THE WATER AUTHORITY
OF THE CAYMAN ISLANDS

ANNUAL REPORT
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The Ministry of Agriculture, Environment, Communication and Works

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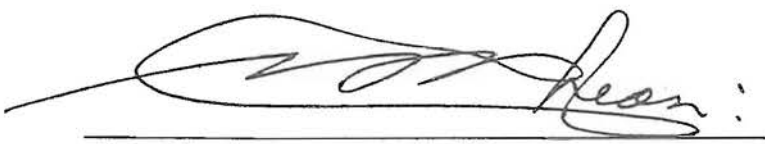
A Message from
The Minister of Agriculture, Environment, Communication and Works

The Water Authority is a vital part of this country's infrastructure and I am very pleased that Government decided in October to return ministerial responsibility for the Authority to the Ministry of Works. As a farmer I am keenly aware that water is life, and remember a time not too long ago when people were in need of what we take for granted in our busy lives today. It is important that everyone in this prosperous country has equal access to fresh water and proper sanitation facilities. It is also important that our environment is protected from the adverse effects of over-exploitation of fresh water resources and the improper disposal of wastewater so that our children and grandchildren can enjoy Cayman's natural beauty just as we do today.

I have closely followed the progress of the Authority over the years and believe that it is a very solid and well-managed public utility. Several of my staff in the Ministry have in fact served as members of the Board in the past, and therefore have a good understanding of the Authority's mission and operations. Government remains committed to support the plans and work of the Authority, and any changes which have occurred in the directorship of the company do not portend changes in the Authority's long-term business plan. I am personally very excited about chairing the Water Authority Board and look forward to working with the directors, management and staff.

I would like to thank the former Chairman, Mr. McKeeva Bush, and all other members of the Water Authority Board who contributed a great deal of time and effort to make the Water Authority what it is today.

Hon. John B. McLean OBE MLA JP
Minister of A, E, C, & W



Chairman's Report

The Year 1997

1997 proved to be another very successful year for the Water Authority. The demand for drinking water in Grand Cayman and Cayman Brac grew at the astounding rate of 16.5% and 13.6% respectively in during 1997, and the Authority worked hard to plan and implement projects which will keep pace with this growth now and in the future. The public water supply system was extended to Frank Sound Road by April, and the Board agreed in June, at Government's request, to continue extending the system through the district of East End. The Authority feels strongly that everyone in the country should have access to suitable drinking water and plans to continue expansion of the public water supply system through East End, North Side and Cayman Brac over the next five years.

The Authority commenced construction of two small wastewater projects for Government facilities in 1997. An extension of the George Town Hospital's sewage collection system was completed in November, which connected up the Pines Retirement Home, Nadine Andreas Children's Home and the Lighthouse School. The design for a centralised wastewater collection and treatment system for the Government Schools on Walkers Road was also completed in 1997 and about 40% of the pipelines were installed by the Authority by the end of the year. These projects were done at a very competitive cost and saved Government over contracting with private sector companies for the work.

In April the Central Tenders Committee ("CTC") received tender offers, on behalf of the Water Authority, from three pre-qualified companies to provide the Authority with additional water production capacity by early 1998. In June the Authority entered into a seven year agreement with the successful tenderer, Ocean Conversion (Cayman) Ltd. ("OCL"), to construct and operate a 1,500 cubic metre per day reverse osmosis desalination plant at Lower Valley. This agreement includes strict requirements for noise and well construction which are intended to minimise the impact of the plant on the surrounding residential and agricultural properties. By the end of the year construction of the supply wells and the building were well underway.

I am particularly proud that the Authority was able to commence work in 1997 on a new administration building. Over the years, the Authority has outgrown its modest office accommodations in the Tower Building, which have not increased in size since the Authority moved from Maple Road in 1985. Needless to say these cramped quarters do little to enhance staff

productivity and have prevented management from hiring new staff which are needed to insure that the Authority continues to operate efficiently and effectively. In addition, our valued customers have not been happy with the limited parking space at the Tower, and we have certainly been listening to their requests. The design for the building was completed in February by a local architectural firm. Funding was in place at the end of the year and negotiations were well under way with a local contractor to construct the building.

I would like to take this opportunity to thank the members of the Water Authority Board of Directors, and the Authority's management and staff for their support over the years. Without their hard work, my job as Chairman would not have been nearly as fulfilling and enjoyable. The people of the Cayman Islands are indeed fortunate to have such dedicated individuals looking after the country's water and wastewater needs. Now that my tenure as Chairman has come to an end, I look back at how the Authority has progressed since my initial involvement as a member of the Board in 1989. Over these years the Authority made significant progress in its mission to provide water and wastewater services, and to protect and preserve the water resources of this country. I am particularly proud that a number of top management jobs were filled by Caymanians during my tenure as Chairman, and that the Authority was able to develop and implement a long term plan for the development of water and wastewater infrastructure in the country. I truly wish all the best for the Authority.

Mr. W. McKeeva Bush OBE MLA JP
Chairman

1. GENERAL INFORMATION

The Water Authority of the Cayman Islands is a statutory body, which was incorporated through the Water Authority Law, 1982 (Law 18 of 1982). The primary mission of the Water Authority is to provide public water supply and sewerage to the Cayman Islands, and to protect and manage the water resources of the country.

Over the past sixteen years the Water Authority has carried out a number of projects to map and monitor the groundwater resources of the country. In addition the Authority constructed the country's first public sewerage system in the West Bay Beach resort area, and constructed public water supply systems on both Grand Cayman and Cayman Brac. Expansion of these systems is on-going.

1997 Water Authority Board Members

Chairman:	Hon McKeeva Bush MLA OBE JP
Members:	Acting Permanent Secretary, CD,S,WA,Y,&C Ms. Lucille Seymour and Permanent Secretary, CD,S,WA,Y,&C Mr. Carson Ebanks
	Acting Director of DOEH Mr. Gunawardeena Deepal
	Deputy Financial Secretary, Mr. A. Joel Walton
	Mr. Harry Chisholm JP Mr. Richard Flowers Mr. Philip Hydes Mr. Brainard Watler Mr. Otto Watler Mr. Jerry Wood Mr. Ralph Williams Jr.
Secretary:	Director of the Water Authority Mr. Frederick McTaggart

The Water Authority is managed by a Chief Executive Officer (or Director) on permanent employment terms, and a Board of Directors, which is appointed every two years by the Governor of the Cayman Islands. The Board generally meets once every two months and 7 meetings were held in 1997.

2. FINANCE

General Observations

The Water Authority's financial position continued to improve in 1997. The Authority's net operating profit was 21.8% (20.8% in 1996), an increase of 1% from 1996. The net-income-to-sales ratio increased by approximately 2.6% in 1997 to 28.3% (25.7% in 1996). *[Note: The Authority's net-profit-to-sales ratio as calculated by the Statement of Income and Expenses showed a slight decrease to 19.7% in 1997. However this occurred because income from Agency Work amounting to $291,831.54 was shown in Sundry Income instead of Sales, while associated expenses relating to Agency Work were included in Operating Expense.]* Working capital decreased to $803,922 at the end of 1997 ($1,339,820 in 1996) mainly due to the payment to Government in December 1997, and the increase in current maturities of long term debt.

The Authority invested approximately $1.27 million in 1997 to purchase land, plant and equipment, primarily for the completion of the public water supply extension through Breakers, acquisition of a site and design of the new administration building, and new vehicles and equipment. Operating revenue and cash reserves were used to fund this expenditure, with exception of the land purchase which was financed by Government through a long term interest free loan. Capital expenditure is expected to increase significantly in 1998 as the Authority commences on construction of the new administration building and an extension of the public water supply though the district of East End.

Government Dividend

The Authority voluntarily paid a dividend of $250,000 to the Cayman Islands Government in July 1997. In late December 1997 the Government ordered the Water Authority to pay an additional $1.25 million from its cash reserves into Treasury. This action is allowed under Section 15(2)(b) of the Water Authority Law (18 of 1982) (1996 Revision). The payment was made under protest by the Authority's management. This action caused the Authority to go into overdraft on the 31st of December 1997. This overdraft was cancelled when a cash certificate of deposit matured in early January 1998.

Loans

The Authority did not draw down any loan funds during 1997. However an overdraft amount of $774,568 was carried forward into 1998 as disclosed in the above section. Repayment of long term debt in 1997 amounted to approximately $1.47 million. It is expected that the Authority will require a capital loan of approximately $1.6 million in 1998 in order to make up the short fall in cash reserves resulting from Government's action in December 1997.

The Authority purchased a 1.3 acre parcel of land on Red Gate Road from Government for the new administration building. The purchase cost was financed by Government through a long term, interest free loan.

1997 Public Water Supply Rates

Group	$ per cubic meter
Groundwater	$2.33
Desalinated water Grand Cayman	
Residential under 12 m^3/month	$4.01
Residential over 12 m^3/month	$4.81
Commercial	$4.81
Public Authority	$4.35
Truck	$4.01
Desalinated water Cayman Brac	
Piped water (all customer types)	$5.60
Truck	$7.00

Water and Sewerage Rates

Rates for water supply and sewerage service remained unchanged from March 1995.

1997 Public Sewerage Rates

Group	SFU's per ft^2	SFU per Unit
Commercial		
Store	0.0275	
Office	0.0375	
Beauty salon, surgery, bar, club, water sports	0.0475	
Food handling, garage, photo lab	0.0575	
Residential and Hotels		
Residential bedroom		6
Residential bathroom		14
Hotel room		18
Rate per SFU	$1.48 per month	

3. HUMAN RESOURCES

Staffing

The Authority's staff complement at the end of the year were as follows:-

Water Authority Staff Complement 1997

Director	F W McTaggart BSc
Deputy Director	G L Frederick-van Genderen PhD
Financial Controller	G Glidden BA CPA
New Works Engineer	T van Zanten MSc Eur Eng MCIWEM
Operations Engineer	C McCoy BSc
Water Resources Engineer	H-J van Genderen MSc Eur Eng
Operations Manager	T Hill Master Plumber
Civil Engineer	T Whittaker MSc Envr Eng
Resident Engineer	A Reid BSc
Resident Engineer	C Reid BSc
Assistant Financial Controller	S Glidden BA
Administrative Assistant I	L Wood
Accounts Receivable Officer	T Douglas
Accounts Payable Officer	J Nicholas
Procurement Officer	D Manderson
Cashier	B Ebanks
Sr Customer Service Representative	V Powery
Customer Service Representative	Z Bush-Ramos
Stores Clerk	K Connor
Receptionist	I Webb
Messenger	K Powell
Connections Supervisor	B Whittaker AAs
Connections Assistant	A Archibold
Meter Reader	C Morgan
Meter Reader	J Parchman
Meter Reader	M Smith
Meter Reader	D Goddard
Senior Laboratory Technologist	B MacAree BSc MCIWEM
Laboratory Technician	C Barnes
Laboratory Technician	M Martinez-Ebanks BSc

Water Authority Staff Complement 1997 (continued)

Laboratory Assistant	N Powery
Engineering Information Manager	C Seymour AAs
Draughtsman	G Welcome
Engineering Technician-Water Resources	V Rankine
Superintendent-Cayman Brac	B Banks
Assistant Operator-Cayman Brac	C Scott
Executive Officer-Cayman Brac	K Lazzari
Superintendent-New Works	J Hunter
Superintendent-Water	B Martinez
Superintendent-Sewerage	G Allen
Operator-Heavy Equipment *New Works*	W Watler
Operator-Heavy Equipment *Operations*	B Watler
Operator-Heavy Equipment *Operations*	M Wood
Operator-Heavy Equipment *Operations*	D Smith
Reinstatement Foreman	V Whittaker
Operator-Sewerage	L Tivy
Operator-Sewerage	S Campbell
Operator-Sewerage	P Echenique
Water Supply Gang Leader	A Bennett
Water Supply Gang Leader	J Smith
Pipe Layer	G Riapira
Pipe Layer	L Ramirez
Assistant Operator	C Ramoon
Assistant Operator	D Myles
Assistant Operator	V Grant
Assistant Operator	C Ebanks
Assistant Operator	E Hydes
Assistant Operator	M Powery
Assistant Operator	C Johnston
Assistant Operator	E Solomon
Assistant Operator	C Solomon
Labourer	H McField
Labourer	K Johnson
Labourer	G Kelly

The following movements and changes in personnel occurred during the year:-

Mr Pedro Echenique was employed as an Operator with the Operations department.

