



New Jersey's Water Emergency

September 1980 – April 1982



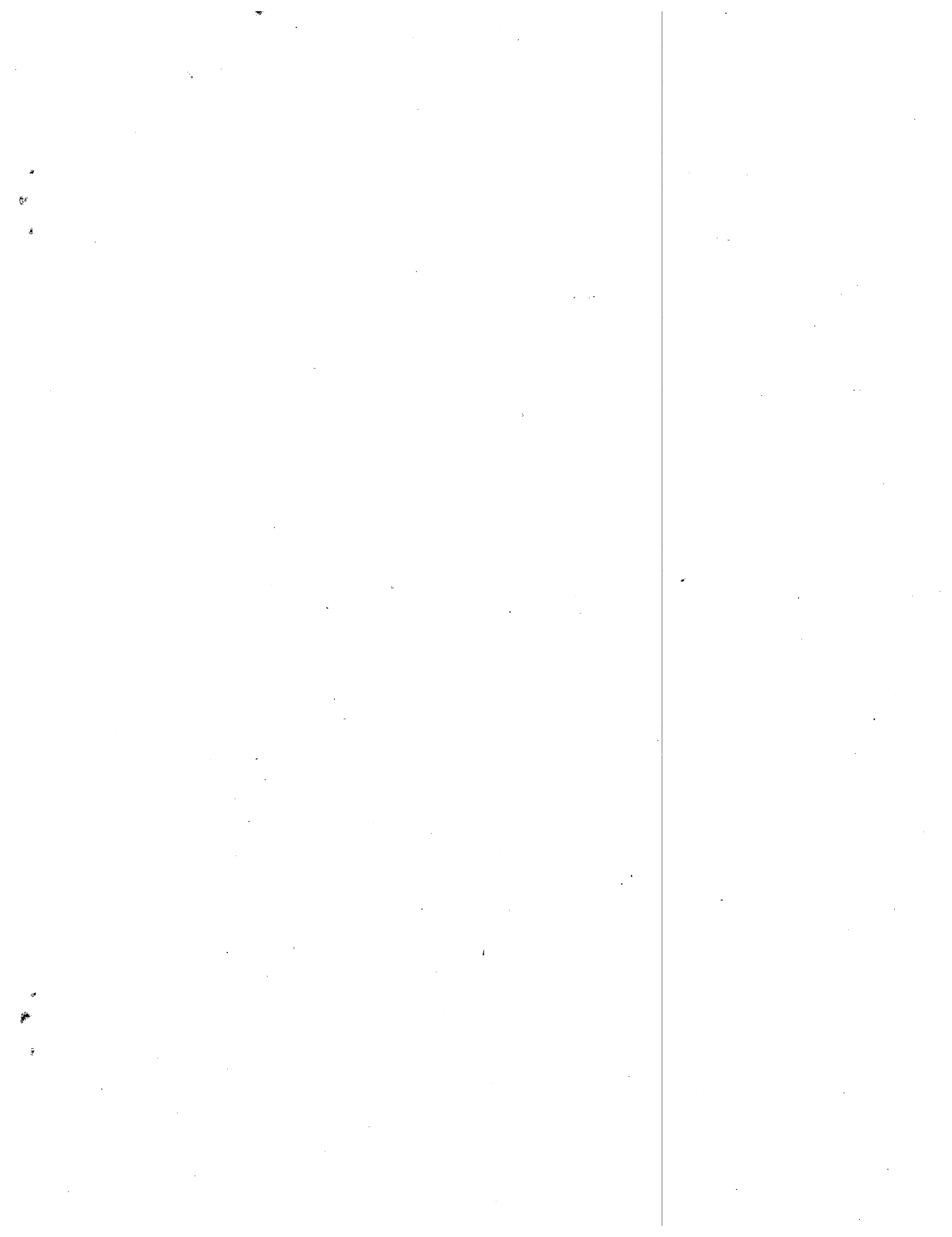
A Report From

The Water Emergency Task Force

May 1983

Executive Summary

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NEW JERSEY'S WATER EMERGENCY EXECUTIVE SUMMARY

SEPTEMBER 1980 - APRIL 1982

Paul H. Arbesman, Drought Coordinator (1980-1981)

Dirk C. Hofman, Chairman, Water Emergency Task Force and Current Drought Coordinator

