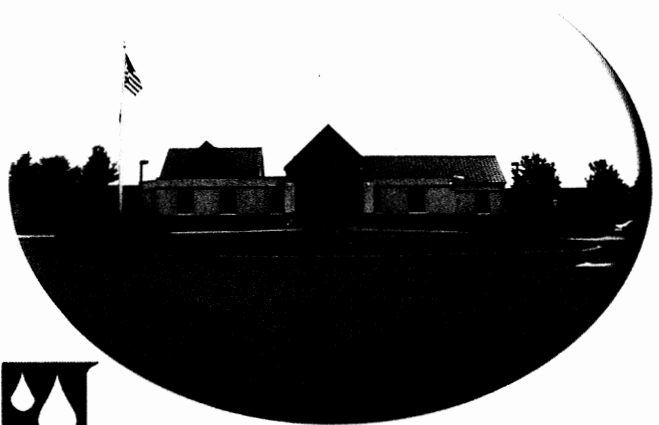
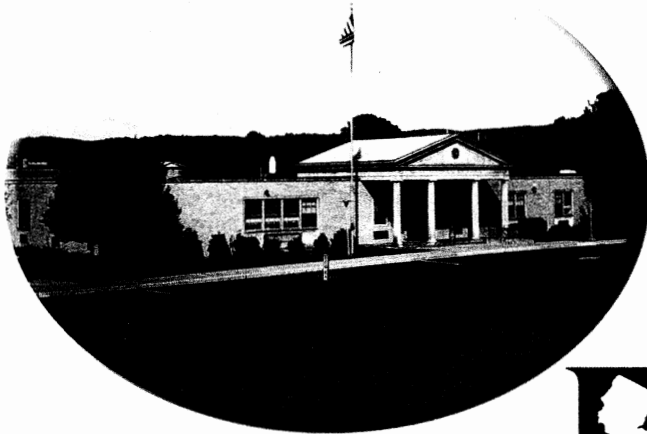


# NEW JERSEY WATER SUPPLY AUTHORITY



**2003 ANNUAL REPORT**  
AND THE  
**COMPREHENSIVE ANNUAL  
FINANCIAL REPORT**  
FOR THE YEAR ENDED JUNE 30, 2003

# Certificate of Achievement for Excellence in Financial Reporting

Presented to

## New Jersey Water Supply Authority

For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended  
June 30, 2001

A Certificate of Achievement for Excellence in Financial Reporting is presented by the Government Finance Officers Association of the United States and Canada to government units and public employee retirement systems whose comprehensive annual financial reports (CAFRs) achieve the highest standards in government accounting and financial reporting.



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President

*Jeffrey L. Esser*  
Executive Director

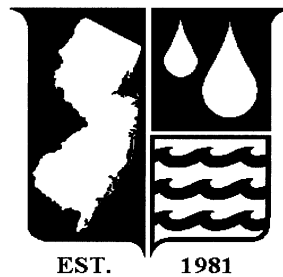
NEW JERSEY WATER SUPPLY AUTHORITY

# 2003 ANNUAL REPORT

AND THE

COMPREHENSIVE ANNUAL FINANCIAL REPORT

A COMPONENT UNIT  
OF THE STATE OF NEW JERSEY



FOR THE YEAR ENDED  
JUNE 30, 2003

Prepared by:  
Accounting and Administrative Staff

Henry S. Patterson III  
Executive Director

# 2003 Annual Report

**Governor**  
James E. McGreevey



## Authority Members

Bradley M. Campbell  
Chair

Steven J. Picco  
Vice Chair  
Chair Audit Committee

Shing-Fu Hsueh  
Secretary  
Chair, Insurance Committee

Louis C. Mai  
Treasurer  
Chair, Finance Committee  
Chair, Personnel Committee

Donald L. Correll  
Chair, Capital Projects Committee

Susan Blew  
Chair, Public Participation Committee

## Staff

Henry S. Patterson III  
Executive Director

Helene P. Chudzik, Esq.  
Deputy Attorney General

## 2004 Monthly Meetings

The 2004 Monthly Meetings of the New Jersey Water Supply Authority are scheduled to be held in the Conference Room of the Authority's Clinton Administration Building, 1851 Route 31, Clinton, New Jersey, unless otherwise indicated, beginning at 2:00 p.m. on the following Mondays:

January 5, 2004

February 2, 2004

March 1, 2004

April 5, 2004

May 3, 2004

June 7, 2004 (Canal Office)

July 12, 2004 (Canal Office)

August 2, 2004 (Manasquan Office)

September 13, 2004

October 4, 2004

November 1, 2004

December 6, 2004

The period from 12:00 p.m. to 2:00 p.m. on the above dates is set aside, as needed, for separate Committee meetings of the Personnel, Finance, Capital Projects and other Committees of the Authority.

The New Jersey Water Supply Authority was created on October 7, 1981 (P.L. 1981, c. 293) to operate, on a self-supporting basis, the existing State water supply facilities and to develop future State water supply projects as recommended in the State Water Supply Master Plan. The Authority's Spruce Run/Round Valley Reservoirs System and the Delaware and Raritan Canal Water Transmission Complex (the Raritan Basin System), provides the basic source of water supply to a number of public and private water utilities serving over 1,300,000 people in central New Jersey. The Manasquan Water Supply System in Monmouth County commenced delivery of this new surface water supply to a number of public and private water utilities, serving over 250,000 people in the Monmouth County area, on July 1, 1990. Under agreement with the Monmouth County Improvement Authority, the Authority also operates and maintains a four million gallon per day water treatment plant and distribution system for five municipalities in Monmouth County.

♻️ Printed on Recycled Paper

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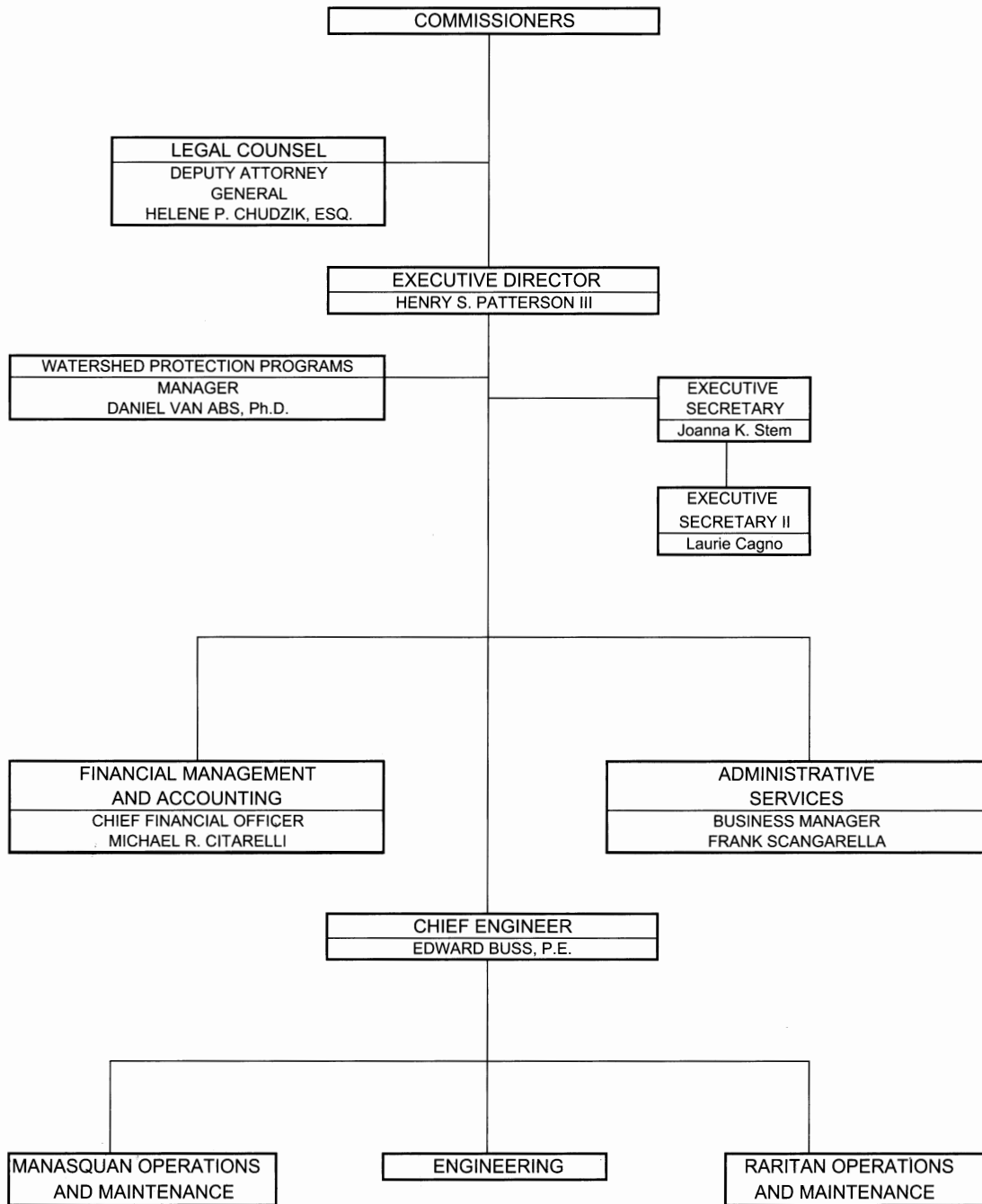
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# NEW JERSEY WATER SUPPLY AUTHORITY TABLE OF ORGANIZATION



# Letter to Governor and Legislature

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## NEW JERSEY WATER SUPPLY AUTHORITY

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Post Office Box 5196 • Clinton, NJ 08809 • (908) 638-6121  
www.njwsa.org FAX • (908) 638-5241

December 2003

### **To the Honorable James E. McGreevey, Governor and Members of the New Jersey Legislature**

I am pleased to submit the 22<sup>nd</sup> Annual Report of the New Jersey Water Supply Authority. The Authority was created on October 7, 1981 (P.L. 1981, c.293) and was established in but not of the Department of Environmental Protection of the State of New Jersey. This "New Jersey Water Supply Authority Act" under NJSA 58:1 B-20 calls for the Authority to publish an Annual Report of its books on or before the last day of February for the preceding calendar year.

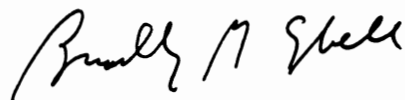
Operations at all facilities were uninterrupted during the year. After last year's drought, the storage in Spruce Run and Round Valley Reservoirs was replenished before the summer months. Our 2003 financial report reveals the Authority's continued sound financial condition.

I trust that you will find this report informative. I would like to highlight two significant achievements.

On May 2, 2003, the Authority along with its partners, the Stony Brook Millstone Watershed Association, the South Branch Watershed Association and the New Jersey Department of Environmental Protection received a \$1,000,000 grant from the United States Environmental Protection Agency. This was one of twenty grants nationwide and one of only three that received \$1,000,000. This grant will be used over the next three years to reduce existing pollutant loads and work with municipalities to prevent future degradation of Raritan River water supplies.

On July 1, 2003, the Authority introduced a new component to its rate structure dedicated to land acquisition. By the end of this year, the Authority, working with several governmental agencies and non-profit land conservancies will have acquired 651 acres of critical watershed parcels along the Spruce Run. The Authority financed their portion of this innovative program through the New Jersey Environmental Infrastructure Trust.

Sincerely,



Bradley M. Campbell  
Chair

# Raritan Basin System

---

## Facilities

### Delaware and Raritan Canal

The Delaware and Raritan Canal (Canal) was originally constructed in 1834 and operated as a barge canal until 1932. In 1934, jurisdiction of the Canal was transferred from the Pennsylvania Railroad Company to the State of New Jersey. During the 1950's, the Canal was rehabilitated to serve as a public water supply transmission system. In 1974, the Canal was designated as a State Park and was also placed on the State and Federal Registry of Historic Sites.

Originally, the navigable Delaware and Raritan Canal consisted of 43 miles of main Canal between the Delaware River at Bordentown and the Raritan River at New Brunswick and 22 miles of feeder Canal between Bulls Island in Hunterdon County and the City of Trenton. The present Canal Water Supply Transmission Facility is 60 miles long with its Delaware River intake at Bulls Island in Hunterdon County and its outlet at the Raritan River in the City of New Brunswick. The Canal right-of-way varies in width between 60 feet and 200 feet and includes a waterway varying between 40 and 80 feet wide. Flow from the Delaware River to the Raritan River is entirely by gravity and is regulated by control gates installed in the original lock structures.

In addition to the 100 million gallons per day (mgd) non-drought diversion entitlement from the Delaware River, natural streams and storm drains are directly tributary to the Canal. Three Authority water supply operators, with 24-hour responsibility to take emergency action on their own initiative, constantly monitor water levels and weather conditions and adjust operating gates and open flood gates

to protect the Canal during times of heavy rainfall.



*The 60 mile length of the Delaware and Raritan Canal passes through many scenic and historical areas such as this area of Washington's Crossing State Park in Mercer County.*

### Spruce Run and Round Valley Reservoirs

---

The Spruce Run and Round Valley Reservoirs located in Hunterdon County were constructed by the State of New Jersey as initial steps in the long-range water conservation and development program authorized by the 1958 Water Supply Law and its companion Water Bond Act.

The 55 billion gallon Round Valley Reservoir, which became operational in 1965, was formed by the construction of two dams and a dike, closing off gaps in a natural horseshoe shaped valley. The earthen dams and dikes are faced with dumped stone riprap and sod and have an offset clay core. With no appreciable local drainage area (five square miles), Round Valley Reservoir must be filled by pumping water from the South Branch of the Raritan River. Minimum flows must be maintained in natural streams below the Reservoir. To



*The Round Valley South Dam is one of three structures containing the water stored in the reservoir in Clinton Township, Hunterdon County.*

accomplish this, a total of one million gallons is released daily from both the North and South Dams. A 3.6 mile, nine foot diameter release pipeline from the North Dam to the South Branch of the Rockaway Creek near Whitehouse Station in Readington Township discharges water to the South Branch of the Rockaway Creek under a low pressure mode of operation.

The 350 mgd South Branch Pumping Station at Hamden, which pumps surplus water from the South Branch of the Raritan River, maintains the storage in the Round Valley Reservoir via a 3.2 mile, nine foot diameter force main, which enters the Reservoir at the South Dam. In 1990, modifications were completed on this force main to also permit this pipeline to release up to 120 mgd from the Round Valley Reservoir into the South Branch of the Raritan River.

The 11 billion gallon on-stream Spruce Run Reservoir, which was placed into operation in 1963, includes a 6,000 foot long earthen dam and two earthen dikes. A concrete spillway having a safe discharge capacity of 15.5 billion gallons per day provides protection for the earthen dams during periods of heavy rainfall.

The Reservoirs, by augmenting stream

flow during periods of low natural runoff, make available 160 mgd for sale at Bound Brook based on the 1960's drought. Additionally, a minimum statutory flow of 90 mgd must be maintained in the Raritan River at the Bound Brook stream gauge. For these purposes, water is released from; the Spruce Run Reservoir to the South Branch of the Raritan River, the Round Valley Reservoir to the South Branch of the Rockaway Creek, and the Round Valley Reservoir, through the alternate release facilities, to the South Branch of the Raritan River, for routing to the Raritan River. Operation by Authority staff involves maintenance of continuous hydrographs on the basis of data transmitted from six stream gauging stations. Predictions of natural flow at these control points, including anticipated storm runoff, must be made sufficiently in advance to allow for time of travel so that the releases meet both minimum stream flow regulations and customer demands.

The 1958 Water Supply Law allows recreational use of the water supply facilities. The cost of operating and administering the recreational facilities is provided by the New Jersey Department of Environmental Protection's (NJDEP's) Division of Parks and Forestry and Division of Fish, Game and Wildlife.

### **Raritan River to Delaware and Raritan Canal Pumping Station**

---

This 60 million gallon per day pumping station, located where the Raritan and Millstone Rivers meet adjacent to the Canal near South Bound Brook, was constructed after the drought of 1980-1981 to permit the transfer of water from the Raritan River, as sustained by releases from the Raritan Basin Reservoirs, to the adjacent Delaware and Raritan Canal. This facility is a major component of the integrated management program for the water resources of the

Raritan Basin and the water diverted from the Delaware River. Water in the Raritan River can be transferred to the Delaware and Raritan Canal as needed or in the event of an upstream emergency or construction affecting the normal delivery of the Canal water supply. Based upon the Canal carrying capacity of 100 mgd, it is also possible to divert excess Canal flows, up to 30 mgd, through gates into the Raritan River for water supply or stream flow maintenance resulting in the maximum conservation of stored waters in the Spruce Run and Round Valley Reservoirs. Full development of the maximum possible yields, resulting from the integrated management of the water from the two basins, at least cost, is vital to meeting the water supply needs of the central New Jersey communities dependent upon these two sources of supply.

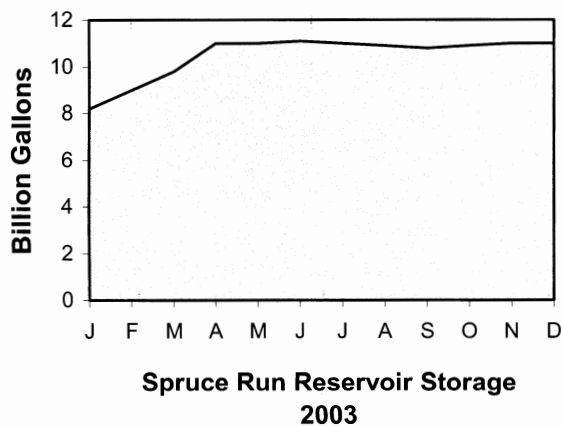
## Operations, Maintenance, and Engineering

### Spruce Run/Round Valley Reservoirs Complex

#### Reservoir Operations

Storage in Spruce Run Reservoir reached capacity in mid-March and remained near capacity for the remainder of the year. Limited releases were required to meet customer demands and satisfy minimum flow requirements.

Storage in Round Valley Reservoir started the year at 45 billion gallons. Pumping operations between March 28 and May 30, 2003 increased storage by 5.8 billion gallons. Additional runoff has increased the storage level to 53 billion gallons, 96 percent of capacity, on October 1, 2003.



#### Reservoir Maintenance

Personnel from the South Branch Pumping Station moved back into the station following the asbestos mitigation project completed in 2002, and prepared the station for the needed pumping operation. Following completion of the pumping program, staff began the task of reinstalling insulation on the piping and painting the surfaces where the stucco that contained asbestos was removed.

Reservoir maintenance crews performed regular maintenance work essential for continued proper management of the reservoir facilities including maintaining the grass cover on the embankments, the removal of vegetative growth and debris accumulation on upstream faces of the embankments.

#### Dam Inspections

In accordance with State Dam Safety Regulations, the Authority's engineering staff conducted the 2003 annual dam inspection on June 3, 2003. The dams were found to be in good condition and functioning well. All embankments at the Spruce Run and Round Valley Reservoirs were characterized as "safe" and only minor routine repairs were recommended.

The Authority also continued its program of quarterly inspections of the dams, dikes, and appurtenances in accordance with the Authority's Internal Management Program.



*The Round Valley South Dam located in Clinton Township, Hunterdon County is one of the dams inspected as part of the Authority's annual dam inspection program.*

## **Delaware and Raritan Canal Water Supply Operations**

---

Throughout the year, Delaware and Raritan Canal operations proceeded with only minor interruption. The yearly average Canal diversion at the Port Mercer Gauging Station measured 92 mgd as of September 30, 2003. An average of 23 mgd was diverted to the Millstone River from the Delaware and Raritan Canal at the Ten Mile Waste Gates during the period.

Due to high river and stream flows throughout the year, water supply operations were affected by an inordinate amount of debris deposited in various control structures.

Canal personnel were called on often to remove accumulations of tree limbs, sediment and roadway runoff trash. In addition, embankment washouts in the Brookville Creek area required immediate action.

## **Maintenance Dredging Program**

---

The Authority's Annual Maintenance Dredging Program continued by removing sediment deposits from the Delaware and Raritan Canal. Utilizing a long arm excavator and a lattice boom crane, the Waterways & Embankment Unit removed over 5,600 cubic yards of material from the Inlet at Bull's Island. High flows in the Delaware River deposited a large sediment bar at the mouth of the inlet. This vital link of the Canal transmission system requires frequent maintenance dredging and coordination with the Division of Parks and Forestry so as to minimize intrusion upon campers in the area. Presently the dredging crew is scheduled to return at the close of the Bull's Island camping season.

## **Island Farm Weir Maintenance**

---

The annual project maintenance of the structure involved removal of heavy debris from the interior and sediment dredging with the crane at the gate openings of the fish ladder. In addition, NJWSA personnel assisted the Division of Fish, Game & Wildlife in performing maintenance and repairs to the video chamber. Previously installed warning buoys and canoe portage signs were closely monitored for proper positioning.

## **Landing Lane & Griggstown Spillways Repair**

---

Maintenance personnel performed repairs to the Landing Lane Spillway after heavy rains washed out the fill between the gaps in the top layer of stones. The crew used crushed New Brunswick shale screenings, placed in the open gaps. The Spillway receives heavy recreational traffic and had become hazardous for bicyclists due to the gaps in the stone crest. The crushed red shale screenings matched the existing historic stone.

Embankment unit staff also performed temporary repairs on the Griggstown Spillway after several washouts appeared as a result of storm activity. The crew filled in deep ruts and sandbagged the inlet side of the spillway as a temporary measure prior to a complete rehabilitation under the Capital Improvement Program.

## **Towpath Improvements**

---

Canal staff completed the towpath improvements in Titusville, which had become overgrown with vegetation. After leveling the area, the Waterways & Embankment unit laid a base of the screened fill material. The improved section was then

overlaid with a layer of quarry screenings to match the existing cover. Finally, the adjacent areas were raked, seeded and covered with hay. This improvement affords greater access to the area allowing for more frequent maintenance activity and Water Supply patrols.

## Ten Mile Pump Station

---

D&R Canal personnel performed routine monthly test running of all pumps at this location during the past year. After a lightning strike damaged the overhead electrical service, the switchgear was found to be inoperative putting the pump station out of service. Staff from the Facilities Maintenance unit responded, serviced and repaired the main switchgear. The station was brought back to operating status and normal pump testing has resumed in order to ensure the reliability of this critical system.



*The Ten Mile Pump Station located in Franklin Township, Somerset County, was brought back to operational status after a lightning strike damaged the electrical service.*

## Emergency Response

---

A minor earthquake hit New Jersey on August 26, 2003. The magnitude – 3.8 earthquake was centered about eight miles south of Milford, Hunterdon County, New Jersey about 15 miles southwest of the

Spruce Run and Round Valley Reservoirs. The earthquake triggered a response under the Authority’s Emergency Action Plans for the Raritan and Manasquan Reservoirs. Any earthquake activity is characterized as a “Dam Advisory Condition” in the Emergency Action Plans and requires notification of local emergency management officials and thorough inspections of the facilities. Engineering and operations staff immediately conducted inspections of the reservoirs facilities. No damage was observed.

A tornado touched down in Ewing Township on September 23, 2003. Maintenance and Embankment personnel responded by removing several dozen trees from the Canal. In addition, State Police requested Authority assistance in clearing debris and downed trees from several residential areas bordering the Shabakunk Creek. The twister struck the Olden Avenue, Ewing Township, Mercer County area, destroying homes and businesses. The unique capabilities of the Speedloader were put to use reaching over the creek to remove dozens of snapped-off trees and limbs. Ewing Township officials expressed their appreciation for the quick response and assistance of Authority staff and equipment.

## Princeton Pump Station Demolition

---

Canal staff demolished the obsolete Princeton Pump Station formerly used to provide irrigation to area sod farms. The derelict pump station had become an eyesore and a target for graffiti artists. Using the long arm excavator and bulldozer the Embankment crew made fast work of the old pump station. The pre-cast concrete deck was left in place and overlaid with treated lumber. Facilities Maintenance carpenters then fabricated a canoe dock out of the remains, resulting in a structure that is both useful and pleasing to the eye.

**SUMMARY OF WATER USE CONTRACTS**  
**Raritan Basin System**  
**(Million Gallons Per Day - mgd)**  
**As of January 1, 2004**

<u>User</u>	<u>Type of Contract</u>	<u>Supply</u>	
United Water Lambertville, Inc.	U	0.200	(1)
Mercer County Park Commission	U&SB	0.100	(1)
Trenton Country Club	U&SB	0.250	(1)
Borough of Mt. Arlington	U	0.039	
City of New Brunswick	U	10.500	
East Brunswick Township	U	8.000	(2)
Elizabethtown Water Company	U	124.100	
Hunterdon County GC	U&SB	0.261	
Mercer County Park Commission	U&SB	0.135	
Middlesex Water Company	U	27.000	
North Brunswick Township	U	8.000	
Princeton Plasma Physics	U	0.500	
Ridge at Back Brook CC	U&SB	0.111	
Roxbury Township	U	0.070	
Royce Brook CC	U&SB	0.536	
Selody Sod Farms, Inc.	U&SB	0.100	
Somerset County GC	U&SB	0.100	
<hr/>			
Total Raritan System Users		<u>180.002</u>	<u>mgd</u>

(1) These users withdraw their supply from and return water to the Delaware River Basin and are excluded from payment of the debt service rate component for the 1969 Water Conservation Bonds.

