% 30%	Sep-00         30           30         30           526018         509353           509353         497268           373526         227894           116480         90800           310457         526018           336018         190000           100%         80%           2526         509353           497268         49700           127738         97770           105580         116480           373526         227894           227894         116480           90800         76672           689600         2%           3%         21%           18%         34%           24%         44%	Oct-00 514433 508169 497639 424645 265349 116720 88890 280417 Oct-00 514433 374433 140000 100% 80% 1620 508169 497639 50760 124739 50760 124739 50760 124739 94380 111040 116720 424645 265349 94380 116720 88890 88634 70662 2% 11% 9% 88% 24% 21%	Nov-00 30 540586 518394 489152 407325 237736 120920 88090 371203 Nov-00 540586 160000 100% 88090 380586 160000 100% 85% 2699 518394 489152 55650 106982 95090 110510 120920 407325 237736 120920 88090 84763 84826 6% 4% 15% 30% 4%	Dec-00 553873 543183 522174 414045 263439 125380 Dec-00 553873 120000 100% 100% 100% 100% 100% 100% 100% 100% 125380 126574 5587 543183 552174 5587 543183 522174 5587 543183 522174 126574 126574 126574 126576 126577 126577 126577 126577 126577 126577 126577 126577 125380 125 125380 125587 125587 125587	5941283

QUEENSTOWN VOLUMES	2001				-			-		-			
MONTH	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Jun-01	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	
DAYS	31	28	31	30	31	30	31	31	30	31	30	31	
								T			1	1	
VOLUME IN KI	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Jun-01	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	TOTAL
RAW WATER IMPORTATION	649838	623631	588855	5/9507	579534	579561	558473	566408	620212	577689	649113	617993	/190814
	6181/5	586860	553406	556030	55705/	572660	07040	531535	590000 584167	549131	630/13	612888	
WATER SOLD	512407	445780	489058	446837	445269	402324	497040	476751	453028	417541	437403	456446	
QUEENSTOWN	307574	270754	300124	273922	247872	211530	222604	216774	248163	232507	241951	264202	
MLUNGISI	140410	132020	119010	128230	127470	127850	120780	121740	124100	107690	133360	131460	
eZEBELENI	110905	110350	97440	108220	102190	103420	91430	100210	115010	107960	123420	128960	
SEWAGE TREATED	338217	384766	346880	390003	330349	319141	293587	294081	310746	304917	372809	425987	
				30	31	30	31	31	30	31	31	245	
	1			11515	10784	10772	10435	10497	11507	10087	10455	2633819	
WATER BALANCE													
	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Jun-01	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	
	649838	623631	588855	5/950/	579534	579561	558473	566408	620212	577689	649113	617993	
	349030	420000	2/0000	34343Z 234055	245226	256307	235000	323400	275000	265000	324113	308000	
WATERDOWN DAM CAPACITY	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-
BONGOLA DAM CAPACITY	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
BERRY DAM CAPACITY	70%	100%	90%	90%	80%	100%	100%	100%	70%	70%	100%	100%	
RAW WATER SOLD	2420	1511	1944	1710	2278	2846	630	622	633	39	75	81	
RAW INTO WTW (BERRY) ACTUAL	636967	612990	581451	568913	567750	569172	552097	550572	596506	549131	647198	614000	
TREATED WATER ACTUAL	618145	586860	553406	556039	557954	572669	497040	531535	584167	542571	630413	612888	4
LOW LEVEL	59070	59690	54990	55630	60090	61940	36550	37310	64690	60820	73600	85760	4
HIGH LEVEL (300)	160935	145870	147846	125119	135634	146149	123430	141175	158767	140041	153533	127378	-
	1/0920	122400	150110	170240	10300	105220	958/0	99940	122050	9/010	115000	109670	-
	140820	132490	1100110	128220	104400	127850	120410	1010/0	12/100	107600	134920	131/60	-
WATER SOLD ACTUAL	512407	445780	489058	446837	445269	402324	414449	476751	453028	417541	437403	456446	-
QUEENSTOWN	307574	270754	300124	273922	247872	211530	222604	216774	248163	232507	241951	264202	1
MLUNGISI - BULK	140410	132020	119010	128230	127470	127850	120780	121740	124100	107690	133360	131460	-
eZEBELENI - BULK	110905	110350	97440	108220	102190	103420	91430	100210	115010	107960	123420	128960	
MLUNGISI - METERED	106867	98094	108204	103592	124966	118363	116940	186486	117513	110356	109434	109346	
eZEBELENI - METERED	97966	76932	80730	69323	72431	72431	74905	73491	87352	74678	86018	82898	-
LOSS IN WTW	3%	4%	5%	2%	2%	-1%	10%	3%	2%	1%	3%	0%	
LOSS UPTO WTW	2%	1%	1%	2%	2%	1%	1%	3%	4%	5%	0%	1%	
LOSS IN NETWORK (HL & LL & FN)	16%	21%	11%	14%	24%	38%	22%	30%	28%	29%	35%	25%	_
LOSS TOWN RUNNING AVE ( 3 mtns )	14%	16%	16%	16%	17%	26%	28%	30%	21%	29%	31%	30%	-
	24%	20%	9%	19%	2%	1% 20%	3%	-53%	5%	-2%	18%	17%	-
	1Z /0 21%	28%	17%	20%	29%	30%	26%	16%	24 /0	28%	30%	26%	-
TOTAL LUSS	2170	20.70	1/ 70	2.370	ZJ 70	3070	2070	1070	Z1 70	20 70	3370	20 /0	
		2070	11 /0	2070							•	•	
QUEENSTOWN VOLUMES 1998	2002	2070	1170	2070									
QUEENSTOWN VOLUMES 1998	<b>2002</b> Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	. <u> </u>
QUEENSTOWN VOLUMES 1998 MONTH DAYS	<b>2002</b> Jan-02 29	Feb-02	Mar-02 31	Apr-02 30	May-02	Jun-02 30	Jul-02 31	Aug-02 32	Sep-02 30	Oct-02	Nov-02	Dec-02	]
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA	<b>2002</b> Jan-02 29	Feb-02 28	Mar-02 31	Apr-02 30	May-02 31	Jun-02 30	Jul-02 31	Aug-02 32	Sep-02 30	Oct-02 3	Nov-02 0 3	Dec-02	3
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI	2002 Jan-02 29 Jan-02	Feb-02 28 Feb-02	Mar-02 31 Mar-02	Apr-02 30 Apr-02	May-02 31 May-02	Jun-02 30 Jun-02	Jul-02 31 Jul-02	Aug-02 32 Aug-02	Sep-02 30 Sep-02	Oct-02 3 Oct-02	Nov-02 0 3	Dec-02 0 28 Dec-02	] 3 TOTAL