Mr James Smith was employed as a Water Supply Gang Leader with the Operations department.

Ms Nancy Powery joined the Authority as a Messenger and was later in the year transferred to work in the laboratory as a Laboratory Assistant.

Ms Sharon Ebanks was employed as Sr Customer Service Representative and was later transferred to the post of Debt Collection Officer.

Ms Lisa Wood joined the Authority as Administrative Assistant.

Mr Kenworth Connor joined the Authority as a Stores Clerk.

Ms Ivette Webb was employed as Receptionist.

Ms Katherine Powell was employed as the Messenger.

Mrs Bertalina Ebanks was employed as Cashier to replace Ms Vielka Powery who was promoted to Customer Service Assistant.

Mr Edroy Hydes, Manuel Powery and Christopher Johnston joined the Authority as Assistant Operators in the Operations department.

Mr David Goddard was employed a Meter Reader with the Authority.

Mr George Kelly was employed by the Authority as a Labourer with New Works department.

There were several promotions and post changes during the year. These were as follows:

Mr Danny Manderson was promoted from Inventory Officer to Procurement Officer.

Ms Vielka Powery was promoted from Customer Service Assistant to Sr Customer Service Representative.

Mrs Zulema Ramos was promoted from Receptionist to Customer Service Representative.

Ms Cathy Seymour was promoted from Sr Draughtsperson to Engineering Information Manager.

Mr Anthony Archibold was promoted from Meter Reader to Connections Assistant.

Mr Al Bennett was promoted from Assistant Operator to Water Supply Gang Leader.

Ms Clara Ebanks left the Authority to pursue a university degree overseas.

Mrs Annette McCoy left the Authority to work in the private sector.

Mr Noel Chisholm and Mr Greg Allen resigned from the Authority to work elsewhere.

Mr David Hosely, Kenneth Ebanks, Burton Kirchman, Jerry Ebanks, and Sidney Carlson, left the Authority to pursue other interests.

In February, the Authority was saddened by the passing of one of its loyal employees, Mr Jacob Williams. Mr Williams worked in the Operations department as an Assistant Operator.

At the end of the year the total staff complement stood at 62 of which 79% are Caymanian. Sixty-nine percent (69%) of the non-Caymanian staff are married to Caymanians or have Caymanian family connections.

Awards

In 1997, the Authority recognised employees in the following categories: the prestigious Chairman's Award; the "Employee-of-the-Quarter" and the ten-year service award.

Chairman's Award-1997

The distinguished Chairman's Award for 1997 was awarded to Mr Brian Martinez.

Mr Martinez began working with the Authority in 1989 as an Operator in the Operations Department. He attended the Certificate Course in Water and Wastewater at CAST in Jamaica in the early nineties. In 1995, he was promoted to Superintendent with responsibility for the water supply section of the Operations department. Mr Martinez is well respected by his colleagues for his hard work and loyal commitment to the Authority.

Ten Years of Service Award-1997

At the annual Christmas dinner, several employees were recognised for their ten years of continuous service to the Authority. These were:

- Mr Frederick McTaggart, Director
- Mr Loy Tivy, Operator-Sewerage
- Ms Karen Lazzari, Executive Officer-Cayman Brac
- Mr Gillis Welcome, Draughtsman
- Mr Vernel Rankine, Engineering Technician-Water Resources

Employee-of-the-Quarter Awards-1997

January-March 1997

The first quarter award was given to Mr Jack Hunter, Superintendent-New Works for his improved performance and supervision of the Authority's pipe laying crew.

April-June 1997

The second quarter award was presented to Mr Sean Glidden for his commitment and hard work in the operation of the Financial Administration department while the Financial Controller was on maternity leave.

July-September 1997

The third quarter award was presented to Mr Vernel Rankine, Engineering Technician-WR, for his hard work and dedication in the installation of monitoring wells for the Lower Valley reverse osmosis plant.

October-December 1997

The fourth quarter award was granted to Mrs Sharon Ebanks, Debt Collection Officer, for her outstanding and effective efforts to assist in the reduction of bad debts.

Training

Training remains an important aspect of the Authority's commitment to the development of its human resources. Employees are encouraged to participate in local and regional seminars, courses, workshops and conferences. Full time education overseas is also encouraged.

The Authority maintained its participation in the Caribbean Basin Water Management Programme (CBWMP), a training programme for water utilities in the Caribbean region. Institutional support for the programme continues to be provided by the Caribbean Environmental Health Institute (CEHI), St Lucia. In 1997, CBWMP continued to develop its status as a training centre for water related industries.

The Authority was able to participate in the following CBWMP training activities:

- C Linwood attended a one-week workshop on the Measurement of Customer Satisfaction in Barbados. Ms Linwood is the Training Administrator of the Government's Personnel Training Unit and is expected to conduct a similar workshop for the Authority's customer service staff.
- J Hunter and B Martinez attended a one-week Managing Safely workshop in Tortola, BVI.

Several Authority employees enrolled in a variety of courses at the Community College of the Cayman Islands (CCCI):

- Three employees enrolled and completed the English for Business Communications course.
- One employee completed the English as 2nd Language course.
- One employee completed the Elementary Typewriting course.
- Two employees registered for the Chemistry O'Level course and one for the Physics O'Level.
- One employee participated in the Numeracy course.
- One employee completed the Plumbing course.
- One employee completed the Introduction to Computers course.
- Two employees completed the Introduction to Windows95 course.
- Eleven employees participated in the Excel for Windows-Introduction course.
- Three employees participated in the Excel for Windows-Intermediate course.
- Four employees participated in the Word for Windows course.
- Two employees participated in the Word for Windows course.
- Three employees participated in the Project Management computer course.
- J Nicholas continued with the ATT diploma programme at the CCCI.

Other training received by Authority staff:

- Five of the Authority's department heads participated in a Senior Management "Transformation" Programme facilitated UK Consultants – Quirk & Company and Plus Consulting.
- F McTaggart and G Frederick-van Genderen attended Stage 11 of the Transformation Programme sponsored by the CI Government's Personnel Training Unit (PTU).

- B Whittaker enrolled in a year-long certificate programme in Supervisory Management administered by Napier University, UK and sponsored by the PTU.
- The Authority's senior management staff participated in a Job Classification Seminar facilitated by McCrimmon & Associates.
- C Seymour completed two AutoCAD courses, Release 13 Upgrade and Advanced Production Drawing. The MicroCAD Institute facilitated the courses.
- C McCoy, A Reid and G Welcome participated in Release 13 Upgrade courses for AutoCAD also facilitated by the MicroCAD Institute.
- T Douglas continued classes towards his AA degree in Business Administration at the International College of the Cayman Islands (ICCI).
- B MacAree participated in the Employee Assistance Programme (EAP) Supervisors Training Programme at the PTU.
- G Frederick-van Genderen, B Whittaker and T Hill attended a workshop sponsored by the EAP on Managing a Workforce for the 21st Century.
- A Reid participated in a one-day Business Writing workshop facilitated by the PTU.
- D Manderson participated in a one-day Business Grammar workshop facilitated by the PTU.
- A Reid represented the Authority at various Government Reengineering workshops.
- Several of the Authority's staff participated in a training course for GPS users facilitated by Trimble Navigation.
- Various in-house training exercises in chlorine analysis and the use of new monitoring instruments were conducted by the Sr Laboratory Technologist for Operators and Meter Readers.
- T Whittaker and A Reid attended an in-house course on Project Implementation facilitated by the New Works Engineer.
- H van Genderen attended an ASTM course on Groundwater Remediation in Coco Beach, Florida.
- S Glidden attended a course in Miami, Florida on the Dynamics Purchase Order programme used by the Authority.
- C Reid attended a Microsoft Windows NT Core Technology Certificate course at Merisel Training Centre in Miami, Florida.
- B MacAree attended a QA/QC course featuring the DR2010 spectrophotometer at the HACH Training Center in Loveland, Colorado.
- M Martinez-Ebanks and C Barnes attended a Microbiological Analysis workshop at the HACH Training Center in Loveland, Colorado.
- The Authority participated in the Department of Education's Math & Science Exhibition both in Cayman Brac and Grand Cayman.

The Authority continues to assist school groups and other organisations with educational tours of the laboratory and operation facilities.

4. QUALITY CONTROL AND RESEARCH

Laboratory

The major monitoring programmes of the laboratory continue to be:

- Quality control of the piped public water supplies (Grand Cayman and Cayman Brac) and East End reservoir and wellfield;

- Monitoring of Lower Valley and East End groundwater resources;
- Research and monitoring of the West Bay Beach sewerage system and sewage treatment works;
- Coastal water monitoring in the Hog Sty Bay area;
- Providing water quality monitoring services for other Authority projects or research as required;
- Providing the public with laboratory services for water analyses.

Monitoring Programmes

The majority of work carried out by the laboratory comprises of comprehensive monitoring programmes related to the Authority's operations. The Authority's operations include public water supplies (George Town to entrance of Breakers; Cayman Brac), East End reservoir and wellfield, West Bay Beach sewerage and sewage treatment works, and customer inquiries.

Eighty-two percent of all samples analysed in 1997 related directly to the Authority's operations. Samples analysed for various Government departments accounted for 8%. The remaining 10% were private requests, this is double the percentage in 1996. The total number of samples processed by the laboratory in 1997 was 3222.

In the third quarter of 1997, the Operations department installed the online monitoring system for chlorine residuals, pH and electrical conductivity (EC) for the Grand Cayman public water supply system. However, until the end of 1997 this system was still experiencing operational difficulties.

Public Water Supply-Grand Cayman

Monitoring of the distribution system continued with regular testing of chlorine residuals, total and faecal coliform bacteria, heterotrophic plate count bacteria (HPC), EC, total dissolved solids (TDS), pH, zinc and orthophosphate at specific sampling points. Water produced by OCL, prior to storage in the Authority's reservoirs, is tested twice daily for the TDS and pH levels. Water entering the distribution system is analysed twice daily for TDS, pH and chlorine residuals. Bacteriological analyses are carried out daily during the working week (Mon-Fri). Monitoring of sample taps throughout the distribution system are carried out regularly.

Chlorine residuals, TDS and pH of water leaving the Lower Valley Reservoir and Pumping Facility are monitored daily. Bacteriological, zinc and orthophosphate analyses are carried out weekly.

Quality of Water entering Distribution System from Red Gate Water Works

Parameters	Mean
Free Chlorine *mg/l*	0.46
pH *units*	7.54
EC *µS/cm*	355
TDS *mg/l*	161
Zinc *mg/l*	0.47
Orthophosphate *mg/l*	1.09

All faecal coliform bacteria results were negative.