(2) Water treated and supplied through Middlesex Water Company.

U = Uninterruptible Service

SB = Standby Service

## **Capital Improvement Program**

The Authority's current Capital Improvement Program entails the investment of approximately \$1,569,200 per year. In evaluating the options for financing this program, the Authority looked at (1) the continuation of the practice of incurring long-term debt through the issuance of Revenue Bonds and (2) the feasibility of current financing through the assessment of annual charges as part of the water use rate structure. It was determined that financing of such a small annual Capital Improvement Program based upon the issuance of long-term debt would not be fiscally prudent.

The Authority's present financing for reinvestment in plant and capital is consistent with the booked depreciation of plant and equipment for the Raritan System facilities (without the depreciation of the dams) which amounts to about \$1,900,000 per year.

The following is a description of projects undertaken in 2003, which were funded from the Capital Improvement Program.

### **Structural Improvement and Roof Replacement at the South Branch Pumping Station and the Spruce Run Administration Building Entrance**

---

In recent years, numerous leaks throughout the South Branch Pumping Station have developed. An investigation was made of the roof, all existing masonry, exterior brick masonry, steel lintels over the building openings, precast concrete coping stones, vertical precast concrete columns, expansion joints in the concrete transformer pad, and the concrete transformer pad itself. It was determined that some of the aforementioned items are in need of repair and/or

rehabilitation to help provide a watertight system for the building. During the evaluation of the facility and through the use of an infrared roof analysis, it was also determined that it would be economically feasible to repair the roof at the pumping station at this time as well.

The masonry at the entrance to the Spruce Run Administration Building was included as part of this investigation as well. During that investigation it was determined that portions of the masonry, specifically the precast columns, need to be replaced.

Plans and specifications are complete and we are in the application process for construction permits from the New Jersey Division of Community Affairs. Upon receipt of permits, we will go forward with the bid process. Construction is planned for the spring 2004.

### **Rehabilitation of the Delaware and Raritan Canal Embankment near the Five Mile Lock**

---

The Five Mile Spillway, the Five Mile Waste Gate, the embankment under the Route I-287 crossing near Easton Avenue, and the Inflow/Outflow Spillway, all in Franklin Township, Somerset County, were in various stages of deterioration.

Rehabilitation of these structures was prioritized after several major storm events, including Hurricane Floyd, further deteriorated some of these structures. This project includes varying degrees of rehabilitation and complete rebuilding as follows:

#### **Five Mile Wastegate**

The inlet and outlet headwalls of the Five Mile Wastegate were rebuilt and a new cast iron gate was installed at the inlet. The

existing reinforced concrete pipe remained in place and the headwalls were each constructed of reinforced concrete and covered with a historic stone veneer.

### Five Mile Spillway

The Five Mile Spillway is being completely rebuilt. Timber sheet piling is being installed on the canal side of the spillway and will provide a water cutoff and reproduce the spillway as it was originally constructed. A reinforced concrete slab covered with four to six inch thick stones was installed on the spillway crest and held in place with mortar and stainless steel anchors. The river side of the spillway is being constructed with historic stones placed to reproduce the dry-laid stones used during the original construction. A reinforced concrete cutoff wall was constructed at the toe of the river side slope.



*The Five Mile Spillway in Franklin Township, Somerset County was rebuilt with a stone facing over a reinforced concrete slab.*

### Route I-287 Embankment

The embankment beneath the Route I-287 crossing in the vicinity of Easton Avenue has experienced severe erosion in the past to the point where the embankment was breached once in the 1970's. The erosion was the result of several factors including the road runoff that drops 20 feet from the bridge scuppers, unusual currents resulting

from the river bend and the concrete bridge abutments, and from the lack of vegetation that would aid in erosion resistance. The crest of the embankment under Route I-287 is being rebuilt with a reinforced concrete slab overlain with four to six inch thick stones attached to the concrete with stainless steel anchors and mortar.

### Inflow/Outflow Spillway

The Inflow/Outflow Spillway was deteriorated and is being completely rebuilt. The proposed construction is similar in nature to that of the Route I-287 embankment with a reinforced concrete pad overlain with four to six inch stones.

### **Instrumentation of the D&R Canal**

---

Presently a Water Supply Operator locally operates the majority of the locks and waste gates along the Canal. Most of the existing gates are not motorized, and have a hand crank and/or a keyed shaft to receive a portable motor carried by the Water Supply Operator. The operator observes the water elevation of the Canal and adjacent waterways, and manually opens or closes the gates based on visual inspection, past experience, and an intimate knowledge of how the various structures interrelate with each other and to the Canal and the rivers.

The intent of this project is to develop an incremental plan for automation of the Canal operations. The first step of the plan is the installation of instrumentation to monitor water levels along the length of the Canal and transmit this information to a central monitoring station at the Canal Office. The second step will be to install motorized gates on select structures to be operated by push button controls. This will be followed by installation of facilities to operate the structures by remote control from the Canal Office. The ultimate goal is to develop a system of automated operation that responds

to changing water levels in the Canal. Installation of the level measuring and communications devices is nearing completion.

### **Underwater Inspection and Rehabilitation of the Flow Control Structures along the Delaware and Raritan Canal**

---

Nine flow control structures located along the nearly 60-mile length of the Canal were known to be in various states of disrepair. The structures included Raven Rock, Prallsville, Lambertville, Kingston, Griggstown, Ten-Mile, South Bound Brook, and Five-Mile flow control structures and Ten-Mile Waste Gate. Consultants evaluated the condition of each of the structures to assess the requirements for providing motor operators to replace the existing manual operators. Their evaluation included underwater investigations and above water inspections at all of the structures.

Based on these investigations, most of the cast iron sluice gates require replacement, and concrete repairs, mostly surficial in nature, are required at all of the sites. The Authority budget will not allow for rehabilitation of all of the structures on the Canal to be accomplished in one project. Accordingly, plans are currently being made and the sites are being prioritized to phase the work to fit the Authority's budget.

### **Rehabilitation of the Simonson Brook Culvert**

---

The Simonson Brook Culvert is located approximately 150 feet north of the Griggstown Causeway in Franklin Township, Somerset County, and conveys Simonson Brook under the Canal towards the Millstone River.

The culvert construction includes three arches approximately 135 feet long. The inlet and outlet ends have historic headwalls



*Rehabilitation of the Simonson Brook Culvert in Franklin Township, Somerset County was completed in February.*

and wingwalls. As part of the investigation, the Authority contracted for the removal of sediment and debris from the three barrels. One of the three barrels was totally blocked with sediment and debris. The other two were partially blocked. The barrels were found to be in good condition and not in need of major rehabilitation.

As part of the rehabilitation, the top course of the upstream headwall was rebuilt, and the masonry was repointed. Repointing was also required inside the culvert barrels. The majority of the work was on the downstream end of the culvert where the top courses of the headwall and both wingwalls will be rebuilt in their entirety.

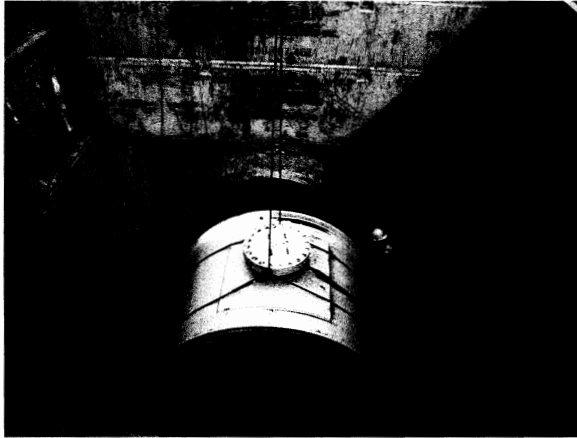
Rehabilitation of the culverts was completed in February 2003.

### **Round Valley Force Main**

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As a result of the testing and investigation in 2000 and 2001 of the structural condition of the Force Main, one section of pipe (Pipe #42), located within the South Branch Pumping Station property, was excavated

and further examined externally and internally. To enable pumping in spring 2002, Pipe #42 was backfilled by Authority personnel using select material and careful compaction methods. No adverse effects were observed in a careful inspection of the interior of Pipe #42 following the one-month pumping program.



*Replacement of one section of the Force Main adjacent to Route 31 in Clinton Township, Hunterdon County was completed in March.*

To proceed with the Authority's plan for establishing a long-range program to continually assess and monitor the structural condition of the Force Main, proposals were solicited from engineering consultants. Extensive evaluation and discussion of the different technologies presented led to the choice of the method of testing used previously. As the first step in developing a long-range monitoring program, non-destructive testing of the interior of the Force Main was carried out in July 2002. Based on that testing and due to its location directly adjacent to Route 31, the consultant recommended the replacement of Pipe #493 prior to putting the force main back into service.

The Authority acted quickly. Plans and specifications were drawn up, a replacement pipe section was purchased, and a contract was entered on a fast track basis. The pipe

was replaced and the spring pumping program was literally begun the moment that the pipe was backfilled. Upon removal, pipe # 493 was subjected to a battery of tests including strain gage testing on the prestress wires by the consultant. We are awaiting their final report on the pipe and the recommendations for the remainder of the pipeline.

### **Rehabilitation of the Elevator at the South Branch Pump Station**

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The elevator at the South Branch Pump Station is operated by a piston contained in a steel cylinder that is buried. Reports of other elevators of similar construction have been received where the buried steel cylinder corrodes and fails.

Consultants evaluated the condition of the elevator to assess the condition and made a recommendation to replace it. Plans and specifications are currently being drawn up by our consultant for complete replacement currently scheduled for the summer of 2004.

### **Rehabilitation of the Spruce Run Spillway**

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The spillway is a 550-foot long, reinforced concrete, overflow weir with an ogee face, located at the west abutment of the main dam. In 1993, the spillway was patched to repair longitudinal surface cracks, surface spalling, and transverse joint deterioration along the downstream face. Deterioration of the concrete surface of the spillway continues, including spalling and horizontal cracking. Rebar exposed by spalling on the ogee face has been temporarily covered with a mortar patch. Previously repaired areas, while remaining intact, have been displaced as a unit from the ogee face. Numerous horizontal and vertical cracks, and some spalling, were observed on the upstream (vertical) face of the spillway. While the

overall stability of the spillway is not a concern, rehabilitation is needed to prevent continuing deterioration. NJDEP Dam Safety Section has approved plans and specifications for rehabilitation of the spillway and the Authority received bids and entered into a contract in the fall 2003. The large amount of rainfall this summer prohibited work on the spillway until spring of 2004.

## **Rehabilitation of Two Culverts at Prallsville**

Two culverts under the Canal are located at the Prallsville Mill Complex in Stockton Borough, Hunterdon County. These small culverts, each about eight feet wide and four feet high, were constructed when the Canal was built in the 1830's to discharge flows from mill tailraces.

The northern (up-Canal) culvert extends about 250 feet from the gristmill tailrace near the Wickecheoke Creek to the Delaware River. The inlet headwall was restored during work on the Prallsville Mill Complex, and is in good condition. The outlet headwall at the Delaware River is entirely missing. The stonework within the barrel is in generally good condition.

The southern (down-Canal) culvert extends about 120 feet from the oil mill/sawmill tailrace, where it discharges to the Delaware River. The inlet headwall, in a large pit, appears in good condition, but other walls of the pit are greatly deteriorated. The barrel appears in good condition. The outlet headwall appears in fair condition, with missing grout in the upper courses of stone.

Rehabilitation of these two culverts includes reconstruction of the outlet headwalls and resetting missing stones in the barrels of both culverts. Also included in this project is construction of a new concrete wall with historic stone facing to replace a failed stone wall in the pit adjacent to the



*Extensive rehabilitation of two culverts and adjacent walls was undertaken at Prallsville in Hunterdon County*

inlet headwall of the southern culvert, and reconstruction of a concrete wall at the right bank of the Canal over the northern culvert to stabilize the embankment against flows from the Wickecheoke Creek.

The project is currently under construction, and was substantially completed at the end of 2003.

## **Rehabilitation of the Niece Lumber Culvert**

The Niece Lumber Culvert is located at Station 324+30 on the D&R Canal in the City of Lambertville, Hunterdon County. Flow entering the arched masonry structure flows under the Canal and empties in a natural open channel into the Delaware River. Recently, the embankment above the inlet of the culvert failed and partially blocked the culvert inlet. The stone headwall collapsed and additional sloughing of the embankment is likely. Authority Engineers and retained Cultural Resource and Engineering Consultants have devised a cost effective method for long-term stabilization of the pit. However, it is required to remove sediment from the Niece Lumber Culvert to restore its flow carrying capacity, and to restore the culvert's structural integrity before the long-term

stabilization for the upstream pit is implemented.

This project includes removal of sediment and debris within the culvert, re-pointing and replacement of missing stones in the culvert barrel and reconstruction of the south wingwall at the outlet of the culvert.

It is anticipated that this project will commence in the spring of 2004.

### **Remediation Program at the Administration Building Fuel Facilities**

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When the Authority replaced the old gasoline tanks at the Administration Building with new fuel tanks in 1992, the old tanks were found to have leaked and contaminated the surrounding soil and groundwater. Although the contaminated soil was removed from the site at that time, remediation of the contaminated groundwater has continued since then, as directed and monitored by the NJDEP. By 1996, 14 groundwater monitoring wells had been installed in the vicinity of the fuel tanks, and in February 1997 the NJDEP approved a Remedial Action Work Plan devised by the Authority's consultant. Since that time, the wells have been sampled, the samples analyzed, and a Remedial Action Progress Report prepared every six months by the consultant and submitted to NJDEP.

In April 2001, during a regular sampling, diesel fuel was found in the monitoring well closest to the fuel tanks. Immediate steps were taken to remove as much diesel fuel as possible from the well, and the incident was reported to NJDEP as required.

Investigation and testing of the entire fuel system demonstrated that there was no leakage in the system. There has been no recurrence of diesel fuel in this well, and no indication then or since of diesel fuel in any of the other wells.

In response to this incident, NJDEP required sampling on a quarterly basis and analysis of each sample for additional parameters. This program of quarterly sampling, analysis and reporting has continued in 2003.

### **No Name Dam No. 31**

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No Name Dam No. 31 is near the South Branch Pumping Station in Clinton Township, Hunterdon County. The embankment, constructed in the early 1960's across a creek to provide for the access driveway to the Pumping Station, is on Authority property. An outlet control structure upstream of the culvert through the embankment was added at the request of the then upstream property owner to allow impoundment of water. Ownership and jurisdiction for No Name Dam No. 31 is now shared by Clinton Township, the current owners of the control structure, and the Authority.

With the addition of the control structure, the embankment was classified as a dam in accordance with the Safe Dam Act and is thereby regulated in accordance with the State Dam Safety Standards. According to a Phase I inspection report issued by the Army Corps of Engineers in August 1979, the control structure does not comply with these standards. In September 2001, the Authority and NJDEP signed an agreement whereby the Authority will take the lead in upgrading the dam to comply with the State Dam Safety Standards. Construction is anticipated for the summer of 2004.

State Dam Safety Standards and the NJDEP will provide funding for the effort. The Authority has selected a consultant to determine the appropriate criteria for conformance with the Dam Safety Standards, to develop alternative methods for satisfying the criteria, to provide a

detailed design of the chosen alternative and to provide construction management.

The Authority's consultant has worked closely with NJDEP to establish acceptable criteria for meeting the standards. A draft report of the consultant's analysis is being reviewed by NJDEP. When this analysis has final approval, alternative procedures for upgrading the dam will be considered, leading to a detailed design of the chosen alternative.

### **Vulnerability Assessment**

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Post September 11, 2001, the Authority has undertaken a review of our security procedures at all of our facilities. The Authority executed a contract on February 13, 2003 to conduct a security Vulnerability Assessment at locations throughout the Raritan Basin System and the Manasquan Reservoir System. The Authority has and will continue to review its security and upgrade when appropriate.

NEW JERSEY WATER SUPPLY AUTHORITY  
CAPITAL IMPROVEMENT PROGRAM

Project	Estimated Project Cost	Prior Years	FY 2004	FY 2005	FY 2006	FY 2007 & beyond
Island Farm Weir	350,000	264,960	85,040			
Pipeline Evaluation - Release Pipeline	200,000	43,397		156,603		
Pipeline Evaluation - Force Main	1,000,000	856,110	143,890			
Admin Bldg Fuel Facility Remediation	450,000	329,426	30,000	30,000	30,000	30,574
Structural Imp. @ SBPS & SRA	1,325,000	807,391	517,609			
Workhouse Spillway Rehab (D&R)	900,000	96,868	50,000	150,000	603,132	
Security System Upgrade	1,000,000	25,760	200,000	750,000	24,240	
Maintenance Dredging	59,000	14,044	44,956			
Dredging between Five Mile and Rt 18	2,100,000					2,100,000
Rehab of Canal Flow Control Structures	500,000	51,927				448,073
Raven Rock and Prallsville Locks	630,000		80,000	550,000		
Griggstown and Ten Mile Locks	470,000			70,000	400,000	
Instrumentation of D&R Canal	675,000	523,636	151,364			
Rehab of SR Spillway	300,000	50	299,950			
Rehab of Culvert @ 324+30 (D&R)	275,000	17,253	200,000	57,747		
Rehab of Culvert @ 2021+89 (D&R)	331,000	10,395			100,000	220,605
Rehab of Culvert @ 2249+79 (D&R)	165,000					165,000
Rehab of Simonson Brook Culvert (D&R)	305,000	301,550	3,450			
Route 1 Conduit Automated Rakes	85,000				85,000	
Evaluation of Ten Mile Pumping Station	50,000			50,000		
Evaluation of South Branch Pumping Station	200,000			200,000		
Embankment Improvements - Canal	330,000		80,000	50,000	50,000	150,000
Rehab Embankment at Five Mile	1,800,000	773,791	1,026,209			
Culvert Cleaning & Inspection	200,000			200,000		
Rehab Culverts at Prallsville Lock	850,000	209,470	640,530			
Rehab Swan Creek Culvert	450,000					450,000
Rehab of Waste Gate ds of 10 Mile	600,000				100,000	500,000
Cutoff Wall in Shipetaukin Creek Guard Bank	750,000				50,000	700,000
Rehab of Canal Embankment at Sta 26+00	650,000					650,000
<b>TOTAL</b>	<b>\$17,000,000</b>	<b>\$4,326,028</b>	<b>\$3,552,998</b>	<b>\$2,264,350</b>	<b>\$1,442,372</b>	<b>\$5,414,252</b>

The estimated project costs listed includes engineering, cultural, construction and miscellaneous expenses.

FOOTNOTES:

D&R - Delaware & Raritan Canal

SRA - Spruce Run Administration

SBPS - South Branch Pumping Station

# MANASQUAN WATER SUPPLY SYSTEM

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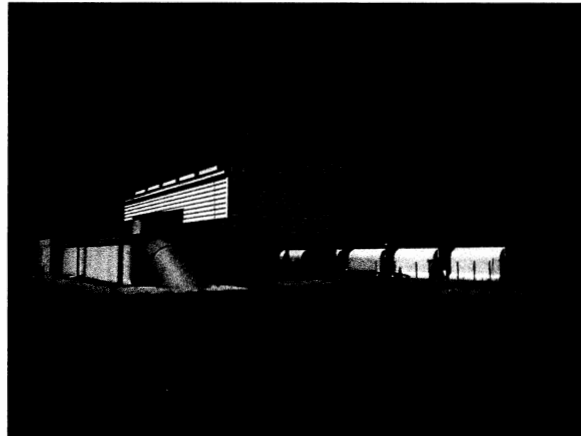
## Facilities

The Manasquan Water Supply System consists of a 770-acre reservoir located on Timber Swamp Brook, a tributary of the Manasquan River, in Howell Township, Monmouth County, that can store more than four billion gallons of water when full. Water to fill the reservoir is drawn during periods of high flows in the Manasquan River at an intake pumping facility located in Wall Township. To create the reservoir, approximately 800,000 cubic yards of earthen materials excavated from within the reservoir site were used to construct the main dam, dike, Georgia Tavern Road embankment, and the wetland dikes at the reservoir. A critical portion of the main dam and dike construction involved the installation of a soil-bentonite clay cut-off wall to control water seepage through the dam embankment. Groundwater levels around the reservoir are controlled by a perimeter drain system constructed along the north and south shores of the reservoir varying in depth up to 15 feet.

As part of the reservoir construction, the Authority was responsible for the creation of six emergent wetland areas at several locations along the reservoir periphery, at the intake site, and at three other off-site locations within Monmouth County. These sites were excavated and/or filled, depending on the topography, to create shallow ponds with a water depth of one to three feet. A five year wetland monitoring program was required under our U.S Army Corps of Engineers permit for the Manasquan Reservoir System mitigation plan. The monitoring program in its last year concluded with a meeting and site visit by U.S. Army Corp of Engineers representatives. The wetland monitoring program assessed the survival rate of planted species, growth of indigenous plants, and

use of the areas as wildlife habitat to determine the success of the manmade freshwater wetland areas in replacing natural areas lost in the construction process.

The Intake Facilities consists of an Intake Pump Station on the Manasquan River; a Flow Meter/Valve Chamber, the point of delivery to the majority of the water customers; a Reservoir Pump Station housing five pumping units; and the Maintenance/Administrative Office area for the System. The Intake Facility is designed with a peak pumping capacity of 150 million gallons of water per day while maintaining no less than an eight (8) million gallon per day minimum downstream passing flow in the Manasquan River. A stream gauging station on the river monitors flows downstream of the intake pump station.



*The Intake Pumping Station located on the Manasquan River in Wall Township, Monmouth County has a peak pumping capacity of 150 million gallons of water per day.*

The river water is pumped from the intake structure and pump station to a settling basin where the sediments settle out. The water from the settling basin can be pumped through a 5.25 mile long, 66-inch diameter

pipeline to storage in the Manasquan Reservoir, or it may be pumped via the New Jersey-American Water Company's facilities to storage at their Glendola Reservoir or allow to flow by gravity from the settling basin to the Monmouth County Improvement Authority Treatment Plant which is also located at the intake site.

The 66-inch diameter prestressed concrete cylinder pipeline to the Manasquan Reservoir is buried a minimum of five feet along a route which minimized disturbance to archaeological sites and private property. At the reservoir location where the 66-inch pipeline is enclosed in a 120-inch diameter prestressed concrete cylinder pipe, the pipe changes to a structural steel pipe as it passes through the dam embankment to the Inlet/Outlet Tower. This tower rises 84 feet above the reservoir floor and performs the functions of either releasing reservoir water or accepting pumped water from the Reservoir Pump Station located at the Intake Facilities.

The Manasquan Water Supply System, which commenced operation on July 1, 1990, provides the region with a safe, dependable and renewable water supply which reduces the region's dependence on depleted groundwater supplies. This system can supply a safe yield of 30 million gallons of water per day (mgd) even during a recurrence of the worst drought to strike the region. Of the Manasquan System's safe yield of 30 mgd, raw water contracts currently total 19.032 mgd.

The New Jersey-American Water Company receives 12.8 mgd for treatment at its Jumping Brook treatment facility. This water is delivered to New Jersey-American customers in northeastern Monmouth County and to other water supply systems along the Raritan Bayshore region as part of three-party agreements for receipt of raw water.

Raw water in the amount of 3.535 mgd is contracted for delivery to the treatment facility owned by the Monmouth County Improvement Authority (MCIA) located at the Manasquan Intake site. The MCIA has contracts to deliver treated water to the Boroughs of Brielle, Sea Girt, Spring Lake, Spring Lakes Heights, and Wall Township. The New Jersey Water Supply Authority, under a separate contract with the MCIA, designed, constructed and operates this state-of-the-art treatment facility.

New Jersey-American Water Company now operates the treatment facility in Howell Township, which withdraws 2.697 mgd of water directly from the 66-inch diameter reservoir pipeline. This treatment facility has been reconstructed over the past several years and is currently operating in a start-up mode. The Authority expects that the amount of raw water withdrawn at this location will increase in the near future. The treatment facility delivers water to customers within the water systems formerly operated by Howell Township and Adelpia Water Company.

The remaining 10.968 mgd of the safe yield of the Manasquan Water Supply System is available for use in meeting the future water needs of Monmouth and northern Ocean Counties.

The reservoir also provides environmental and recreational benefits to the area. Under agreement with the Authority, the Monmouth County Park System is managing the recreational use of the reservoir. County park rangers and staff provide maintenance of the areas outside the restricted access zones and security patrols of the entire site. The County encourages and sponsors programs for use of the five-mile long perimeter trail walk. Operation of the boat launch ramps by the County provides access for recreational boaters and fishermen.