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION	2002 Jan-02 29 Jan-02 621098	Feb-02 28 Feb-02 689063	Mar-02 31 Mar-02 609184	Apr-02 30 Apr-02 635000	May-02 31 May-02 617758	Jun-02 30 Jun-02 606104	Jul-02 31 Jul-02 563112	Aug-02 32 Aug-02 571499	Sep-02 30 Sep-02 538932	Oct-02 3 Oct-02 615910	Nov-02 0 3 Nov-02 627047	Dec-02 0 28 Dec-02 593507	TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW	2002 Jan-02 Jan-02 621098 621057	Feb-02 28 Feb-02 689063 674970	Mar-02 31 Mar-02 609184 603156	Apr-02 30 Apr-02 635000 626985	May-02 31 May-02 617758 614368	Jun-02 30 Jun-02 606104 569518	Jul-02 31 Jul-02 563112 563322	Aug-02 32 Aug-02 571499 575529	Sep-02 30 Sep-02 538932 536619	Oct-02 3 Oct-02 615910 612276	Nov-02 0 3 Nov-02 627047 627047	Dec-02 0 28 Dec-02 593507 593507	] 3 TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER OUD	2002 Jan-02 29 Jan-02 621098 621057 624262 520204	Feb-02 28 Feb-02 689063 674970 684777	Mar-02 31 Mar-02 609184 603156 627290	Apr-02 30 Apr-02 635000 626985 650725	May-02 31 May-02 617758 614368 594477	Jun-02 30 Jun-02 606104 569518 590618	Jul-02 31 Jul-02 563112 563322 578290	Aug-02 32 Aug-02 571499 575529 583060	Sep-02 30 538932 536619 542094	Oct-02 3 Oct-02 615910 612276 582644	Nov-02 Nov-02 627047 627047 647798	Dec-02 0 28 <u>Dec-02</u> <u>593507</u> 593507 593507	] ] TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD OUTENSTOWN	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 273255	Feb-02 28 Feb-02 689063 674970 684777 464774	Mar-02 31 Mar-02 609184 603156 627290 463777 246820	Apr-02 30 Apr-02 635000 626985 650725 524767 200128	May-02 31 617758 614368 594477 501202 200660	Jun-02 30 Jun-02 606104 569518 590618 444344 246566	Jul-02 31 563112 563322 578290 413834 20017	Aug-02 32 571499 575529 583060 472962	Sep-02 30 538932 536619 542094 414776 20221	Oct-02 3 0 Oct-02 615910 612276 582644 445247 250469	Nov-02 0 3 <u>Nov-02</u> <u>627047</u> 627047 647798 443515 246744	Dec-02 0 28 593507 593507 596427 513887 270442	] 3 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MULINCIEL	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 120070	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510	May-02 31 May-02 617758 614368 594477 501202 296669 110570	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900	Jul-02 31 563112 563322 578290 413834 229917 132660	Aug-02 32 571499 575529 583060 472962 258082 126510	Sep-02 30 538932 536619 542094 414776 226321 110460	Oct-02 3 0 Oct-02 615910 612276 582644 445247 250468 125020	Nov-02 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Dec-02 0 28 593507 593507 596427 513887 279142 137640	] 3 1 TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI aZEREI ENI	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 130390	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780	Apr-02 30 635000 626985 650725 524767 309128 144510 120300	May-02 31 May-02 617758 614368 594477 501202 296669 119570 115380	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675	Aug-02 32 571499 575529 583060 472962 258082 126510 153880	Sep-02 30 538932 536619 542094 414776 226321 119460 153661	Oct-02 3 0 Oct-02 615910 612276 582644 445247 250468 125020 154997	Nov-02 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Dec-02 0 28 593507 593507 596427 513887 279142 137610 155914	] 3 <b>TOTAL</b> 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716	Mar-02 31 099184 603156 627290 463777 246829 132590 116780 339410	Apr-02 30 635000 626985 650725 524767 309128 144510 120300 343588	May-02 31 617758 614368 594477 501202 296669 119570 115380 290706	Jun-02 30 506104 569518 590618 444344 246566 129900 151381 336942	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347	Oct-02 3 0 0ct-02 615910 612276 582644 445247 250468 125020 154927 302279	Nov-02 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Dec-02 0 28 593507 593507 596427 513887 279142 137610 155914 281295	] 3 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 132590 116780 339410 4000557	Apr-02 30 635000 626985 650725 524767 309128 144510 120300 343588	May-02 31 617758 614368 594477 501202 296669 119570 115380 290706	Jun-02 30 569518 590618 444344 246566 129900 151381 336942	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347	Oct-02 3 0 Cct-02 615910 612276 582644 445247 250468 125020 154927 302279	Nov-02 0 3 627047 627047 647798 443515 246711 130030 156675 296503	Dec-02 0 28 593507 593507 596427 513887 279142 137610 155914 281295	] ] 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 132590 116780 339410 4000557	Apr-02 30 635000 626985 650725 524767 309128 144510 120300 343588	May-02 31 617758 614368 594477 501202 296669 119570 115380 290706	Jun-02 30 606104 569518 590618 444344 246566 129900 151381 336942	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347	Oct-02 3 0 Cct-02 615910 612276 582644 445247 250468 125020 154927 302279	Nov-02 0 3 627047 627047 647798 443515 246711 130030 156675 296503	Dec-02 0 28 593507 593507 596427 513887 279142 137610 155914 281295	] ] 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 132590 116780 339410 4000557 Mar-02	Apr-02 30 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02	May-02 31 617758 614768 594477 501202 296669 119570 115380 290706 May-02	Jun-02 30 569518 590618 444344 246566 129900 151381 336942 Jun-02	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 Sep-02	Oct-02 3 0 Cct-02 615910 612276 582644 445247 250468 125020 154927 302279 0Cct-02	Nov-02 0 3 0 27047 627047 647798 443515 246711 130030 156675 296503 Nov-02	Dec-02 0 28 593507 593507 596427 513887 279142 137610 155914 281295	] 3 7288214 -
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI ¢ZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 132590 116780 339410 4000557 Mar-02 609184	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000	May-02 31 May-02 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758	Jun-02 30 30 30 30 30 30 30 30 40 44 34 369 44 34 369 44 34 369 42 369 42 369 42 369 42 369 42 369 42 369 42 369 42 369 50 50 50 50 50 50 50 50 50 50 50 50 50	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 Aug-02 571499	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 Sep-02 538932	Oct-02 3 0ct-02 615910 612276 582644 445247 250468 125020 154927 302279 Oct-02 615910	Nov-02 0 3 Nov-02 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047	Dec-02 0 26 593507 593507 59427 513887 279142 137610 155914 281295 Dec-02 593507	] ] TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDUM	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063	Mar-02 31 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 456776	May-02 31 May-02 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758	Jun-02 30 30 30 30 30 30 30 40 40 44 44 44 599518 590618 444366 129900 151381 336942 336942 34094 38094 38094 38094 38094	