Feedwater from the Authority's water supplier (OCL) was analysed overseas for purgeable and polynuclear aromatics. None of these compounds were detected in the water. Water entering the distribution line was analysed for heavy metals, fluoride, nitrate and disinfection by-products such as trihalomethanes (THMs). Results for arsenic, barium, boron, cadmium, chromium, lead, manganese, nickel, mercury, nitrate and fluoride were below analytical detection

limits. All results for THM compounds were significantly less than the World Health Organisation (WHO) Drinking Water Guideline Values.

Customer queries investigated in 1997 represented 0.08% of all public water supply customers. Written reports were provided to customers, and where necessary, they were advised on the action to take regarding problems encountered on their side of the meter box.

Public Water Supply-Cayman Brac

Monitoring of the Cayman Brac distribution system continued with regular testing of chlorine residuals, total and faecal coliform bacteria, pH, TDS and zinc concentration at specific sampling points.

The TDS and pH of water entering the reservoir from the reverse osmosis plant are tested on a daily basis. Water entering the distribution system is analysed daily for TDS, pH and chlorine residuals. Bacteriological analyses are carried out weekly. Three sample taps within the distribution system are monitored monthly.

Quality of Water entering Distribution System from West End Water Works

Parameters	Mean
Free Chlorine *mg/l*	0.25
pH *units*	7.60
TDS *mg/l*	157
Zinc *mg/l*	0.59

All faecal coliform bacteria results were negative.

Feedwater from the Authority's reverse osmosis plant in Cayman Brac was analysed overseas for purgeable and polynuclear aromatics. None of these compounds were detected in the water.

Water entering the distribution line was analysed for heavy metals, fluoride, nitrate and disinfection by-products such as trihalomethanes (THMs). Results for arsenic, barium, boron, cadmium, chromium, lead, manganese, nickel, mercury, nitrate, fluoride and THM compounds were below analytical detection limits.

East End Observation Wells and Wellfield

The Authority monitored 4 observation wells in the East End lens during the dry and wet seasons of 1997. Two of the wells are in the brackish water zone. The following table summarises the 1997 data:

East End Observation Wells Monitoring Results

	Number of samples with Total coliform bacteria ≥10 cfu/100ml	Number of samples with Faecal coliform bacteria >0 cfu/100ml
Dry Season (Apr)	0	0
Wet Season (Oct)	0	2

The feed water of the East End reservoir was analyzed overseas for the presence of chlorinated herbicides, organochlorine pesticides, PCBs, heavy metals, bromide, fluoride and nitrate. The laboratory did not detect chlorinated herbicides, organochlorine pesticides, PCBs, arsenic, barium, cadmium, chromium, lead, manganese, nickel, mercury, bromide or fluoride. The laboratory results for boron and nitrate were within the World Health Organization's (WHO) drinking water quality guidelines.

The product water was analyzed for disinfection by-products such as trihalomethanes (THMs) and haloacetic acids (HAAs). The laboratory results for THMs from samples collected in April were well below the WHO drinking water quality guidelines, however the results for samples

collected in December exceeded the WHO guideline values. The results for HAAs, which is another group of disinfection by-products were below analytical detection limit. The Authority has implemented an on-going program to reduce the level of THM's in the East End Wellfield water.

Lower Valley Domestic Wells

Selected domestic wells in the Lower Valley area are tested twice yearly for total and faecal coliform bacteria, TDS, EC, and pH. Analyses were carried out during the dry season (29 wells) and the wet season (31 wells). The 1997 bacteria and salinity data are summarised in the following table:

Lower Valley Domestic Wells Monitoring Results

	Percentage with Total coliform bacteria ≥10 cfu/100ml	Percentage with Faecal coliform bacteria >0 cfu/100ml	Percentage with EC ≥1600µS/cm
Dry Season (Apr)	28	10	21
Wet Season (Oct)	26	26	29

Sewage Treatment Works

The performance of the West Bay Beach sewage treatment works is monitored on a fortnightly to monthly basis. Twelve pumping stations continued to be monitored weekly for electrical conductivity (EC) which is used as an indicator of groundwater intrusion into the sewerage system.

In terms of the overall unfiltered biochemical oxygen demand (BODuf) removal efficiency of the waste stabilisation ponds, there was no significant improvement over the 1996 removals. Faecal coliform removal efficiency remained at just over 2 logs.

The mean levels of hydrogen sulphide produced in the facultative ponds decreased by 50%, to a mean of 5 mg/l in 1997 due to the use of in-pond aerators on a continuous basis (24 hrs/day). With the various operational problems relating to salinity and hydraulic loading, the waste stabilisation ponds performed as expected.

Operational Performance of the WBB Sewage Treatment Works

Year	Average BOD-5 day (mg/l) Raw sewage	Final effluent	%age removal	Average Daily Flow (m^3/day)	Average Raw sewage EC (µS/cm)
1988	213.0 (g)	13.0 (g)	*94.0*	*728.3*	3787 (g)
1989	174.0 (g)	36.0 (g)	*80.0*	*1611.2*	6551 (g)
1990	103.5 (c)	25.4 (g)	*75.0*	*2898.2*	11955 (c)
1991	76.4 (c)	20.8 (g)	*73.0*	*4116.9*	16749 (c)
1992	68.9 (g)	19.6 (g)	*71.5*	*4843.9*	21282 (g)
1993	94.2 (g)	22.8 (g)	*75.8*	*2954.6*	17462 (g)
1994	117.6 (c)	26.0 (g)	*77.9*	*2979.9*	13303 (c)
1995	121.0 (c)	23.4 (g)	*81.0*	*2936.1*	12106 (c)
1996	142.4 (c)	31.5 (g)	*77.9*	*3232.1*	12907 (c)
1997	161.8 (c)	34.6 (g)	*78.6*	*3542.0*	14564 (c)

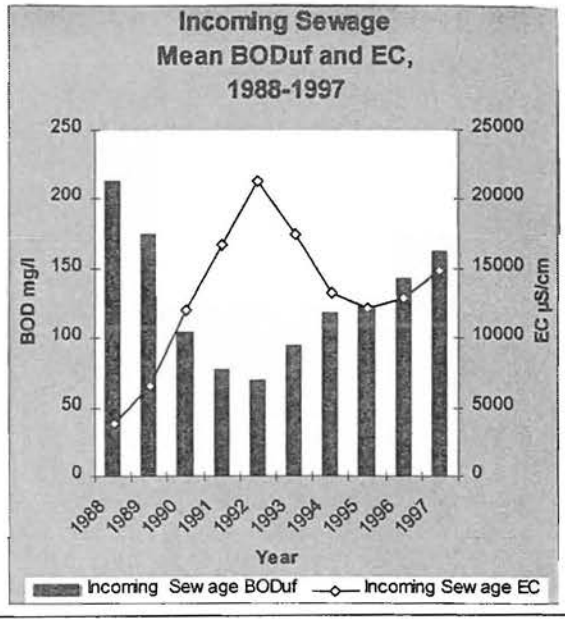
NOTE: BOD = Biochemical Oxygen Demand; EC electrical conductivity; g = grab sample; c = 24hr composite sample. Average flows are corrected for flow meter errors.

Operational Performance of the WBB Sewage Treatment Works

Average FC (cfu/100ml)

Year	Raw sewage *(g)*	Final effluent *(g)*	%age reduced
1988	4.39×10^6	1.68×10^3	*99.962*
1989	1.62×10^8	2.87×10^3	*99.998*
1990	3.18×10^8	7.30×10^3	*99.998*
1991	2.77×10^6	1.55×10^4	*99.440*
1992	1.52×10^6	5.84×10^3	*99.616*
1993	3.22×10^6	4.26×10^3	*99.868*
1994	9.29×10^7	2.04×10^4	*99.904*
1995	1.38×10^7	2.53×10^4	*99.817*
1996	6.89×10^6	2.75×10^4	*99.601*
1997	4.36×10^6	2.13×10^4	*99.512*

NOTE: FC=Faecal coliform bacteria; cfu = colony forming units; g = grab sample; c = 24hr composite sample.



The preceding graph is a comparison of the EC & unfiltered BOD since the commissioning of the West Bay Beach Sewerage System in 1988.

The incoming sewage mean salinity increased by about 15% while the mean incoming flow increased by approximately 10%. The average BODuf of the incoming sewage showed a significant increase of almost 14% over 1996 figures. As in 1996, the increase in BODuf did not correspond with a lower salinity.

The organic and hydraulic loading increases may be attributed to increased customer connections and the resulting additional flow. Nevertheless, the salinity data from incoming sewage as well as the pumping stations indicate that groundwater infiltration is increasing as well.

Sludge depth is monitored annually as part of the operational performance monitoring of the sewage treatment works.

The mean sludge depth in facultative pond 1.1 increased by 4% from that of 1996 while facultative pond 1.2 showed a slightly higher increase of 7%.

Average Sludge Depth in Waste Stabilisation Ponds

Year	Pond 1.1 (metres)	Pond 1.2 (metres)	Pond 2.1 (metres)	Pond 2.2 (metres)
1990	0.145	0.164	0.054	0.041
1991	0.346	0.294	0.215	0.241
1992	0.385	0.362	0.177	0.217
1993	0.345	0.371	0.303	0.298
1994	0.343	0.345	0.123	0.126
1995	0.318	0.243	0.144	0.140
1996	0.388	0.341	0.162	0.133
1997	0.405	0.365	0.140	0.122

Both maturation ponds showed slight decreases in mean sludge depth from that measured in 1996. The natural digestion and aging processes that occur in waste stabilisation pond bottom sediments most likely contributed to the average depth variations.

Hog Sty Bay Monitoring Programme

The Hog Sty Bay monitoring programme commenced in 1991 as a joint study between the Water Authority and the Department of the Environment (DoE). The results to date have not identified any significant pollution, however, the programme will continue in order to identify and observe trends.

The location of the 17 sample points, sampling methods and frequency are outlined in the Water Authority's Annual Report 1992. All samples were analysed for faecal coliform and enterococci bacteria in addition to physico-chemical parameters.

The highest average faecal coliform result in 1997 was 1.5 cfu/100ml at sample point 2 (subsurface). The highest individual faecal coliform result obtained in 1997 was 33 cfu/100ml at sample point 2 (bottom).

As in 1996, the overall average enterococci bacteria densities in 1997 did not change significantly. The highest average for enterococci was 0.9 cfu/100ml at sample point 8 (subsurface) with the same sample point having the highest individual enterococci result of 11.0 cfu/100ml.

Hog Sty Bay Monitoring Results

Year	Mean Faecal coliform bacteria (cfu/100ml)	Mean Enterococci bacteria (cfu/100ml)
1991	1.9	3.2
1992	9.8	2.4
1993	19.2	1.4
1994	0.6	0.5
1995	0.4	0.3
1996	2.1	0.5
1997	0.4	0.2

The Department of Environmental Health (DEH) analyses all samples on behalf of the DoE for nitrate (NO_3 as N), reactive phosphate (PO_4 as P) and suspended solids (SS). Based on limited information and data available, the concentrations reported are less than literature-derived tolerance levels for coral reefs.

Hog Sty Bay Marine Monitoring Programme Nutrient Analysis

Mean of all results

Year	NO_3 as N (µg/l)	PO_4 as P (µg/l)	SS mg/l
1995	0.42	0.07	3.0
1996	0.42	0.11	1.3
1997	0.31	0.05	2.0

The physico-chemical parameters are as expected for tropical marine coastal waters. Both bacteriological parameters, faecal coliforms and enterococci, are within the United States Environmental Protection Agency and the European Union standards for bathing water.

Research

The Authority is collaborating with the University of Surrey on further waste stabilisation pond research. The title of the project is "*Integrating field monitoring, using biological tracers and a hydraulic model for the optimisation of waste stabilisation pond design for pathogen removal and reuse*".