The County's Visitor Center was completed in June 1994, and its operation has maximized the recreational uses available at the reservoir site. The attractive building with its various amenities promotes greater utilization of the reservoir area by the public. The Visitor's Center houses a photo display, donated by the Authority, depicting the actual operational schematic of the Manasquan Reservoir Water Supply System.

The County officially opened the Manasquan Reservoir Environmental Center in the spring 2002. The project greatly expands the environmental education opportunities at the reservoir site. The Environmental Center is located off of Georgia Tavern Road and its building provides a spectacular view of the Manasquan Reservoir.

The reservoir also provides an excellent opportunity for recreational fishing. The gravel spawning beds and log shelters in the northwest corner of the reservoir has proven attractive to fish. Fishing has been successful from bank areas as well as from watercraft. The NJDEP's Division of Fish and Wildlife have stocked the reservoir with fish of various species since the spring of 1990. Indigenous species of fish are also making a strong showing in numbers and size. These fish apparently migrated to the reservoir from the small streams and ponds that lie in the compact watershed or were incorporated into the impoundment.

## Operations and Maintenance

The Manasquan Water Supply System operated most of the year at rainfall totals at or above normal, presenting a water supply situation much improved over the previous year. The ample winter and spring precipitation allowed the Manasquan Reservoir to remain at full capacity for the start of the summer season. The Manasquan Reservoir storage volume is a good indicator of the area's water supply conditions whereby the storage volume remained near historic averages throughout summer and fall.

The Manasquan staff and the Authority's Engineering personnel monitored the dam and appurtenances throughout the year both visually and by means of the data continuously recorded by instrumentation buried within the dam and dike structures. The performance of the dam and dike has been confirmed to be well within design predictions.

An outside engineering firm, the Authority's staff, and the NJDEP-Dam Safety Section conducted a formal annual dam inspection in June 2003. The inspection again resulted in a safe rating. Any deficiencies noted in the report were of a minor nature.

In 1993, the State of New Jersey granted a waiver of a requirement to install a siren warning system downstream of the Manasquan Dam. Following receipt of this waiver the Authority adopted an Internal Management Plan (IMP) to augment the existing Manasquan Dam-Emergency Action Plan (EAP) and Dam Safety and Maintenance Manual. As part of this IMP, the Authority's Engineering and Safety personnel assist in various activities required by all plans in order to assure the facilities are safe and operating within design parameters. These activities include quarterly inspections of the dam, dike and

appurtenant structures, review of the monthly dam instrumentation and observation well data, and semi-annual drills of the EAP. The EAP has been updated as per the request of the NJDEP-Dam Safety Section, and submitted with the latest plan changes on April 1, 2003.

Monitoring of the water quality in the reservoir continued throughout the year in order to obtain information on seasonal variations of reservoir water. During the warmer months, the data collected by the Manasquan staff was used by the Authority's algae control contractor to schedule applications of copper sulfate to the reservoir. Timely information on the reservoir water quality permits the contractor to schedule the applications to provide maximum benefit and the best margin of safety for higher aquatic life forms. The growth of algae, a natural occurrence in surface water impoundments, can cause water treatment difficulties resulting in unpleasant taste and odor if permitted to go unchecked.

The maintenance of the grassed areas on the dam and dike, at the intake site, wetlands, and along the pipeline easements is managed by the Buildings and Grounds Maintenance Unit. The unit also handles the maintenance of drainage structures at the reservoir and the wetland areas. Lower water levels at the reservoir enabled the unit to remove the wood debris that accumulated along the rip rap stone along parts of the dam, dike and saddle area.

Maintenance of mechanical devices is the responsibility of the Facilities Maintenance Unit. The preventative maintenance function is directed by a computer based maintenance program. All preventive maintenance activities have been identified and fed into the computer record. The program maintains a schedule of events and



*The Manasquan intake pool has been in operation from the start up of reservoir operations, the pool is scheduled to undergo cleaning by hydraulic dredge method in 2004.*

issues work orders which detail the tasks to be performed and the work force, supplies, parts and special tools required to perform the task. New tasks that arise and corrective actions taken by the unit are logged into the program to create a maintenance history of all individual devices. This computer program is also integrated into the payroll function of the unit. The unit's time is recorded by a work order number which allows the analysis of the unit's time allocation between the various budget expense centers.

The Facilities Maintenance Unit is responsible for the coordination of the activities of numerous vendor and service organizations. The unit participates with these organizations in tasks such as the maintenance and testing of the 2,300 volt variable frequency drives on the intake and reservoir pumps, the removal of residuals from the intake pump station, and the high voltage electrical testing and maintenance program.

## **Capital Improvement Program**

A Capital Improvement Program funded by the Renewal and Replacement Reserve was first recommended in September 1996 when excess debt service funding became available for this purpose. The program consists of a rehabilitation reserve for extraordinary operations and maintenance costs in case of a catastrophic failure of one of the main system components shown in the plan. The other projects represent improvement projects identified to upgrade or enhance the reservoir system facilities.

The annual funding is scheduled at \$200,000 for reservoir system improvements. Progress is being made on each specific project with the schedule currently in place for this program. Fiscal Year 2003 project activities included the design of an emergency power generation system for one power panel within the Manasquan Reservoir Water Supply System. The emergency power source would provide back-up power to the administration building and the flow meter/valve chamber. The Fiscal Year also represented the completion of the Vulnerability Assessment for the Manasquan Reservoir Water Supply System and a new air ventilation system for the double bay garage area.

Several other projects are currently underway such as upgrading the site security system and the development of plans and specifications for constructing changes to the stormwater collection system around the administration building, and a new automatic filtration system for the bearing flush pump at the Intake Pump Station.

## SUMMARY OF WATER USE CONTRACTS

Manasquan Water Supply System

(Million Gallons Per Day - mgd)

As of January 1, 2004

User	Type of Contract	Supply	
Wall Township	U	2.300	(1)
Borough of Avon	U	0.142	(2)
Shorelands Water Company	U	1.900	(2)
New Jersey-American Water Company	U	11.000	
Borough of Red Bank	U	0.778	(2)
Borough of Sea Girt	U	0.075	(1)
Borough of Spring Lake	U	0.310	(1)
Borough of Spring Lake Heights	U	0.450	(1)
Borough of Belmar	U	0.650	(2)
Borough of Brielle	U	0.400	(1)
Borough of Keyport	U	0.458	(3)
Borough of Matawan	U	0.469	(2)
Borough of South Belmar	U	0.100	(2)
<hr/> System Total:		<hr/> 19.032	mgd

(1) Water treated and distributed through Monmouth County Improvement Authority facilities.

(2) Water supplied through New Jersey-American Water Company, Eastern Division.

(3) Water supplied through Shorelands Water Company.

U = Uninterruptible Service

## Water Treatment Plant and Transmission System

As part of the overall distribution of water from the Manasquan project, the Monmouth County Improvement Authority entered into a contract with the Authority to construct and operate a four (4) million gallons per day water treatment plant and transmission system for the benefit of the communities of Wall Township, Brielle, Sea Girt, Spring Lake, and Spring Lake Heights. Throughout the plants years of operation, it has produced an average of just over three (3) million gallons of water per day, but in the most recent years the treated water delivery has continued to approach the contract amounts for each customer community.

The technology employed in the design of the treatment plant has proven able to effectively treat raw water drawn from the river and the reservoir as well as a blend of the two water sources. In the treatment process, the plant employs preoxidation and predisinfection with ozone, coagulation with aluminum sulfate, flocculation, clarification/filtration package units, granular activated carbon (GAC) adsorption contact, disinfection, pH adjustment and the addition of a corrosion control agent. The quality of the plant effluent continues to surpass the design predictions.

The plant staff has put their operating experience to use by streamlining the treatment process and utilizing proper chemical dosing with given river and reservoir water qualities. The proper use of treatment chemicals, a major budget item, has resulted in savings to the customers and lower treatment plant residuals. The treated water quality readily meets standards set by current State and Federal regulations.

The Manasquan plant provides between 15 and 85 percent of the drinking water consumed in the customer communities. The treatment plant was designed to

function as a constant flow facility meeting the base demand of the customer communities; however, the demand imposed upon the plant is greatest during the day and is at a minimum during the late night and early morning hours. The plant staff has developed operational plans that meet this demand pattern.

The Authority continues to utilize its NJPDES permit for the distribution and land application of water treatment residuals produced by the Manasquan plant. The NJPDES permit renewed on November 1, 2001 and is valid for a period of five years. Laboratory analysis has indicated that the treatment plant residuals are not harmful and that beneficial use can be made of the material.

The NJPDES permit offers different options to the Authority for re-use of the residuals. The residuals may be employed as a soil enhancer through direct land application or blended with sediment from the Intake Pump Station to create "topsoil" for use throughout the Manasquan Reservoir System.

A long-term plan has been developed to return portions of the project site to agricultural uses by incorporating the residuals into the soil to improve the soil consistency and mineral content. A small grain crop has been planted (for the fall planting season) on two parcels of land totaling approximately 10 acres after direct land application of residuals. A local farming business was used to plant the crop. The small grain crop will either be harvested for straw bales or cut for reseeding the fields. The field has yet to yield production of straw bales because of the damage caused by a resident goose population. Since the permit has been in place, the Buildings and Grounds Unit has utilized the blended

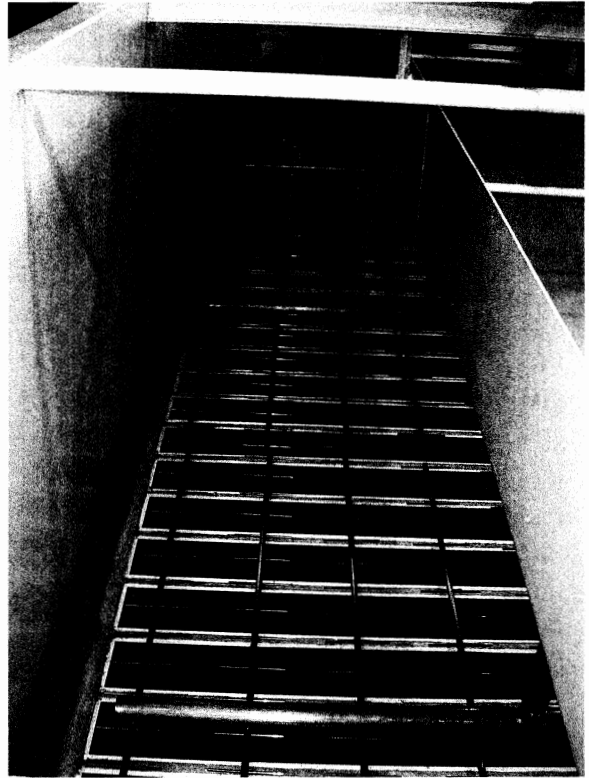
material for fill on a wide variety of projects that managed to keep the amount of residuals stored on-site within the permit requirements.

A five-year capital program has been designed to upgrade the water treatment plant and transmission system facilities in anticipation of amended New Jersey Department of Environmental Protection regulations and requirements and to provide for general facility improvements. The projects include upgrade for the adsorption clarifier/filter units, meter vault improvements, recycle water system analysis, ozone system improvements, diurnal study of the treatment plant flows, security system upgrades, GAC vessel relining and other modifications.

A professional engineering services contract was issued in July 1998 for engineering an upgrade to the adsorption clarifier/filter units and reviewing filter to waste and recycle water issues for the water treatment plant. The project identified and assessed the current operations, investigated options to enhance filtered water quality, and looked at ways to reduce and manage plant use water in the most economical way.

The engineering firm completed the final design drawings and specifications for an upgrade to the clarifier/filter units. The units have undergone extensive work within the filter area. The filters have been totally reconstructed utilizing a different filter media and a new underdrain system. The new filters are now being cleaned with a combination of air and filtered water backwash.

The project was initiated to assure compliance with the Interim Enhanced Surface Water Treatment Rule. This rule took effect January 1, 2002. The Authority secured funding for the Clarifier/Filter Upgrade through the New Jersey Environmental Infrastructure Trust Fund. The Authority anticipates that the



*New filter underdrain system completed as part of the filter upgrade project at the Manasquan Water Treatment Plant.*

construction project will be completed prior to the end of the calendar year.

The Authority issued a contract to reline two GAC contactor vessels. The project was completed in September 2003.

The Authority has also started working with an engineering consultant to identify and assess diurnal flow regime for the water treatment plant. A study of the diurnal flows at the water treatment plant was required by the NJDEP as part of the construction permit to upgrade the clarifier/filters. The engineering consultant is currently in the process of developing a full range of alternatives to lessen the effects of the diurnal flow changes at the water treatment plant.

## **Watershed Protection Programs Unit**

The New Jersey Water Supply Authority (Authority) formed its Watershed Protection Programs Unit in Fiscal Year (FY) 1999 to implement a *watershed management process* for the Raritan River Basin. The unit also represents the Authority at watershed management projects for the Manasquan River (including the Manasquan Reservoir) and the Upper Delaware and Central Delaware Watershed Management Areas, which provide water to the Delaware & Raritan Canal. Finally, the unit works with municipalities near the Spruce Run and Round Valley Reservoirs and the Delaware & Raritan Canal on preventive and remedial efforts to protect these water supplies. Primary functions of the unit are development and implementation of projects that improve protection of water supply for the Authority and its customers, planning for watershed protection, and involvement with State regulatory issues regarding watershed protection. The watershed unit is located in the lock tender's house at the 10 Mile Lock, Delaware & Raritan Canal, in Franklin Township, Somerset County. Unit staff gives presentations on a wide variety of watershed topics to government, non-profit and academic audiences, as well as to conferences and workshops.

### **Watershed Management for the Raritan River Basin**

Ground and surface waters of the Raritan River Basin, in Central New Jersey, provide potable water for well over one million people, as well as recreational opportunities, habitat for aquatic life, aesthetic benefits and many other advantages. Protecting these water resources, and improving them where necessary, will be vital for the continued health of over 100 New Jersey communities.

The Raritan River Basin is actually a collection of many watersheds, (areas of land that collect runoff from precipitation and direct it to streams, rivers, lakes and reservoirs). These waters all drain to a common point, the Raritan Bay between Perth Amboy, and Sayreville. Major waterways in the Basin include the North Branch and South Branch of the Raritan River, the Millstone River, the Green Brook, the Lawrence Brook and the South River, along with their many feeder streams, over 2,000 miles in all. The Delaware & Raritan Canal, which brings water from the Delaware River to the eastern part of the Basin, augments Raritan Basin water supplies. In addition, ground water underlies the entire Basin. This ground water system receives water from land surfaces and gradually releases the water to surface waters and to wells. All in all, the Basin covers approximately 1,100 square miles in Hunterdon, Mercer, Middlesex, Monmouth, Morris, Somerset, and Union counties.

A major focus of Authority efforts from 1999 to 2003 has been a project co-funded by the New Jersey Department of Environmental Protection (NJDEP) and the Authority to implement a *watershed management process* for the Raritan River Basin. NJDEP provided approximately \$1.1 million to the Authority in FY1999 through 2003 to develop a characterization (current status and trends) and assessment (comparison of the current status to the desired condition) for the entire Basin, and to work with a wide variety of public and private interests from around the Basin to develop a Raritan River Basin Watershed Management Plan that is both effective and accepted by the public, local governments, private interests and the NJDEP. This plan addresses the key issues of three Watershed

Management Areas, North and South Branch Raritan, Lower Raritan and Millstone.

The characterization and assessment technical reports for the Raritan River Basin were completed in 2000 through 2002.

They are:

- Setting
- Water Budget
- Water Supply Availability
- Surface Water Quality and Pollutant Loadings
- Ground Water
- Landscape
- Surface Water and Riparian Areas

A summary report was also published, "Portrait of a Watershed: The Raritan River Basin" providing an overview of the seven technical reports.

During FY2003, the Authority and the Raritan Project stakeholder accelerated completion of the project, at the request of NJDEP. The Raritan Basin Watershed Management Plan was completed in December 2002, six months early and under budget. The Raritan Plan, as it is called, includes goals, objectives and strategies that address the key issues of the Raritan Basin for each Watershed Management Area. Nearly 250 strategies are included, each with a detailed action plan.

The planning process involves hundreds of active participants who serve on the Raritan Basin Council, Technical Advisory Committee, Basin Education and Outreach Committee, and three Committees for the North and South Branch Raritan, Lower Raritan and Millstone Watershed Management Areas. The latter three committees also have subcommittees and work groups. In total, the stakeholders have invested an enormous amount of effort in this process. The Raritan Plan was formally released to the public in March 2003, and a public meeting was held in May to kick off the implementation process. Stakeholders

decided to create a new name for the implementation effort, the Raritan Basin Watershed Alliance, to emphasize the shift from planning to projects and the critical focus on project partnerships. The Authority is working as a member of the Alliance, to help it form project partnerships and attract funding for implementation.

The Authority also continued work on implementation projects to safeguard water supplies of the Delaware/Raritan System. In FY2002, the Authority received a \$61,000 grant from NJDEP to assess nonpoint source pollutant loadings into the Delaware & Raritan Canal between 10 Mile Lock and the water supply intakes. The Authority and its partners, Franklin Township and South Bound Brook Borough, will work with a consultant to develop pollutant control measures for high priority sources found through this project. This grant responds to a study by the U.S. Geological Survey that identified elevated levels of suspended solids and turbidity levels in this stretch of the Canal.



*A storm water outfall to the D&R Canal located in South Bound Brook, Somerset County is one example of an investigation site for the Authority's nonpoint source control project.*

Additional grants were received during FY2003. Prime among them is a \$1 million grant from the US Environmental Protection

Agency's (USEPA) Watershed Protection Initiative, a national competitive grant program. The Authority and the Stony Brook-Millstone Watershed Association developed the proposal with their partners, the South Branch Watershed Association and NJDEP. From 20 projects chosen by USEPA, the \$1 million grant was the largest amount awarded. The USEPA Administrator announced the national grants at a ceremony on May 1, 2003, in the Raritan Basin. The Authority and Stony Brook-Millstone Watershed Association will match the grant with another \$1 million, for a total of a \$2 million dollar project covering three years. The project will focus efforts on three areas in the Raritan Basin: the Millstone River watershed; the South Branch Raritan River watershed upstream of the Authority's Hamden Pumping Station, and the mainstem Raritan River and its tributaries between the North and South Branch Raritan Confluence and the Millstone-Raritan Confluence.

Through these projects, the Authority is proving the value of science-based watershed management and source water protection. Additional efforts will take place in FY2004 to use the results of the Raritan Basin technical work to focus protection activities.

### **Spruce Run Initiative**

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Results from the Raritan Project emphasized the need to better protect Central New Jersey's water supply facilities from water quality degradation and loss of water supply. In FY2002, the Spruce Run Initiative (SRI) was formed through a Memoranda of Understanding between the Authority and the municipalities of Bethlehem Township, Glen Gardner Borough, High Bridge Borough, Lebanon Township and Union Township. The Authority continues its work with these

municipalities of northern Hunterdon County to better protect the Spruce Run Reservoir. The SRI has three components.

First, land acquisition is used to protect key lands from development for the protection of water quality and supply. The Authority works in partnership with municipal and county government and the State to secure critical areas, based on "Critical Areas Preservation in the Spruce Run Reservoir Watersheds," a plan developed by the Authority through funding from the US Forest Service. In FY2003, the Authority made major strides in developing these partnerships and bringing key properties under contract. The Authority has proved the value of innovative funding sources, such as the New Jersey Environmental Infrastructure Financing Program (NJEIFP), which provides low-interest loans for land acquisition that protects water quality.

Second, improved land development controls will help ensure that future development is sensitive to water goals for the Reservoir. In FY2003, the Authority provided assistance to Bethlehem Township as they developed a draft Wastewater Management Plan for NJDEP review and approval. In addition, the Authority provided technical and planning assistance regarding master plan and zoning ordinance updates, open space planning, development proposals and other municipal issues affecting the watersheds.

Third, remedial projects will help reduce the elevated nutrient, sediment and bacterial loadings to the Reservoir. The SRI municipalities initiated an educational program for area residents to improve septic system management, which will continue into FY2004. The Authority also continued work on a three-year grant of \$235,000 from the NJDEP to develop a stormwater management model and plan for the Mulhockaway Creek Watershed, and received a final consultant report that



*The Spruce Run as it runs through  
Lebanon Township in Hunterdon County*

included a water pollutant loading model for all stream systems that drain to the Spruce Run Reservoir and an assessment of future loadings based on full build-out of the watershed using current zoning. The model concluded that current zoning would protect the Reservoir from long-term increases in pollutants in most areas, with the possible exception being those areas closest to the reservoir along the highways. To address this concern, SRI municipalities and the Authority applied for and received a \$45,000 grant from the Association of New Jersey Environmental Commissions to develop a "Smart Growth" plan for the highway corridors that would reduce pollutant loadings while maintaining or improving the economic viability of the corridors. This project will be completed in FY2004.

## **Watershed Management for the Manasquan River Watershed**

The Manasquan Watershed Management Group was formed in FY1998, with representatives from a wide variety of public and private interests, to help develop and implement a watershed management plan for that watershed. The project focused on both the freshwater streams (including the Authority's Manasquan Reservoir) and salt water estuaries in the watershed. The Authority served on the Management Group since its initiation, and has worked to ensure that the water supply investment in the watershed will be safeguarded. A Characterization and Assessment Report and a Manasquan Watershed Management Strategy were developed in the first years. The new Manasquan River Watershed Association, a not-for-profit watershed association formed to implement the management plan, is now working to implement activities focused on two grants received in FY2002, one to improve its outreach to local residents and officials, and the other to restore a section of degraded stream channel.

## **Watershed Acquisition Program**

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The Authority has been working in partnership with government and not-for-profit entities since 2001 to preserve watershed lands in the Spruce Run Watershed through the Spruce Run Initiative (SRI). The partners to that coalition include Lebanon Township, Union Township, Bethlehem Township, Hunterdon County, Green Acres, the State Agriculture Development Committee, and the Hunterdon Land Trust Alliance. The SRI mission is to bring greater efficiencies to the preservation of watershed lands through voluntary partnership respecting each partner's expertise in the preservation process.

During Phase I, the Authority identified critical preservation parcels, worked with municipal representatives in property owner outreach, and assisted in negotiations and acquisition administrative costs. Phase II commenced in July of 2003. In addition to continuing with its Phase I activities, the SRI with the assistance of the Authority preserved four properties totaling 651 acres in Lebanon Township.

Through the SRI, the Authority has brought greater efficiencies to preservation of critical parcels through utilization of the NJEIFP to finance watershed acquisitions realizing significant savings relative to market rate loans. In the future, the SRI will augment preservation efficiencies through expanded partnership for preservation within watershed critical areas, continued capitalization of low interest financing, and identification of additional funding sources.

# Letter of Transmittal - Chief Financial Officer

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## NEW JERSEY WATER SUPPLY AUTHORITY

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August 29, 2003

### To the Commissioners of the New Jersey Water Supply Authority

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The Comprehensive Annual Financial Report of the New Jersey Water Supply Authority ("Authority") for the year ended June 30, 2003 is submitted herewith. Responsibility for both the accuracy of the data and the completeness and fairness of the presentation, including all disclosures, rests with the Authority. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and are reported in a manner designed to present fairly the Authority's financial position, results of operations, and cash flows in accordance with generally accepted accounting principles. In accordance with these accounting principles, the Authority is a component unit of the State of New Jersey and, as such, is included in the State of New Jersey's Annual Report.

The Annual Report is presented in three sections: Introductory, Financial, and Statistical. The Introductory Section contains a reproduction of the Authority's Government Finance Officers Association Certificate of Achievement, a list of principal officials, the organizational chart, a letter to the Governor, and operational and maintenance information on the Raritan Basin System, the Manasquan Water Supply System and the Manasquan Water Treatment Plant and Transmission System,

and the Watershed Protection Programs Unit. The Financial Section contains the Independent Auditor's Report, Management's Discussion and Analysis, and the Financial Statements for Fiscal Year 2003, and comparative data for Fiscal Year 2002, as well as notes and supplemental information to the Financial Statements. The Statistical Section contains historical, financial, and operational data on a multi-year basis.

### Reporting Entity and its Services

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The Authority was created on October 7, 1981 (P.L. 1981, c.293) and was established in but not of the Department of Environmental Protection of the State of New Jersey. This "New Jersey Water Supply Authority Act" established the Authority to acquire, finance, construct, and operate water systems under certain circumstances, and authorizes the issuance of bonds of the Authority.

The Authority operates three separate systems: the Raritan Basin System, the Manasquan Water Supply System, and the Manasquan Water Treatment Plant and Transmission System. The Manasquan Water Treatment Plant and Transmission System is owned by the Monmouth County Improvement Authority (MCIA), and is operated and maintained by the Authority under the terms of an operating agreement.

Each of these systems provides sufficient revenues to cover their own operating expenses, and each system's debt service.