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 345112	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 Aug-02 571499 321499	Sep-02 30 538932 536619 542094 41476 226321 119460 153661 324347 Sep-02 538932 297932	Oct-02 3 Oct-02 615910 612276 582644 445247 250468 125020 154927 302279 Oct-02 615910 275311	Nov-02 0 3 0 0 0 0 0 3 0 0 0 0 0 0 0 0 0 0 0	Dec-02 0 26 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607	] ] TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 4000	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 0000	May-02 31 May-02 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758 229000	Jun-02 30 30 30 30 30 30 30 44434 44434 44566 129900 151381 336942 336942 300 406104 358104 248000	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 Aug-02 571499 321499 220000	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 Sep-02 538932 297932 297932 297932	Oct-02 3 0ct-02 615910 612276 582644 445247 250468 125020 154927 302279 0ct-02 615910 275311 340599 0cf/	Nov-02 0 3 27047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 31290 312957	Dec-02 0 28 Dec-02 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900	] 3 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI @ZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY PONGOL DAM CAPACITY	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000 100%	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 386000 100%	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90%	May-02 31 May-02 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758 290000 95% 9092	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 358104 248000 90% 90%	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 00%	Aug-02 32 571499 575529 583060 472962 258082 126510 126510 125630 351263 4000 571499 321499 250000 90%	Sep-02 30 536932 536619 542094 414776 226321 119460 153661 324347 Sep-02 538932 297932 241000 95% 90%	Oct-02 3 0ct-02 615910 612276 582644 445247 250468 125020 154927 302279 0ct-02 615910 275311 340599 95%	Nov-02 0 3 27047 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90%	Dec-02 0 28 Dec-02 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 90%	- -
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000 100%	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063 386000 100%	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100%	May-02 31 May-02 617758 614368 594477 501202 296669 119570 119570 119570 119570 119570 119570 119570 617758 327758 290000 95% 90%	Jun-02 30 Jun-02 606104 569518 590618 444344 246060 129900 151381 336942 Jun-02 606104 388104 248000 90% 90%	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90%	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 571499 321499 250000 90% 90% 95%	Sep-02 30 538932 536619 542094 414776 226321 119460 119460 1132661 324347 Sep-02 538932 207932 241000 95% 90%	Oct-02         3           Oct-02         615910           612276         582644           445247         250468           125020         154927           302279         0           Oct-02         615910           275311         340599           95%         90%           100%         100%	Nov-02 0 3 0 27047 627047 627047 647798 443515 246711 130030 156675 296503 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Dec-02 0 28 Dec-02 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95%	7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER IMPORTATION RAW WATER IMPORTATION QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000 100% 100% 87	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 386000 100% 100% 88	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 78	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 106	May-02 31 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758 290000 95% 90% 100% 100%	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 <u>358104</u> <u>248000</u> 90% 90% 100% 57	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 90% 57	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 4ug-02 571499 2250000 90% 90% 90% 82	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 538932 241000 95% 90% 100% 77	Oct-02         3           Oct-02         615910           612276         582644           445247         250468           125020         154927           302279         0           Cot-02         615910           275311         3405999           95%         90%           100%         76	Nov-02 0 3 27047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90% 90% 100% 68	Dec-02 0 28 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 90% 68	] ] 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER IMPORTATION RAW WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000 100% 100% 87 621057	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063 303063 303063 303063 100% 100% 88 674970	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 78 603156	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 106 626985	May-02 31 617758 614368 594477 501202 296669 119570 119570 115380 290706 May-02 617758 327758 290000 95% 90% 100% 106 614368	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 288000 90% 90% 100% 57 57	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 90% 95% 57 563322	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 4449 2571499 2571499 321499 250000 90% 90% 90% 82 575529	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 Sep-02 538932 297932 297932 297932 297932 297935 297935 297936 241000 95% 90% 100% 77 77 536619	Oct-02 3 Oct-02 615910 612276 582644 445247 250468 125020 154927 302279 Oct-02 615910 275311 340599 95% 90% 100% 76 612276	Nov-02 0 3 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90% 100% 68 627047	Dec-02 0 28 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 90% 95% 68 593507	- - - - - - - - - - - - - - - - - - -