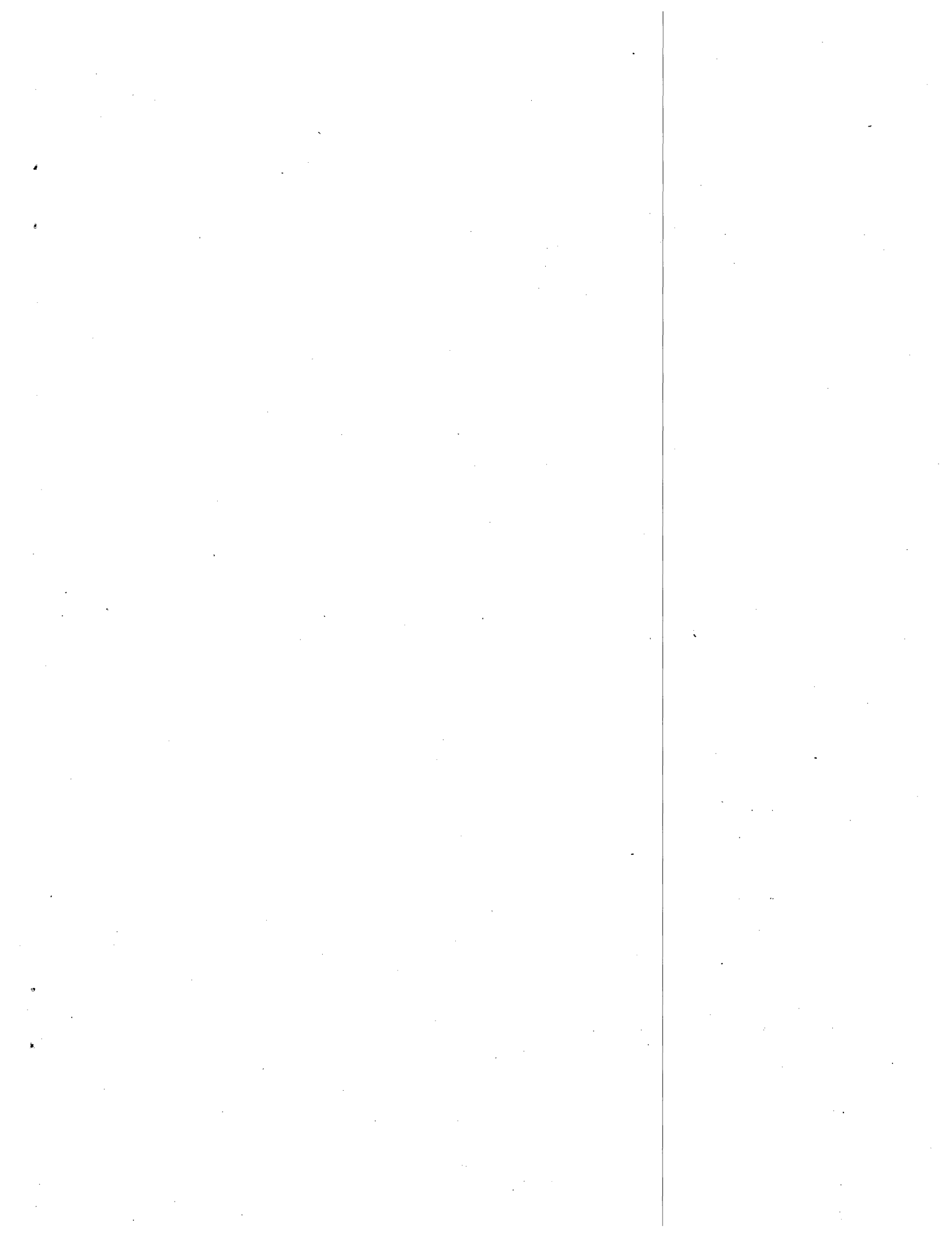
Dr. Saul K. Fenster, Chairman, Citizens Advisory Task Force

Donald Graham, Deputy Drought Coordinator for Legislative Affairs (1980-1981)

**NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES**

**THOMAS H. KEAN
GOVERNOR**

**ROBERT E. HUGHEY
COMMISSIONER**



GOVERNOR'S
WATER EMERGENCY TASK FORCE

Chairperson

Honorable Jerry Fitzgerald English, Commissioner,
Department of Environmental Protection