The Authority is governed by a seven member Board of Commissioners. The Board of Commissioners consists of the Commissioner of the Department of Environmental Protection of the State of New Jersey, who serves as Chair and six public members appointed for three year terms by the Governor with the advice and consent of the Senate. The Commissioner may designate, in writing, an officer or employee of the Department as a representative to act on behalf of the Commissioner. The members must include one expert in the field of Water Resource Management and Distribution, and one expert in Public Finance. The remaining members must represent the Agricultural Community, Industrial Water Users, Residential Water Users, and Private Watershed Associations. The Board annually designates a Vice Chairman, a Treasurer, and a Secretary. The members of the Authority serve without compensation.

The Executive Director is responsible for the management of the daily operations of the three systems and prepares proposals for presentation to the Board of Commissioners at monthly business meetings. The Executive Director is responsible for implementing such proposals after presentation to, and approval by the Board. The Authority's Executive Director heads a full-time staff of professional, technical, and operational personnel totaling 130 employees, consisting of 104 employees of the Raritan Basin System and 26 employees of the Manasquan Reservoir System.

The meetings of the Authority are normally scheduled for the first working Monday of each month. Four members of the Authority constitute a quorum at any meeting. Action may be taken, and motions and resolutions adopted by the Authority at any meeting by the affirmative vote of at least four members

of the Authority. A copy of the minutes of every meeting of the Authority must be delivered to the Governor. Actions taken at the meeting will not be effective until ten business days after the copy of the minutes has been delivered. If in this ten day period the Governor returns the copy of the minutes with a veto of any action taken by the Authority at that meeting, the action will be ineffective. All meetings held by the Authority are in accordance with the Open Public Meetings Act, which requires that all meetings of public bodies be open to the public.

## **Accounting System and Budgetary Control**

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The Authority's financial statements are prepared in accordance with generally accepted accounting principles. The Authority operates and reports as a single enterprise fund utilizing the accrual basis of accounting. The enterprise fund concept is similar to how private business enterprises are financed and operated. The intent is that the costs of providing service to water users on a continuing basis be financed primarily through user charges.

In an effort to ensure compliance with the Authority's By-Laws and to safeguard its assets, an internal control structure has been developed and implemented by management. This internal control structure includes policies, procedures, approved organizational structures, and approved budgets for capital and operating expenditures.

The Authority adopts an annual budget for its operations and establishes water rates accordingly. The budget of the Authority does not establish legal spending limitations, but is used for the purpose of establishing rates. Although the Authority is only required to give at least six months advance notice of proposed rate adjustments to contractual customers, the Authority usually

begins the rate adjustment procedure nine months in advance of the effective date through informal meetings with the water users. The initial informal meeting with the water users usually takes place in October of the year preceding the proposed effective date of the following July 1.

## **Financial Position**

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The total assets of the Authority as of June 30, 2003 were \$215,411,969, a decrease of one percent over the previous year's total of \$217,619,951. The Capital Assets, net of accumulated depreciation decreased \$2,852,661, two percent, from \$155,088,467 to \$152,235,806. Capital Assets net of accumulated depreciation of the Raritan Basin System decreased \$1,282,562, two percent, from \$81,357,399 to \$80,074,837. The decrease within this System is largely due to the effect of the accumulated depreciation expense net of any additions or deletions. The Raritan Basin System anticipates spending \$1.5 to \$2 million a year during the period 2004-2009 for capital improvement projects and will finance this Five Year Capital Improvement Program utilizing an internally generated Capital Fund Component. The Raritan Basin System established a new Capital Fund Component of \$10 per million gallons (mg) effective July 1, 1994 with subsequent changes in this component over the last nine years, and is proposing a Capital Fund Component of \$9.82 per mg, effective July 1, 2004. The Authority deems that the use of these internally generated funds for capital improvements is the most cost effective method of financing. This method of financing annual capital improvements will also place the Authority in the strongest possible financial position to meet the needs of the Raritan Basin System in the 21<sup>st</sup> century. As of June 30, 2003, a total of \$13,321,692 has been expended on projects within this Capital Improvement Program.

Capital Assets net of accumulated depreciation of the Manasquan Water Supply System decreased \$1,570,099, two percent, from \$73,731,068 to \$72,160,969. The decrease is due to depreciation of the assets in service. The Capital Assets net of accumulated depreciation associated with the Manasquan Water Treatment Plant and Transmission System is not reported within the Authority's Comprehensive Annual Financial Report and is the responsibility of the MCIA. The MCIA contracts with the Authority to operate the water treatment plant and related transmission facilities.

The total of cash and cash equivalents for the Authority increased \$163,882, or less than one percent, from \$39,690,796 to \$39,854,678. The small increase in cash is mainly attributable to an increase in the Capital Improvement Fund.

Current liabilities increased \$2,022,703, or twenty-nine percent, from \$7,055,124 to \$9,077,827. The increase is primarily due to the increase in Deferred Revenue. Total Net Assets of the Authority increased \$61,747, or less than one percent, from \$94,377,592 to \$94,439,339.

The Consolidated Revenues decreased by \$485,899 or two percent, from \$21,655,772 to \$21,169,873 due to a decrease in overdraft revenues in both Systems. Total Operating Expenses increased \$888,672, or five percent, from \$16,450,755 to \$17,339,427 due to increases in salary and fringe benefits, and operating expenses. Nonoperating revenues decreased \$597,732, or forty-four percent, from \$1,363,676 to \$765,944 due to a reduction in Investment Income because of current market conditions. Nonoperating expenses decreased \$447,050, or nine percent, from \$4,981,693 to \$4,534,643 due to a decrease in the reduction in costs to be recovered from future revenues. Contained in the following paragraphs is an explanation of changes in revenue and expense for each system.

The Raritan Basin System Revenues decreased \$639,485, or five percent, from \$14,205,036 to \$13,565,551. The decrease in revenues is due to a decrease in overdraft revenue collected. Total Operating Expenses increased \$751,509, or seven percent, from \$11,501,670 to \$12,253,199. Payroll and Fringe Benefits increased \$299,695, or six percent, from \$5,362,724 to \$5,662,419 due to contractual salary increases and fringe benefit renewal increases. Operations and Maintenance expenses increased \$430,832, or nineteen percent, from \$2,273,083 to \$2,703,915, mostly due to increases in electricity for pumping and insurance costs.

The Manasquan Water Supply System Revenues increased \$291,362, or five percent, from \$5,707,885 to \$5,999,247. The increase in revenues is due to the increase in the receipt of overdraft revenues. Total Operating Expenses increased \$81,150, or two percent, from \$3,526,634 to \$3,607,784. Payroll and Fringe Benefits decreased \$7,087, or one percent, from \$845,300 to \$838,213. The increase is due to the sharing of expenses between the Manasquan Reservoir System and Manasquan Water Treatment Plant expenses. Operations and Maintenance expenses increased \$96,955, or nine percent, from \$1,063,040 to \$1,159,995, mostly due to increases in electricity for pumping and insurance expense.

Operating Revenue for the Manasquan Water Treatment Plant and Transmission System increased \$44,602, or three percent, from \$1,419,068 to \$1,463,670 and total Operating Expenses increased \$56,013, or four percent, from \$1,422,451 to \$1,478,464. The budget is prepared on the basis of delivering the contracted amount of 3.42 million gallons per day (mgd) to the five participating municipalities. The actual Operations and Maintenance Expenses will vary with the actual draw from the treatment plant. The Water Treatment Plant Payroll

and Fringe Benefits increased \$12,069, or eighteen percent, from \$664,405 to \$784,474, and is subject to the same increases or decreases as the Manasquan Reservoir System depending upon the allocation of employee responsibilities between the two systems. Operations and Maintenance expenses decreased \$64,056, or eight percent, from \$758,046 to \$693,990, due to decreases in electricity and replacement of granular activated carbon.

At the April 2003 Authority meeting, the Authority adopted a Raritan Basin System rate to become effective July 1, 2003 of \$210.00 per mg covering Operations and Maintenance, Debt Service, Capital Fund, and the Source Water Component, for the Fiscal Year ending June 30, 2004. This rate represents an increase of 2.44 percent from the previous Fiscal Year rate of \$205.00 per mg. The proposed rate for the fiscal year ending June 30, 2005, effective July 1, 2004, is \$215.00 per mg covering Operations and Maintenance, Debt Service, Capital Fund, and the Source Water Component. The proposed Fiscal Year 2005 rate represents an increase from the previous fiscal year of \$210.00 per mg or 2.38 percent.

A revised Fiscal Year rate of \$794.97 per mg, effective July 1, 2003, was adopted for the Manasquan Water Supply System initial water user (7/1/90) at the April 2003 Authority meeting. In accordance with the Manasquan Reservoir Water Supply System Bond Resolution, Section 713, the Manasquan Water Supply System was required to establish a debt service coverage charge starting at five percent of gross debt service with the first interest payment date, 10 percent with the third interest payment date, 15 percent with the fifth interest payment date, and 20 percent with the seventh interest payment date and thereafter. The proposed Fiscal Year 2005 rate for the Manasquan Water Supply System initial water users (7/1/90) is \$926.03 per mg, effective July 1, 2004. There will be no

further changes in the water rate due to increases in debt coverage requirements, which reached a maximum coverage level of 20 percent as of February 1, 1994. The proposed rate of \$926.03 per mg, effective July 1, 2004, represents an increase of 16.49 percent from the previous fiscal year of \$794.97 per mg.

A revised Fiscal Year 2004 rate of \$1,065.45 per mg, effective July 1, 2003, was adopted for the Manasquan Water Supply System Delayed Water Purchaser (7/1/01) at the April 2003 Authority meeting. The proposed Fiscal Year 2005 rate for the Manasquan Water Supply System Delayed Water Purchaser (7/1/01) is \$1,190.39 per mg, effective July 1, 2004. The proposed rate of \$1,190.39 per mg, effective July 1, 2004, represents an increase of 11.73 percent from the previous Fiscal Year of \$1,065.45 per mg.

A revised Fiscal Year 2004 rate of \$1,072.34 per mg, effective July 1, 2003, was adopted for the Manasquan Water Supply System Delayed Water Purchaser (10/1/02) at the April 2003 Authority meeting. The proposed Fiscal Year 2005 rate for the Manasquan Water Supply System Delayed Water Purchaser (10/1/02) is \$1,197.28 per mg, effective July 1, 2004. The proposed rate of \$1,197.28 per mg, effective July 1, 2004, represents an increase of 1.65 percent from the previous Fiscal Year of \$1,072.34 per mg.

The Authority entered into an agreement on September 1, 1987 with the MCIA to design, construct, operate and maintain the Manasquan Water Treatment Plant and Transmission System. The MCIA raises all of the revenues necessary to cover operations and maintenance expenses and debt service. The MCIA transfers to the New Jersey Water Supply Authority the annual budget requirements on a monthly basis. The Authority is responsible for presenting a calendar year operating budget to the MCIA at least 210 days prior to the

beginning of each calendar year. The Authority is responsible for submitting a statement of actual operations and maintenance expenses for the prior fiscal (calendar) year to the MCIA 120 days after the end of each calendar year. The budget for calendar year 2003 is \$1,527,736, which represents a nine percent increase or \$128,132, over calendar year 2002's budget of \$1,399,604.

## Cash Management

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The Raritan Basin System had a total of \$27,578,130 in cash and investments as of June 30, 2003. These funds generated interest income of \$814,554.

The Manasquan Water Supply System had a total of \$10,455,375 in cash and investments as of June 30, 2003. These funds generated interest income of \$306,009.

The Manasquan Water Treatment Plant and Transmission System had a total of \$1,846,108 in cash and investments, which consisted of operating funds held by the Authority, as of June 30, 2003. These funds generated interest income of \$4,501.

Funds of \$6,811,231 of the Raritan Basin System, and \$4,949,133 of the Manasquan Reservoir System are held by the Trustees in accordance with bond resolutions and are invested in securities of the U.S. Government and its agencies and are collateralized at 102 percent of the carrying amount. Funds of \$13,676,533 of the Raritan Basin System, \$4,380,713 of the Manasquan Reservoir System, and \$1,540,723 of the Manasquan Water Treatment Plant and Transmission System were invested in the State of New Jersey Cash Management Fund. State laws permit the Division of Investment to invest in a variety of securities, such as obligations of the U.S. Government and its agencies, commercial paper, certificates of deposit, repurchase agreements, banker's

acceptances, and loan participation notes. All such investments must fall within the guidelines set forth by the regulations of the State's Investment Council. The Investment Council does not impose any limits on the amounts of funds, which may be deposited or withdrawn. To gain a higher rate of return than what is earned in the State of New Jersey Cash Management Fund, the Authority had elected to invest \$3,016,114 of funds from the Raritan Basin System and \$836,401 of funds from the Manasquan Reservoir System in (non-callable) Federal Farm Credit Bank Securities at a 2.25 percent return, due September 1, 2006. Capital Improvement Funds of \$3,279,011 of the Raritan Basin System are invested in a money market account. Funds of \$795,011 of the Raritan Basin System, \$289,128 of the Manasquan Reservoir System, and \$305,385 of the Manasquan Water Treatment Plant and Transmission System were held at PNC Bank representing the Revenue, Operating and Payroll accounts as of June 30, 2003.

## **Debt Service**

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The Raritan Basin System has the obligation to repay the following debt. On December 12, 1985, the Authority obtained a loan of \$19,600,000 from a 1981 State of New Jersey Water Supply Bond Appropriation of \$20,550,000 for the purpose of financing the Dredging Program for the Delaware and Raritan Canal. The 1981 Bond Fund obligation has a remaining principal and interest balance of \$6,539,000 and \$762,814, respectively, as of June 30, 2003. During June 1997, the Authority, through an agreement with the State of New Jersey, reduced the interest rate on this loan from 7.30 percent to 5.58 percent effective for the payments due on and after November 1, 1998, for an overall savings of \$1,137,686. Debt Service payments are

made semi-annually and range from \$50,108 to \$1,846,108 through November 1, 2006.

On December 7, 1988, the Authority issued \$32,405,000 of 25 year Water System Revenue Bonds, Series 1988, to finance a Five Year Capital Improvement Program for projects relating to the Delaware and Raritan Canal and the Spruce Run/Round Valley Reservoirs System. The Series 1988 Bonds are obligations of the Authority payable from revenues and pledged property. Payments on the Series 1988 Bonds are secured solely by pledged properties of the Authority.

In accordance with the Delaware and Raritan Water System Revenue Bonds, Series 1988, Bond Resolution, Section 713, the Raritan Basin System's schedule of rates shall be maintained at such a level so as to produce net revenues equal to at least 1.20 times the amount required to be paid in the Debt Service Account. For Fiscal Year 2003, the coverage is adequate at 2.22. The Authority decided to take advantage of favorable market rates on the call date of November 1, 1998, and issue \$28,290,000 in 15 year Water System Revenue Refunding Bonds, Series 1998 to refund on a current basis \$28,465,000 in Water System Revenue Bonds, Series 1988. The refinancing of the 1988 Bonds with the 1998 Bonds produced net present value savings to the Authority of \$4,207,589 which is 14.7 percent of the principal amount of the 1988 Bonds being refunded. The true interest cost of the 1998 Bonds is 4.8748 percent as compared to the original true interest cost of the 1988 Bonds which was 7.9926 percent. The Prior Bonds were subject to the private activity bond refunding limitation because a substantial portion of the System's water is sold to privately-owned water companies. The 1998 Bonds are private activity bonds and interest earned on the 1998 Bonds will be tax-exempt, but will be subject to the alternative minimum tax. The 1998 Bonds may not be refunded prior to their first call

date on November 1, 2008. The payment of principal and interest on the 1998 bonds are insured by MBIA. The 1998 Bonds are rated AAA/aaa by Standard & Poor's Corporation and Moody's Investors Service. Standard & Poor's gave an underlying rating of A+ to the 1998 Bonds.

The Series 1998 Revenue Refunding Bonds have a Bond yield of 4.78 percent, the remaining principal and interest balance is \$22,550,000, and \$7,158,134, respectively, at June 30, 2003. Semi-annual payments range from \$69,875 to \$2,669,875 through November 1, 2013.

The Manasquan Water Supply System has the obligation to repay the \$63,600,000 of State Loan Notes, and the \$7,416,000 of Completion Loan Notes, which were sold to construct the Manasquan Reservoir Facilities. During June 1997, the Authority, through an agreement with the State of New Jersey, reduced the interest rate on the State Loan Notes from 7.15 percent to 5.93 percent, effective for the payments due on and after August 1998, for an overall savings of \$8,013,134. The Completion Loan Notes bear interest at 6.24 percent, converted from 7.16 percent Interim Advance Notes effective February 1, 1992. The current portion of the debt is defined as the ratio of the present water purchased under contract divided by the total system yield of 30 mgd. At present the Manasquan Reservoir System has 19.032 mgd sold under contract. The Authority has the obligation only to repay the current portion of the loans as defined in the terms of the State Loan Agreement. The State Loan Notes and the Completion Loan have a principal and interest balance of \$122,656,273, at June 30, 2003, which represents both the current and deferred portion. At June 30, 2003 the principal amount classified as the Current Notes with the Initial Water Purchasers was \$34,326,604 and are payable through semi-annual payments, including interest, which

range from \$89,327 to \$3,102,025 through August 1, 2020 and the principal amount classified with the Current Notes with the Delayed Water Purchaser (7/1/01) was \$3,189,183 and are payable through annual installments which range from \$6,520 to \$226,421 through August 1, 2031, and the Current Notes with the Delayed Water Purchaser 10/1/02 was \$6,208,114 and are payable through annual installments which range from \$12,720 to \$441,719 through August 1, 2031, and the principal amount classified as the Deferred Notes was \$35,280,241. Per the terms of the Agreement dated September 12, 1989, the Completion Loan Notes are to be accounted for in accordance with the terms of the State Loan Agreement. Accordingly, \$3,629,277 in Completion Loan Notes of the Initial Water Users have been classified as Current Loan Notes and are payable through annual installments which range from \$10,117 to \$334,394 through August 1, 2020, and \$336,591 in Completion Loan Notes of the Delayed Water Purchaser (7/1/01) have been classified as Current Notes and are payable through annual installments which range from \$746 to \$24,646 through August 1, 2031, and the Current Notes with the Delayed Water Purchaser 10/1/02 was \$654,692 and are payable through annual installments which range from \$1,453 to \$48,038 through August 1, 2031, and the principal amount classified as the Deferred Notes was \$3,720,040.

## **Risk Management**

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The Authority carries property insurance for all of its facilities covering direct physical loss or damage and loss of revenue resulting therefrom, with deductibles as it deems appropriate. The Authority also carries General and Umbrella Liability Insurance and Automotive coverage, with self-insured retainers as it deems appropriate. Public Officials Liability

coverage with enhanced Employment Liability coverage is also maintained with deductibles. Workers' Compensation coverage is also maintained as required by State law. The Authority has hired a Risk Management Consultant to assist the Authority in the remarketing of the insurance program for March 1, 2004.

## **Independent Audit**

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In accordance with the "New Jersey Water Supply Authority Act" (P.L. 1981, c.293), before the last day of February, an Annual Report of the Authority's activities of the preceding calendar year is due to the Governor and the Legislature. This Annual Report must include an audit of the Authority's books and accounts. Ernst & Young LLP, Certified Public Accountants, was retained to perform an audit of the 2003 Fiscal Year in accordance with auditing standards generally accepted in the United States and *Government Auditing Standards* issued by the Comptroller General of the United States. In June 1999, the GASB adopted their Statement No. 34, *Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments*. The Authority adopted GASB Statement No. 34 in Fiscal Year 2001, including the Management's Discussion and Analysis ("MD&A"). The MD&A is considered to be required supplemental data and precedes the financial statements. This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it. The Authority's MD&A can be found immediately following the Report of Independent Auditors. Ernst & Young LLP reports directly to the Audit Committee of the Board of Commissioners. Ernst & Young LLP also performed, as part of the annual audit, a review of the internal control.

The Authority has previously established rates, and intends to continue establishing rates on the basis of its cash needs in any fiscal year to meet its requirements for Operations and Maintenance Expenses, Debt Service, Capital Fund and Source Water Component.

## **Certificate of Achievement for Excellence in Financial Reporting**

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The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the New Jersey Water Supply Authority for its Comprehensive Annual Financial Report for the fiscal year ended June 30, 2002. This was the eleventh consecutive year that the Authority has achieved this prestigious award.

In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized Comprehensive Annual Financial Report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current Comprehensive Annual Financial Report continues to meet the Certificate of Achievement Program's requirements and are submitting it to the GFOA to determine its eligibility for another certificate.

## **Acknowledgements**

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The preparation of this report on a timely basis could not be accomplished without the efficient and dedicated services of the Financial and Administrative staff of the New Jersey Water Supply Authority. Any financial report is also only as good as the accounting records that supply its supporting data. The Authority's entire accounting staff deserves special recognition for their

dedication, perseverance and attention to detail that results in the Authority's records being kept in a manner which reflects credit on the staff as a unit as well as each employee individually. I would like to express my appreciation to all employees of the New Jersey Water Supply Authority who contributed to this report's preparation. The report also could not have been prepared without the full support and encouragement of the Chair and Members of the Board, and the Executive Director.

### **Economic Outlook**

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The continuing economic viability of the Authority is ensured by the water contracts we maintain with our water users. The water users have entered into long-term contracts for a supply of water for their respective systems, which they are authorized to continuously withdraw without interruption, for potable or industrial water supply purposes. During Fiscal Year 2003, the Authority supplied water to 15 contractual customers of the Raritan Basin System, which provided water to approximately 1,300,000 people in central New Jersey, and 13 contractual customers of the Manasquan System, which provides water to approximately 250,000 people in the Monmouth County area. Two customers accounted for approximately 82 percent of total Raritan Basin System operating revenues. Three customers accounted for approximately 80 percent of total Manasquan System operating revenues.

The total sales base for the Raritan Basin System will increase from 152.201 to 179.219 million gallons per day on January 1, 2004, and the total sales base for the Manasquan Reservoir System increased from 17.097 to 19.032 million gallons per day on October 1, 2002. Elizabethtown Water Company increased their contract by 20.1 mgd and Middlesex Water Company by 7 mgd, effective January 1, 2004. The

Hunterdon County Golf Course became an additional water user for .148 mgd within the Raritan Basin System. NJ-American Water Company became a second delayed water purchaser on 10/01/02 for 1.935 mgd within the Manasquan Reservoir System. And we are expecting our major water customers in both Systems to continue to increase their contractual water allocations in the future. Payments for uninterruptible service are based upon the mgd amount specified in each water user contract, and are payable to the Authority whether or not the water user actually withdraws the full amount of water available as defined in the contract as daily uninterruptible service.

The Authority is proposing a peaking factor for its Raritan customers, to start January 1, 2004 to account for seasonal fluctuations in base customer demand. The overdraft service charge applies for average daily diversions during any calendar month that exceed ten percent (peaking factor) of the daily volume set forth in the customer's uninterruptible supply contract on a monthly basis. The Authority is proposing an overdraft service charge of one-hundred and twenty percent of the total rates and charges for each million gallons diverted or fraction thereof for each average daily diversion in excess of the peaking factor during any calendar month. The Authority is also proposing Rule amendments that provide for an annual overdraft charge to apply when a customer's average daily diversions for any calendar year exceed its annual contractual uninterruptible supply. The Authority is proposing an annual overdraft charge of one hundred and fifteen percent of the total rates and charges for each million gallons diverted or fraction thereof.



Michael R. Citarelli  
Chief Financial Officer

# **Financial Section**

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Report of Independent Auditors

Basic Financial Statements

Management's Discussion and Analysis

Statements of Net Assets

Statements of Revenues, Expenses and  
Changes in Net Assets

Statements of Cash Flows

Notes to Financial Statements

Combining Statements and Schedules

## Report of Independent Auditors

To the Commissioners of the  
New Jersey Water Supply Authority

We have audited the accompanying statements of net assets of the New Jersey Water Supply Authority (the “Authority”), a component unit of the State of New Jersey, at June 30, 2003 and 2002, and the related statements of revenues, expenses and changes in net assets and cash flows for the years then ended. These financial statements are the responsibility of the Authority’s management. Our responsibility is to express an opinion on these basic financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the basic financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the basic financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall basic financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the basic financial statements referred to above present fairly, in all material respects, the financial position of the New Jersey Water Supply Authority at June 30, 2003 and 2002, and the changes in its financial position and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States.

The Management’s Discussion and Analysis on pages 46 through 50 is not a required part of the basic financial statements but is supplementary information required by the Governmental Accounting Standards Board. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of the required supplementary information. However, we did not audit the information and express no opinion on it.

In accordance with *Government Auditing Standards*, we have also issued our report as of and for the year ended June 30, 2003 on our consideration of the New Jersey Water Supply Authority’s internal control over financial reporting and our tests of its compliance with certain provisions of laws, regulations, contracts, and grants. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be read in conjunction with this report in considering the results of our audit.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental information listed in the table of contents is presented for the purpose of additional analysis and is not a required part of the basic financial statements. Such information has been subjected to the auditing procedures applied in our audit of the 2003 basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the 2003 basic financial statements taken as a whole.