The UK Department for International Development (DIFD) approved funding for the project in 1997. No bacteriophage-related experimental work was carried at the Authority in 1997. However, Dr Gelia Frederick-van Genderen travelled to Colombia to assist research students and University of Surrey professor, Dr B Lloyd in carrying out tracer studies at waste stabilisation ponds there. The *Serratia marcescens* bacteriophage tracer experiments carried out by the Deputy Director in 1994 were successfully repeated in Colombia. Significant amount of climatic data was collected as well and particular attention will be given to the development of various computer prediction models for the hydraulic behavior of pond liquids. Field-work is expected to be carried out in Mexico and Grand Cayman in 1998.

Conferences, Papers and Reports

The Authority's staff regularly participate in professional conferences and author various papers related to the water and wastewater profession.

Conferences

Staff of the Water Authority attended the following conferences during the year:

- A Reid attended the American Water Works Association Annual Conference and Exposition held in Atlanta, Georgia, 16-17 June.
- T Hill and B MacAree attended the 6th Annual Conference and Exposition of the Caribbean Water and Wastewater Association (CWWA) held St Vincent & the Grenadines, 7-10 October.
- T Whittaker attended the WEFTEC'97 70th Annual Conference and Exposition held in Chicago, Illinois, 18-22 October.

Papers

MacAree, B, The Enumeration of Heterotrophic Bacteria in a Chlorinated Drinking Water System in Grand Cayman. Technical paper written in fulfillment of requirements for membership in CIWEM.

Fares, Y R, Frederick, G L, Vorkas, C A & Lloyd, B J (1996) Hydrodynamic effects on performance of waste stabilisation lagoons. Second International Conference on

Hydrodynamics (ICHD -96). Hong Kong, Dec 16-19th 1996.

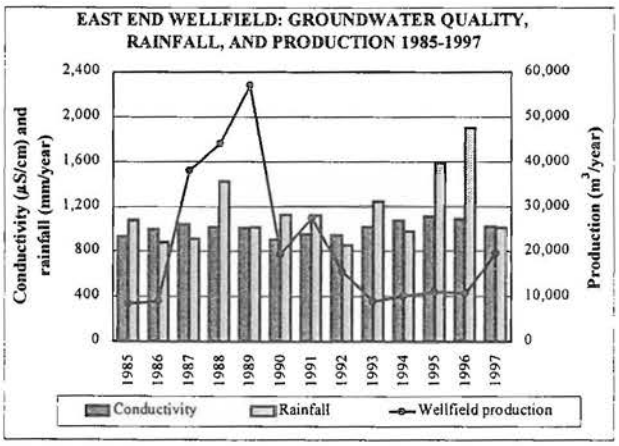
Reports

- Report on upgrade of Lower Valley Pumphouse
- Evaluation Report on Breakers Extension
- Report on Trihalomethanes in East End Reservoir
- Report on the Effect of Aerators on Odour Release from Ponds
- Groundwater Infiltration of West Bay Beach Sewerage

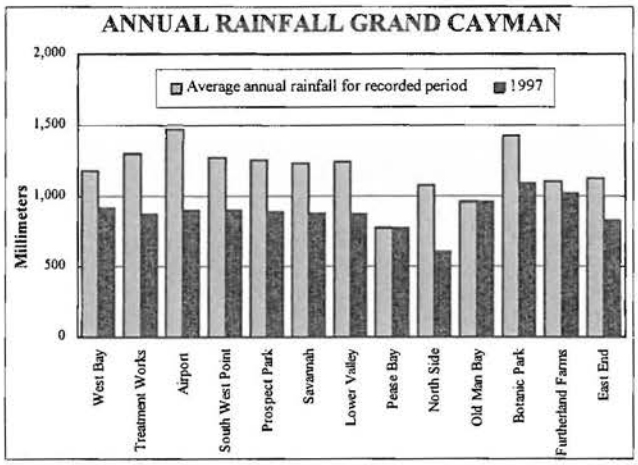
5. WATER RESOURCES

Groundwater Monitoring

In 1997 the Authority continued data collection for the hydrogeological monitoring programme of the Lower Valley and East End fresh water lenses. Data are obtained from observation wells, piezometers, water level recorders and an island-wide network of rain gauges. The salinity from each production well of the Authority's wellfield in East End is also monitored frequently to ensure that every well produces water of acceptable quality and that no up-coning of the underlaying salt water occurs.

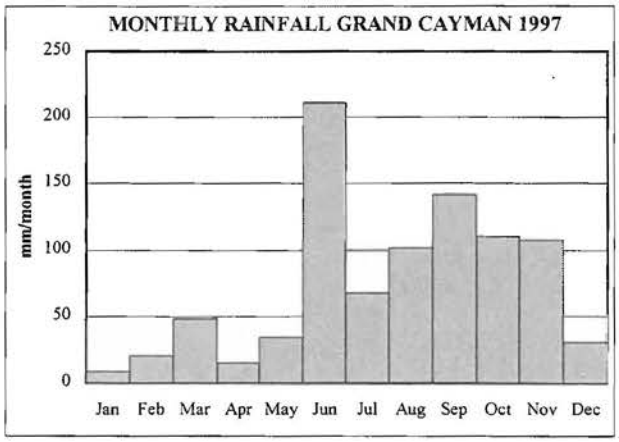


The conductivity of groundwater pumped from the Authority's wellfield in East End remained fairly stable throughout the year; the average of the product water from the reservoir was 1,025 µS/cm, and minimum and maximum values were 970 µS/cm and 1,160 µS/cm respectively.



Rainfall Distribution

Rainfall data are collected by dedicated volunteers from primary rain gauges installed at various locations in Grand Cayman. In addition the Authority also receives data from the Mosquito Research Control Unit, the Civil Aviation Authority and the Queen Elizabeth II Botanic Park.



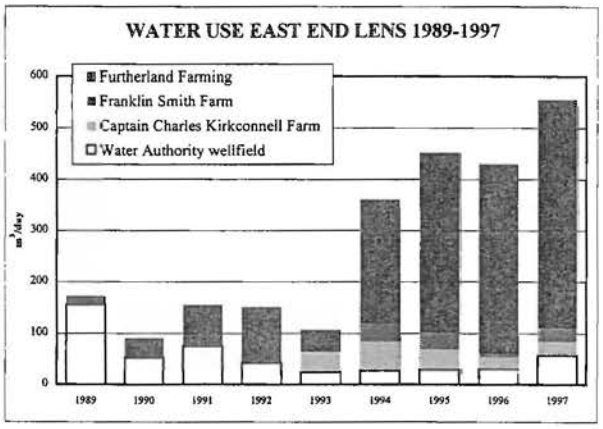
1997 was a dry year; the island wide average of all stations was 896 mm (35"), compared to

1,869 mm (74") in 1996 and 1,650 mm (65") in 1995. Distribution of rainfall throughout Grand Cayman was relatively even with the exception of North Side (Driftwood Village), which received only 607 mm (24") rain.

Water Resource Licencing

In compliance with statutory obligations the Water Authority continued to monitor works that impact groundwater resources. In 1997 the Authority issued the following licences and permits:

- Discharge Permits 423
- Abstraction Licence 2
- Quarry Permit 1
- Canal Work Permit 0
- Well Driller's Licence 6
- Cesspool Emptier's Licence 7



Groundwater Use East End Lens

The Authority continued to monitor groundwater use from the East End lens. Apart from the Authority's East End wellfield, which produces water for private trucking companies, three farms use the fresh groundwater for irrigation. These farms are Captain Charles Kirkconnell farm, Franklin Smith farm and Furtherland farm. The Authority monitors water consumption and quality of each commercial well located over the East End lens. The total abstraction averaged 556 m^3/day (147,000 US gal/day) in 1997, compared to 436 m^3/day (115,000 US gal/day) in 1996.

Groundwater Contamination at Texaco Walkers Road Service Station

In June 1997 Fluor Daniel GTI, a US based environmental company conducted a detailed site assessment of the groundwater pollution at the Walkers Road Service Station on behalf of Texaco. The Authority got involved in investigations of this spill in 1995 when nearby residents complained about fuel contaminating their domestic wells. In 1996 it became clear that this spill related to leaks in the underground piping system of the service station.

By the end of 1997 the consultant had completed a conceptual design report, outlining a detailed approach of the remediation, which will start in 1998. The objective of the remediation is to ensure that groundwater migrating outside Texaco's property has a quality within the World Health Organization's drinking water guideline values for hydrocarbon related pollution. The Water Authority in conjunction with the Department of Environmental Health will continue to monitor the remediation.

Groundwater Contamination at ESSO Jackson Point Terminal

In early 1997 ESSO discontinued the soil vapour extraction to remediate the gasoline spill that had occurred in July 1995 at the Jackson Point Terminal. The remediation was successful in removing the free product from the subsurface. In order to enhance biodegradation of the remaining dissolved product Oxygen Release Compound, a time release formulation of magnesium peroxide has been installed in several wells.

The Water Authority in conjunction with the Department of the Environment continue to monitor the situation. As part of this monitoring groundwater and marine samples have been collected at regular intervals, these samples are analyzed for the presence of BTEX, which is the most water soluble fraction of gasoline. The sampling results for all marine samples were below detection limit, indicating that the marine environment has not been affected. Sampling results from wells at the terminal indicated that levels of BTEX are decreasing.

Quarries

The Water Authority Law requires that quarries obtain a quarry permit from the Authority. In 1997 the Authority determined that the three main quarries in Grand Cayman did not have such a permit; these quarries are located in East End (High Rock Ltd.), Breakers (Tarpon Springs Ltd.) and Pedro (Caribbean Stone Products Ltd.). When the Water Authority Regulations became effective in 1985, existing quarries were required to be registered with the Authority within a year to obtain a quarry permit, however these three quarries were not registered during that period.

The owner of the quarry in Pedro indicated that they had closed down their operation, therefore the Authority did not pursue the issue of a quarry permit any further.

The owner and operators of the quarry in Breakers indicated that they wished to continue quarrying. They had obtained planning permission in 1981, since then quarrying had been carried out intermittently based on the demand for fill. Tarpon Springs Ltd. fulfilled the necessary requirements to obtain the quarry permit by the end of 1997. In response to the advertisement in the newspaper, a group of residents from Breakers submitted a petition opposing to the quarry, they specifically objected on the grounds of the potential damage caused by blasting. The Water Authority Board reviewed this matter, and asked for legal advice as to the interpretation of the Law. It is expected that this issue will be resolved in 1998.

As the East End quarry is located over the East End lens, the largest fresh water lens of the country, the Authority is concerned about adverse impact of this quarry on the lens. In 1997 the management of Quarry Products Ltd. met several times with the Water Authority to discuss issues relating to obtaining a quarry permit and the Authority's concerns relating to groundwater protection. The Authority was especially concerned about the depth of the existing excavation, which may have exposed the water table in several areas of the quarry. The Authority had reviewed the issue of excavation below water table in 1993. It was determined that under the prevailing meteorological conditions in the Cayman Islands evaporation from a free water surface would exceed the rainfall, thus resulting in no recharge and slow salinization of the fresh water lens. By the end of 1997 Quarry Products Ltd. initiated a survey to determine the depth of the excavation. This issue will be examined into further detail in 1998 and the Authority continues to actively pursue a resolution of the situation.

Wells to Monitor Effects of Reverse Osmosis Plant in Lower Valley

Earlier studies carried out by the Authority determined that if the open zones of the abstraction and disposal wells for the new reverse osmosis plant in Lower Valley were located well below the fresh water lens, there would not be a negative effect on the shallower fresh groundwater. In 1997 a network of wells was installed in Lower

Valley to monitor potential effects of the future plant on the lens. In total, 22 new wells were drilled within a radius of 200 m (650 feet) from the reservoir site, and 3 existing monitoring wells were incorporated in the network. The wells are between 5 m and 15 m deep (15 feet and 50 feet), the network comprises of 3 observation wells and 22 piezometers. Data collection commenced immediately after completion of the wells.