Members

Honorable George H. Barber, President, Board of
Public Utilities

Honorable Fred G. Burke, Commissioner, Department
of Education

Honorable John J. Degnan, Attorney General, Department
of Law and Public Safety

Honorable Joanne E. Finley, M.D., Commissioner,
Department of Health

Honorable Joseph A. LeFante, Commissioner, Department
of Community Affairs

Honorable John J. Horn, Commissioner, Department
of Labor and Industry

GOVERNOR'S
WATER EMERGENCY TASK FORCE

DESIGNEES

Chairman:

- Dirk Hofman - New Jersey Department of Environmental Protection, Division of Water Resources.

Vice-Chairman:

- John Wilford - New Jersey Department of Environmental Protection, Division of Water Resources

Designated Representatives:

- William Curzie - New Jersey Department of Education, Division of Research, Planning and Evaluation
- Phillips Heathcote - New Jersey Department of Labor and Industry, Office of Business Advocacy
- Lt. Alfred Livingston - New Jersey State Police, Office of Emergency Management
- Daniel Mennella - New Jersey Department of Community Affairs, Division of Local Government Services
- Joseph Miri - New Jersey Department of Environmental Protection, Division of Water Resources
- Joseph Nixon - New Jersey Department of Education, Division of Administration and Finance, Bureau of Facility Planning
- S.F.C. John Ouweleen - New Jersey State Police, Office of Emergency Management
- Charles Sheppa - New Jersey Board of Public Utilities, Division of Engineering
- Peter Stratton - New Jersey Department of Health, Community Health Services
- Counsel to Task Force:
- Dale Lessne - Deputy Attorney General, Division of Law, Department of Law and Public Safety
- Susan Vercheak - Deputy Attorney General, Division of Law, Department of Law and Public Safety

CITIZENS ADVISORY TASK FORCE

Chairman:

Dr. Saul K. Fenster, President, New Jersey Institute
of Technology

Labor:

Frank Totten, President, New Jersey Education
Association

Charles Marciante, President, AFL/CIO

Archer Cole, President, District 3, IUE, AFL/CIO

William J. Kosakowski, President, New Jersey Fireman's
Benevolent Association

Chief Joseph Lake, President, New Jersey State
Association of Chiefs of Police

Public Service Organizations:

Mary Gray, President, Business and Professional
Women's Association

Reverend Paul Stagg, General Secretary, Council of
Churches

Philip Pittore, President, League of Municipalities

David Moore, Executive Director, New Jersey Conservation
Foundation

Joan Crowley, President, League of Women Voters

William K. Herman, President, New Jersey Jaycees

Trade Associations:

Donald Scott, President, New Jersey Chamber of
Commerce

Agriculture/Environment:

James Manetas, Chairman, Fish and Game Council

Loren DeCou, President, New Jersey Farm Bureau

Business and Industry:

Harold Sonn, President, Public Service Electric
and Gas Company

Anthony DeFonzo, Executive Director, Engineering
and Plant Services, Ciba-Geigy
Pharmaceuticals

R. Gordon McGovern, President, Campbell Soup Company

Al Linkletter, Real Estate Consultant, First National
State Bank

Richard Sellars, Former Chairman and Chief Executive
Officer, Johnson and Johnson

Fred Westphal, Public Affairs Manager, Exxon Company
U.S.A.

James Seabrook, President, Seabrook Brothers, Inc.

Assisting this group were:

Rocco Ricci, Chief Engineer, Passaic Valley Sewerage
Commission

Colonel W.M. Smith, Jr., District Engineer, United
States Army Corps of Engineers

Dr. Theodore Shelton, Department of Environmental
Resources, Rutgers State University

John Runyon, Business Administrator, East Brunswick
Township, New Jersey

Gerald Hansler, Executive Director, Delaware River Basin
Commission

EXECUTIVE SUMMARY

IMPENDING CRISIS

New Jersey experienced unusually dry weather conditions during 1980. Rainfall was well below normal. The four month period preceding September 1980, was particularly dry. Rainfall in August was approximately 20% of normal. The water supply systems in the northeastern portion of New Jersey had additional problems such as antiquated water distribution lines, lack of sufficient interconnections, and a high demand on diminishing water reserves. This set the stage for a potential water supply disaster.