*Ernst & Young LLP*

July 25, 2003



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## MANAGEMENT'S DISCUSSION AND ANALYSIS

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Year ended June 30, 2003

This section of the New Jersey Water Supply Authority's ("Authority") Annual Financial Report presents our discussion and analysis of the Authority's financial performance during the fiscal year ended on June 30, 2003. Please read it in conjunction with the Authority's basic financial statements and accompanying notes.

### FINANCIAL HIGHLIGHTS

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- The Authority's total net assets increased \$.06 million (or less than 1%)
- Cash and cash equivalents decreased \$0.1 million (or 0.5%)
- Total liabilities decreased \$2.3 million (or 1.8%)
- Operating revenues decreased to \$21.0 million (or 1.0%) while operating expenses increased by 5.4% to \$17.3 million.
- Nonoperating revenue decreased \$0.8 million (or 46.2%) while investment income decreased by 50.0% to \$0.7 million.

### OVERVIEW OF THE FINANCIAL STATEMENTS

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The annual financial report consists of two parts: Management's Discussion and Analysis (this section) and the basic financial statements. The Authority is a self-supporting entity and follows enterprise fund accounting. The enterprise fund concept is similar to how private business enterprises are financed and operated. The Authority presents its basic financial statements on the accrual basis of accounting. The statements offer short and long-term financial information about the activities and operations of the Authority. The intent is that the costs of providing service to water users on a continuing basis be financed primarily through user charges. The Authority has established certain restricted "funds or accounts" as directed by internal resolution and bond indentures. In an effort to ensure compliance with the Authority's By-Laws and to safeguard its assets, internal control has been developed and implemented by management. This internal control includes policies, procedures, approved organizational structures and approved budgets for capital and operating expenditures.




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 MANAGEMENT'S DISCUSSION AND ANALYSIS
 

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Year ended June 30, 2003

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 FINANCIAL ANALYSIS OF THE AUTHORITY
 

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Changes in assets, liabilities and net assets between June 30, 2003 and 2002 are summarized in the following table:

	2003	2002	Percent Increase (Decrease)
Current assets	<b>\$23,535,975</b>	\$24,575,360	(4.23)%
Capital assets, net	<b>152,235,806</b>	155,088,467	(1.84)
Other noncurrent assets	<b>39,640,188</b>	37,956,124	4.44
Total assets	<b>215,411,969</b>	217,619,951	(1.01)
Long-term debt	<b>111,894,803</b>	116,187,235	(3.69)
Other liabilities	<b>9,077,827</b>	7,055,124	28.67
Total liabilities	<b>120,972,630</b>	123,242,359	(1.84)
Net assets invested in capital assets, net of related debt	<b>35,978,635</b>	34,845,644	3.25
Restricted	<b>11,721,789</b>	10,804,128	8.49
Unrestricted	<b>46,738,915</b>	48,727,820	(4.08)
Total net assets	<b>\$94,439,339</b>	\$94,377,592	0.07

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 OPERATING ACTIVITIES
 

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The Authority operates three separate systems: the Raritan Basin System, the Manasquan Water Supply System, and the Manasquan Water Treatment Plant and Transmission System. The Manasquan Water Treatment Plant and Transmission System is owned by the Monmouth County Improvement Authority, and is operated and maintained by the Authority under the terms of an operating agreement. Each of these systems must provide sufficient revenues each year to cover its own operating expenses and debt service. At the April 2003 Authority meeting, the Authority adopted a Raritan Basin System rate to become effective July 1, 2003 of \$210.00 per million gallons. This rate represents a 2.44 percent increase over the July 1, 2002 rate of \$205.00 per million gallons. A revised rate of \$794.97 per million gallons, effective July 1, 2003, for the Initial Water Users was adopted for the Manasquan Water Supply System at the April 2003 Authority meeting. The rate represents no change from the previous fiscal year rate. A revised rate of \$1,065.45 per million gallons, effective July 1, 2003, for the First Delayed Water Purchaser, was adopted for the Manasquan Water Supply System at the April 2003 Authority meeting. The rate represents a 1.67% increase over the July 1, 2002 rate of \$1,047.96 per million gallons. A revised rate of \$1,072.34 per million gallons, effective July 1, 2003, for the Second Delayed Water Purchaser, was adopted for the Manasquan Water Supply System at the April 2003 Authority meeting. This rate represents a 8.06% decrease over the July 1, 2002 rate of \$1,166.29 per million gallons. The



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**MANAGEMENT'S DISCUSSION AND ANALYSIS**

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Year ended June 30, 2003

Water Treatment Plant and Transmission System budget for fiscal year 2004 (July 1, 2003 – June 30, 2004) is \$1,644,176, which represents a 2.80% increase from the previous budget of \$1,599,372.

The following table summarizes the changes in revenues, expenses and net assets between fiscal years 2003 and 2002:

	<b>2003</b>	<b>2002</b>	<b>Percent Increase (Decrease)</b>
Operating revenues:			
Water sales	<b>\$19,564,798</b>	\$19,912,921	(1.75)%
Reimbursement of operating expenses	<b>1,463,670</b>	1,419,068	3.14
Total operating revenues	<b>21,028,468</b>	21,331,989	(1.42)
Operating expenses:			
Operations	<b>11,843,006</b>	10,966,598	7.99
Depreciation	<b>5,496,421</b>	5,484,157	.22
Total operating expenses	<b>17,339,427</b>	16,450,755	5.40
Income from operations	<b>3,689,041</b>	4,881,234	(24.42)
Nonoperating revenues:			
State of New Jersey-Grant Programs	<b>141,405</b>	323,783	(56.33)
Investment income	<b>694,699</b>	1,390,588	(50.04)
Rental income	<b>60,687</b>	41,383	46.65
Other income	<b>10,558</b>	(68,295)	115.46
Total nonoperating revenues	<b>907,349</b>	1,687,459	(46.23)
Nonoperating expenses:			
Interest component of debt service of the State of New Jersey	<b>4,434,065</b>	4,376,027	1.33
Amortization of issuance costs-D&R System Revenue Refunding Bonds, Series 1998	<b>25,229</b>	25,229	-
Amortization of issuance costs- Manasquan State Loan Notes	<b>14,100</b>	14,100	-
Reduction in costs to be recovered from future revenues	<b>61,249</b>	566,337	(89.19)
Total nonoperating expenses	<b>4,534,643</b>	4,981,693	(8.97)
Change in net assets	<b>\$61,747</b>	\$1,587,000	(96.11)



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**MANAGEMENT'S DISCUSSION AND ANALYSIS**

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Year ended June 30, 2003

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**CAPITAL ASSETS AND DEBT ADMINISTRATION**

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At June 30, 2003, the Authority had a total of \$152,235,806 invested in the Systems that it operates, \$80,074,837 pertains to the Raritan Basin System and \$72,160,969 pertains to the Manasquan System. This total amount represents an overall decrease of 1.84% under last year and is detailed as follows.

The following table summarizes the changes in capital assets, net of depreciation, between fiscal years 2003 and 2002:

	<b>2003</b>	<b>2002</b>	<b>Percent Increase (Decrease)</b>
Land and land rights	<b>\$9,981,170</b>	\$9,981,170	0.00%
Dams	<b>58,588,748</b>	59,389,075	(1.35)
Building, structures and improvements	<b>71,895,800</b>	75,110,461	(4.28)
D&R canal dredging	<b>2,701,820</b>	3,709,118	(27.16)
Machinery and equipment	<b>1,274,755</b>	1,303,872	(2.23)
Construction work in progress	<b>7,793,513</b>	5,594,771	39.30
Total capital assets, net	<b><u>\$152,235,806</u></b>	<u>\$155,088,467</u>	(1.84)

More detailed information about the Authority's capital assets is presented in Note 3 to the basic financial statements.

The following table summarizes the changes in capital debt between fiscal years 2003 and 2002:

	<b>2003</b>	<b>2002</b>	<b>Percent Increase (Decrease)</b>
Bonds payable	<b>\$22,373,429</b>	\$23,833,494	(6.13)%
Notes payable	<b>93,883,742</b>	96,409,329	(2.62)
Total bonds and notes payable	<b><u>\$116,257,171</u></b>	<u>\$120,242,823</u>	(3.31)

At year-end, the Authority had \$116,257,171 in bond and note principal outstanding versus \$120,242,823 at June 30, 2002, a decrease of 3.31% as shown in the table.



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## MANAGEMENT'S DISCUSSION AND ANALYSIS

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Year ended June 30, 2003

### CURRENT AND NEW BUSINESS

During fiscal year 2003, the Authority supplied water to 15 contractual customers of the Raritan Basin System, which supplied water to approximately 1,300,000 people in Central New Jersey. Two customers accounted for approximately 82 percent of total Raritan Basin System operating revenues. The total sales base for the Raritan Basin System is 151.914 million gallons per day (mgd). The Borough of Mt. Arlington entered into a new contract for .039 mgd.

In addition, during fiscal year 2003 the Authority provided water to 13 contractual customers of the Manasquan Water Supply System, which provides water to approximately 250,000 people in the Monmouth County area. Three customers accounted for approximately 80 percent of total Manasquan System operating revenues. As of June 30, 2003, the total sales base for the Manasquan Reservoir System is 19.032 mgd, which increased from 17.097 mgd at June 30, 2002 due to the two delayed water purchase contracts entered into by the Manasquan Reservoir System. During fiscal year 2002, New Jersey-American Water Company entered into a delayed water purchase with the Authority thus increasing their capacity by one mgd to a total of 9.065 mgd, effective July 1, 2002. During fiscal year 2003, the New Jersey-American Water Company entered into a second delayed water purchase contract with the Authority increasing their capacity by 1.935 mgd to a total of 11.000 mgd, effective October 1, 2002.

### CONTACTING THE AUTHORITY'S FINANCIAL MANAGEMENT

This financial report is designed to provide the water customers, New Jersey citizens, investors and creditors, with a general overview of the Authority's finances and to demonstrate the Authority's accountability as a self-supporting entity. If you have questions about this report or need additional financial information, you can contact the New Jersey Water Supply Authority at 1851 Route 31, P.O. Box 5196, Clinton, New Jersey 08809, or visit our website at [www.njwsa.org](http://www.njwsa.org).

# New Jersey Water Supply Authority

## Statements of Net Assets

	<b>June 30</b>	
	<b>2003</b>	<b>2002</b>
<b>Assets</b>		
Current assets:		
Cash and cash equivalents	\$19,040,788	\$20,989,734
Unbilled sales	909,562	957,916
Accounts receivable, less allowance for doubtful accounts of \$1,000 at June 30, 2003 and 2002	1,932,065	1,530,823
Interest receivable	162,378	174,884
Prepaid expenses and other current assets	1,108,813	865,256
Costs to be recovered from future revenues	382,369	56,747
Total current assets	23,535,975	24,575,360
Noncurrent assets:		
Restricted assets:		
Cash equivalents	2,303,511	470,112
Investments	11,959,765	11,248,566
Investments	6,550,614	6,982,384
Costs to be recovered from future revenues	18,228,877	18,618,311
Deferred issuance cost	597,421	636,751
Capital assets, net	152,235,806	155,088,467
Total noncurrent assets	191,875,994	193,044,591
Total assets	215,411,969	217,619,951
<b>Liabilities</b>		
Current liabilities:		
Current portion of bonds and notes payable	4,362,368	4,055,588
Accounts payable	243,522	298,496
Accrued liabilities	1,930,450	1,786,490
Deferred revenue	2,541,487	914,550
Total current liabilities	9,077,827	7,055,124
Noncurrent liabilities:		
Long-term portion of bonds and notes payable	111,894,803	116,187,235
Total liabilities	120,972,630	123,242,359
<b>Net Assets</b>		
Invested in capital assets, net of related debt	35,978,635	34,845,644
Restricted	11,721,789	10,804,128
Unrestricted	46,738,915	48,727,820
Total net assets	\$94,439,339	\$94,377,592

*See accompanying notes.*

## New Jersey Water Supply Authority

### Statements of Revenues, Expenses and Changes in Net Assets

	<b>Year ended June 30</b>	
	<b>2003</b>	<b>2002</b>
Operating revenues:		
Water sales	<b>\$19,564,798</b>	\$19,912,921
Reimbursement of operating expenses	<b>1,463,670</b>	1,419,068
Total operating revenues	<b>21,028,468</b>	21,331,989
Operating expenses:		
Payroll	<b>5,538,698</b>	5,397,959
Operations and maintenance	<b>4,557,900</b>	4,094,169
Fringe benefits	<b>1,746,408</b>	1,474,470
Depreciation	<b>5,496,421</b>	5,484,157
Total operating expenses	<b>17,339,427</b>	16,450,755
Income from operations	<b>3,689,041</b>	4,881,234
Nonoperating revenues:		
State of New Jersey – Grant Programs	<b>141,405</b>	323,783
Investment income	<b>694,699</b>	1,390,588
Rental income	<b>60,687</b>	41,383
Other income	<b>10,558</b>	(68,295)
Total nonoperating revenues	<b>907,349</b>	1,687,459
Nonoperating expenses:		
Interest component of debt service to the State of New Jersey	<b>4,434,065</b>	4,376,027
Amortization of issuance costs - D & R System Revenue Refunding Bonds, Series 1998	<b>25,229</b>	25,229
Amortization of issuance costs - Manasquan State Loan Notes	<b>14,100</b>	14,100
Reduction in costs to be recovered from future revenues	<b>61,249</b>	566,337
Total nonoperating expenses	<b>4,534,643</b>	4,981,693
Change in net assets	<b>61,747</b>	1,587,000
Net assets, beginning of year	<b>94,377,592</b>	92,790,592
Net assets, end of year	<b>\$94,439,339</b>	\$94,377,592

*See accompanying notes.*

# New Jersey Water Supply Authority

## Statements of Cash Flows

	<b>Year ended June 30</b>	
	<b>2003</b>	<b>2002</b>
<b>Cash flows from operating activities</b>		
Cash received from water sales	\$19,194,635	\$19,359,893
Cash received from reimbursable expenses	1,486,687	1,426,486
Cash received from rental income	31,850	13,796
Cash paid to or on behalf of employees	(7,243,177)	(6,795,998)
Cash paid to suppliers	(4,837,575)	(4,177,012)
Net cash provided by operating activities	8,632,420	9,827,165
<b>Cash flows from noncapital financing activities</b>		
Cash received for grant programs	128,696	439,784
Net cash provided by noncapital financing activities	128,696	439,784
<b>Cash flows from capital and related financing activities</b>		
Principal paid on bonds and notes	(2,335,712)	(4,488,219)
Interest paid on bonds and notes	(4,317,345)	(4,339,391)
Acquisition and construction of capital assets	(2,646,400)	(1,196,475)
Proceeds from sale of capital assets	(4,982)	
Net cash used in financing activities	(9,304,439)	(10,024,085)
<b>Cash flows from investing activities</b>		
Sale of investment securities	16,917,697	11,400,857
Purchase of investment securities	(17,233,571)	(12,069,013)
Interest received on investments	707,205	1,418,449
Premium on matured investments	36,445	
Net cash provided by investing activities	427,776	750,293
Net (decrease) increase in cash and cash equivalents	(115,547)	993,157
Cash and cash equivalents, beginning of year	21,459,846	20,466,689
Cash and cash equivalents, end of year	\$21,344,299	\$21,459,846
Reconciliation of income from operations to net cash provided by operating activities:		
Income from operations	\$3,698,041	\$4,881,234
Adjustments to reconcile income from operations to net cash provided by operating activities:		
Cash received for operating activity shown in other income	66,271	51,845
Depreciation	5,496,421	5,484,157
Change in assets and liabilities:		
Decrease in unbilled sales	48,354	300,130
Increase in accounts receivable	(398,399)	(846,808)
Increase in prepaid expenses	(243,557)	(226,097)
Decrease in accounts payable	(45,221)	(65,440)
Increase in accrued liabilities	2,943	252,981
Increase (decrease) in accrued payroll and taxes	16,567	(4,837)
Net cash provided by operating activities	\$8,632,420	\$9,827,165
<b>Non cash investing activities</b>		
(Decrease) increase in fair value of investments	\$(325,138)	\$50,439

*See accompanying notes.*

# New Jersey Water Supply Authority

## Notes to Financial Statements

June 30, 2003

### **I. Organization and Operations**

The New Jersey Water Supply Authority (the "Authority"), consisting of the Spruce Run/Round Valley Reservoirs Complex and the Delaware and Raritan Canal Transmission Complex (the "Raritan Basin System"), and the Manasquan Reservoir Water Supply System (the "Manasquan System"), is a public body, corporate and politic, constituted as an instrumentality of the State of New Jersey, exercising public and essential governmental functions. The Authority is a component unit of the State of New Jersey. The Authority was created by the New Jersey Water Supply Authority Act (the "Act") on October 7, 1981, and in connection with the Act, all water supply facilities owned or operated by the State (Raritan Basin System) were transferred or leased to the Authority. The Act empowers the Authority to acquire, finance, construct and operate water systems and issue bonds. Members of the Authority consist of the Commissioner of the New Jersey Department of Environmental Protection (ex officio member) and six public members appointed by the Governor upon the advice and consent of the New Jersey Senate. The public members represent the agricultural community, industrial water users, residential water users, private watershed associations, public finance, and water resource management and distribution. The Authority prepares an annual budget that is used to establish rates and as a management tool, but it does not constitute a legal budget or establish spending limitations.

The Authority does not have component units that should be included within its financial statements.

### **2. Summary of Significant Accounting Policies**

#### **Basis of Accounting**

The Authority derives most of its revenues from water user charges and is considered to be an enterprise fund; accordingly, the Authority presents its financial statements on the accrual basis of accounting. In addition, the Authority has established certain restricted "funds or accounts" as directed by internal resolution and bond indentures.

In its accounting and financial reporting, the Authority follows the pronouncements of the Governmental Accounting Standards Board (GASB). In addition, the Authority follows the pronouncements of all applicable Financial Accounting Standards Board (FASB) Statements and Interpretations, Accounting Principles Board (APB) Opinions, and Accounting Research Bulletins (ARBs) of the Committee on Accounting Procedure issued on or before November 30, 1989, unless they conflict with or contradict GASB pronouncements. The Authority has elected not to apply pronouncements issued by the FASB after November 30, 1989.

## Notes to Financial Statements (continued)

Other significant accounting policies are:

### Revenues

Charges for wholesale water usage are established to provide revenues sufficient for services, essential repairs and improvements to utility plant, and repayment of debt service on certain long-term obligations used for plant construction. Sales are recognized as revenue after water is made available to customers and are billed in the month or quarter following availability.

The Authority distinguishes operating revenues and expenses from nonoperating items. Operating revenues and expenses result from the sale of water to customers. Operating expenses include costs of providing water, administrative expenses and depreciation on capital assets. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses.

### Capital Assets

Capital assets are stated at original cost and consists primarily of amounts expended to license, construct, acquire, complete and place in operation the projects of the Authority. Capital assets are defined by the Authority as assets with an initial, individual cost of more than \$1,000, and an estimated useful life in excess of three year. Such expenditures include labor, materials, services and indirect costs. Normal maintenance and repair costs are charged to operations and maintenance expense. Improvements and replacements are capitalized. Costs of computer hardware and purchased software are capitalized. Interest earned on long-term debt proceeds used for capital assets construction and temporarily invested during the construction period is netted against interest cost. The excess, if any, is capitalized to construction work in progress, and the portion related to completed projects is expensed. The cost of capital assets retired net of any gain or loss on the disposal of such capital asset is offset to accumulated depreciation.

### Depreciation

Capital assets are depreciated on the straight-line basis over the estimated useful lives of the various classes of plant, as follows:

Dams	100 years
Buildings, structures and improvements	15-40 years
D&R canal dredging	20 years
Machinery and equipment	3-10 years

### Cash and Cash Equivalents

For purposes of the statements of cash flows the Authority considers short-term investments that have original maturities of six months or less to be cash equivalents.

### Investments

Short-term investments and restricted investments for construction and payment of interest consist of

## Notes to Financial Statements (continued)

money market funds and U.S. Government-backed securities with various interest rates. Restricted investments are restricted under the terms of the Authority's bond indentures for the payment of debt service. All investments are carried at fair value, in accordance with GASB Statement No. 31, *Accounting and Financial Reporting for Certain Investments and for External Investment Pools*.

### **Compensated Absences**

All full-time employees accumulate vacation benefits in varying annual amounts up to a maximum allowable accumulation of two years benefit. Unused sick leave benefits are earned by all full-time employees at a rate of 15 days per year and may be accumulated without limit. In the event of termination, an employee is reimbursed for all accumulated vacation days. Unused sick leave benefits do not vest but are payable only upon retirement to a maximum of \$15,000. A liability is accrued when incurred in the basic financial statements.

### **Use of Estimates**

The preparation of basic financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in the basic financial statements and accompanying notes. Actual results could differ from those estimates.

### **Reclassifications**

Certain prior year amounts have been reclassified to conform to the current year presentation.

### **Income Taxes**

The Authority is exempt from federal income taxes under the Internal Revenue Code, Section 115, and from state income taxes under NJSA27:25-16 and, accordingly, no provision is recorded for federal and state income taxes.

### **Net Assets**

Net assets represent the difference between assets and liabilities and is classified into three categories:

- *Invested in Capital Assets, Net of Related Debt* – This reflects the net assets of the Authority that are invested in capital assets, net of related debt. This indicates that these net assets are not accessible for other purposes.
- *Restricted Net Assets* – This represents the net assets that are not accessible for general use because their use is subject to restrictions enforceable by third parties.
- *Unrestricted Net Assets* – This represents those net assets that are available for general use.

### **Costs to be Recovered from Future Revenues**

The Authority's cost recovery rate model used to establish rates, fees and charges, includes an amount for debt principal repayment, but not for depreciation on the related debt financed assets and also includes vacation amounts paid. In accordance with FASB Statement No. 71, the Authority has

## Notes to Financial Statements (continued)

deferred the excess of current depreciation on assets financed with debt proceeds over the costs for debt principal repayment and the excess of vacation expense over vacation paid. The deferred costs will be recovered through future revenues in accordance with the rate model. The deferred amount for the year ended June 30, 2003 and June 30, 2002 were determined as follows:

	<b>June 30</b>	
	<b>2003</b>	<b>2002</b>
<b>Raritan Basin System</b>		
Cost excluded from rate model:		
Depreciation of debt-financed capital assets recoverable from rate payers	\$ 2,433,083	\$ 2,452,145
Excess vacation expense over vacation paid	10,080	13,249
	2,443,163	2,465,394
Cost included in rate model:		
Debt principal repayment	(2,886,000)	(3,489,234)
	(442,837)	(1,023,840)
<b>Manasquan System</b>		
Cost excluded from rate model:		
Depreciation of debt-financed capital assets recoverable from rate payers	1,550,963	1,551,976
Excess vacation expense over vacation paid	(2,350)	4,704
	1,548,613	1,556,680
Cost included in rate model:		
Debt principal repayment	(1,169,588)	(1,076,096)
	379,025	480,584
Total Raritan Basin and Manasquan	(63,812)	(543,256)
Balance, beginning of year	18,675,058	19,218,314
Balance, end of year	\$18,611,246	\$18,675,058

The cost to be recovered from future revenues of \$61,249 as shown in the income statement for the year ended June 30, 2003 includes \$10,293 of Manasquan Water Treatment Plant deferred revenue, which is not part of the rate model, and does not include a credit balance of \$7,730 of accrued vacation.

### **Accounting for Monmouth County Improvement Authority Agreement**

The Authority operates and maintains a Water Treatment Plant/Transmission System (“WTP/TS”) for the Monmouth County Improvement Authority (“MCIA”). The MCIA is charged for budgeted operating expenses expected to be incurred by the Authority during the MCIA’s fiscal year (January 1 through December 31).

Because of the difference resulting from billing the MCIA for budgeted expenses versus actual expenses appearing in the basic financial statements, the Authority includes deferred costs (actual

## Notes to Financial Statements (continued)

costs exceed MCIA billings) or deferred revenues (MCIA billings exceed actual costs) in its balance sheets. These excess costs or billings will be recovered or recognized in future periods. As of June 30, 2003, deferred revenues amounted to \$434,145 and were determined as follows:

Reimbursement of operating expenses	\$1,468,171
Operating expenses	<u>1,478,464</u>
Deferred revenue	(10,293)
Balance, beginning of year	<u>444,438</u>
Balance, end of year	<u>\$ 434,145</u>

During the fiscal year ended June 30, 2003 the Authority received \$1,677,410. These funds are restricted for use by the MCIA for costs associated in operating the Water Treatment Plant. As of June 30, 2003, the amount included in Deferred Revenue is \$1,649,939.

### **Accounting for Watershed Protection Program**

For the fiscal years ended June 30, 2003 and 2002, the Authority received \$120,950 and \$0, respectively, from the New Jersey Department of Environmental Protection for the costs associated with a watershed protection study of the Raritan System. These funds were restricted for the use of mapping out streams and other water sources and will be recognized as revenue as the related costs were incurred. As of June 30, 2003 and 2002, the balance of restricted cash equivalents and deferred revenue is \$42,282 and \$58,917, respectively.