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QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI ¢ZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 24098 301098 301098 30000 100% 100% 100% 87 621057 624262 80820	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 3386000 100% 100% 100% 88 674970 684777 84430	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 100% 100% 78 603156 627290 78400	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 106 626985 650725 82080	May-02 31 May-02 617758 614368 594477 501202 296669 119570 115380 290706 700 115380 290706 7158 327758 290000 95% 327758 290000 95% 100% 106 614368 594477 78250	Jun-02 30 Jun-02 606104 569518 500618 444344 246566 129900 151381 336942 Jun-02 606104 <b>358104</b> <b>248000</b> 90% 90% 100% 57 569518 590618 82710	Jul-02 31 Jul-02 563112 563322 578290 413832 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 95% 57 563322 57 563322 578290 95% 57 57	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 351263 4 4ug-02 571499 321499 250000 90% 90% 95% 82 575529 583060 75770	Sep-02 30 538932 536619 542094 41476 226321 119460 153661 324347 Sep-02 538932 297932 241000 95% 100% 77 536619 542094 76830	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           90%           100%           76           612276           582644           76240	Nov-02 0 3 Nov-02 627047 627047 647798 246711 130030 156675 296503 Nov-02 627047 312190 314857 90% 100% 68 627047 647798 70660	Dec-02 0 26 593507 593507 59427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 90% 95% 68 593507 596427 57890	- - - - - -
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QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 341652 10750 341652 10750 301098 320000 100% 87 621057 624262 80820 137052 110310 166110 129970 509664	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063 386000 100% 100% 88 674970 684777 84430 163577 125110 170680 140980	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 78 603156 627290 78400 159040 109950 147310 132590	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 106 626985 650725 82080 166485 106640 151010 144510 1504767	May-02 33 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758 290000 95% 90% 100% 106 614368 594477 78250 142327 109920 144410 119570	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 358104 248000 90% 90% 57 569518 590618 82710 139218 101920 136870 129904 144344	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 90% 57 563322 578290 95% 57 563322 578290 78070 134270 98700 134250 134250	Aug-02 32 571499 575529 583060 472962 258082 126510 126510 126510 472962 258082 126510 126510 90% 90% 90% 82 575529 583060 75770 144560 144560	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 Sep-02 538932 297932 241000 95% 90% 77 536619 542094 76830 110464 109530 125810 119460	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           95%           90%           100%           76           612276           582644           76204           136934           101700           142750           1250202	Nov-02 0 3 Nov-02 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90% 100% 68 627047 647798 70660 177568 115500 154040 130030 442545	Dec-02 0 28 Dec-02 593507 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 68 593507 596427 598427 57890 148677 108300 143950 137610 143950	]       ]       ]       ]       7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI @ZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA WATER SOLD RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK @ZEBELENI MLUNGISI WATER SOLD ACTUAL OULEVEL HIGH LEVEL (300) FINCHAMS NEK @ZEBELENI MLUNGISI WATER SOLD ACTUAL OULEFINSTOWN	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000 100% 100% 100% 87 621057 624262 80820 137052 110310 166110 129970 508661 273355	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063 3386000 100% 100% 88 674970 684777 84430 163577 125110 170680 140980 140980	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 100% 100% 100% 100% 100%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 100% 106 626985 650725 82080 166485 106640 151010 144510 151010 144510	May-02 31 May-02 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758 290000 95% 90% 100% 106 614368 594477 78250 142327 10920 144410 119570 501202 2966650	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 358104 248000 90% 90% 57 569518 590618 82710 139218 139218 139218	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 90% 57 563322 578290 78070 134270 98700 134270 98700 134250 134250 134260	Aug-02 32 571499 575529 583060 472962 258082 126510 126510 126510 90% 90% 90% 90% 9250000 90% 90% 82 571499 321499 250000 90% 95% 82 575529 583060 75770 144560 104620 131600 126510 472962 258082	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 Sep-02 538932 297932 241000 95% 90% 100% 77 536619 542094 77630 542094 77536619 542094 110464 109530 125810 119460 414776	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           95%           90%           100%           6           612276           582644           76           612276           582644           76           136934           136934           136934           101700           142750           125020	Nov-02 0 3 Nov-02 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90% 90% 100% 68 627047 647798 70660 177568 115500 154040 130030 443515 246711	Dec-02 0 28 Dec-02 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 68 593507 596427 5936427 593507 148677 108300 143950 137610 513887 279142	- - - - - - - - - - - - - - - - - - -
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER IMPORTATION RAW WATER IMPORTATION QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BCNRY D	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 320000 100% 100% 100% 87 621057 624262 80820 137052 110310 166110 129970	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063 386000 100% 100% 100% 100% 100% 100% 100%	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 100% 100% 78 603156 627290 78400 109950 147310 132590 463777 246829 132590	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 100% 106 626985 650725 82080 166485 106640 151010 144510 524767 309128 144510	May-02 31 May-02 617758 614368 594477 501202 296669 119570 119570 290706 May-02 617758 327758 290000 95% 90% 100% 100% 100% 100% 100% 100% 100%	Jun-02 30 Jun-02 606104 569518 590618 444344 246506 129900 151381 336942 Jun-02 606104 388104 248000 90% 100% 57 569518 590618 82710 139218 101920 136870 129900 444344 226566	