GOVERNOR ACTS TO AVERT CRISIS

As a result of the dwindling reservoir levels, State water experts informed Governor Byrne of the potential water emergency. The Governor then issued an executive order declaring a state of emergency for the affected municipalities in northeastern New Jersey. These municipalities were located in the counties of Bergen, Essex, Hudson, Morris, Somerset, Passaic and Union. Residential water users were subjected to a ban on certain non-essential uses of water such as the watering of lawns, non-commercial washing of cars, and the washing of streets, driveways and sidewalks. Commercial and industrial water users were directed to examine water needs to determine where non-potable water could be utilized in place of potable water and where water usage could be reduced insofar as possible without affecting employment levels.

Two additional executive orders were subsequently issued, placing additional municipalities under water restrictions. By the end of September, however, it was determined that the emergency conservation measures imposed by the three executive orders had not sufficiently reduced water consumption to preserve dwindling supplies. Governor Byrne therefore imposed mandatory water rationing for specific municipalities in the northeastern part of the State and expanded the number of municipalities under water-use restrictions. Water rationing was determined to be the best method for conserving available water supplies. In order to effectively enforce water rationing, a schedule of penalty charges for excess water use was established. Individuals and businesses in the rationed area were surcharged for that quantity of water used above their allotted amount. The water rationing requirements and penalty charge schedule was detailed in the Water Rationing Plan established by Executive Order No. 98.

WATER EMERGENCY TASK FORCE FORMED

A Water Emergency Task Force that had been established by the Department of Environmental Protection to assist in administering the drought situation was officially recognized and expanded by the Governor at the end of September 1980. Specific duties of the Task Force included development of: a realistic, workable and enforceable rationing program; policies and guidelines on non-essential water uses; and policies and procedures for water purveyors to implement the Water Rationing Plan which entailed the administration of water exemptions, increased water allotments and appeal requests. Its duties also included adapting and revising water-use policies to drought conditions, monitoring and making recommendations for emergency water supplies, providing advice on methods to conserve water to the public and industrial sectors, issuing periodic policy interpretations and responding to industries' suggestions for specific policy formation affecting their respective operations.

WATER SUPPLIES CONTINUE TO DWINDLE

The levels of the major surface water reservoirs in north-eastern New Jersey continued to drop during the fall of 1980. Emergency water supply projects were initiated to augment the diminishing supplies. Federal funds were requested for these emergency projects. In addition, the effects of the drought were beginning to be felt in the Delaware River Basin. The lack of adequate rainfall and insufficient emergency water conservation caused water supplies in the New York City reservoirs to approach critically low levels. These reservoirs control the rate of flow in the Delaware River. The low flow in the river caused upstream migration of the salt front to a point dangerously close to critical groundwater recharge areas in New Jersey.

EXECUTIVE ORDER NO. 103

By the end of January 1981, the supply situation had deteriorated. Water reserves were approaching critical levels. December was one of the driest Decembers on record. Total rainfall for January was 0.5 inch compared to a normal of 2.98 inches. The combined storage of the major northeastern New Jersey reservoirs was 21.3% of capacity. In response to the critical situation in the Delaware River Basin, Governor Byrne issued Executive Order No. 103, on January 22, 1981, declaring a state of emergency for 187 additional municipalities in the Delaware and Raritan Basins. This order subjected these municipalities to the mandatory non-essential use ban. As of that date, 372 municipalities were under some degree of mandatory water use restrictions, affecting over 5 million people.

EXECUTIVE ORDER NO. 104

By January 31, 1981, combined storage in the major north-eastern New Jersey reservoirs remained at 21.3 percent of capacity. The Hackensack and North Jersey District reservoirs dipped below 20% of their capacities. The lowest level for combined storage experienced in the 1960's drought was 24.5%.

Because of the imminent threat of disaster, Governor Byrne issued Executive Order No. 104, which added more water-use restrictions to those already in effect. These included a prohibition on the use of fresh water for any outdoor recreational purpose. This executive order required municipalities in the affected area to develop local disaster plans in the event that their water systems failed. This was essential since the area was left with only 40 days of supply, which projected mid-March as the point when the supply would be exhausted.