### **Accounting for No Name Dam No. 31 Fund**

During fiscal year ended June 30, 2002, the Authority received \$430,000 from the New Jersey Department of Environmental Protection for the costs associated with bringing the No Name Dam No. 31 into compliance with the requirements of the New Jersey Dam Safety Standards. These funds are restricted for specific engineering and construction expenses. The funds will be recognized as revenue as the related costs are incurred. As of June 30, 2003 and 2002, the balance of restricted cash equivalents and deferred revenue associated with the No Name Dam No. 31 is \$415,121 and \$411,195, respectively.

## Notes to Financial Statements (continued)

### 3. Capital Assets

Capital assets activity for the year ended June 30, 2003 was as follows:

	<b>Beginning Balance</b>	<b>Additions</b>	<b>Retirements</b>	<b>Ending Balance</b>
Capital assets not being depreciated:				
Land	\$9,981,170			\$ 9,981,170
Construction work in progress	5,594,771	\$2,198,742		7,793,513
Total capital assets not being depreciated	15,575,941	2,198,742		17,774,683
Capital assets being depreciated:				
Dams	77,369,160			77,369,160
Building, structures and improvements	112,208,827	57,356	\$(26,800)	112,239,383
D & R canal dredging	21,160,274			21,160,274
Machinery and equipment	4,692,923	390,302	(44,767)	5,038,458
Total capital assets being depreciated	215,431,184	447,658	(71,567)	215,807,275
Less accumulated depreciation for:				
Dams	(17,980,085)	(800,327)		(18,780,412)
Building, structures and improvements	(37,098,366)	(3,245,217)	26,800	(40,316,783)
D & R canal dredging	(17,451,156)	(1,076,224)		(18,527,380)
Machinery and equipment	(3,389,051)	(374,652)	42,126	(3,721,577)
Total accumulated depreciation	(75,918,658)	(5,496,420)	68,926	(81,346,152)
Total capital assets, being depreciated, net	139,512,526	(5,048,762)	(2,641)	134,461,123
Total capital assets, net	\$155,088,467	\$(2,850,020)	\$(2,641)	\$152,235,806

### 4. Cash and Investments

New Jersey statutes permit the deposit of public funds in institutions located in New Jersey which are insured by the Federal Deposit Insurance Corporation (FDIC) or by any other agencies of the United States that insure deposits or in the State of New Jersey Cash Management Fund. All funds of the Authority may be invested in obligations of, or guaranteed by, the United States Government.

The Authority's bond resolutions limit the investment of restricted assets to obligations of the U.S. Government or its agencies, investments in certain certificates of deposit of commercial banks which are members of the Federal Reserve System, investments in the State of New Jersey Cash Management Fund and direct and general obligations of any State which meets the minimum requirements of the resolution.

The State of New Jersey Cash Management Fund is managed by the State of New Jersey, Division of Investment under the Department of the Treasury. It consists of U.S. Treasury obligations, government agencies obligations, certificates of deposit and commercial paper.

#### a. Cash

The Authority's bank balance was \$2,350,018 at June 30, 2003, of which \$100,000 was covered through the FDIC (Category 1). The remaining balance of \$2,250,018 was not collateralized

## Notes to Financial Statements (continued)

(Category 3). The cash balance per the statement of net assets is shown exclusive of outstanding checks totaling \$478,274. The balance sheet amount includes petty cash totaling \$400.

b. Investments

Investments are categorized by credit risk as follows:

Description	GASB Category	Rate	Fair Value
Categorized investments:			
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.100%	\$1,787,838
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	0.914	68,955
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.005	857,443
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.050	21,986
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.005	62,959
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.050	77,949
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.005	12,992
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.050	2,998
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.005	139,909
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.050	27,982
U.S. Treasury Bill (JPMorgan Chase, due 7/31/03)	2	1.005	28,981
FFCB (Bear Stearns, due 9/01/06)	2	2.250	464,169
FFCB (Bear Stearns, due 9/01/06)	2	2.250	232,084
FFCB (Bear Stearns, due 9/01/06)	2	2.250	90,816
FFCB (Bear Stearns, due 9/01/06)	2	2.250	45,408
FFCB (Bear Stearns, due 9/01/06)	2	2.250	1,841,539
FFCB (Bear Stearns, due 9/01/06)	2	2.250	913,202
FFCB (Bear Stearns, due 9/01/06)	2	2.250	247,220
FHLB (AG Edwards, due 8/12/03)	2	6.700	2,816,352
U.S. Treasury Note (JPMorgan Chase, due 2/15/05)	2	7.500	1,994,930
			11,735,712
Uncategorized investments			
State of New Jersey's Cash Management Fund (Morgan Stanley Dean Witter)		various	19,597,969
Compass U.S. Treasury Fund (JPMorgan Chase)		various	6,811,231
			26,409,200
Total investments, June 30, 2003			\$38,144,912
Component of investments:			
Cash equivalents			\$19,472,155
Interest receivable			162,378
D & R System Revenue Refunding Bonds, Series 1998 proceeds, current			6,811,231
Manasquan System-State Loan Notes proceeds, current			2,829,950
Manasquan System-State Loan Notes proceeds, long-term			2,318,584
Long-term investments			6,550,614
			\$38,144,912

Category 2 - securities held by bank's trust department (counterparty) in the Authority's name.

## Notes to Financial Statements (continued)

### c. Investment Income

Investment income of \$694,699 and \$1,390,588 for the years ended June 30, 2003 and 2002, respectively, was comprised of the following:

	<b>2003</b>	<b>2002</b>
Interest earned on bank accounts and certificates of deposit	<b>\$338,599</b>	\$547,505
Interest earned on securities	<b>681,238</b>	792,644
(Decrease) increase in fair value of securities	<b>(325,138)</b>	50,439
	<b>\$694,699</b>	\$1,390,588

## 5. Bonds and Notes Payable

### A. Due to State of New Jersey

The Authority has a contractual obligation to repay the following debt:

1. The December 12, 1985 loan of \$19,600,000 which was obtained from the 1981 bond appropriation of \$20,550,000 for the purpose of financing improvements to the Delaware and Raritan Canal. The outstanding principal and interest on this loan amounted to \$6,539,000 and \$762,814, respectively, as of June 30, 2003. The loan bears interest at 5.58% and is payable in semi-annual payments, including interest, which range from \$50,108 to \$1,846,108 through November 1, 2006.
  
2. The \$63,600,000 of Manasquan Reservoir Water Supply System (the "System") State Loan Notes (the "State Loan Notes") issued June 3, 1987 pursuant to the terms of the State Loan Agreement between the Authority and the State of New Jersey (the "State Loan Agreement") from monies authorized by the 1981 bond appropriation of \$72,000,000 for construction of the System, and the \$7,416,000 of Interim Advance Notes issued September 12, 1988 from monies made available from the General Fund of the State to finance completion costs of the System. The State Loan Notes and the Completion Loan Notes bear interest at 5.93% and 6.24%, respectively, and are collateralized by the property and revenues of the System.

In accordance with the terms of the State Loan Agreement, the State Loan Notes are classified as either Current Debt Service Portion Notes (the "Current Notes") or Deferred Debt Service Portion Notes (the "Deferred Notes"). Principal of the Deferred Notes will be discharged solely by exchange for Current Notes or by the expiration of a period of forty years from the date of their issuance, June 3, 1987. The Deferred Notes must be exchanged for Current Notes on a pro rata basis to the extent that the Authority enters into additional long term contracts to sell water from the System on an annual basis. Such Current Notes are payable over a thirty-year period commencing from a date as defined in the State Loan.

The interest on the Deferred Notes accreted as principal through July 31, 1993 and is not payable until they have been exchanged for Current Notes. The interest which accreted as principal through July 31, 1990 accrued interest; however, the interest which accreted for the period from August 1, 1990 through July 31, 1993 did not accrue interest. The accretion of

## Notes to Financial Statements (continued)

interest to the principal amount for the Current Notes and the Deferred Notes is \$25,563,184 at June 30, 2003 and 2002.

At June 30, 2003, the State Loan Notes and Completion Notes are summarized as follows:

### **State Loan Notes**

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#### Current Notes:

Initial Water Purchasers, maturing semi-annually through August 1, 2020, with interest ranging from \$89,327 to \$3,102,025	\$34,326,604
First Delayed Water Purchasers, maturing annually through August 1, 2031, with interest ranging from \$6,250 to \$226,421	3,189,183
Second Delayed Water Purchasers, maturing annually through August 1, 2031, with interest ranging from \$12,720 to \$441,719	6,208,114
Deferred Notes	35,280,241

### **Completion Notes**

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#### Current Notes:

Initial Water Users, maturing annually through August 1, 2020, with interest ranging from \$10,117 to \$334,394	3,629,277
First Delayed Water Purchasers, maturing annually through August 1, 2031, with interest ranging from \$746 to \$24,646	336,591
Second Delayed Water Purchasers, maturing annually through August 1, 2031, with interest ranging from \$1,453 to \$48,038	654,692
Deferred Notes	<u>3,720,040</u>
	<u>\$87,344,742</u>

#### B. D & R System Revenue Refunding Bonds, Series 1998

On August 4, 1998, the Authority issued Water System Revenue Refunding Bonds, Series 1998 (the "Refunding Bonds") in the amount of \$28,290,000. The Refunding Bonds are serial bonds of which \$22,550,000 are outstanding at June 30, 2003 and bear interest at varying rates from 4.5% to 5.375%, and mature in incremental annual principal amounts through 2014. Principal maturities for the year ending June 30, 2004 are \$1,595,000. The Refunding Bonds maturing on or after November 1, 2009 are subject to redemption prior to their stated maturity dates at the option of the Authority, on or after November 1, 2008. The property and revenues of the System are pledged as collateral for the Refunding Bonds.

For the year ended June 30, 2003, interest expense on the Refunding Bonds amounted to \$1,201,369 and the related interest income earned on the restricted investments amounted to \$41,130.

Notes to Financial Statements (continued)

The following table summarizes the changes in Bonds and Notes Payable between fiscal years 2002 and 2003:

	<b>Fiscal Year 2002</b>	<b>Less Payments</b>	<b>Fiscal Year 2003</b>	<b>Due Within One Year</b>
Notes Payable	\$96,409,329	\$2,525,587	\$93,883,742	\$2,767,368
Bonds Payable	23,833,494	1,460,065	22,373,429	1,595,000
	<u>\$120,242,823</u>	<u>\$3,985,652</u>	<u>\$116,257,171</u>	<u>\$4,362,368</u>

Aggregate maturities and bonds and notes principal and interest, net of unamortized issuance cost and unamortized deferral are as follows:

<b>Year ending June 30</b>	<b>Raritan Basin System</b>	<b>Notes Payable Manasquan System</b>	<b>Bonds Payable Delaware &amp; Raritan 1998 Water Revenue Refunding Bonds</b>	<b>Totals</b>
2004	\$1,755,951	\$4,177,707	\$2,728,966	\$8,662,624
2005	1,851,080	4,195,656	2,727,325	8,774,061
2006	1,848,675	4,197,588	2,716,950	8,763,213
2007	1,846,108	4,194,037	2,712,575	8,752,720
2008		4,195,001	2,711,294	6,906,295
2009-2013		20,966,948	13,441,149	34,408,097
2014-2018		20,960,662	2,669,875	23,630,537
2019-2023		14,062,804		14,062,804
2024-2028		3,735,325		3,735,325
2029-2033		2,970,264		2,970,264
Deferred Portion		39,000,281		39,000,281
	<u>7,301,814</u>	<u>122,656,273</u>	<u>29,708,134</u>	<u>159,666,221</u>
Less amounts representing interest	762,814	35,311,531	7,158,134	43,232,479
	<u>6,539,000</u>	<u>87,344,742</u>	<u>22,550,000</u>	<u>116,433,742</u>
Less:				
Current Principal Portion	1,431,000	1,336,368	1,595,000	4,362,368
Unamortized deferral amount			743,250	743,250
Plus unamortized bond premium			566,679	566,679
	<u>\$5,108,000</u>	<u>\$86,008,374</u>	<u>\$20,778,429</u>	<u>\$111,894,803</u>

**6. Employee Benefits**

**Pension and Retirement Plans**

Full-time employees of the Authority are covered by the Public Employees' Retirement System of the State of New Jersey (PERS). The Division of Pensions within the Treasury Department of the State of New Jersey is the administrator of the PERS and charges employers annually for their respective contributions. The plans provide retirement and disability benefits, annual cost of living adjustments and benefits to plan members and beneficiaries. The plan is a cost sharing multiple-employer defined benefit plan and as such does not maintain separate records for each employer in

## Notes to Financial Statements (continued)

the state; therefore, the actuarial data for the Authority is not available. The Division of Pensions issues a publicly available financial report for the plan that includes financial statements and required supplementary information. The reports may be obtained by writing the State of New Jersey, Division of Pensions.

All Authority full-time employees are required as a condition of employment to be members of PERS. A member may retire on a service retirement allowance as early as age 60; no minimum service is required. The formula for benefits is an annual allowance in the amount equal to years of service, divided by 55, times the final average salary. Final average salary means the average of the salaries received by the member for the last three years of creditable membership service preceding retirement or the highest three fiscal years of membership service, whichever provides the largest benefit. Pension benefits fully vest on reaching 10 years of service. Vested employees who have established 25 years or more of creditable service may retire without penalty at or after age 55 and receive full retirement benefits. The System also provides death and disability benefits. Benefits are established by State statute.

Covered Authority employees are required by PERS to contribute 3% of their salary. The Authority is required by State statute to contribute the remaining amounts necessary to pay benefits when due. The amount of the Authority's contribution is certified each year by PERS on the recommendation of the actuary who makes an annual actuarial valuation. The valuation is a determination of the financial condition of the retirement system. It includes the computation of the present dollar value of benefits payable to former and present members and the present dollar value of future employer and employee contributions, giving effect to mortality among active and retired members and also to the rates of disability, retirement, withdrawal, former service, salary and interest.

The payroll for employees covered by PERS for the years ended June 30, 2003, 2002 and 2001 was \$5,371,175, \$5,189,673, and \$4,841,795, respectively. The Authority's total payroll for the years ended June 30, 2003, 2002 and 2001 was \$5,592,341, \$5,433,458 and \$5,073,173, respectively. The actuarial contribution requirements and the contributions made for the years ended June 30, 2003, 2002 and 2001 were \$162,023, \$154,125 and \$144,016, respectively, all of which was made by Authority employees. The employer and employee contributions represented 0% and 3.02% of covered payroll for the year ended June 30, 2003, 0% and 2.97% of covered payroll for the year ended June 30, 2002 and 0% and 2.97% of covered payroll for the year ended June 30, 2001. Contributions were made in accordance with the actuarial funding requirement.

### **Post-Retirement Health Care Benefits**

The Authority provides continued health care benefits to employees retiring after twenty-five years of service for themselves and eligible dependents. Benefits, contributions, funding and the manner of administration are determined by the State Legislature. The Division of Pensions within the New Jersey Treasury Department administers the funds. Monthly, the Division of Pensions charges the Authority for its contribution. The total number of employees receiving benefits was 30, 28 and 28 at June 30, 2003, 2002 and 2001, respectively. Total cost for these post-retirement benefits, included in fringe benefits approximated \$243,566, \$167,184 and \$144,195 for the years ended June 30, 2003, 2002 and 2001, respectively.

## Notes to Financial Statements (continued)

### **7. Major Water Customers**

During fiscal year 2003, the Authority supplied water to approximately 15 customers of the Raritan Basin System and 13 customers of the Manasquan System.

Two customers accounted for approximately 82% of total Raritan Basin System operating revenues. Three customers accounted for approximately 80% of total Manasquan System operating revenues.

### **8. Risk Management**

The Authority carries insurance for all of its facilities covering direct physical loss or damage and loss of revenue resulting therefrom, with deductibles as it deems appropriate. The Authority also carries General and Umbrella Public Liability Insurance with self-insured retainers as it deems appropriate. Automotive and Public Officials Liability coverage is also maintained with deductibles. Workers' Compensation coverage is also maintained as required by State law. Settled claims resulting from the aforementioned risks have not exceeded insurance coverage in any of the past three fiscal years.

### **9. Contingencies**

The Authority is party to various legal actions and disputes. Although the ultimate effect, if any, of these matters is not presently determinable, management believes that collectively they will not have a material effect on the results of operations or financial position of the Authority.

## Notes to Financial Statements (continued)

### 10. Information by Business Segment

The Authority issued revenue bonds to finance the construction of various capital assets, including the construction of the reservoir systems for both the Manasquan and Raritan Basin Systems. Each of these Systems must provide sufficient revenues each year to cover its own operating expense and debt service. Investors in the revenue bonds rely solely on the revenue generated by the individual activities for repayment. Summary financial information for the operating segments are presented below:

	Year ended June 30, 2003		
	Raritan Basin System	Manasquan Water Supply System	Manasquan Water Treatment Plant
<b>Condensed statement of net assets</b>			
Assets:			
Current assets	\$ 17,801,829	\$ 5,848,978	
Restricted assets	7,268,634	6,994,642	
Capital assets	80,074,837	72,160,969	
Other noncurrent assets	4,137,055	21,239,857	
Total assets	109,282,355	106,244,446	
Liabilities:			
Current liabilities	4,286,938	4,905,721	
Noncurrent liabilities	25,886,429	86,008,374	
Total liabilities	30,173,367	90,914,095	
Net assets:			
Invested in capital assets, net of related debt	51,162,408	(15,183,773)	
Restricted	6,811,231	4,910,558	
Unrestricted	21,135,349	25,603,566	
Total net assets	\$ 79,108,988	\$ 15,330,351	\$ -

Notes to Financial Statements (continued)

	<b>Year ended June 30, 2003</b>		
	<b>Raritan Basin System</b>	<b>Manasquan Water Supply System</b>	<b>Manasquan Water Treatment Plant</b>
<b>Condensed statement of revenues, expenses and changes in new assets</b>			
Total operating revenues	\$13,565,551	\$ 5,999,247	\$1,463,670
Operating expenses	8,366,334	1,998,208	1,478,464
Depreciation	3,886,845	1,609,576	
Operating income	1,312,372	2,391,463	(14,794)
Nonoperating revenues	658,115	244,733	4,501
Nonoperating expenses	(2,129,221)	(2,415,715)	10,293
Change in net assets	(158,734)	220,481	-
Net assets, beginning of year	79,267,722	15,109,870	-
Net assets, end of year	\$79,108,988	\$15,330,351	\$ -
<b>Condensed statement of cash flows</b>			
Net cash provided by:			
Operating activities	\$ 4,665,788	\$ 3,966,632	
Noncapital financing activities	128,696	-	
Capital and related financing activities	(7,101,982)	(2,202,457)	
Investing activities	444,040	(16,264)	
Net (decrease) increase in cash and cash equivalents	(1,863,458)	1,747,911	
Beginning cash and cash equivalent balances	16,814,161	4,645,685	
Ending cash and cash equivalent balances	\$14,950,703	\$ 6,393,596	\$ -

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## Supplemental Information

New Jersey Water Supply Authority  
Combining Schedule of Net Assets

June 30, 2003

	<b>Raritan Basin System</b>	<b>Manasquan Reservoir System</b>	<b>Elimination Entries</b>	<b>Combined Total</b>
<b>Assets</b>				
Current assets:				
Cash and cash equivalents	\$14,493,300	\$4,547,488		\$19,040,788
Unbilled sales	909,562			909,562
Accounts receivable, less allowance for doubtful accounts of \$1,000	915,283	1,131,614	\$(114,832)	1,932,065
Interest receivable	94,040	68,338		162,378
Prepaid expenses and other current assets	793,643	315,170		1,108,813
Costs to be recovered from future revenue	596,001	(213,632)		382,369
Total current assets	<u>17,801,829</u>	<u>5,848,978</u>	<u>(114,832)</u>	<u>23,535,975</u>
Noncurrent assets:				
Restricted assets:				
Cash equivalents	457,403	1,846,108		2,303,511
Investments	6,811,231	5,148,534		11,959,765
Investments	5,724,273	826,341		6,550,614
Costs to be recovered from future revenues	(1,848,082)	20,076,959		18,228,877
Deferred issuance cost	260,864	336,557		597,421
Capital assets, net of accumulated depreciation of \$81,346,152	80,074,837	72,160,969		152,235,806
Total noncurrent assets	<u>91,480,526</u>	<u>100,395,468</u>		<u>191,875,994</u>
Total assets	<u>109,282,355</u>	<u>106,244,446</u>	<u>(114,832)</u>	<u>215,411,969</u>
<b>Liabilities</b>				
Current liabilities:				
Current portion of bonds and notes payable	3,026,000	1,336,368		4,362,368
Accounts payable	164,841	193,513	(114,832)	243,522
Accrued liabilities	638,694	1,291,756		1,930,450
Deferred revenue	457,403	2,084,084		2,541,487
Noncurrent liabilities:				
Long-term portion of bonds and notes payable	25,886,429	86,008,374		111,894,803
Total liabilities	<u>30,173,367</u>	<u>90,914,095</u>	<u>(114,832)</u>	<u>120,972,630</u>
<b>Net assets</b>				
Invested in capital assets, net of related debt	51,162,408	(15,183,773)		35,978,635
Restricted	6,811,231	4,910,558		11,721,789
Unrestricted	21,135,349	25,603,566		46,738,915
Total net assets	<u>\$79,108,988</u>	<u>\$15,330,351</u>	<u>\$-</u>	<u>\$94,439,339</u>

New Jersey Water Supply Authority  
Combining Schedule of Revenues, Expenses  
And Changes in Net Assets  
Year ended June 30, 2003

	Raritan Basin System	Manasquan Reservoir System	Manasquan Water Treatment Plant	Combined Total
Operating revenues:				
Water sales	\$13,565,551	\$5,999,247		\$19,564,798
Reimbursement of operating expenses			\$1,463,670	1,463,670
Total operating revenues	13,565,551	5,999,247	1,463,670	21,028,468
Operating expenses:				
Payroll	4,266,100	658,441	614,157	5,538,698
Operations and maintenance (direct)	3,240,215	643,706	553,551	4,437,472
Operations and maintenance (general and administrative)		69,189	51,239	120,428
Fringe benefits	1,396,319	179,772	170,317	1,746,408
Headquarters overhead	(536,300)	447,100	89,200	-
Depreciation	3,886,845	1,609,576		5,496,421
Total operating expenses	12,253,179	3,607,784	1,478,464	17,339,427
Income from operations	1,312,372	2,391,463	(14,794)	3,689,041
Nonoperating revenues:				
State of New Jersey – Grant Programs	141,405			141,405
Investment income	445,526	244,672	4,501	694,699
Rental income	60,687			60,687
Other income	10,497	61		10,558
Total nonoperating revenues	658,115	244,733	4,501	907,349
Nonoperating expenses:				
Interest component of debt service to the State of New Jersey	1,651,075	2,782,990		4,434,065
Amortization of issuance costs - D&R System Revenue Refunding Bonds, Series 1998	25,229			25,229
Amortization of issuance costs - Manasquan State Loan Notes		14,100		14,100
Costs to be recovered from future revenue	452,917	(381,375)	(10,293)	61,249
Total nonoperating expenses	2,129,221	2,415,715	(10,293)	4,534,643
Change in net assets	(158,734)	220,481	-	61,747
Net assets, beginning of year	79,267,722	15,109,870	-	94,377,592
Net assets, end of year	\$79,108,988	\$15,330,351	\$ -	\$94,439,339

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**

**Raritan Basin System**

For the year ended June 30, 2003

	<b>Operating Fund</b>				
	<b>Revenue Fund</b>	<b>Operating Account</b>	<b>Payroll Account</b>	<b>Operating Fund</b>	<b>Reserve for O&amp;M</b>
Cash and investments - July 1, 2002	\$49,546	\$172,248	\$20,000	\$2,153,193	\$4,118,321
<b>Cash receipts:</b>					
Water sales operations and maintenance	5,555,230				
Water sales debt service	4,329,559				
Water sales capital fund	690,252				
Water sales source water protection fund	191,186				
Water sales overdrafts	2,333,047				
Rental income	31,850				
Manasquan reservoir support	17,381				56,973
Headquarters overhead				520,725	
Recycling revenue					71
Sale of investment securities	3,145,000				1,850,221
Nonrefundable bid deposits					525
Insurance reimbursement					15,962
Miscellaneous expense reimbursement	157,293	1,000			52,884
<b>Transfers:</b>					
Contributions from operating fund		4,602,584	2,725,473	(16,353,106)	(6,615)
Contributions to operating fund				3,266,996	(400,000)
Transfers for operations	(16,428,205)	2,970,000		13,458,205	
Distribution from reserves to operations		5,321,587			(1,100,784)
Investment income				34,231	231,479
Per resolution, Section 603:					
Investment income, transfer from	424,810			(34,906)	(232,307)
Investment income, transfer to	(424,810)				300,017
Unrealized gain/(loss) on fair value					(72,101)
<b>Total cash receipts</b>	<b>22,593</b>	<b>12,895,171</b>	<b>2,725,473</b>	<b>892,145</b>	<b>696,325</b>
<b>Total available cash and investments</b>	<b>\$72,139</b>	<b>\$13,067,419</b>	<b>\$2,745,473</b>	<b>\$3,045,338</b>	<b>\$4,814,646</b>