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 90% 57 563322 578290 78070 134270 98700 134270 98700 134270 98700 134590 132660 413834 229917	Aug-02 32 Aug-02 571499 575529 583060 472962 258082 126510 153680 351263 72563 2571499 321499 250000 90% 90% 90% 90% 82 5715529 583060 75770 144560 131600 126510 472962 258082 126510	Sep-02 30 538932 536619 542094 414776 226321 119460 119460 95% 90% 100% 77 536619 538932 237932 241000 95% 90% 100% 77 7536619 542094 76830 110464 109530 125810 119460 414776 226321 119460	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           95%           90%           100%           6           582644           76240           136934           101700           142750           125020           445247           250468           125020	Nov-02 0 3 Nov-02 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90% 90% 100% 68 627047 647798 70660 177568 115500 154040 130030 443515 246711 130030	Dec-02 0 28 Dec-02 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 68 593507 596427 57890 95% 68 593507 148677 108300 143950 137610 513887 279142 137610	TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER IMPORTATION RAW WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BERY DAM CAPACITY BERRY DAM CAPACI	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 508661 100% 100% 100% 100% 100% 100% 100% 1	Feb-02 28 Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063 303063 303063 303063 303063 100% 100% 88 674970 684777 84430 100% 88 674970 684777 125110 170680 140980 140980 140980 134740	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 100% 100% 100% 100% 100%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 106 626985 650725 82080 166485 106640 151010 144510 1524767 309128 144510 120300	May-02 31 617758 614368 594477 501202 296669 119570 115380 290706 017758 290706 017758 290706 0115380 290706 015380 90% 100% 105 614368 594477 78250 142327 109920 142410 119570 501202 296669 119570 119570	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 Jun-02 606104 388104 248000 90% 90% 100% 57 569518 590618 82710 139870 129900 444344 246566 129900 144344 246566 129900 151381	Jul-02 31 563112 563312 578290 413834 229917 132660 413834 229917 132660 90% 90% 90% 90% 90% 90% 90% 90% 90% 90	Aug-02 32 Aug-02 571499 575529 583060 472962 258082 126510 133680 351263 Aug-02 571499 321499 250000 90% 90% 90% 90% 90% 925% 82 575529 583060 75770 144560 134600 136000 136000 136000 136000 136000 136000	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 538932 241000 95% 90% 100% 77 77 536619 542094 76830 110464 109530 125810 119460 119460 119460	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           95%           90%           100%           76           612276           582644           76240           136934           101700           125020           445247           250468           125020           124027           125020           125020           125020           125020           125020           125020           125020           125020	Nov-02 0 3 Nov-02 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90% 100% 68 627047 647798 70660 177568 115500 154040 130030 443515 246711 130030 156675	Dec-02 0 28 593507 593507 593507 593507 593507 593507 593507 155914 281295 Dec-02 593507 269607 323900 95% 90% 95% 68 593507 596427 57890 148677 108300 143950 148677 108300 143950 137610 513887 279142 137610	TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - METERED	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 2000 100% 301098 320000 100% 100% 100% 100% 87 621057 624262 80820 137052 110310 166110 129970 508661 272355 129970 132290 132648	Feb-02 689063 674970 684777 464774 266284 140980 134740 397716 Feb-02 689063 303063 303063 386000 100% 100% 88 674970 684777 84430 163577 125110 170680 140980 464774 266284 140980 134740 109664	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 78 603156 627290 78400 159040 109950 147310 132590 1463777 246829 132590 1467877 246829 132590 146780 123841	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 106 626985 650725 82080 166485 106640 151010 144510 524767 309128 144510 120300 131576	May-02 31 May-02 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758 290700 115380 100% 106 614368 594477 78250 142327 109920 144410 119570 501202 296669 119570 115380 118538	Jun-02 30 Jun-02 606104 569518 500618 444344 246566 129900 151381 336942 Jun-02 606104 <b>358104</b> <b>248000</b> 90% 90% 100% 57 569518 82710 139218 101920 136870 129900 444344 246566 129900 444344 246566 129900 151381 118031	Jul-02 31 Jul-02 563112 563322 578290 413832 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 95% 57 563322 578290 90% 95% 57 563322 578290 78070 134270 98700 134270 98700 134260 132660 413834 229917 132660 132660 132660 132660 132660	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 51263 40000 90% 90% 90% 90% 95% 82 575529 583060 75770 144560 75770 144560 75770 144560 126510 126510 126510 126510	Sep-02 30 Sep-02 538932 536619 542094 414762 26321 119460 153661 324347 Sep-02 538932 297932 241000 95% 100% 77 536619 542094 100% 77 536619 542094 100% 77 536619 542094 100% 77 536619 100% 100% 77 536619 100% 100% 100% 100% 110464 109530 110464 109530 110464 109530 110464 109530 110466 119460 110671 119460 110671 119460 110671 119460 110671 119460 110671 119460 11067 11067 11067 11067 110464 119460 119460 11067 110464 119460 119460 110464 119460 110464 119460 119460 110661 110464 119460 110464 119460 110464 119460 119460 110464 119460 119460 110464 119460 119460 119460 110661 119460 110464 119460 11967 11967 11967 11967 11967 11967 11967 11967 11967 11967 11967 11967 11967 11967 11975 110	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           90%           100%           76           612276           582644           126020           142750           1250200           445247           250468           125020           1445207           154927           114129	Nov-02 0 3 Nov-02 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 90% 100% 68 627047 312190 314857 90% 100% 68 627047 647798 70660 177568 115500 156675 246711 130030 443515 246711 130030 156675 110200	Dec-02 0 26 593507 593507 593507 