Concurrently, a Drought Coordinator was appointed by the Governor. Enforcement efforts were increased, and a state-wide contingency drought emergency plan was prepared. In addition, a Citizens Advisory Task Force was appointed by the Governor to act as a "sounding board" for proposed State actions during the water emergency. The Water Emergency Task Force made technical recommendations which were then forwarded to the Citizens Advisory Task Force for public opinion and comment. This approach to water-use policy formation proved to be the most advantageous method for successful formulation of administrative policies during the emergency. The public, through representation by this group, was afforded the opportunity to comment on proposed policy before adoption.

FEBRUARY - FUNDS AND FRUSTRATION

During the early part of February 1981, the State Legislature approved emergency appropriations for building a number of emergency interconnections and overland pipelines to bring new water supplies to the drought stricken area.

Near the end of February, State officials met with Reagan Administration officials, seeking Federal financial assistance and the declaration of a disaster area in New Jersey. Because of the precipitation that New Jersey received between February 10 and March 1, 1981, (6.7 inches, the greatest quantity received in any month since the drought began), the request was not granted. Moreover, rainfall was insufficient to bring the combined reservoir levels up to normal for the month.

This rainfall helped New Jersey extend the depletion date of its water supply, which had been projected for mid-March.

Unfortunately, it also altered the public's perception of the drought, causing an increase in water usage. Reservoir levels climbed to 57.9% of capacity by March 1, compared to a level of 86.5% on this date during the previous year.

EMERGENCY RULES PROMULGATED

In March 1981, the Department of Environmental Protection promulgated "Emergency Rules Concerning Executive Order No. 104 and The Hardship Exemption Process". This reinforced the policies of the Water Emergency Task Force concerning water use in practices such as landscaping and outdoor recreation.

March rainfall totalled 1.1 inches, representing the lowest precipitation for any March in 93 years of recorded history. However, the combined major reservoir capacity climbed to 65.7% by the end of the month due to emergency conservation and enforcement efforts.

WATER-USE POLICIES EASED

With the approach of the home gardening season, and with reservoir levels rising, the Department of Environmental Protection adopted a policy allowing restricted use of fresh water for home vegetable gardens and the non-commercial application of pesticides. In addition, limited uses of fresh water were permitted for the washing of refuse/garbage vehicles and for street sweeping.

The average of 3.3 inches of rain received during April over the affected watersheds, coupled with the mandated water-use restrictions and rationing, allowed the combined reservoir levels to rise to approximately 75% of capacity.

RATIONING LIFTED

The heavy rains which occurred over the affected area during May brought the combined reservoir levels to 93% of capacity. With improved reservoir levels, water rationing was suspended in mid-May and the water purveyors were placed on a standby rationing program, thereby eliminating further surcharges.

SUMMER APPROACHES--A RETURN TO NEAR-NORMAL WATER USE

As summer approached, and reservoir levels reached near-normal capacity, the Water Emergency Task Force revised policies to allow further uses of fresh water. These pertained to outdoor recreation, lawns, plants, shrubs, gardens, and soil erosion and sediment control projects.

Because policy was changing rapidly, a matrix-type water use chart was developed to help the public understand the

day-to-day situation. This chart briefly described water-use restrictions in a format that allowed easy understanding by local enforcement agencies and concerned citizens.

A Department of Environmental Protection policy was adopted which established guidelines for the use of fire hydrant spray caps or similiar devices during the summer months, to provide recreational use of the hydrants for inner-city children.

The Task Force allowed expanded uses of water for lawns, shrubs, plants and gardens. The Water Use Chart was revised to reflect new policy changes.

RENEWED WARNING SIGNS SEEN

In August 1981, the combined levels of the major reservoirs dropped into the high 60% range for the first time since March 1981, giving rise to fears of renewed deterioration of drought conditions. State and Delaware River Basin Commission officials warned the public that reimposition of water-use restrictions would have to be ordered if more rain did not occur and emergency conservation efforts were not continued.

The State continued constant monitoring of the combined reservoir levels as well as the effect of limited water-use restrictions.

FALL (1981) - A TIME FOR CAUTION AND CONTINUED CONSERVATION

The fall of 1981 warranted continued emergency conservation by all. State water supplies had come through the summer months without being depleted. Water-use restrictions had been eased in August to allow a return to near-normal water use. However, people in the drought affected areas of the State still had to exercise judicious control over their water-use habits. The lessons learned from the past year had shown all of us that we could not take our water supplies for granted.