Cayman Water Company

The Cayman Water Company had a 14.7% increase in water sales in 1997 compared to the previous year. Total royalties paid by the Company in 1997 amounted to $410,507.00.

Cayman Water Company Operational Performance (US gallons)

				% Change	
	1995	1996	1997	95-96	96-97
Water Produced	333,747,900	353,091,200	410,636,500	*5.8*	*16.3*
Water purchased	1,370,688	0	319,085	*n.a.*	*n.a*
Water Sold	311,933,732	328,464,580	376,762,955	*5.3*	*14.7*
Seven Mile Beach	206,887,092	212,582,150	240,346,840	*2.8*	*13.1*
West Bay Service	55,638,640	65,106,030	81,349,670	*17.0*	*25.0*
Water Authority	0	0	884,715	*n.a*	*n.a*
Trucks	1,949,100	1,132,900	1,267,270	*-41.9*	*11.9*
Safe Haven (non potable)	47,458,900	49,643,500	52,914,460	*4.6*	*6.6*
Unaccounted for water	6.92%	6.97%	8.32%	*0.8*	*19.3*
Average fuel adjustment factor per 1,000 US gals	$ 0.72	$ 0.87	$ 0.88	*21.0*	*1.2*
Royalty payment	$317,736.30	$334,725.42	$410,507.00	*5.4*	*22.6*

Little Cayman Beach Resort

The Little Cayman Beach Resort produces water under a licence from government. Production in 1997 was 7,980 m^3 (2,109,000 US gals), and the royalty payment was $3,690.44.

Morritt's Tortuga Club

Morritt's Tortuga Club received its licence for a concession to produce and distribute potable water in 1997. In 1997 Morritt's Tortuga Club produced 30,120 m^3 (7,950,000 US gals) water, and the Royalty payment was $7,280.76.

6. WATER SUPPLY OPERATIONS

East End Wellfield

The Authority continued the operation of the East End wellfield and reservoir for its twelfth year. Sales increased by 90% in 1997 compared to 1996. The low rainfall in 1997 may have caused an increased demand for trucked water. Overall water loss from the wellfield remained fairly constant at 6.3%. The public standpipe at the reservoir, which provides water free of charge, delivered 422 m^3 (111,000 US gals).

East End Wellfield Performance Data

Year	Hours run	Average Pumping Rate (m^3/hr)	Quantity Produced (m^3)	Loss (%)	Power Consumption (KWhr/m^3)	Quantity Sold (m^3)
1986	603	14.7	8,877	1.0	0.46	4,191
1987	2,712	14.0	37,973	1.4	0.47	29,263
1988	3,134	14.0	43,879	1.4	0.45	33,815
1989	3,440	16.5	56,928	1.1	0.40	57,973
1990	1,310	14.8	19,408	1.0	0.43	19,704
1991	1,816	15.1	27,438	4.6	0.45	26,323
1992	1,182	13.2	15,546	13.9	0.44	11,653
1993	540	16.5	8,916	14.3	0.43	6,489
1994	623	16.0	9,945	9.4	0.43	9,013
1995	672	16.4	11,048	9.9	0.45	9,538
1996	653	16.3	10,633	8.9	0.46	9,319
1997	1,224	15.9	19,503	6.3	0.45	17,847

Public Water Supply - CYB

Annual water sales for 1997 increased by 13.6% during the year. The number of pipeline customers increased by 11 to total of 73. Although piped water sales remained flat, trucked water sales increased significantly by 81.3%. This can be attributed to the unusually low rainfall in Cayman Brac during 1997.

Operation of the reverse osmosis water production plant and distribution system by the Authority's own crew continued to be first class. Cost of water produced was reduced by approximately 9.6% compared to 1996 costs. This was the result of higher utilisation of production capacity and low maintenance costs on the plant.

Public Water Supply - CYB
Summary of Operations

	1997	1996	1995	Unit
Total Water Produced	45,622	41,522	37,752	m^3
Total Water Sold	46,179	40,648	39,066	m^3
Pipeline Sales	32,445	33,073	31,034	m^3
Trucked Sales	13,734	7,575	8,032	m^3
Other Sales	0	0	0	m^3
Water Loss (Avg of Monthly)	-0.17%	-0.32%	-1.20%	
Number of Pipeline Customers	73	62	62	
Average Daily Water Sales	126.17	111.06	107.03	m^3
Daily Water Sales as % of Capacity	56%	49%	47%	

Public Water Supply - CYB
Summary of RO Plant Operations

	1997	1996	Unit
Total Water Produced	45,622	37,581	m^3
Avg Plant Production Capacity	229.2	228.6	m^3/day
Approximate Cost of Water Production	2.17	2.40	CI$/$m^3$
Daily Water Sales as % of Total Production Capacity	55%	49%	
Electricity consumed	194,880	163,040	KWh
RO Plant Efficiency	4.272	4.338	KWh/m^3

Public Water Supply - CYB
Monthly Usage per Consumer Group (m^3)

Month	Single Resident	Commercial	Public Authority	Trucker
Dec-96	10.55	102.22	13.60	9.27
Jan-97	12.50	102.80	14.15	12.72
Feb-97	12.43	104.03	24.83	11.03
Mar-97	15.48	120.84	14.30	12.43
Apr-97	13.83	112.16	14.25	10.89
May-97	15.51	117.69	10.93	17.59
Jun-97	12.69	116.31	8.00	6.91
Jul-97	12.20	113.89	8.75	12.56
Aug-97	11.41	109.87	10.35	11.29
Sep-97	11.85	87.15	12.18	9.88
Oct-97	11.63	104.87	11.24	11.32
Nov-97	10.96	123.34	14.04	9.74
Dec-97	12.59	108.14	18.08	10.16

Public Water Supply - GCM

Total desalinated water sales increased by 16.5% during 1997 to 1.55 million cubic meters. New customer connections increased by 701 from 5,587 in December, 1996 to 6,288 in December, 1997. Average daily water sales for the year was 4,234 cubic meters per day, which represents approximately 85% of installed water production capacity. The Authority has contracted with OCL to construct a 1,500 cubic meter per day seawater reverse osmosis plant at Lower Valley in order to supplement our production capacity and meet the growing demand for desalinated water. This plant will be on line by the end of February 1998. The Authority is also taking measures to expand the pumping capacity of the Lower Valley Pump House by installing larger pumps. These pumps will be on line by early March, 1998 in time for the peak demand month of April.

The Authority's construction crews completed replacement of a section of main line in Red Bay from Selkirk Drive to Marina Drive, as well as replacement of the main line from Tropical Gardens Road to the junction of South Sound Road and Crewe Road. It is planned to continue replacement of the water mains in this area from the junction of South Sound Road and Crewe Road to Selkirk Drive, and from Marina Drive to the junction of Prospect Point Road and Red Bay Road in 1998. This program of mains replacement has significantly reduced the rate of water main breaks on the distribution system.

Public Water Supply – GCM
Summary of Operations

	1997	1996	1995	Unit
Total Water Produced	1,633,080	1,394,885	1,293,055	m^3
Total Water Sold	1,549,850	1,330,327	1,239,285	m^3
Pipeline Sales	1,501,073	1,301,306	1,198,346	m^3
Trucked Sales	48,777	29,021	40,939	m^3
Other Sales	-	-	-	m^3
Unaccounted for Water	5.30	4.63	4.16	%
No of Pipeline Customers	6,288	5,587	5,075	ea.
Average Daily Water Sales	4,235	3,635	3,395	m^3
Daily Sales as % of Capacity	85%	73%	65%	
Water Purchased from CWC	3,349	-	-	m^3
Water Sold to CWC	-	-	3,038	m^3
Electricity consumed	405,000	303,360	296,580	KWh
Pump Station Efficiency	0.222	0.222	0.219	KWh/m^3

Ocean Conversions (Cayman) Ltd. ("OCL") continued to provide all of the Authority's water production during 1997 under a long term water purchase agreement. They completed a temporary expansion of the Red Gate Water Works reverse osmosis plant to 5,500 m^3/day in order to meet the peak demand months of March through May.

Public Water Supply - GCM
Desalinated Water Sales by Consumer Group (m^3)

	1997	1996	1995
Single Residential	971,890	811,167	716,471
Multi-Residential	95,628	96,977	100,986
Commercial & Industrial	321,652	299,965	283,663
Public Authority	106,708	84,397	92,185
Truckers	48,777	29,021	40,939

Water losses increased slightly for the year to 5.30%. Efficiency of our main distribution system pumping station remained consistent at 0.222 kWh/m^3.

The connections and meter reading section of the Operation Department continued to function well. The meter readers are proficient with the Datamatic hand-held units for collecting meter readings. The Authority commissioned a pilot scheme of 50 radio-read meters in order to evaluate this system for future reading of our water meters. This system integrates with the hand-held units to collect the readings automatically without the meter reader having to read and enter each reading into the hand-held unit. Evaluation of this program is still ongoing.

Public Water Supply - GCM
Avg Monthly Consumption by Consumer Group (m^3)

Month	Single Resident	Multi-Resident	Commer	Public Auth	Total Pipe	Truck
Dec-96	12.08	94.98	32.55	63.75	16.21	262.46
Jan-97	17.19	136.99	47.43	93.34	23.22	670.42
Feb-97	18.23	132.63	43.06	101.23	23.70	1161.10
Mar-97	15.74	114.09	40.63	95.04	20.92	933.82
Apr-97	17.14	137.31	46.79	102.35	23.12	1584.78
May-97	17.11	152.19	41.04	122.42	22.91	1515.68
Jun-97	16.72	124.50	35.77	96.59	21.26	367.58
Jul-97	17.26	146.00	42.09	109.91	22.81	746.54
Aug-97	14.59	113.79	36.53	96.05	19.27	617.64
Sep-97	14.59	130.42	37.69	86.96	19.39	414.94
Oct-97	14.21	119.39	37.16	93.66	18.97	316.46
Nov-97	14.61	118.31	38.98	89.52	19.43	549.46
Dec-97	12.19	114.25	33.29	74.12	16.38	877.00

Public Water Supply - GCM
Connections per Customer Type for 1997

Month	Single Resident	Multi-Resident	Commer	Public Auth	Truck	Total
Dec-96	4790	63	643	91	5	5592
Jan-97	4826	63	639	92	5	5625
Feb-97	4850	63	644	93	5	5655
Mar-97	4942	62	653	94	5	5756
Apr-97	4994	62	655	92	5	5808
May-97	5056	62	670	92	5	5885
Jun-97	5091	62	675	92	5	5925
Jul-97	5191	62	682	92	5	6032
Aug-97	5277	62	681	92	5	6117
Sep-97	5327	62	683	91	5	6168
Oct-97	5349	62	688	90	5	6194
Nov-97	5392	62	690	91	5	6240
Dec-97	5446	61	691	90	5	6293

Water Truckers

The amount of trucked water sales from the Red Gate Water Works increased significantly by 68.1% during the year. Total trucked water demand during 1997, which includes ground water and Cayman Water Company sales, broke a three year decline and rose to just short of 1993 levels.