59427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 90% 95% 68 593507 269607 323900 95% 90% 95% 68 593507 596427 57890 148677 108300 143950 137610 513887 279142 137610	TOTAL 7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BORGOLA DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - METERED eZEBELENI - METERED	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 24098 301098 320000 100% 100% 100% 100% 100% 100% 100%	Feb-02           28           Feb-02           689063           674970           684777           464774           266284           140980           134740           397716           Feb-02           689063           303063      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QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATER DOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY HIGH LEVEL HIGH LEVEL HIGH LEVEL UNUFISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - BULK MLUNGIN - BULK MLUNGIN - BULK MLUNGIN - BULK	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 40750 621098 301098 320000 100% 100% 100% 100% 87 621057 624262 80820 137052 110310 166110 129970 132390 132648 103658 -1% 0%	Feb-02           28           Feb-02           689063           674970           684777           464774           266284           140980           134740           397716           Feb-02           689063           303063           303063           386000           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           103577           125110           170680           140980           134740           109664           8826           -1%           2%	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 100% 78 603156 627290 78400 10950 147310 12590 147310 12590 147310 12590 116780 123841 93107 -4% 1%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100%	May-02 31 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758 290706 95% 90% 100% 100% 100% 100% 100% 100% 100%	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 <b>358104</b> <b>248000</b> 90% 90% 100% 57 569518 590618 82710 10920 138870 129900 129900 129900 129900 151381 118031 79747 79747 4% 6%	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 245000 90% 90% 95% 57 563322 578290 78070 134270 98700 134270 98700 134590 134270 98700 134590 134590 132660 413834 413834 229917 132660 151675 108303 75614 33% 0%	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 Aug-02 571499 321499 250000 90% 925% 82 575529 583060 75770 144560 104620 131600 126510 1445610 144560 104620 131600 126510 144560 144560 126510 144560 126510 144560 126510 144560 126510 144560 126696 88184 17% -1%	Sep-02 30 538932 536619 542094 4147261 119460 153661 324347 Sep-02 538932 297932 241000 95% 90% 77 536619 95% 100% 77 536619 542094 76830 100% 77 536619 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 110464 109530 125810 109530 110464 109530 1007 109530 100550 109550 1005500 100550 100550 1005500 10	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           95%           90%           100%           76           612276           582644           76240           136934           101700           142750           125020           445247           250468           125020           154927           114129           80650           5%           1%	Nov-02           0         3           Nov-02         627047           647798         443515           246711         130030           156675         296503           Nov-02         627047           627047         312190           314857         95%           90%         100%           68         627047           647798         70660           177568         115500           154040         130030           156675         110200           6604         -3%           0%         0%	Dec-02 0 28 Dec-02 593507 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 68 593507 269607 323900 95% 68 593507 57890 148677 108300 143950 137610 143950 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 143950 137610 137610 143950 137610 143950 137610 143950 137610 143950 1440 143950 143950 1440 143950 1440 143950 1440 143950 1440 143950 1440	
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BORGOLA DAM CAPACITY BORGOLA DAM CAPACITY BORGOLA DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI - BULK eZEBELENI - BULK eZEBELENI - BULK MLUNGISI - BULK EZEBELENI - BULK MLUNGISI - BULK EZEBELENI - METERED LOSS IN WTW LOSS UPTO WTW LOSS IN NETWORK (HL & LL & FN)	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000 100% 100% 87 621057 624262 80820 100% 100% 87 621057 624262 80820 137052 110310 166110 129970 132390 132648 103658 -1% 0% 225%	Feb-02           28           Feb-02           689063           674970           684777           464774           266284           140980           134740           397716           Feb-02           689063           303063           303063           386000           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           140980           134740           109664           88266           -1%           2%           35%	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 100% 100% 100% 100% 100%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 106 626985 650725 82080 166485 106640 151010 144510 166485 106640 151010 144510 120300 131576 84063 -4% 1% 20%	May-02 33 617758 614368 594477 501202 296669 296669 290706 119570 115380 290706 00% 100% 100% 100% 100% 100% 100% 100	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 358104 248000 90% 90% 90% 57 569518 590618 82710 100% 57 569518 590618 82710 100% 57 569518 101920 136870 129900 1444344 101920 136870 129900 151381 118031 79747 4% 6% 20%	Jul-02 31 Jul-02 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 245000 90% 90% 90% 95% 57 563322 578290 78070 134270 98700 134270 98700 134270 98700 134590 134590 134270 98700 134590 134590 134660 134270 98700	Aug-02 32 571499 575529 583060 472962 258082 126510 153680 351263 Aug-02 571499 321499 250000 90% 90% 90% 82 575529 583060 75770 90% 82 575529 583060 104620 131600 126510 144560 104620 131600 126510 144560 144560 104620 126510 144560 104620 126510 144560 104620 126510 145500 126696 88184 -1% -1%	