Although reservoir levels rose dramatically through the spring (into the low 90% range by the end of May), the summer and fall levels reversed in almost an equally dramatic manner. By the end of November, the combined reservoir levels, normally at 74% this time of the year, had dropped to the high 40% range. With constant monitoring of the reservoir levels still in effect, State water officials were aware of the significant drop in water storage and were prepared for any eventuality. Even though the November levels were the lowest since the previous winter, it was felt that there was no need to panic or reinstitute more stringent water-use restrictions at this time because the

demand for water during November was normally less than at other times of the year. This was due primarily to the diminishing need for outdoor watering during the fall. State officials wanted to wait to see the results of early winter reservoir levels before making any changes in the current water-use policy. These winter months were critical for reservoir replenishment. (Reservoirs in the State are highly dependent upon good rain and snowfall during the winter to build up the following year's water supply). By waiting until early winter and observing the reservoir levels, State officials would have a good barometer of what could lie ahead for 1982.

THE CRITICAL TIME--WINTER 1981-1982--RESERVOIRS FILLING--PROGNOSIS:
HOPEFUL

The climatological conditions for reservoir replenishment during the winter of 1981-1982 were good. Rainfall for December (5.3 inches), January (5.2 inches) and February (2.5 inches) was over 3 inches above the normal 9.7 inches for this period. New Jersey also experienced several significant snowstorms during this time which added to the surface runoff into the reservoirs.

By the end of February, the combined reservoir levels had risen to 87% of capacity. Compared to the normal of 91% combined capacity for this time of year, and considering the recent events of the past year, this high 87% level presented a very positive indicator for water supplies going into the peak water demand period of 1982. In addition, ground water supply levels were also responding to increased percolation from the recent rain and snowfall.

Also, State officials were working closely with Delaware River Basin Commission officials in overseeing the water supply levels of the New York City reservoirs which were critical to the status of the water resource picture for the entire Delaware River Basin.

Even with the positive indication of increased water storage and above average precipitation in addition to the coordinated effort of tri-state water officials, all groups wanted to maintain a cautious attitude at this time. The August 1981 limited water-use restrictions for northeastern New Jersey and the Delaware River Basin were still kept in force; just to be on the safe side. All groups involved wanted to avoid a hasty decision of terminating the water emergency too soon (before reservoirs could fill to safe levels), thereby endangering the region's water supplies for 1982. Early spring rains would be the key factor for determining an end to water-use restrictions in both northeastern New Jersey and the Delaware River Basin.

SPRING, 1982--WATER EMERGENCY TERMINATED BY EXECUTIVE ORDER NO. 5

With above normal rains during the winter and early spring months (8.3 inches as compared to a normal of 7.6 inches), a good snow melt and the conscientious emergency conservation efforts of the citizens of New Jersey, reservoir levels reached 100% combined capacity by the end of April. Regionally, New York City reservoirs were overflowing and the Delaware River was at normal level. In addition, the critical salt front in the Delaware River was adequately downstream from both Philadelphia's water intakes and the groundwater recharge areas of southern New Jersey.

As a result of these conditions, the State of New Jersey and the Delaware River Basin Commission ended the water emergency on April 27, 1982. Executive Order No. 5 officially terminated the 20-month long emergency. Coincidental with the termination of the water emergency was the resolution of the excess water-use surcharge situation. Governor Kean, in his executive order, declared that all uncollected excess water-use surcharges, imposed pursuant to Executive Orders 98 and 104 signed by Governor Byrne, were rescinded and that all such uncollected excess water-use surcharges deemed null and void. Also ordered were refunds, either cash or credit to future water bills at the discretion of the individual purveyors, to those users from whom surcharges had been collected.

Executive Order No. 5 also directed that, in the event of a future declaration of water emergency, the rates established and collected pursuant to the rate schedule developed for said emergencies shall be the responsibility of the applicable purveyors to collect. These sums are to be collected in excess of the amounts collected under normal water rates and are to be deposited in an account established by the Department of Treasury. The Department of Environmental Protection and the Department of Community Affairs were directed to assist the Board of Public Utilities in developing this emergency rate schedule.