The Authority has five trucked water accounts at Red Gate. Three account holders deliver potable water to the general public, one account holder uses water for construction purposes, and one account is not presently active. Truckers are as follows:

- Flowers and Sons (2 accounts)
- Wilford Ryan
- Island Paving (company use only)
- Brasley McLean (Inactive)

Trucked Water Sales – GCM
(units in million US Gallons)

	1997	1996	1995	1994	1993
Cayman Water Company	1.270	1.133	1.949	2.226	2.657
Lower Valley	Closed	Closed	Closed	2.403	4.567
East End	4.715	2.462	2.520	2.381	1.713
Red Gate Water Works	12.887	7.667	10.816	10.112	13.828
Walkers Road (estimated)	Closed	0.011	0.102	-	0.102
TOTALS:	18.872	11.273	15.387	17.122	22.867

7. SEWERAGE OPERATIONS

Public Sewerage - GCM

The number of customers connected to the public sewerage system decreased marginally to a total of 253 from 259 at the end of 1996. However revenue generated from sewage

increased by 2.9% from 1996. Revenue from six septage truckers providing service on Grand Cayman also increased in 1997 by 13.2%.

Public Sewerage System – GCM
Revenue Details

	Sewerage Charges		Septic Hauler Charges		
Month	Total Charges	No. Users	Total Charges	No. Users	# of Loads
Jan-97	$172,967	251	$4,949	5	305
Feb-97	$171,644	252	$2,735	5	172
Mar-97	$172,062	255	$3,911	5	246
Apr-97	$173,098	251	$4,961	5	307
May-97	$175,037	252	$3,234	5	199
Jun-97	$173,539	251	$5,390	5	339
Jul-97	$174,608	252	$4,208	5	255
Aug-97	$173,973	253	$5,412	5	334
Sep-97	$180,041	256	$3,793	6	341
Oct-97	$174,875	254	$5,422	6	341
Nov-97	$175,638	252	$4,860	6	302
Dec-97	$174,629	253	$5,121	6	320
Totals:	$2,092,112		$53,996		3461

Performance Pipelining, Inc. of Ottawa, IL, USA completed the rehabilitation of three 150mm diameter sewers which were leaking severely. Work was done using a patented cured-in-place Performance Liner technique. This was a pilot study to evaluate this process for future lining of damaged and leaking sewers.

Public Sewerage System – GCM
Summary of Operations

	1997	1996	1995	Unit
Total Sewage Treated	1,182,588	1,182,949	1,011,727	m^3
Average Daily Flow	3,231	3,232	2,772	m^3
Average Daily Septage	36	31	24	m^3
Pump Station Elec.	222,277	213,658	205,423	KWh
Pump Station Effic.	0.19	0.18	0.20	KWh/m^3
Treatment Works Elec.	152,680	146,440	146,720	KWh
Treatment Works Effic.	0.13	0.12	0.15	KWh/m^3
Aspirator Elec.	310,716	-	-	KWh
Aspirator Effic.	0.26	-	-	KWh/m^3
Total Electricity	0.32	0.30	0.35	KWh/m^3
Total No of Connections	253	259	265	
Total Sewerage Fees	$2.09	$2.03	$1.81	Mil CI$
Monthly Avg Charge per Connection	$689	$654	$568	
No of Septage Customers	6	5	5	
Total Septage Fees	$53,996	$47,712	$36,963	
Monthly Avg Cost per Customer	$750	$795	$616	

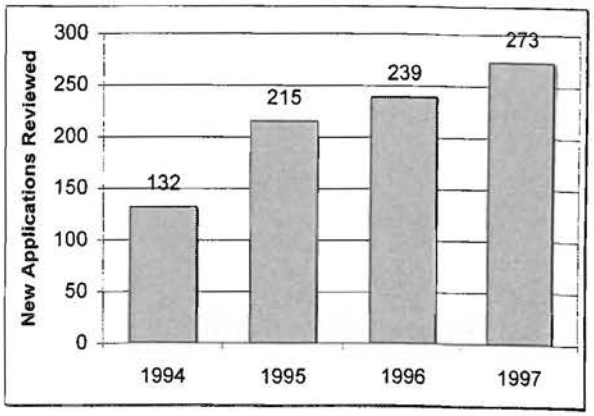
Sewage Treatment Works

Mechanical aeration of the waste stabilization ponds (Ponds 1.1 and 1.2) continued throughout the year. The additional oxygen introduced by the aerators seemed to have reduced the foul odours which have been a chronic problem at the site for the past several years. The annual survey of sludge carried out in August in each pond once again indicated minimal change in quantities of accumulated sludge.

8.NEW WORKS

Development Control

The Water Authority reviews wastewater treatment and disposal systems for all new developments at the planning stage, with the exception of single houses and duplexes which are reviewed by the Building Control Unit. The trend of increasing number of developments reviewed each year continued this year. More than 270 new developments were reviewed in 1997, which is an increase of more than 10% compared to the previous year.



New Works Crew

In 1997 the New Works crew installed nearly 7,500 metres of pipe. The following areas were provided with piped water during the year:

- Extension to Breakers (Phases 2 and 3, from entrance of Breakers to Frank Sound Junction)
- Admiral's Landing sub-division (Phase III)
- Oleander Drive sub-division (off Hirst Road)
- Kent Rankin sub-division behind Bodden Town Primary School

A pressure sewer was installed in Canal Point Road, which will initially transport the wastewater generated by the Southampton townhouse development to the West Bay Beach Sewerage System. However this pipeline has been designed to accept all wastewater generated by the Canal Point sub-division.

Other major projects, carried out by the New Works Crew in 1997, were the installation of two (2) low pressure sewer systems for the Walker's Road Schools and the adjacent properties to the George Town hospital, respectively. A more detailed description of these two projects is given further on in this section. In addition the New Works crew installed pipelines and carried out various other activities at the Lower Valley site to prepare for the connection of the new reverse osmosis plant that will be commissioned in early 1998.

In its third year of operation the New Works crew continued to perform very well. A detailed cost analysis indicates that the pipeline extensions carried out by the New Works crew in 1997 were significantly more economical than if they had been carried out by an outside contractor (an overall cost savings of approximately 18% based on the average overall cost on the Bodden Town Project (1991-1994), or nearly 25% when allowing for inflation). Almost 38% of the total cost incurred in 1997 by the New Works Crew (labour, plant and materials) was reimbursed by contributions from the various developers/clients.

Lower Valley Site

As a result of the continued growth of the water distribution system and the associated increase in demand, the production capacity of the existing water production plant at Red Gate Water Works will become insufficient in early 1998, an additional water production facility will therefore be required.

In early 1997 four (4) experienced pre-qualified contractors were invited to bid on the contract for the construction and operation of a reverse osmosis plant with an initial production capacity of 1,500 cubic metres per day (400,000 US gallons per day) at the Lower Valley facility. Three (3) quotations were received. On June 18, 1997 the Water Authority signed a contract with Ocean Conversion (Cayman) Ltd., who submitted the most competitive tender. Construction of the plant building commenced in late September 1997. By the end of 1997 the civil works portion of the plant building and the construction of the brine disposal well were both nearly completed. The plant is expected to be operational in late February 1998.

Connection of adjacent properties to hospital's sewage treatment plant

In early June 1997 the Water Authority completed the detailed design for the low pressure sewer system connecting the properties adjacent to the George Town hospital (i.e. the Pines Retirement Home, the Lighthouse School and the Nadine Andrea's Children's Home) to the sewage treatment plant of the hospital. The low pressure sewer system, which comprises six (6) grinder pumping stations and approximately 1,350 linear feet of pressure main will greatly

improve the sanitation of these properties. In particular the Pines retirement home has experienced frequent problems with the operation of its septic tanks. Construction commenced in late September and two months later the system was made operational. The work was carried out with a minimum of disruption to the affected properties.

Sewage collection system and sewage treatment works for Walker's Road schools

In June 1997 the Water Authority completed the detailed design of a sewage collection system (i.e. a low pressure sewer system) and a centralized sewage treatment plant for the Government high schools (John Gray and George Hicks), the Community College and the Truman Bodden Sports Complex. The project comprises the installation of twenty-six (26) grinder pumping stations, nearly 10,000 linear feet of pressure main, and a wastewater treatment plant with a treatment capacity of 30,000 US gallons per day. A formal contract between Government and the Authority for the civil engineering works for this project was signed on 25th November 1997. The installation of the pipelines commenced in late November 1997. By the end of the year approximately 40% of the total length of pressure main had been installed. It is anticipated that the project will be completed by early May 1998.

GPS System

The Water Authority purchased global positioning system (GPS) equipment in 1997. This equipment is vital to allow the storage of all WA assets (pipelines, reservoirs etc.) on digitized maps. Currently this data is stored in the office on as-built drawings. Once all data are available in a digitized form, pipelines and valves etc. can be relocated with a high level of accuracy in the field using handheld units.

9. WATER AND SEWERAGE STATUTORY LICENCING

Well drillers

The Authority issued six well driller's licences in 1997. The licences were issued to: Watler and Hislop Plumbing Services Ltd. (2 licences), Industrial Services and Equipment Ltd. (2 licences), Webb and Wright Well Drilling Co. (1 licence), and Scott Development Co. Ltd. (1 licence).

Septage Truckers

Six licences were issued to septage truckers in 1997. The following companies were licenced: Industrial Services and Equipment Ltd., Waste Management Services, Mr. James Piercy, Mr. Harris Wright, Mr. John Francis and the Department of the Environment.

Plumbers Licencing

The Plumbers Examination Board met on four occasions in 1997 to review application for plumbers licences. Theoretical examinations were held on three occasions during the year to assess applicant's abilities. The following licences were approved;

Category	1997	Total at 31-Dec-97
Apprentice	25	117
Journeyman	6	113
Master	1	34

Members of the Plumbers Examination Board are;

Chairman:	Mr. Thomas Hill Operations Manager WAC
Members:	Mr. Deepatilaka Gunarwardeena Acting Chief Environmental Officer
	Mr. Delano Hislop Master Plumber
	Mr. Arthur Arch Plumbing Inspector, BCU
Secretary:	Mrs. Annette McCoy & Mrs. Lisa Wood Administrative Assistant, WAC

THE WATER AUTHORITY
OF THE CAYMAN ISLANDS

FINANCIAL STATEMENTS
1997

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CAYMAN ISLANDS

Water Authority of the Cayman Islands

CERTIFICATE OF THE AUDITOR GENERAL

To the Members of the Water Authority of the Cayman Islands and the Financial Secretary of the Cayman Islands

In accordance with the provisions of Section 17(1) of the Water Authority Law (1996 Revision) and Section 45(1) of the Public Finance and Audit Law (1997 Revision), I have audited the financial statements of the Water Authority of the Cayman Islands for the year ended 31 December 1997 as set out on pages 27 to 39. These financial statements are the responsibility of the Authority's management. My responsibility is to express an opinion on these financial statements based on my audit.

I conducted my audit in accordance with International Standards on Auditing. Those Standards require that I plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. I believe that my audit provides a reasonable basis for my opinion.

Opinion

In my opinion the financial statements present fairly, in all material respects, the financial position of the Water Authority of the Cayman Islands as at 31 December 1997 and the results of its operations and its cash flows for the year then ended, in accordance with International Accounting Standards and comply with the Water Authority Law (1996 Revision).