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 538932 297932 241000 95% 90% 77 536619 542094 76830 100% 777 536619 542094 76830 110464 109530 125810 110464 109530 125810 119460 153661 109530 128810 1095 1095 1095 1095 1095 1095 1095 10	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           95%           90%           100%           76           612276           582644           76240           136934           101700           142750           125020           445247           250468           125020           154927           114129           80650           5%           1%           17%	Nov-02           0         3           Nov-02         627047           647798         443515           246711         130030           156675         296503           Nov-02         627047           627047         312190           314857         95%           90%         100%           68         627047           647798         70660           177568         115500           154040         130030           156675         110200           86604         -3%           0%         32%	Dec-02 0 28 Dec-02 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 68 593507 269607 323900 95% 68 593507 57890 148677 108300 143950 137610 155914 155914 108300 143950 155914 137610 155914	I       TOTAL         7288214       7288214
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI - BULK eZEBELENI - METERED QUEENSTOWN MLUNGISI - BULK eZEBELENI - METERED LOSS IN WTW LOSS UPTO WTW LOSS TOWN RUNNING AVE ( 3 mths )	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000 100% 100% 87 621057 624262 80820 137052 110310 166110 129970 132390 132648 103658 -1% 0% 25% 28%	Feb-02           28           Feb-02           689063           674970           684777           464774           266284           140980           134740           397716           Feb-02           689063           303063           386000           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           140980           140980           134740           109664           88266           -1%           2%           35%           28%	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 100% 100% 100% 78 603156 627290 78400 159040 109950 147310 152590 147310 132590 147310 132590 116780 123841 93107 -4% 1% 35% 31%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100% 106 626985 650725 82080 166485 106640 151010 144510 166640 151010 144510 120300 131576 84063 -4% 1% 20% 30%	May-02 31 617758 614368 594477 501202 296669 119570 115380 290706 705 617758 327758 290000 95% 90% 100% 106 614368 594477 78250 142327 109920 144410 119570 501202 296669 119570 115380 119570 115380 119570	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 358104 246566 100% 90% 90% 90% 90% 57 569518 590618 82710 139218 101920 136870 129900 151381 101920 136870 129900 151381 118031 79747 -4% 6% 20% 20%	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 90% 90% 95% 57 563322 578290 95% 57 563322 578290 78070 134270 98700 134590 132660 134590 132660 134559 132660 151675 108303 75614 -3% 0% 229% 22%	Aug-02 32 571499 575529 583060 472962 258082 126510 126510 126510 90% 90% 92571499 321499 250000 90% 90% 92571499 321499 250000 90% 90% 82 575529 583060 126510 144560 144560 144560 144560 144560 144560 144560 144560 126510 153680 126510 153680 126510 153680 126500	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 538932 297932 241000 95% 90% 100% 77 536619 542094 76830 110464 109530 125810 119460 153661 109530 125810 119460 153661 109530 1095 1095 1095 1095 1095 1095 1095 109	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           95%           90%           100%           6           612276           582644           766           612276           582644           76200           136934           101700           142750           1250200           154927           114129           80650           5%           1%           17%           255468	Nov-02 0 3 Nov-02 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90% 100% 68 627047 647798 70660 177568 115500 154040 130030 443515 246711 130030 156675 110200 86604 -3% 0% 32% 25%	Dec-02 0 28 Dec-02 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 68 593507 269607 323900 95% 68 593507 596427 57890 90% 95% 68 593507 148677 108300 143950 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 155914 137610 598427 279142 137610 143950 143950 143950 143950 143950 143950 143950 143950 143950 143950 143950 143950 143950 143950 155914 279142 137610 143950 155914 137610 155914 1	
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER INTO WTW TREATED WATER WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY RAW WATER SOLD RAW INTO WTW (BERRY) ACTUAL TREATED WATER ACTUAL LOW LEVEL HIGH LEVEL (300) FINCHAMS NEK eZEBELENI MLUNGISI - BULK eZEBELENI - BULK MLUNGISI - METERED eZEBELENI - METERED LOSS IN NETWORK (HL & LL & FN) LOSS IN MLUNGISI	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 10750 Jan-02 621098 301098 320000 100% 100% 100% 100% 100% 100% 87 621057 624262 80820 137052 110310 166110 129970 132970 132648 103658 103658 11% 00% 25% 28% -2%	Feb-02           28           Feb-02           689063           674970           684777           464774           266284           140980           134740           397716           Feb-02           689063           303063           303063           303063           303063           303063           386000           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           140980           134740           109664           88826           -1%           2%           35%           28%           22%	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452584 156600 100% 100% 100% 100% 100% 100% 100%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100%	May-02 31 617758 614368 594477 501202 296669 296669 219570 119570 115380 290706 617758 327758 290000 95% 290706 617758 327758 290000 95% 90% 100% 100% 100% 1006 614368 594477 78250 142327 10920 144410 119570 115380 119570 115380 119570 115380 119570 119570	Jun-02 30 Jun-02 606104 569518 590618 444344 246566 129900 151381 336942 Jun-02 606104 358104 248000 90% 100% 57 569518 590618 82710 139218 