In keeping with the conservation spirit, the Order further directed the Department of Environmental Protection, through its Office of Water Conservation, in cooperation with the State's water purveyors, to continue to undertake an effort to increase public awareness of the importance of conserving New Jersey's water supplies.

Additionally, the State adopted its Water Supply Master Plan in April of 1982. The adoption of this comprehensive document marked the end of a 3½ year long coordinated study by State water officials and private consultants. This plan detailed the goals and objectives for statewide water supply planning and will serve as a guide for the State's continuing efforts in water supply management.

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*Available from the Department of Environmental Protection - Division of Water Resources, CN-029, Trenton, NJ 08625

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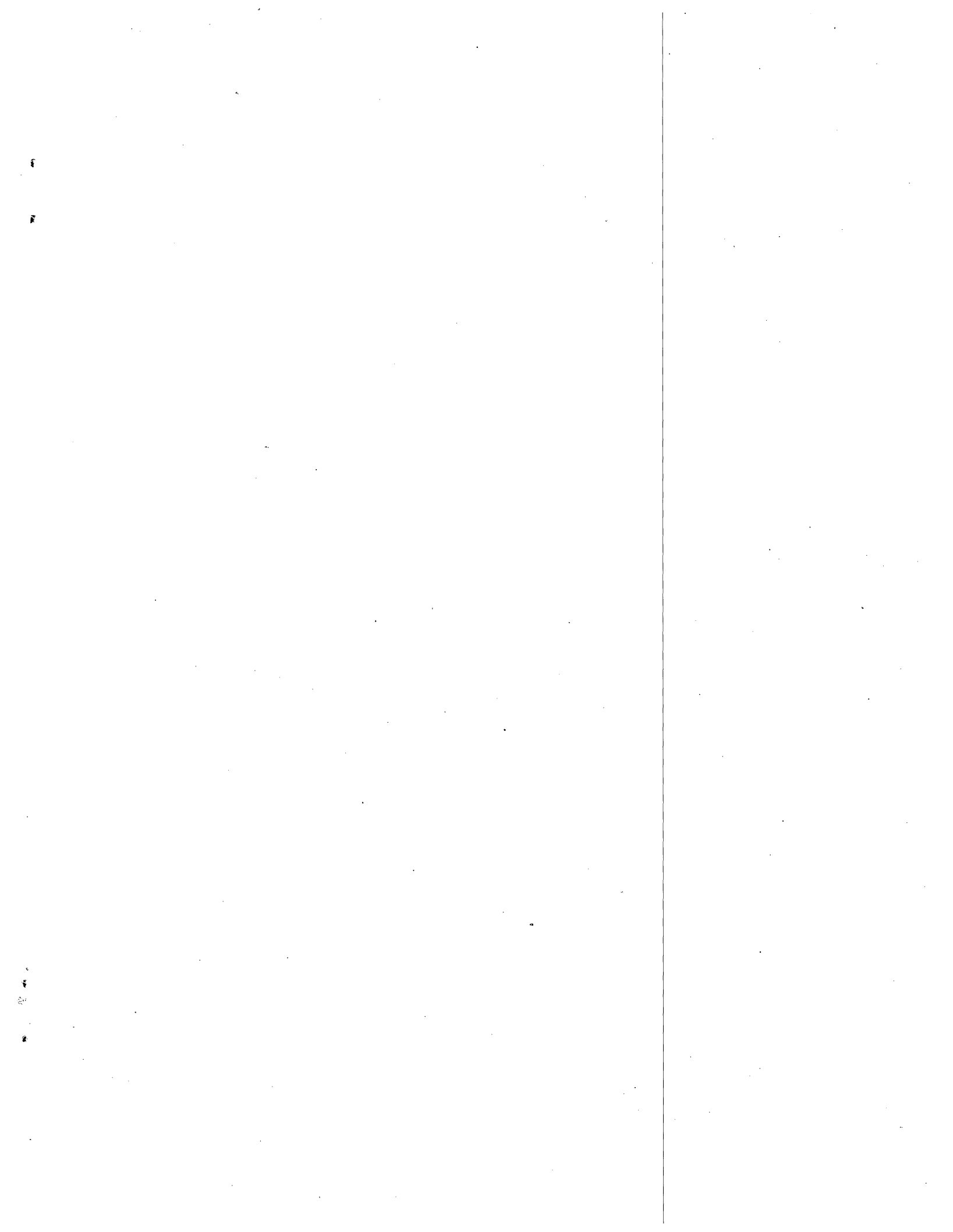
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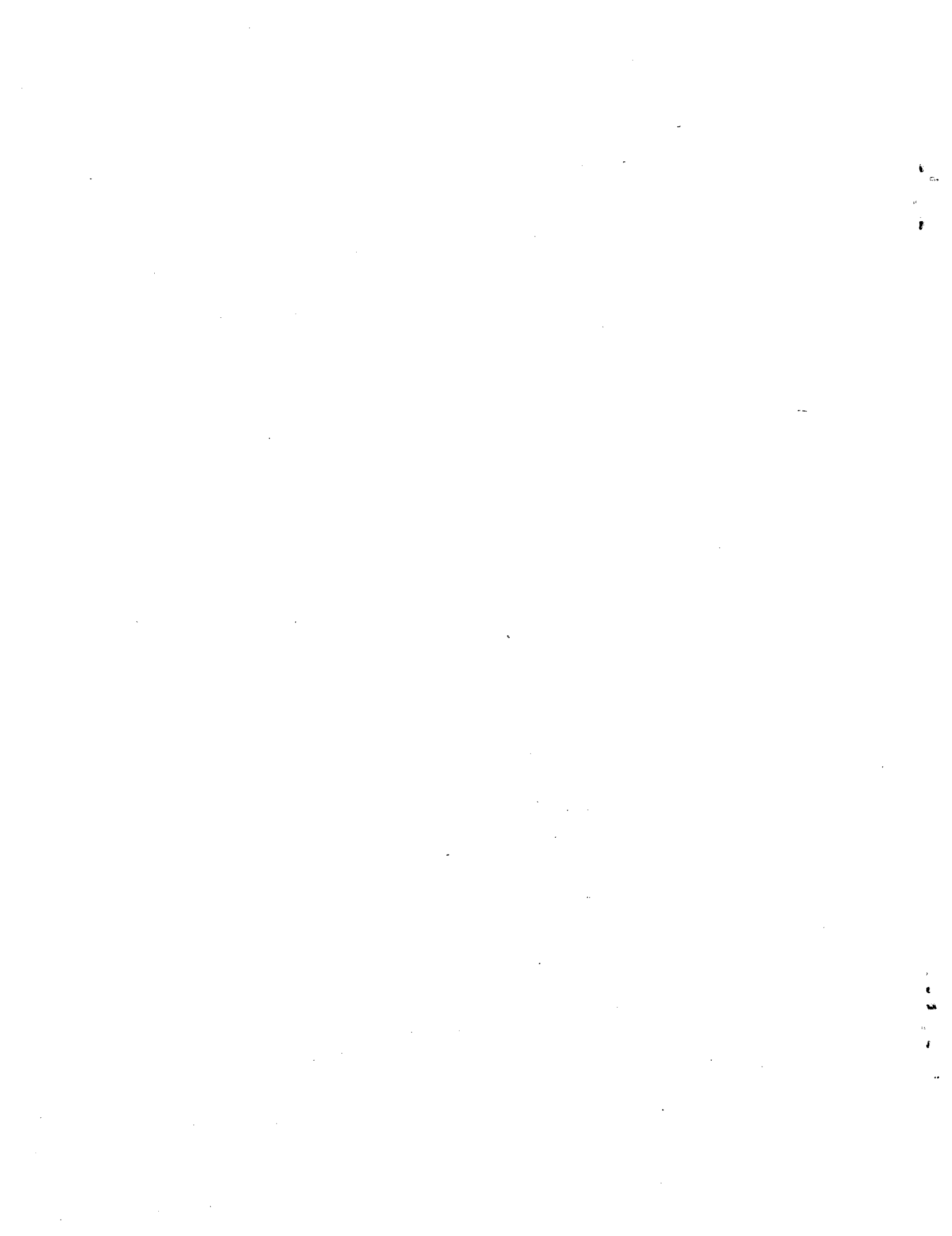
Appendix X - Miscellaneous (Charts, Graphs,
Tables, Etc.)*


Appendix XI - Representative Sample of Newspaper
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Appendix XII - Sample Form Letters*

* Appendices II through XII may be reviewed at the Division
of Water Resources' research library.







**When the Well is dry
We know the
Worth of Water**