N K Esdaile
Auditor General

3 July 1998

Water Authority of the Cayman Islands

Balance Sheet

As At 31st December 1997

(Stated in Cayman Islands Dollars)

	Notes	1997	1996
CURRENT ASSETS			
Cash On Hand		1,550	1,550
Cash At Bank		380,754	571,267
Cash On Fixed Deposit		2,811,109	1,718,179
Total Cash & Cash Equivalents		**3,193,413**	**2,290,996**
Accounts Receivable	3	1,166,358	977,926
Inventory	4	439,485	244,952
Prepaid Expenses		17,158	17,480
Accrued Interest		19,093	9,191
Total Current Assets		**4,835,507**	**3,540,545**
CURRENT LIABILITIES			
Bank Overdraft	5	774,568	262
Accounts Payable		338,113	172,242
Contract Retention Payable		-	24,573
Interest Payable	6	32,912	79,254
Customer Deposits		551,675	478,246
Customer Deposit on Construction Contract		40,650	11,000
Customer Project Loans	8	70,072	70,832
Current Maturities On Long Term Liabilities	9	2,195,228	1,364,317
Total Current Liabilities		**4,003,218**	**2,200,726**
NET CURRENT ASSETS		**832,289**	**1,339,819**
FIXED ASSETS			
Land-Freehold		1,248,353	764,593
Water Supply System		17,224,266	17,128,259
Sewerage System		9,055,771	9,274,021
Other Assets		676,788	631,731
Construction in Progress		71,991	207,774
Total Fixed Assets	7	**28,277,169**	**28,006,378**
TOTAL NET ASSETS		**29,109,458**	**29,346,197**
LONG TERM LIABILITIES	9	**(20,470,619)**	**(22,326,437)**
NET ASSETS		**$ 8,638,839**	**$ 7,019,760**
EQUITY REPRESENTED BY:			
Contributed Capital	10	829,940	768,927
Retained Earnings		7,808,899	6,250,833
Total Equity		**$ 8,638,839**	**$ 7,019,760**

On behalf of the Board on the 3rd of July 1998:

Hon. John B. McLean OBE JP
Chairman

Frederick W. McTaggart
Director

The accompanying notes form an integral part of the financial statements.

Water Authority of the Cayman Islands
Statement of Income and Expenses
For the Year Ended 31st December, 1997
(Stated in Cayman Islands Dollars)

	Notes	1997	1996
INCOME			
Gross operating revenue		10,523,098	9,327,998
Less: Operating expenses		7,120,256	6,319,834
Gross operating surplus for year	11	**3,402,842**	**3,008,164**
Sundry income	12	988,853	544,873
Operating surplus for year		**4,391,695**	**3,553,037**
OTHER EXPENSES			
Administrative		1,333,629	1,133,487
		1,333,629	**1,133,487**
Net surplus for year		**3,058,066**	**2,419,550**
Retained Earnings at the Beginning of the Year		6,250,833	4,331,283
Contribution to Government		(1,500,000)	(500,000)
Retained Earnings at End of Year		**$ 7,808,899**	**$ 6,250,833**

The accompanying notes form an integral part of the financial statements.

Water Authority of the Cayman Islands
Statement of Income
For the Year Ended 31st December, 1997
(Stated in Cayman Islands Dollars)

	1997	1996
OPERATING REVENUE		
Water Sales	8,054,070	6,973,159
Sewerage Fees	2,082,426	2,024,332
Septage Disposal	52,940	47,044
Connection and Miscellaneous Fees	333,662	283,463
Total Operating Revenue	**10,523,098**	**9,327,998**
SUNDRY INCOME		
Royalties	422,304	337,280
Agency Work	291,832	38,420
Statutory Licencing Fees	23,945	15,917
Interest Earned	154,205	99,572
Other	96,567	53,684
Total Sundry Income	**988,853**	**544,873**
TOTAL REVENUE	**$ 11,511,951**	**$ 9,872,871**

The accompanying notes form an integral part of the financial statements.

Water Authority of the Cayman Islands
Statement of Expenses
For the Year Ended 31st December, 1997
(Stated in Cayman Islands Dollars)

	1997	1996
OPERATING EXPENSES		
Water Purchase	2,907,101	2,606,380
Loan Interest	1,255,770	1,310,754
Salaries	1,036,744	793,183
Depreciation Expense	807,394	754,938
Repairs and Maintenance	439,970	321,169
Electricity	262,517	168,546
Wages	231,668	235,283
Supplies	99,654	96,348
Miscellaneous	69,355	29,924
Obsolete Inventory Expense	10,083	-
Lease Finance Charges	-	3,309
Total Operating Expenses	**7,120,256**	**6,319,834**
ADMINISTRATIVE EXPENSES		
Salaries	538,004	486,312
Staff Training and Benefits	329,062	260,317
Insurance	106,732	89,002
Depreciation Expense	69,401	57,305
Miscellaneous	66,716	51,566
Office and Lab Supplies	58,804	46,784
Telephone and Utilities	38,721	28,984
Legal Fees	35,370	35,575
Office Rental	28,813	27,913
Bad Debt Expenses	28,000	6,320
Licenses and Dues	16,914	19,498
Audit Fees	12,000	12,000
Repairs and Maintenance	5,092	3,377
Interest on Customer Deposits	-	8,534
Total Administrative Expenses	**1,333,629**	**1,133,487**
TOTAL ADMINISTRATIVE AND OPERATING EXPENSES	**$ 8,453,885**	**$ 7,453,321**

The accompanying notes form an integral part of the financial statements.

Water Authority of the Cayman Islands
Statement of Cash Flows
For the Year Ended 31st December 1997
(Stated in Cayman Islands Dollars)

	1997	1996
CASH FLOWS FROM OPERATING ACTIVITIES		
Net Surplus for year	3,058,066	2,419,550
Adjustments to reconcile net surplus to net cash provided by operating activities:		
Depreciation	876,795	812,243
Interest Earned	(154,205)	(99,572)
Interest Expense	1,255,770	1,319,288
	5,036,426	4,451,509
Net Change in Working Capital		
Interest Paid	(1,302,112)	(1,310,755)
Accounts Receivable	(188,432)	(113,080)
Inventory	(194,533)	(80,159)
Prepaid Expenses	322	301
Accounts Payable	165,871	(69,642)
Contract Retention Payable	(24,573)	24,573
Customer Deposits	73,429	55,473
Customer Deposits on Construction Contract	29,650	(1,000)
Customer Project Loans	(760)	(4,718)
Net Cash Provided By Operating Activities	3,595,288	2,952,502
CASH FLOWS FROM INVESTING ACTIVITIES		
Interest Received	144,303	97,888
Cost of Fixed Assets Purchased	(302,489)	(525,790)
Construction in Progress	(395,097)	(951,482)
Contributed Capital	61,013	108,805
Net Cash Used by Investing Activities	(492,270)	(1,270,579)
CASH FLOWS FROM FINANCING ACTIVITIES		
Repayment of Long Term Debt	(1,474,907)	(1,412,763)
Proceeds of Long Term Debt	-	637,819
Overdraft Facilities	774,306	(24,007)
Contribution to Government	(1,500,000)	(500,000)
Net Cash Used by Financing Activities	(2,200,601)	(1,298,951)
Net Increase In Cash & Cash Equivalents During the Year	902,417	382,972
Cash & Cash Equivalents at the Beginning of the Year	2,290,996	1,908,024
Cash & Cash Equivalents at End of Year	**$ 3,193,413**	**$ 2,290,996**

The accompanying notes form an integral part of the financial statements.

Water Authority of the Cayman Islands
Notes to the Financial Statements
For the Year Ended 31st December 1997
(Stated in Cayman Islands Dollars)

1. Background Information

The Water Authority of the Cayman Islands ("the Water Authority") is a statutory body established on 1st January 1990 under the Water Authority Law (Law 18 of 1982), as amended.

The Water Authority is principally engaged in the management of water supply and sanitation affairs of the Cayman Islands including the provision of public water supplies, sewerage systems and the management, development and protection of water resources.

2. Significant Accounting Policies

The significant accounting policies adopted by the Water Authority in these financial statements are as follows:

(a) Basis of accounting

The financial statements of the Water Authority are prepared under the historical cost convention and are in accordance with International Accounting Standards.

(b) Depreciation

Fixed assets, with the exception of freehold land, are depreciated on a straight-line basis to write off the cost of each asset over its useful life as follows:

Water and Sewerage Systems	15 - 50 Years
Machinery and Equipment	10 Years
Other Assets	5 - 10 Years

(c) Foreign currency translation

Assets and liabilities denominated in currencies other than Cayman Islands Dollars are translated at exchange rates in effect at the balance sheet date. Revenue and expense transactions denominated in currencies other than Cayman Islands Dollars are translated at exchange rates ruling at the date of those transactions. Gains and losses arising on exchange are included in the Statement of Income and Expenses.

(d) Allowance for bad debts

The allowance for bad debts is established through a provision for bad debts charged to expenses. Accounts receivable is written off against the allowance when management believes that the account is not collectible. The allowance is an amount that management believes will be adequate to cover any bad debts, based on an evaluation of individual accounts and prior bad debts expense.

(e) Inventory and Allowance for Obsolete Inventory

Inventory is accounted for on a first-in, first-out basis, and is stated at the lower of cost and net realizable value.

The allowance for obsolete inventory is established through a provision for obsolete inventory charged to expenses. Inventory is written off against the allowance when management believes that the inventory item is obsolete. The allowance is an amount which is the value of parts in inventory which are no longer used in the Authority's operations.

Water Authority of the Cayman Islands
Notes to the Financial Statements
For the Year Ended 31st December 1997
(Stated in Cayman Islands Dollars)

2. Significant Accounting Policies (continued)

(f) Cash & cash equivalents

For the purpose of the Statement of Cash Flows, cash and cash equivalents are considered as cash held on demand and fixed deposits with an original maturity of three months or less.

(g) Revenue recognition

The Authority bills its customers monthly for water consumed, sewerage and other services. Revenue derived from such sources is taken to income on a bill rendered basis. As in previous years no account has been taken of unread water consumption, sewerage and other services at the end of the financial year.

3. Accounts Receivable

	1997	1996
Accounts Receivable	1,276,358	1,059,926
Provision for Bad Debts	(110,000)	(82,000)
	$1,166,358	$977,926

4. Inventories

	1997	1996
Water Supply and Sewerage Materials	436,478	235,386
Office Supplies	13,090	9,566
Provision for Obsolete Inventory	(10,083)	-
	$439,485	$244,952

5. Bank Overdraft

The Cayman Islands Government provides a guarantee for an overdraft facility at one of the Authority's local bankers in the amount of US$500,000.

On the 30th of December 1997 the Government of the Cayman Islands ordered the Water Authority to pay to the Government a contribution in the amount of $1.25 million. At that time the Authority did not have sufficient funds in its current accounts to cover this payment. Therefore an overdraft of $774,568 is shown at year's end. A cash fixed deposit which matured on the 5th of January 1998 was immediately transferred into the current account to offset the overdraft.

6. Interest Payable

	1997	1996
On Customer Deposits	$32,912	$79,254

Section 9 of the Water Authority Regulations, 1988 specified that interest be calculated on customers' deposits at the rate of 5% per annum from the date of payment of the deposits, and the interest earned shall be added to the customers' deposits. This section of the Regulations was revoked on the 8th of February 1994. Interest payable on customer deposits has been calculated only on deposits which were

Water Authority of the Cayman Islands
Notes to the Financial Statements
For the Year Ended 31st December 1997
(Stated in Cayman Islands Dollars)

6. **Interest Payable (continued)**

taken before the 8th of February 1994 and which were held by the Authority on the date of these financial statements. Interest has been accrued up until the date on which the Regulation was revoked.