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Raritan Basin System (continued)**  
For the year ended June 30, 2003

<u>Self-Insurance Reserve</u>	<u>Depreciation Reserve</u>	<u>Pumping Reserve</u>	<u>Capital Improvements Investments</u>	<u>Watershed Management Fund</u>	<u>Source Water Protection Fund</u>	<u>Subtotal</u>
\$938,356	\$3,170,626	\$50,612	\$3,153,365	\$63,771	\$313,631	\$14,203,669
						5,555,230
						4,329,559
						690,252
						191,186
						2,333,047
						31,850
						74,354
						520,725
						71
917,507	248,386					6,161,114
						525
						15,962
						211,177
	206,615	300,000			277,243	(8,247,806)
		(300,000)		(22,342)	(81,522)	2,463,132
						-
	(167,088)					4,053,715
65,615	67,982	2,779	192,705	853	6,848	602,492
(65,615)	(17,762)					74,220
	17,762					(107,031)
(35,822)	(9,698)		(122,773)			(240,394)
881,685	346,197	2,779	69,932	(21,489)	202,569	18,713,380
\$1,820,041	\$3,516,823	\$53,391	\$3,223,297	\$42,282	\$516,200	\$32,917,049

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Raritan Basin System (continued)**  
For the year ended June 30, 2003

	<b>Subtotal</b>	<b>No Name Dam Fund</b>	<b>Major Rehabilitation</b>	<b>Water Reuse &amp; Recycling Fund</b>	<b>Capital Improvement Fund</b>	<b>Employment Benefit Funds</b>
Cash and investments - July 1, 2002	\$14,203,669	\$411,195	\$1,952,597	\$0	\$6,044,197	\$148,320
<b>Cash receipts:</b>						
Water sales operations and maintenance	5,555,230					
Water sales debt service	4,329,559					
Water sales capital fund	690,252					
Water sales source water protection fund	191,186					
Water sales overdrafts	2,333,047					
Rental income	31,850					
Manasquan reservoir support	74,354					
Headquarters overhead	520,725					
Recycling revenue	71					
Sale of investment securities	6,161,114					
Nonrefundable bid deposits	525					
Insurance reimbursement	15,962					
Miscellaneous expense reimbursement	211,177					
<b>Transfers:</b>						
Contributions from operating fund	(8,247,806)			100,000	750,220	107,741
Contributions to operating fund	2,463,132	(2,966)				(69,247)
Transfers for operations	-					
Distribution from reserves to operations	4,053,715		(87,108)		(2,186,388)	(21,510)
Investment income	602,492	6,893	32,021	617	93,900	2,456
Per resolution, Section 603:						
Investment income, transfer from	74,220					
Investment income, transfer to	(107,031)				41,056	
Unrealized gain/(loss) on fair value	(240,394)					
<b>Total cash receipts</b>	<b>18,713,380</b>	<b>3,927</b>	<b>(55,087)</b>	<b>100,617</b>	<b>(1,301,212)</b>	<b>19,440</b>
<b>Total available cash and investments</b>	<b>\$32,917,049</b>	<b>\$415,122</b>	<b>\$1,897,510</b>	<b>\$100,617</b>	<b>\$4,742,985</b>	<b>\$167,760</b>

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Raritan Basin System (continued)**  
For the year ended June 30, 2003

1998 Bonds Debt Service Account	1998 Bonds Debt Service Reserve	1969 Debt Service Fund	1981 Debt Service Fund	Rate Stabilization Fund	1969 Debt Service Reserve	Totals
\$701,840	\$2,745,875	\$2,445	\$485,637	\$2,464,630	\$181,399	\$29,341,804
						5,555,230
						4,329,559
						690,252
						191,186
						2,333,047
						31,850
						74,354
						520,725
						71
						6,161,114
						525
						15,962
						211,177
2,731,369		(2,313)	1,758,709	2,802,080 (2,390,919)		-
			(1,758,709)			-
10,552	30,579	259	5,402	16,695	12,688	814,554
(10,455)	(30,602)	(391)	(5,164)	(14,920)	(12,688)	-
						(65,975)
					(4,793)	(245,187)
2,731,466	(23)	(2,445)	238	412,936	(4,793)	20,618,444
\$3,433,306	\$2,745,852	\$-	\$485,875	\$2,877,566	\$176,606	\$49,960,248

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Raritan Basin System (continued)**  
For the year ended June 30, 2003

	Operating Fund				
	Revenue Fund	Operating Account	Payroll Account	Operating Fund	Reserve for O&M
Total available cash and investments	\$72,139	\$13,067,419	\$2,745,473	\$3,045,338	\$4,814,646
<b>Cash disbursements:</b>					
Payroll			2,725,473		
Fringe benefits		1,250,529		1,257,562	
Employee deferred comp. and credit union		195,340		197,032	
Operations and maintenance		2,361,407			
Prepaid insurance		1,099,794			
Miscellaneous disbursements	21				
Watershed Management Fund		52,480			
<b>Capital improvements:</b>					
Capital assets		425,110			
New five year construction project		2,192,648			
Purchase of investment securities		3,030,989			1,836,708
Principal on 1981 bonds		1,356,000			
Interest on 1981 bonds		402,709			
Principal on 1998 revenue bonds					
Interest on 1998 revenue bonds					
<b>Total cash disbursements</b>	21	12,367,006	2,725,473	1,454,594	1,836,708
<b>Cash and investments - June 30, 2003</b>	\$72,118	\$700,413	\$20,000	\$1,590,744	\$2,977,938
<b>Summary of cash and investments:</b>					
Cash	\$72,118	\$700,413	\$20,000		
Short-term investments				\$1,590,744	\$1,149,972
Long-term investments					1,827,966
Restricted investments (current)					
<b>Total cash and investments</b>	\$72,118	\$700,413	\$20,000	\$1,590,744	\$2,977,938

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**

**Raritan Basin System (continued)**

For the year ended June 30, 2003

<u>Self-Insurance Reserve</u>	<u>Depreciation Reserve</u>	<u>Pumping Reserve</u>	<u>Capital Improvements Investments</u>	<u>Watershed Management Fund</u>	<u>Source Water Protection Fund</u>	<u>Subtotal</u>
\$1,820,041	\$3,516,823	\$53,391	\$3,223,297	\$42,282	\$516,200	\$32,917,049
						2,725,473
						2,508,091
						392,372
						2,361,407
						1,099,794
						21
						52,480
						-
	2,295					427,405
						2,192,648
913,308	247,249					6,028,254
						1,356,000
						402,709
						-
						-
913,308	249,544	-	-	-	-	19,546,654
\$906,733	\$3,267,279	\$53,391	\$3,223,297	\$42,282	\$516,200	\$13,370,395
			\$478,859			\$1,271,390
\$262	\$3,021,881	\$53,391		\$42,282	\$516,200	6,374,732
906,471	245,398		2,744,438			5,724,273
						-
\$906,733	\$3,267,279	\$53,391	\$3,223,297	\$42,282	\$516,200	\$13,370,395

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Raritan Basin System (continued)**  
For the year ended June 30, 2003

	<b>Subtotal</b>	<b>No Name Dam Fund</b>	<b>Major Rehabilitation</b>	<b>Water Reuse &amp; Recycling Fund</b>	<b>Capital Improvement Fund</b>	<b>Employment Benefit Funds</b>
Total available cash and investments	\$32,917,049	\$415,122	\$1,897,510	\$100,617	\$4,742,985	\$167,760
<b>Cash disbursements:</b>						
Payroll	2,725,473					
Fringe benefits	2,508,091					19,413
Employee deferred comp. and credit union	392,372					
Operations and maintenance	2,361,407					
Prepaid insurance	1,099,794					
Miscellaneous disbursements	21					
Watershed Management Fund	52,480					
Capital improvements:						
Capital assets	427,405					
New five year construction project	2,192,648					
Purchase of investment securities	6,028,254					
Principal on 1981 bonds	1,356,000					
Interest on 1981 bonds	402,709					
Principal on 1998 revenue bonds	-					
Interest on 1998 revenue bonds	-					
<b>Total cash disbursements</b>	<u>19,546,654</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>19,413</u>
<b>Cash and investments - June 30, 2003</b>	<u>\$13,370,395</u>	<u>\$415,122</u>	<u>\$1,897,510</u>	<u>\$100,617</u>	<u>\$4,742,985</u>	<u>\$148,347</u>
<b>Summary of cash and investments:</b>						
Cash	\$1,271,390					\$2,780
Short-term investments	6,374,732	\$415,122	\$1,897,510	\$100,617	\$4,742,985	145,567
Long-term investments	5,724,273					
Restricted investments (current)	-					
<b>Total cash and investments</b>	<u>\$13,370,395</u>	<u>\$415,122</u>	<u>\$1,897,510</u>	<u>\$100,617</u>	<u>\$4,742,985</u>	<u>\$148,347</u>

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**

**Raritan Basin System (continued)**

For the year ended June 30, 2003

1998 Bonds Debt Service Account	1998 Bonds Debt Service Reserve	1981 Debt Service Fund	Rate Stabilization Fund	1969 Debt Service Reserve	Totals
\$3,433,306	\$2,745,852	\$485,875	\$2,877,566	\$176,606	\$49,960,248
					2,725,473
					2,527,504
					392,372
					2,361,407
					1,099,794
					21
					52,480
					0
					427,405
					2,192,648
				176,606	6,204,860
					1,356,000
					402,709
1,530,000					1,530,000
1,201,368					1,201,368
2,731,368	-	-	-	176,606	22,474,041
\$701,938	\$2,745,852	\$485,875	\$2,877,566	\$0	\$27,486,207
					\$1,274,170
					13,676,533
				\$0	5,724,273
\$701,938	\$2,745,852	\$485,875	\$2,877,566		6,811,231
\$701,938	\$2,745,852	\$485,875	\$2,877,566	\$0	\$27,486,207

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Manasquan Water Supply System**  
For the year ended June 30, 2003

	<b>Operating Fund</b>				
	<b>Revenue Fund</b>	<b>Operating Account</b>	<b>Payroll Account</b>	<b>Operating Fund</b>	<b>Reserve for O&amp;M</b>
Cash and investments - July 1, 2002	\$36,844	\$56,543	\$20,000	\$152,077	\$863,073
<b>Cash receipts:</b>					
Water sales operations and maintenance	1,457,418				
Water sales debt service	4,229,502				
Water sales overdrafts	351,185				
NJ-American pumping costs	120,314				91,832
Headquarters overhead					
Reimbursement of WTP capital expenses					
Disposition of assets					
Sale of investment securities	825,000				466,357
Miscellaneous reimbursement					8,419
<b>Transfers:</b>					
Contributions from operating fund		2,754,654	828,314	(8,516,184)	
Contributions to operating fund				1,792,624	(251,118)
Transfers for operations	(6,773,985)	825,000		5,950,285	(1,300)
Distribution from reserves to operations		162,167			(151,427)
Investment income				10,477	39,380
Per resolution, Section 603:					
Investment income, transfer from	225,213			(10,518)	(39,605)
Investment income, transfer to	(225,213)			26,420	59,813
Unrealized gain/(loss) on fair value					(18,207)
<b>Total cash receipts</b>	<b>209,434</b>	<b>3,741,821</b>	<b>828,314</b>	<b>(746,896)</b>	<b>204,144</b>
<b>Total cash and investments</b>	<b>\$246,278</b>	<b>\$3,798,364</b>	<b>\$848,314</b>	<b>(\$594,819)</b>	<b>\$1,067,217</b>

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Manasquan Water Supply System (continued)**

For the year ended June 30, 2003

Self- Insurance Reserve	Renewal and Replacement Account	Water Reuse & Recycling	Depreciation Reserve	Pumping Reserve	Sediment Reserve	Subtotal
\$248,695	\$2,281,776	\$0	\$576,327	\$96,944	\$97,829	\$4,430,108
						1,457,418
						4,229,502
						351,185
						212,146
						-
			2,295			2,295
233,179			91,244	45,622		1,661,402
						8,419
	120,000	25,000				(4,788,216)
						1,541,506
						-
	(4,963)					5,777
16,846	40,213	154	14,684	4,102	1,633	127,489
(16,851)			(6,525)	(4,126)	(1,681)	145,907
						(138,980)
(9,105)			(3,562)	(1,782)		(32,656)
224,069	155,250	25,154	98,136	43,816	(48)	4,783,194
\$472,764	\$2,437,026	\$25,154	\$674,463	\$140,760	\$97,781	\$9,213,302

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Manasquan Water Supply System (continued)**

For the year ended June 30, 2003

	Water Treatment Plant/Transmission System						
	Subtotal	Operating Account	Operating Fund	Residuals Reserve	Carbon Filter Reserve	Self-Insurance Reserve	Capital Improvement Reserve
Cash and investments - July 1, 2002	\$4,430,108	\$40,570	\$116,118	\$27,796	\$121,786	\$0	\$0
<b>Cash receipts:</b>							
Water sales operations and maintenance	1,457,418						
Water sales debt service	4,229,502						
Water sales overdrafts	351,185						
NJ-American pumping costs	212,146						
Headquarters overhead	-		1,463,670				
Reimbursement of WTP capital expenses	-	300,000	220,265			250,000	927,411
Disposition of assets	2,295						
Sale of investment securities	1,661,402						
Miscellaneous reimbursement	8,419						
<b>Transfers:</b>							
Contributions from operating fund	(4,788,216)	653,873	(853,873)				200,000
Contributions to operating fund	1,541,506		(803,432)	(18,000)	(22,000)		(4,319)
Transfers for operations	-						
Distribution from reserves to operations	5,777						
Investment income	127,489		851	383	1,933	278	1,055
Per resolution, Section 603:							
Investment income, transfer from	145,907			(585)	(2,569)		
Investment income, transfer to	(138,980)		3,155				
Unrealized gain/(loss) on fair value	(32,656)						
<b>Total cash receipts</b>	<u>4,783,194</u>	<u>953,873</u>	<u>30,636</u>	<u>(18,202)</u>	<u>(22,636)</u>	<u>250,278</u>	<u>1,124,147</u>
<b>Total cash and investments</b>	<u>\$9,213,302</u>	<u>\$994,443</u>	<u>\$146,754</u>	<u>\$9,594</u>	<u>\$99,150</u>	<u>\$250,278</u>	<u>\$1,124,147</u>

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Manasquan Water Supply System (continued)**  
For the year ended June 30, 2003

1981 Bonds Debt Service Account	1981 Bonds Debt Service Reserve	Rebate Fund	General Reserve Fund	Employment Benefit Funds	Totals
\$2,731,848	\$1,994,861	\$123,735	\$693,998	\$68,172	\$10,348,992
					1,457,418
					4,229,502
					351,185
					212,146
					1,463,670
					1,697,676
					2,295
					1,661,402
					8,419
3,845,690	108,728		808,130	25,668	-
			(674,534)	(19,221)	-
					-
				(5,777)	-
32,177	136,550	2,079	6,567	1,146	310,508
	(135,825)		(6,928)		-
135,825					-
1,032	(11,884)				(43,508)
4,014,724	97,569	2,079	133,235	1,816	11,350,713
\$6,746,572	\$2,092,430	\$125,814	\$827,233	\$69,988	\$21,699,705

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Manasquan Water Supply System (continued)**

For the year ended June 30, 2003

	<b>Operating Fund</b>				
	<b>Revenue Fund</b>	<b>Operating Account</b>	<b>Payroll Account</b>	<b>Operating Fund</b>	<b>Reserve for O&amp;M</b>
Total available cash and investments	\$246,278	\$3,798,364	\$848,314	(\$594,819)	\$1,067,217
<b>Cash disbursements:</b>					
Payroll			787,039		
Fringe benefits		1,799,975	40,714	(1,257,001)	
Employee deferred comp. and credit union		124,427		128,576	
Operations and maintenance		686,434			
NJ-American pumping costs		134,700			
Prepaid insurance		151,280			
Headquarters overhead				431,525	
Capital assets reservoir		33,343			
Capital improvement program (reservoir)		5,944			
Purchase of investments securities		840,526			464,223
Principal on 1981 bonds					
Interest on 1981 bonds					
<b>Total cash disbursements</b>	-	3,776,629	827,753	(696,900)	464,223
<b>Cash and investments - June 30, 2003</b>	\$246,278	\$21,735	\$20,561	\$102,081	\$602,994
<b>Summary of cash and investments:</b>					
Cash (Manasquan)	\$246,278	\$21,735	\$20,561		
Cash (Water Treatment Plant/TS)					
Short-term investments				\$102,081	\$142,246
Short-Term investments (WTP/TS)					
Long-term investments					460,748
Restricted investments (current)					
Restricted investments (long-term)					
<b>Total cash and investments</b>	\$246,278	\$21,735	\$20,561	\$102,081	\$602,994

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Manasquan Water Supply System (continued)**  
For the year ended June 30, 2003

Self- Insurance Reserve	Renewal and Replacement Account	Water Reuse & Recycling	Depreciation Reserve	Pumping Reserve	Sediment Reserve	Subtotal
\$472,764	\$2,437,026	\$25,154	\$674,463	\$140,760	\$97,781	\$9,213,302
						787,039
						583,688
						253,003
						686,434
						134,700
						151,280
						431,525
						33,343
						5,944
232,111			90,826	45,413		1,673,099
						-
						-
232,111	-	-	90,826	45,413	-	4,740,055
\$240,653	\$2,437,026	\$25,154	\$583,637	\$95,347	\$97,781	\$4,473,247
						\$288,574
						-
\$10,280	\$2,437,026	\$25,154	\$493,490	\$50,274	\$97,781	3,358,332
						-
230,373			90,147	45,073		826,341
						-
						-
\$240,653	\$2,437,026	\$25,154	\$583,637	\$95,347	\$97,781	\$4,473,247

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Manasquan Water Supply System (continued)**

For the year ended June 30, 2003

	<b>Water Treatment Plant/Transmission System</b>						
	<b>Subtotal</b>	<b>Operating Account</b>	<b>Operating Fund</b>	<b>Residuals Reserve</b>	<b>Carbon Filter Reserve</b>	<b>Self-Insurance Reserve</b>	<b>Capital Improvement Reserve</b>
Total available cash and investments	\$9,213,302	\$994,443	\$146,754	\$9,594	\$99,150	\$250,278	\$1,124,147
<b>Cash disbursements:</b>							
Payroll	787,039						
Fringe benefits	583,688						
Employee deferred comp. and credit union	253,003						
Operations and maintenance	686,434	635,232					
NJ-American pumping costs	134,700						
Prepaid insurance	151,280	53,826					
Headquarters overhead	431,525		89,200				
Capital assets reservoir	33,343						
Capital improvement program (reservoir)	5,944						
Purchase of investments securities	1,673,099						
Principal on 1981 bonds	-						
Interest on 1981 bonds	-						
<b>Total cash disbursements</b>	<b>4,740,055</b>	<b>689,058</b>	<b>89,200</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Cash and investments - June 30, 2003</b>	<b>\$4,473,247</b>	<b>\$305,385</b>	<b>\$57,554</b>	<b>\$9,594</b>	<b>\$99,150</b>	<b>\$250,278</b>	<b>\$1,124,147</b>
<b>Summary of cash and investments:</b>							
Cash (Manasquan)	\$288,574						
Cash (Water Treatment Plant/TS)	-	\$305,385					
Short-term investments	3,358,332						
Short-Term investments (WTP/TS)	-		\$57,554	\$9,594	\$99,150	\$250,278	\$1,124,147
Long-term investments	826,341						
Restricted investments (current)	-						
Restricted investments (long-term)	-						
<b>Total cash and investments</b>	<b>\$4,473,247</b>	<b>\$305,385</b>	<b>\$57,554</b>	<b>\$9,594</b>	<b>\$99,150</b>	<b>\$250,278</b>	<b>\$1,124,147</b>

**New Jersey Water Supply Authority**  
**Schedule of Changes in Cash and Investments**  
**Manasquan Water Supply System (continued)**

For the year ended June 30, 2003

1981 Bonds Debt Service Account	1981 Bonds Debt Service Reserve	Rebate Fund	General Reserve Fund	Employment Benefit Funds	Totals
\$6,746,572	\$2,092,430	\$125,814	\$827,233	\$69,988	\$21,699,705
					787,039
					583,688
					253,003
					1,321,666
					134,700
					205,106
					520,725
					33,343
					5,944
					1,673,099
1,140,747					1,140,747
2,672,174					2,672,174
3,812,921	-	-	-	-	9,331,234
<u>\$2,933,651</u>	<u>\$2,092,430</u>	<u>\$125,814</u>	<u>\$827,233</u>	<u>\$69,988</u>	<u>\$12,368,471</u>
\$2,250	\$1,111			\$654	\$292,589
					305,385
			\$827,233	69,334	4,254,899
					1,540,723
					826,341
2,704,136		\$125,814			2,829,950
227,265	2,091,319				2,318,584
<u>\$2,933,651</u>	<u>\$2,092,430</u>	<u>\$125,814</u>	<u>\$827,233</u>	<u>\$69,988</u>	<u>\$12,368,471</u>

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# Statistical Section

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Summary of Financial Information.....	1994 - 2003
Summary of Raritan Basin System Water Use Contracts.....	1999 - 2003
Summary of Manasquan Water Supply System Water Use Contracts .....	1999 - 2003
Raritan Basin System Revenue Bond Coverage.....	1994 - 2003
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Manasquan Water Supply System Water Charges .....	1992 - 2003
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Spruce Run Reservoir Storage .....	1994 - 2003
Round Valley Reservoir Storage .....	1994 - 2003
Manasquan System Rainfall .....	1993 - 2003
Manasquan Reservoir Storage .....	1993 - 2003

**New Jersey Water Supply Authority**  
**SUMMARY OF FINANCIAL INFORMATION 1994 - 2003**

	1994	1995	1996	1997	1998
<b>REVENUE AND EXPENSES</b>					
Operating revenue	\$20,750,036	\$21,316,171	\$21,138,739	\$19,689,581	\$19,795,670
Operating expense	13,920,092	14,419,455	14,737,181	14,595,697	14,133,556
Income from operations	6,829,944	6,896,716	6,401,558	5,093,884	5,662,114
Nonoperating revenues	(542,296)	4,047,594	1,640,593	1,732,570	2,003,192
Nonoperating expenses	3,425,702	3,736,807	3,685,788	5,662,454	5,403,594
Change in net assets	2,861,946	7,207,503	4,356,363	1,164,000	2,261,712
Net assets, beginning of year	78,038,738	80,900,684	88,108,187	80,902,286	82,066,286
Net assets, end of year	80,900,684	88,108,187	92,464,550	82,066,286	84,327,998
<b>ASSETS</b>					
Current assets	10,570,615	13,393,669	15,478,480	29,399,350	17,986,650
Noncurrent assets	220,970,154	223,220,579	222,215,188	194,796,155	204,817,282
Total assets	231,540,769	236,614,248	237,693,668	224,195,505	222,803,932
<b>LIABILITIES</b>					
Current liabilities	6,647,350	6,213,269	6,194,871	6,249,610	5,930,253
Noncurrent liabilities	143,992,735	142,292,792	139,034,247	135,879,609	132,545,681
Total liabilities	150,640,085	148,506,061	145,229,118	142,129,219	138,475,934
<b>NET ASSETS</b>					
Invested in capital assets, net of related debt	33,802,019	35,259,046	34,890,453	34,576,571	34,093,007
Restricted Unrestricted	47,098,665	52,849,141	57,574,097	47,489,715	50,234,991
Total net assets	\$80,900,684	\$88,108,187	\$92,464,550	\$82,066,286	\$84,327,998

**New Jersey Water Supply Authority  
SUMMARY OF FINANCIAL INFORMATION 1994 - 2003**

<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
\$19,554,202	\$19,718,194	\$19,325,569	\$21,331,989	\$21,028,468
<u>14,480,879</u>	<u>15,632,775</u>	<u>15,523,478</u>	<u>16,450,755</u>	<u>17,339,427</u>
5,073,323	4,085,419	3,802,091	4,881,234	3,689,041
1,629,293	4,709,579	2,826,090	1,687,459	907,349
<u>4,096,607</u>	<u>4,787,230</u>	<u>4,779,364</u>	<u>4,981,693</u>	<u>4,534,643</u>
2,606,009	4,007,768	1,848,817	1,587,000	61,747
<u>84,327,998</u>	<u>86,934,007</u>	<u>90,941,775</u>	<u>92,790,592</u>	<u>94,377,592</u>
86,934,007	90,941,775	92,790,592	94,377,592	94,439,339
20,002,203	23,716,294	23,159,792	24,575,360	23,535,975
<u>202,985,659</u>	<u>199,107,133</u>	<u>197,300,073</u>	<u>193,044,591</u>	<u>191,875,994</u>
222,987,862	222,823,427	220,459,865	217,619,951	215,411,969
7,164,444	7,234,800	7,503,563	7,055,124	9,077,827
<u>128,889,411</u>	<u>124,646,852</u>	<u>120,165,710</u>	<u>116,187,235</u>	<u>111,894,803</u>
136,053,855	131,881,652	127,669,273	123,242,359	120,972,630
33,814,869	34,304,082	34,993,065	34,845,644	35,978,635
53,119,138	56,637,693	10,158,116 47,639,411	10,804,128 48,727,820	11,721,789 46,738,915
<u>\$86,934,007</u>	<u>\$90,941,775</u>	<u>\$92,790,592</u>	<u>\$94,377,592</u>	<u>\$94,439,339</u>