590618 82710 139218 590618 82710 139218 139218 139218 139218 139218 139218 139218 139200 151381 139218 139200 151381 139218 139200 151381 139218 590618 82710 139218 139218 590618 82710 139218 139218 590618 82710 139218 139218 5906 5907 590	Jul-02 31 563112 563322 578290 413834 229917 132660 151675 342372 Jul-02 563112 318112 245000 90% 90% 90% 90% 95% 57 563322 578290 78070 134270 98700 134270 98700 134270 98700 134260 134270 98700 134260 134260 134270 98700 13228 122600 13228 122600 13228 122600 13228 122600 13228 1226000 1226000 12260000000000	Aug-02 32 Aug-02 571499 575529 583060 472962 258082 126510 125510 125510 90% 90% 90% 90% 90% 90% 90% 90% 90% 90	Sep-02 30 538932 536619 542094 414776 226321 119460 153661 324347 Sep-02 538932 297932 241000 95% 90% 100% 77 536619 542094 775 36619 542094 775 36619 109530 110464 109530 125810 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 119460 153661 109530 1095 1095 1095 1095 1095 1095 1095 109	Oct-02           3           Oct-02           615910           612276           582644           445247           250468           125020           154927           302279           Oct-02           615910           275311           340599           95%           90%           100%           6           612276           582644           766           612276           582644           762           136934           101700           142750           125020           154927           114129           80650           5%           1%           1%           1%           1%	Nov-02 0 3 Nov-02 627047 627047 627047 647798 443515 246711 130030 156675 296503 Nov-02 627047 312190 314857 95% 90% 90% 100% 68 627047 647798 70660 177568 115500 154040 130030 443515 100% 68 627047 647798 70660 177568 115500 154040 130030 443515 100% 68 627047 647798 70660 177568 115500 156675 110200 86604 -3% 0% 32% 25% 15%	Dec-02 0 28 Dec-02 593507 593507 593507 596427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 68 593507 269607 323900 95% 68 593507 596427 57890 90% 95% 68 593507 148677 108300 143950 137610 1	
QUEENSTOWN VOLUMES 1998 MONTH DAYS VOLUME DATA VOLUME DATA VOLUME IN KI RAW WATER IMPORTATION RAW WATER IMPORTATION RAW WATER IMPORTATION RAW WATER SOLD QUEENSTOWN MLUNGISI eZEBELENI SEWAGE TREATED WATER BALANCE VOLUME IN KI RAW WATER IMPORTATION ACTUAL WATERDOWN DAM CAPACITY BONGOLA WATERDOWN DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BONGOLA DAM CAPACITY BERRY DAM CAPACITY BULK 4ZEBELENI MLUNGISI WATER SOLD ACTUAL QUEENSTOWN MLUNGISI - METERED eZEBELENI - METERED EZEBELENI - METERED LOSS IN NETWORK (HL & LL & FN) LOSS IN MELUNGISI LOSS IN MELUNGISI LOSS IN MELUNGISI LOSS IN LEZIBELENI TATAL 1000	2002 Jan-02 29 Jan-02 621098 621057 624262 508661 272355 129970 132390 341652 Jan-02 621098 301098 301098 30000 100% 100% 100% 100% 100% 100% 100	Feb-02           28           Feb-02           689063           674970           684777           464774           266284           140980           134740           397716           Feb-02           689063           303063           303063           386000           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           100%           140980           134740           109664           8826           -1%           2%           35%           28%           22%           34%           22%           34%	Mar-02 31 Mar-02 609184 603156 627290 463777 246829 132590 116780 339410 4000557 Mar-02 609184 452554 156600 100% 100% 100% 100% 100% 100% 100%	Apr-02 30 Apr-02 635000 626985 650725 524767 309128 144510 120300 343588 Apr-02 635000 454716 180284 95% 90% 100%	May-02 617758 614368 594477 501202 296669 119570 115380 290706 May-02 617758 327758 290000 95% 90% 100% 106 614368 594477 78250 142327 109920 144410 501202 296669 119570 115380 290706 119570 19	Jun-02 30 Jun-02 606104 569518 500618 444344 246566 129900 151381 336942 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125020           125020           154927           114129           80650           5%           1%           17%           9%           48%	Nov-02           0         3           Nov-02         627047           627047         627047           627047         627047           643515         246711           130030         156675           296503         90%           100%         68           627047         312190           314857         95%           90%         100%           68         627047           15506         177568           115500         154040           130030         443515           246711         130030           156675         110200           86604         -3%           0%         32%           25%         15%           45%         90%	Dec-02 0 26 Dec-02 593507 593507 593507 59427 513887 279142 137610 155914 281295 Dec-02 593507 269607 323900 95% 90% 95% 90% 95% 68 593507 269607 323900 95% 90% 95% 90% 95% 148677 108300 143670 143670 143670 143670 143670 143670 143670 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## **ADDENDUM 1.2**

**Releases from Dams for Irrigation and Urban Supply Purposes** 

#### **RELEASES OUT OF DAMS FOR IRRIGATION PURPOSES : 1995 TO 2003**

	WATERDOWN DAM		WATERDOWN DAM		WATERDOWN DAM		WATERDOWN DAM		OXKRAAL DAM	BUSHMANSKRANTZ DAM	THRIFT DAM	LIMIETSKLOOF DAM	XONXA DAM	TOTAL FOR ALL THE DAMS
DATE	m³	i	m³	m³	m³	m³	m³	m³						
	Irrigation Releases	Domestic Releases	Irrigation Releases	Irrigation Releases	Irrigation Releases	Irrigation Releases	Irrigation Releases	Irrigation Releases						
1995	13 878 107	7 702 279	0	0	0	0	0	21 580 386						
1996	16 213 041	7 375 715	0	0	0	0	0	23 588 756						
1997	17 950 038	7 704 849	0	0	0	0	0	25 654 887						
1998	13 377 882	8 851 051	0	0	0	0	0	22 228 933						
1999	13 092 498	8 302 161	5 245 838	0	0	0	0	26 640 497						
2000	6 015 923	6 411 962	0	0	0	0	0	12 427 885						
2001	1 166 752	6 205 334	4 019 448	0	0	0	0	11 391 534						
2002	908 956	6 413 534	5 047 416	0	0	0	0	12 369 906						
2003	181 896	2 712 612	4 324 749	0	0	0	0	7 219 257						
TOTAL	82 785 093		<b>18</b> 637 <b>451</b>	0	0	0	0	163 102 041						

Source : DWAF Eastern Cape Region

Note : Domestic releases from Waterdown Dam are for the water supplies to Queenstown and Sada.