7. **Fixed Assets**

Cost	Freehold Land	Water Supply	Sewerage	Other Assets	Construction In Progress	Total
At 31 December 1996	764,593	19,412,036	11,172,335	1,399,818	207,774	32,956,556
Additions	483,760	88,972	10,306	272,657	415,469	1,271,164
Disposals				(1,600)		(1,600)
Transfers to inventory		(101,606)				(101,606)
Transfers between fixed assets		530,267	20,985		(551,252)	-
At 31 December 1997	1,248,353	19,929,669	11,203,626	1,670,875	71,991	34,124,514
Accumulated Depreciation						
At 31 December 1996		2,283,777	1,898,314	768,087	-	4,950,178
Charge for Year		421,626	249,541	205,628		876,795
Capitalized during construction				20,372		20,372
At 31 December 1997	-	2,705,403	2,147,855	994,087	-	5,847,345
Net Book Value						
At 31 December 1997	$ 1,248,353	$ 17,224,266	$ 9,055,771	$ 676,788	$ 71,991	$ 28,277,169
At 31 December 1996	$ 764,593	$ 17,128,259	$ 9,274,021	$ 631,731	$ 207,774	$ 28,006,378

The water supply system and sewerage system includes the cost of electrical and mechanical equipment, and machinery.

Other assets include the costs of tools and equipment, office furniture and equipment, and vehicles. Construction-in-Progress principally relates to expenses incurred in connection with the construction of the Administration Office Building on Red Gate Road.

8. **Customer Project Loans**

Customer project loans represent balances outstanding at the year-end in respect of funds collected from private individuals to carry out capital works in the South Sound area of George Town in 1989. These funds are interest free and are repayable by way of a 10% rebate on the individual's annual water consumption charges.

Water Authority of the Cayman Islands
Notes to the Financial Statements
For the Year Ended 31st December 1997
(Stated in Cayman Islands Dollars)

9. Long Term Liabilities

Loans	1997	1996
a) CIBC Bank and Trust Co. Cayman Ltd.		
Water Supply and Sewerage	15,527,592	16,578,068
b) Caribbean Development Bank		
Water Supply	1,465,756	1,620,693
c) Cayman Islands Government		
Grand Cayman	4,693,667	4,436,561
Cayman Brac	842,400	912,600
Medical Expenses	91,632	91,632
d) Capital Contribution Loan	44,800	51,200
Total long term liabilites	22,665,847	23,690,754
Less current maturities	(2,195,228)	(1,364,317)
	$ 20,470,619	$ 22,326,437

a) The CIBC Bank and Trust Co. Cayman Ltd. (CIBC) loan represents a financing package of US$22,350,000, which includes a US$500,000 overdraft facility. The total package refinanced previous Barclays Bank and Caribbean Development Bank loans, and provided funding for the Bodden Town Water Supply project and Lower Valley Reservoir and Pumping Station project. The loan is provided at an interest rate of 1% over London Interbank Offered Rate (LIBOR) and is repayable, on a monthly basis, over a ten-year period commencing on the 1st of March 1995. Monthly payments are due as follows:

1995-November 1997	US$200,000
November 1997-2004	US$275,000

The CIBC loan is held in the name of the Water Authority and is secured by a guarantee by the Cayman Islands Government.

b) The Caribbean Development Bank (CDB) water supply loan is to be repaid over 15 years at variable interest rates. Repayment commenced on the water supply loan in quarterly instalments in March 1992. The principal repayments currently being made on this loan are approximately US$46,250 each quarter, plus interest.

The CDB loans are in the name of the Cayman Islands Government and are on lent to the Water Authority. The Water Authority is responsible for all interest and principal repayments on these loans.

Water Authority of the Cayman Islands
Notes to the Financial Statements
For the Year Ended 31st December 1997
(Stated in Cayman Islands Dollars)

9. Long Term Liabilities (continued)

c) The initial Cayman Islands Government loan for Grand Cayman is interest free and is being repaid in quarterly instalments of CI$48,223 each, over a period of twenty five years commencing the 1st of April 1995. This loan was increased by $450,000 in February 1997 in exchange for a 1.3-acre parcel of land that was given to the Authority by the CI Government. As at year-end the terms of repayment relating to this additional loan had not been agreed upon. There was no movement in cash in respect of this transaction and consequently the Statement of Cash Flows does not reflect the increase in Land and Loans, which arise therefrom. The only element of the transaction included within the Statement of Cash Flows is the payment of stamp duty in the amount of $33,750.

The Cayman Islands Government loan for Cayman Brac attracts interest at a fixed rate of 8% per annum. This loan is repaid in quarterly instalments of $17,550, over a period of 15 years commencing the 1st of April 1995.

The loan payable to the Cayman Islands Government for medical expenses is in respect of injuries incurred by a cyclist in 1991 for which the Water Authority has assumed liability. The loan is interest free and repayable in monthly instalments of CI$2,500 each. No repayments were made from 1995 through 1997.

d) The capital contribution loan represents the cost of certain capital work carried out in 1991 and funded by a customer to facilitate the Water Authority to construct a pipeline through a third party property to provide the water connection to the customer concerned. The cost of this work was $64,000. In 1995 management agreed to repay the loan in ten (10) annual instalments of $6,400 each. This loan is interest free and the first instalment was made on the 1st of June 1995.

10. Contributed Capital

	1997	1996
Balance at beginning of year	768,927	660,122
Add: Received during year	61,013	108,805
	$829,940	$768,927

Contributed capital represents funds received from private individuals to fund capital work that was completed by the Water Authority. The relevant costs have been capitalised as water and sewerage works (see Note 7).

11. Gross Operating Revenue

Gross operating revenue comprises the amount of water sales, sewerage fees, septage disposal fees, connections/disconnection charges, and meter rental charges billed to customers during the year.

12. Sundry Income

Sundry income consists of royalties from water production and supply concessionaires, profit on agency work, interest, statutory licence fees, and miscellaneous income.

Water Authority of the Cayman Islands
Notes to the Financial Statements
For the Year Ended 31st December 1997
(Stated in Cayman Islands Dollars)

13. Related Party Transactions

The Cayman Islands Government appoints the Chairman and members to the Water Authority Board of Directors. The following transactions occurred during the year between the Water Authority and Cayman Islands Government.

1. Land formerly owned by Government was transferred to the Authority during the year and the Authority's debt to Government was correspondingly increased. The land was transferred at $450,000.
2. The Authority paid stamp duty of $33,750 on the above transfer.
3. The Authority made loan repayments to Government during the year of $263,094.
4. The Authority paid Government a $1.5 million contribution during the year.
5. The Auditor General has statutory responsibility for the audit of the Authority's financial statements. The Authority is required to pay an annual fee of $12,000 to Government for audit services.
6. The Authority retains the services of the Government's Legal Department to advise on all legal matters at an agreed fee of $25,000 per annum.

During the year, the Water Authority provided at no charge to the Cayman Islands Government the availability and use of water for fire fighting, free sewerage service to a number of indigent persons in the Watler's Road area, supervision of water resources, administration of Plumbers Examination Board, consultative services for development control, and water at a reduced Public Authority rate.

14. Pension

In August 1993, the Governor approved the inclusion of the Water Authority's staff as being in employment under the term "Public Service" for the provision of The Pensions Law. At that time all employees who had been "seconded" from the Public Service Commission resigned and were employed directly by the Water Authority. The pension contributions for those employees and subsequent eligible Caymanian employees hired by the Water Authority are paid directly to the Public Service Pensions Fund. Until the Pensions Fund is deemed to be self-sustaining, the Cayman Islands Government will bear all and any future pension liability due to these staff members.

The Public Service Pensions Fund is organised as a defined benefit plan, whereby the Authority and its employees pay 6% and 4% respectively of salary as contributions. The total amount recognised as an expense during 1997 was $134,236 (1996: $105,473).

15. Commitments

Commitments at December 31,1997 are as follows:

Authorised but not Contracted	Cost Incurred to 31/12/97	Estimated Cost to Completion	Total Cost
Administrative Office Building, Red Gate Road	$71,991	$1,928,010	$2,000,000

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15. Commitments (continued)

The Water Authority invited bids for the construction of a 10,000 square foot administrative office building in George Town, Grand Cayman. Bids were opened on the 6th of June 1997. As at year-end the contract had not been awarded. However on the 26th of January 1998 a contract was signed between the Water Authority and Unit Construction for the construction of the building for the amount of $1,714,128.

The Water Authority contracted with Ocean Conversion (Cayman) Ltd. ("OCL") on the 17th of June 1997 to provide and operate a reverse osmosis seawater desalination plant at Lower Valley, Grand Cayman under a lease purchase and operating agreement. The plant will be financed at an interest rate of 5% per annum. Commencing in 1998 the Authority will make monthly payments of US$17,325 and CI$6,998 for a duration of seven years. These payments include principal and interest. The plant is expected to commence operation in late February 1998 at which time the Water Authority will commence payments to OCL under the terms of the agreement.

The Cayman Islands Government contracted with the Water Authority in 1997 to construct a centralised sewage collection and treatment system for the Government High Schools, Community College, Lion's Pool and Truman Bodden Sports Complex for a cost of $590,000. This project was approximately 30% complete at the end of 1997. Costs associated with this project have been shown in Operational Expenses and income from payment certificates has been shown in Sundry Income. The Water Authority has made a proposal to Government to retain ownership of the sewerage system and operate it as public sewerage. Government would be expected to meet the full cost of construction and pay monthly sewerage fees to the Water Authority. If the proposal is accepted by Government the Water Authority will transfer the value of the project to its fixed assets.

16. Leases

The Water Authority leases office space from the Cayman Islands Government for its administrative office at a cost of $2,326 per month on a month to month basis.

17. Fair value disclosure of financial instruments

International Accounting Standards require all entities to disclose the fair value of financial instruments, both assets and liabilities that are recognised and not recognised in the balance sheets for which it is practicable to estimate their fair value.

At December 31, 1997 the following methods and assumptions were used by management to estimate the fair value of each of the financial instruments:

(a) *Bank Balances*
The carrying amount approximates fair value.

(b) *Accounts receivable/other receivables/accounts payable and other liabilities*
The carrying amount approximates fair value.

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17. Fair value disclosure of financial instruments (continued)

(c) Current and long term debt

Included in these balances are certain fixed rate and non-interest bearing loans. The carrying value of these loans represents the principal balance owing. The anticipated future principal repayments have not been discounted, as it would not provide any additional relevant information.

All other loans are floating rate and therefore bear interest at the market rate. The carrying value of these loans approximates fair market value.

Fair value estimates are made at a specific point in time, based on market conditions and information about the financial instrument. These estimates are subjective in nature and involve uncertainties and matters of significant judgement and therefore cannot be determined with precision. Changes in assumptions could significantly affect the estimates.

18. Reclassification

Certain of the prior year's figures have been re-classified to conform with the presentation adapted in the current year.

Awards

The Chairman's Award

Brian Martinez, Superintendent-Water

Employee of the Quarter

Jack Hunter,
Superintendent-NW
January-March 1997

Sean Glidden
Assistant Financial Controller
April-June 1997

Vernel Rankine,
Engineering Technician-WR
July-September 1997

Sharon Ebanks,
Debt Collection Officer
October-December 1997

Ten Years of Continuous Service

Frederick McTaggart, Director receives his Ten Year Service Award from the Water Authority Board Chairman, Hon. Minister John McLean, MBE, MLA, JP

From left to right, Gillis Welcome, Karen Lazzari and Loy Tivy show off their Ten Year Service Awards at the Authority's Annual Staff Christmas Dinner

Out & About

Civil Engineer, Troy Whittaker and Superintendent-NW, Jack Hunter check chlorine residuals after disinfecting new water mains

Resident Engineer, Clement Reid gets ready to set up the Authority's GPS base station at Red Gate Water Works

Customer Appreciation Day - Mrs Linda McLean from Planning Department assists Assistant Financial Controller, Sean Glidden by drawing the lucky winner of six hundred dollars worth of water

The Water Authority and Planning combine forces to form a formidable football team during the Civil Service Football League