**New Jersey Water Supply Authority  
 RARITAN BASIN SYSTEM  
 SUMMARY OF WATER USE CONTRACTS  
 MAXIMUM DAILY ALLOCATION IN MILLIONS GALLONS PER DAY - MGD**

<u>WATER USER</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
UNITED WATER LAMBERTVILLE, INC	0.200	0.200	0.200	0.200	0.200
MERCER COUNTY PARK COMMISSION	0.100	0.100	0.100	0.100	0.100
TRENTON COUNTRY CLUB	0.250	0.250	0.250	0.250	0.250
VACCARO BROTHERS	0.050	0.050	0.050		
MERCER COUNTY PARK COMMISSION	0.135	0.135	0.135	0.135	0.135
PRINCETON UNIVERSITY	1.000	1.000	1.000	0.500	0.500
PRINCETON NURSERIES	0.300	0.300	0.300		
NORTH BRUNSWICK TOWNSHIP	8.000	8.000	8.000	8.000	8.000
SELODY SOD FARMS, INC.	0.100	0.100	0.100	0.100	0.100
ELIZABETHTOWN WATER COMPANY	102.000	102.000	102.000	102.000	102.000
EAST BRUNSWICK TOWNSHIP	8.000	8.000	8.000	8.000	8.000
NEW BRUNSWICK, CITY OF	10.500	10.500	10.500	10.500	10.500
JOHNSON & JOHNSON CORPORATION	0.500	0.500	0.500	0.500	
MIDDLESEX WATER COMPANY	20.000	20.000	20.000	20.000	20.000
TREDEGAR INDUSTRIES					
FLEMINGTON FILM PRODUCTS	0.012	0.012	0.012	0.012	0.012
DUKE FARMS					
BOROUGH OF MOUNT ARLINGTON					
<b>SYSTEM TOTAL</b>	151.147	151.147	151.147	150.297	149.797

**New Jersey Water Supply Authority**  
**RARITAN BASIN SYSTEM**  
**SUMMARY OF WATER USE CONTRACTS**  
**MAXIMUM DAILY ALLOCATION IN MILLIONS GALLONS PER DAY - MGD**

<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
0.200	0.200	0.200	0.200	0.200
0.100	0.100	0.100	0.100	0.100
0.250	0.250	0.250	0.250	0.250
0.135	0.135	0.135	0.135	0.135
0.500	0.500	0.500	0.500	0.500
8.000	8.000	8.000	8.000	8.000
0.100	0.100	0.100	0.100	0.100
102.000	102.000	104.000	104.000	104.000
8.000	8.000	8.000	8.000	8.000
10.500	10.500	10.500	10.500	10.500
20.000	20.000	20.000	20.000	20.000
0.012	0.012	0.012	0.012	0.012
				0.058
				0.039
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
149.797	149.797	151.797	151.797	151.894

**New Jersey Water Supply Authority  
MANASQUAN WATER SUPPLY SYSTEM  
SUMMARY OF WATER USE CONTRACTS  
MAXIMUM DAILY ALLOCATION IN MILLIONS GALLONS PER DAY - MGD**

	1994	1995	1996	1997	1998
WALL TOWNSHIP	2.300	2.300	2.300	2.300	2.300
BOROUGH OF AVON	0.142	0.142	0.142	0.142	0.142
SHORELANDS WATER COMPANY	1.900	1.900	1.900	1.900	1.900
NEW JERSEY-AMERICAN WATER CO.	7.035	7.035	7.035	7.035	7.765
BOROUGH OF RED BANK	0.778	0.778	0.778	0.778	0.778
BOROUGH OF SEA GIRT	0.075	0.075	0.075	0.075	0.075
BOROUGH OF SPRING LAKE	0.310	0.310	0.310	0.310	0.310
BOROUGH OF SPRING LAKE HEIGHTS	0.450	0.450	0.450	0.450	0.450
BOROUGH OF BELMAR	0.650	0.650	0.650	0.650	0.650
HOWELL TOWNSHIP	0.730	0.730	0.730	0.730	
BOROUGH OF BRIELLE	0.400	0.400	0.400	0.400	0.400
ADELPHIA WATER COMPANY	0.300	0.300	0.300	0.300	0.300
BOROUGH OF KEYPORT	0.458	0.458	0.458	0.458	0.458
BOROUGH OF MATAWAN	0.469	0.469	0.469	0.469	0.469
BOROUGH OF SOUTH BELMAR	0.100	0.100	0.100	0.100	0.100
	16.097	16.097	16.097	16.097	16.097

NOTE: The Manasquan System started operations JULY 1,1990.

**New Jersey Water Supply Authority  
 MANASQUAN WATER SUPPLY SYSTEM  
 SUMMARY OF WATER USE CONTRACTS  
 MAXIMUM DAILY ALLOCATION IN MILLIONS GALLONS PER DAY - MGD**

<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
2.300	2.300	2.300	2.300	2.300
0.142	0.142	0.142	0.142	0.142
1.900	1.900	1.900	1.900	1.900
8.065	8.065	9.065	11.000	11.000
0.778	0.778	0.778	0.778	0.778
0.075	0.075	0.075	0.075	0.075
0.310	0.310	0.310	0.310	0.310
0.450	0.450	0.450	0.450	0.450
0.650	0.650	0.650	0.650	0.650
0.400	0.400	0.400	0.400	0.400
0.458	0.458	0.458	0.458	0.458
0.469	0.469	0.469	0.469	0.469
0.100	0.100	0.100	0.100	0.100
16.097	16.097	17.097	19.032	19.032

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

SERIES 1988, D & R SYSTEM REVENUE BOND COVERAGE\*  
SERIES 1998, D & R SYSTEM REVENUE REFUNDING BOND COVERAGE

Fiscal Year	Gross Revenue	Operating Expenses	Net Revenue Available for Debt Service	Debt Service Payments	Coverage
2003	\$14,295,861	\$8,232,300	\$6,063,561	\$2,731,369	2.22
2002	\$13,978,577	\$7,638,000	\$6,340,577	\$2,735,506	2.32
2001	\$14,928,628	\$7,623,800	\$7,304,828	\$2,738,631	2.67
2000	\$14,467,229	\$7,187,900	\$7,279,329	\$2,745,394	2.65
1999	\$14,073,166	\$8,433,100	\$5,640,066	\$3,151,000	1.79
1998	\$14,402,400	\$8,433,400	\$5,969,000	\$3,150,000	1.89
1997	\$13,804,500	\$7,829,500	\$5,975,000	\$3,160,000	1.89
1996	\$13,747,250	\$7,697,050	\$6,050,200	\$3,160,000	1.91
1995	\$13,703,700	\$7,754,700	\$5,949,000	\$3,162,000	1.88
1994	\$12,764,300	\$6,815,300	\$5,949,000	\$3,162,000	1.88

Note 1. Section 713 of the Delaware & Raritan Canal - Spruce Run/Round Valley Reservoirs System Bond Resolution, adopted November 17, 1988, requires that the Net Revenues in each fiscal year be at least 120% of the Debt Service on the 1988 bonds for the twelve month period in such fiscal year.

\* Numbers to calculate bond coverage were extracted from the corresponding budget for the applicable fiscal year.

**New Jersey Water Supply Authority  
DELAWARE AND RARITAN CANAL - SPRUCE RUN/ROUND VALLEY RESERVOIRS SYSTEM  
WATER CHARGES PER MILLION GALLONS OF RAW WATER DAILY**

EFFECTIVE DATE	10/1/85	7/1/86	7/1/88	7/1/89	7/1/90	7/1/91	7/1/92	7/1/93	7/1/94
RATE PER MGD	\$147.37	\$152.17	\$152.12	\$187.56	\$188.60	\$201.33	\$214.86	\$220.47	\$229.50
EFFECTIVE DATE	7/1/95	7/1/96	7/1/97	7/1/98	7/1/99	7/1/00	7/1/01	7/1/02	7/1/03
RATE PER MGD	\$220.78	\$211.16	\$211.16	\$211.16	\$205.00	\$205.00	\$205.00	\$205.00	\$210.00

**New Jersey Water Supply Authority  
MANASQUAN WATER SUPPLY SYSTEM  
WATER CHARGES PER MILLION GALLONS OF RAW WATER DAILY**

EFFECTIVE DATE	CONTRACTS	07/01/91	2/01/92	7/01/92	2/01/93	7/01/93	2/01/94	7/01/94	7/01/95
RATE PER MGD	16.097mgd	\$1,000.86	\$1,033.53	\$1,054.27	\$1,086.67	\$1,064.33	\$1,096.75	\$1,114.98	\$1,105.47
EFFECTIVE DATE		7/01/96	7/01/97	7/01/98	7/01/99	7/01/00	7/01/01	7/01/02	7/01/03
RATE PER MGD	16.097mgd	\$1,065.15	\$938.92	\$832.92	\$695.31	\$728.81	\$797.92	\$794.97	\$794.97
	1.0mgd						\$1,035.50	\$1,047.96	\$1,065.45
	1.935mgd							\$1,166.29	\$1,072.34

NOTE: The Manasquan System started operations JULY 1,1990.

**New Jersey Water Supply Authority  
RARITAN BASIN SYSTEM  
SPRUCE RUN RAIN GAUGE (INCHES)**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2003	2.10	3.90	4.20	1.80	4.20	6.30	4.80	3.50	7.10	5.00	3.40	5.80	52.10
2002	1.60	0.03	3.40	2.90	5.10	3.60	0.40	2.80	3.90	0.10	3.80	3.70	31.33
2001	2.70	2.20	4.40	1.10	3.70	5.80	3.60	3.50	4.30	0.50	0.80	1.90	34.50
2000	2.90	2.00	3.20	2.90	4.70	4.10	4.00	4.80	2.00	0.90	2.60	3.70	37.80
1999	6.00	2.90	4.20	2.60	1.80	0.50	0.20	3.60	10.60	3.70	2.70	2.00	40.80
1998	3.70	4.50	3.60	5.20	5.60	3.60	1.40	4.20	2.50	3.50	1.20	0.80	39.80
1997	3.20	1.60	2.80	2.40	3.00	2.30	6.90	4.10	1.70	1.70	3.20	3.80	36.70
1996	6.00	1.50	3.90	5.50	2.40	5.50	8.00	1.40	4.20	8.10	3.70	8.20	58.40
1995	3.00	2.50	1.40	1.90	2.10	2.50	5.20	1.00	4.40	11.00	4.30	2.30	41.60
1994	5.30	2.70	4.80	2.20	3.20	6.00	3.00	3.60	1.80	1.30	3.50	2.70	40.10
TOTAL	36.50	23.83	35.90	28.50	35.80	40.20	37.50	32.50	42.50	35.80	29.20	34.90	413.13
AVERAGE	3.65	2.38	3.59	2.85	3.58	4.02	3.75	3.25	4.25	3.58	2.92	3.49	41.31
MAXIMUM	6.00	4.50	4.80	5.50	5.60	6.30	8.00	4.80	10.60	11.00	4.30	8.20	58.40
MINIMUM	1.60	0.03	1.40	1.10	1.80	0.50	0.20	1.00	1.70	0.10	0.80	0.80	31.33

**New Jersey Water Supply Authority  
RARITAN BASIN SYSTEM  
WEST WINDSOR RAIN GAUGE (INCHES)**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2003	2.50	5.20	3.60	3.00	4.70	6.80	2.80	3.70	5.90	4.00	4.70	6.10	53.00
2002	3.50	0.60	4.50	1.60	3.50	4.50	2.30	3.80	5.70	0.02	4.90	4.30	39.22
2001	3.20	2.10	6.30	1.70	2.70	3.50	3.00	2.40	2.30	0.50	0.80	2.20	30.70
2000	2.90	2.30	3.70	3.10	4.60	3.80	6.00	6.10	6.70	0.80	3.20	3.90	47.10
1999	7.60	3.50	4.20	2.20	3.30	0.60	1.00	6.80	11.00	3.60	2.00	3.70	49.50
1998	4.70	3.30	5.50	3.80	8.00	4.90	1.80	3.50	1.90	1.50	1.40	1.10	41.40
1997	3.70	2.60	1.60	3.50	3.50	2.50	5.70	1.80	1.30	1.80	3.00	3.90	34.90
1996	5.40	1.10	4.30	4.50	1.60	8.20	7.40	3.00	5.60	6.00	2.70	7.50	57.30
1995	2.60	2.60	1.40	1.40	1.80	0.20	1.90	1.20	4.90	5.00	4.40	2.30	29.70
1994	6.80	3.10	8.10	3.50	3.90	4.50	6.10	5.80	2.70	0.70	3.70	2.80	51.70
TOTAL	42.90	26.40	43.20	28.30	37.60	39.50	38.00	38.10	48.00	23.92	30.80	37.80	434.52
AVERAGE	4.29	2.64	4.32	2.83	3.76	3.95	3.80	3.81	4.80	2.39	3.08	3.78	43.45
MAXIMUM	7.60	5.20	8.10	4.50	8.00	8.20	7.40	6.80	11.00	6.00	4.90	7.50	57.30
MINIMUM	2.50	0.60	1.40	1.40	1.60	0.20	1.00	1.20	1.30	0.02	0.80	1.10	29.70

**New Jersey Water Supply Authority  
RARITAN BASIN SYSTEM  
SPRUCE RUN RESERVOIR STORAGE  
BILLION GALLONS**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	8.2	9.0	9.8	11.0	11.0	11.1	11.0	10.9	10.8	10.9	11.0	11.0
2002	3.6	3.7	3.8	4.5	5.3	7.1	7.8	7.6	7.0	5.3	5.5	6.4
2001	10.4	10.3	11.0	11.0	11.0	11.0	11.0	10.1	8.7	7.0	4.8	3.7
2000	10.0	10.4	11.1	10.9	11.0	11.0	11.0	10.2	11.0	11.0	10.4	10.3
1999	3.7	5.5	6.4	8.2	9.4	9.9	8.1	7.4	6.6	8.2	8.7	9.9
1998	5.6	6.9	8.6	10.7	11.0	11.0	11.0	9.2	6.4	4.3	3.9	3.9
1997	11.0	10.9	11.0	11.0	11.0	11.0	10.3	9.1	8.0	6.5	4.6	5.0
1996	8.9	11.0	10.7	11.1	11.2	11.0	11.0	11.0	10.3	9.9	10.6	11.0
1995	9.1	9.9	9.1	10.6	11.0	10.9	9.5	7.9	5.0	4.5	6.8	9.0
1994	7.5	7.4	7.8	11.1	11.0	10.8	10.9	10.7	10.5	9.7	8.4	8.3
AVERAGE	7.8	8.5	8.9	10.0	10.3	10.5	10.2	9.4	8.4	7.7	7.5	7.9
MAXIMUM	11.0	11.0	11.1	11.1	11.2	11.1	11.0	11.0	11.0	11.0	11.0	11.0
MINIMUM	3.6	3.7	3.8	4.5	5.3	7.1	7.8	7.4	5.0	4.3	3.9	3.7

MAXIMUM CAPACITY 11.0 BG

**New Jersey Water Supply Authority  
RARITAN BASIN SYSTEM  
ROUND VALLEY RESERVOIR STORAGE  
BILLION GALLONS**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	45.1	45.1	45.4	46.4	50.3	52.1	52.5	52.7	52.8	53.1	53.4	53.8
2002	51.4	50.9	50.6	50.7	51.1	51.8	51.9	48.9	44.5	44.6	44.7	44.9
2001	54.4	54.5	54.7	55.0	55.0	55.2	55.1	54.9	55.0	54.9	54.4	52.7
2000	43.0	43.6	46.8	51.1	53.6	54.4	54.6	54.6	54.8	54.7	54.4	54.3
1999	49.4	49.6	49.8	50.0	50.1	50.2	49.8	44.7	42.3	43.1	43.1	43.0
1998	54.4	54.6	54.8	54.8	55.1	54.4	54.6	54.4	54.4	54.4	52.8	51.1
1997	54.3	54.4	54.5	54.9	55.0	54.5	54.6	54.7	54.7	54.6	54.4	54.3
1996	51.3	51.8	51.9	52.1	52.6	52.8	53.1	53.4	53.2	53.3	53.6	53.7
1995	53.2	53.2	53.3	54.2	54.6	54.7	54.5	54.5	53.3	50.9	51.2	51.3
1994	51.9	52.5	52.2	53.1	53.4	53.5	53.7	53.7	53.8	53.5	53.2	53.2
AVERAGE	50.84	51.02	51.40	52.23	53.08	53.36	53.44	52.65	51.88	51.71	51.52	51.23
MAXIMUM	54.4	54.6	54.8	55.0	55.1	55.2	55.1	54.9	55.0	54.9	54.4	54.3
MINIMUM	43.0	43.6	45.4	46.4	50.1	50.2	49.8	44.7	42.3	43.1	43.1	43.0

MAXIMUM CAPACITY 55.0 BG

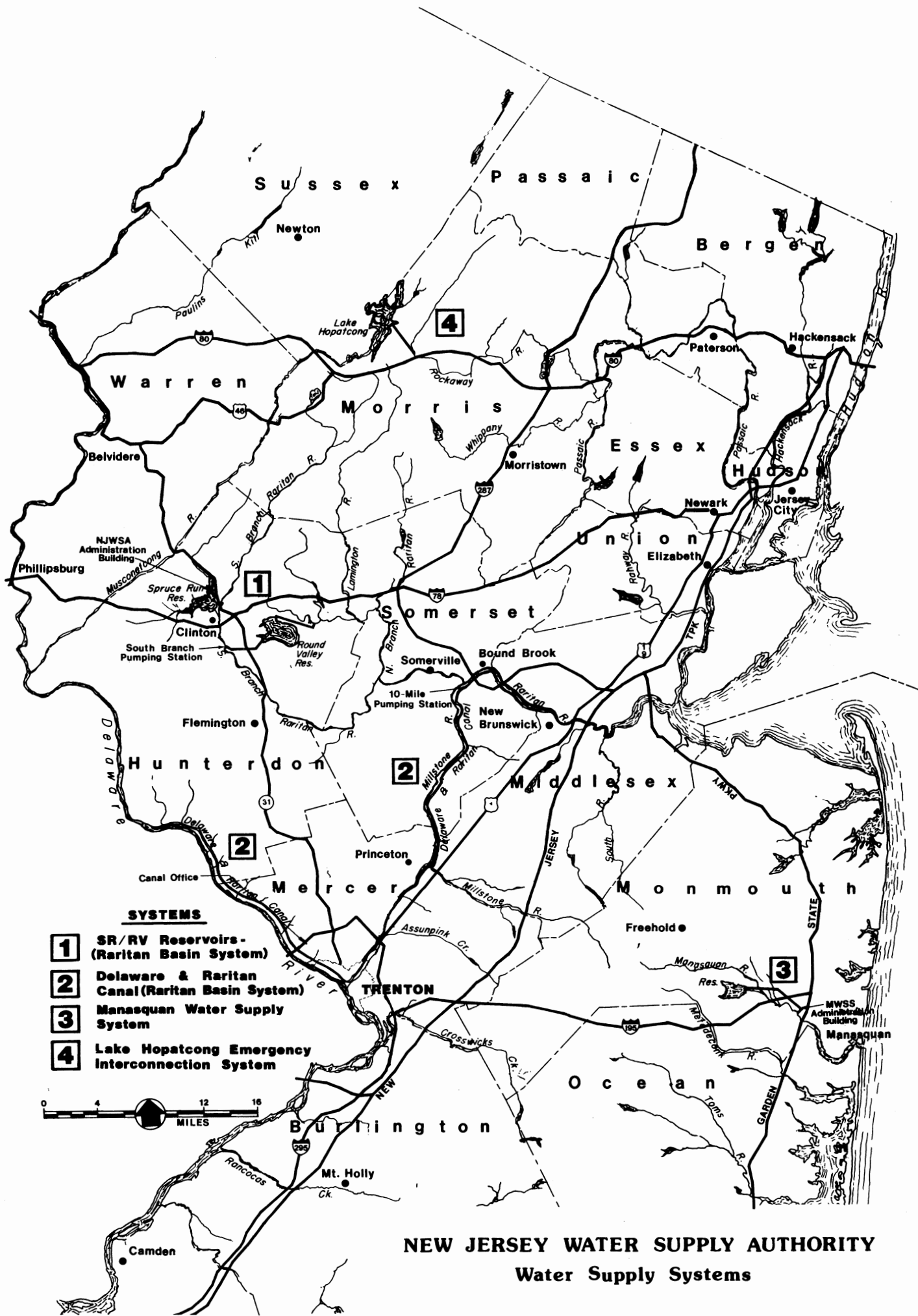
**New Jersey Water Supply Authority  
MANASQUAN SYSTEM RAINFAL  
INCHES**

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	
2002	8.36	4.86	4.64	2.63	3.27	3.38	3.40	4.36	7.33	3.49	4.22	4.57	2003
2001	1.23	0.68	2.14	2.90	0.88	5.17	2.94	4.19	4.70	2.21	4.18	4.51	2002
2000	1.08	3.80	2.63	3.60	2.54	9.00	1.81	1.57	5.65	4.49	4.61	2.51	2001
1999	2.98	1.73	2.52	1.86	1.54	2.70	2.60	3.30	2.69	6.11	4.29	6.18	2000
1998	1.37	1.24	0.94	7.03	2.22	2.97	2.07	1.70	1.47	1.05	4.28	4.86	1999
1997	2.80	4.67	3.57	5.56	7.51	6.17	5.19	5.82	6.22	3.11	1.95	2.88	1998
1996	5.52	2.34	6.97	2.48	3.45	4.63	3.99	2.97	2.42	4.27	7.50	3.13	1997
1995	6.63	6.52	2.16	5.86	1.06	3.47	4.63	2.70	4.83	6.83	3.47	5.52	1996
1994	1.00	3.76	2.64	3.12	2.65	1.20	2.79	2.97	2.42	1.77	3.50	3.72	1995
1993	5.08	1.12	3.73	5.38	2.10	5.93	2.72	3.46	1.80	3.12	6.75	2.89	1994
TOTAL	36.05	30.72	31.94	40.42	27.22	44.62	32.14	33.04	39.53	36.45	44.75	40.77	
AVERAGE	3.61	3.07	3.19	4.04	2.72	4.46	3.21	3.30	3.95	3.65	4.48	4.08	
MAXIMUM	8.36	6.52	6.97	7.03	7.51	9.00	5.19	5.82	7.33	6.83	7.50	6.18	
MINIMUM	1.00	0.68	0.94	1.86	0.88	1.20	1.81	1.57	1.47	1.05	1.95	2.51	

**New Jersey Water Supply Authority  
MANASQUAN RESERVOIR STORAGE DATA  
BILLION GALLONS**

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	
2002	3.52	4.18	4.62	4.58	4.55	4.64	4.64	4.59	4.60	4.38	4.42	4.17	2003
2001	3.52	3.16	3.00	3.03	3.29	3.51	4.43	4.59	4.54	4.27	3.66	3.43	2002
2000	4.39	4.34	4.39	4.31	4.57	4.64	4.64	4.52	4.55	4.51	4.21	3.83	2001
1999	3.67	3.73	3.90	4.08	4.34	4.64	4.63	4.64	4.61	4.43	4.57	4.41	2000
1998	4.17	3.88	3.81	4.16	4.50	4.54	4.56	4.53	4.33	3.85	3.49	3.41	1999
1997	3.77	3.81	3.95	4.40	4.56	4.66	4.64	4.62	4.59	4.51	4.43	4.27	1998
1996	4.47	4.36	4.51	4.51	4.61	4.63	4.65	4.56	4.51	4.27	4.11	3.96	1997
1995	3.79	3.98	4.41	4.40	4.39	4.46	4.54	4.57	4.55	4.52	4.51	4.46	1996
1994	4.10	4.05	3.90	4.01	4.20	4.43	4.45	4.49	4.45	4.39	4.34	3.84	1995
1993	3.98	3.96	4.13	4.26	4.24	4.47	4.55	4.52	4.44	4.28	4.22	4.17	1994
AVERAGE	3.94	3.95	4.06	4.17	4.33	4.46	4.57	4.56	4.52	4.34	4.20	4.00	
MAXIMUM	4.47	4.36	4.62	4.58	4.61	4.66	4.65	4.64	4.61	4.52	4.57	4.46	
MINIMUM	3.52	3.16	3.00	3.03	3.29	3.51	4.43	4.49	4.33	3.85	3.49	3.41	

MAXIMUM CAPACITY 4.7 BG



**NEW JERSEY WATER SUPPLY AUTHORITY**  
**Water Supply Systems**



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