

REPORT TO THE GOVERNOR AND THE STATE LEGISLATURE

Regarding the Progress of the:

DELAWARE WATER SUPPLY COORDINATING COUNCIL

May 31, 2000

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**REPORT REGARDING THE PROGRESS OF THE
DELAWARE WATER SUPPLY COORDINATING COUNCIL
May 31, 2000**

Executive Summary

The Water Supply Coordinating Council has made positive progress toward securing additional water supplies in Northern New Castle County. Due to surplus precipitation, water conditions in the streams and aquifers are in the normal range and are significantly better at this time than during the corresponding period one year ago. The Artesian Water Company is working on plans to drill new wells and employ aquifer storage and recovery technology in the coastal plain aquifers north of the C&D Canal. The City of Newark is continuing with plans to build a new reservoir, to build a new water treatment plant at its south wellfield, and to utilize Hoopes Reservoir releases this summer, if necessary, to improve the reliability of its White Clay Creek intake. The City of Wilmington has a reliable water supply and is self sufficient to meet peak demands in its system under current regulatory conditions. The City is moving forward to conduct a dam safety inspection of Hoopes Reservoir. The City has also developed a draft Water Supply Operating Plan to access storage in its Hoopes Reservoir. United Water Delaware is working to secure additional interconnections from other water purveyors, evaluate new reservoir options near its Stanton facilities, and implement a chloride monitoring plan which will prevent elevated salt levels in drinking water during drought. Several of these water supply options have been implemented and are now available to meet peak demands should an extended dry period occur this summer.

Of statewide significance, Senate Bill 370 was introduced on May 18, 2000 which would transfer the authority for awarding water supply service areas from the Delaware Department of Natural Resources and Environmental Control (DNREC) to the Public Service Commission (PSC).

Introduction

On December 2, 1999, the Governor's Water Supply Task Force endorsed a report which recommended a series of options to secure additional water supplies in Northern New Castle County. The report also recommended the appointment of a Temporary Water Coordinator and a Water Supply Coordinating Council consisting of the public agencies, the water purveyors, and the public to work cooperatively to implement the water supply options.

This is the first in a series of semiannual reports to the Governor and the State Legislature regarding the progress of the Delaware Water Supply Coordinating Council (WSCC). This report was authored by Gerald J. Kauffman and Martin Wollaston of the Water Resources Agency at the University of Delaware (WRA), John Talley of the Delaware Geological Survey, and Stewart Lovell of the Delaware DNREC on behalf of the WSCC. This report focuses mainly on water supply coordination activities in Northern New Castle County (Exhibit 1). However, recently proposed legislative CPCN initiatives would have statewide implications.

This progress report is also designed to meet requirements for the Artesian Water Company, the City of Newark, and United Water Delaware to submit an Integrated Resource Plan (IRP) to the Delaware River Basin Commission by July 1, 2000. The IRP requirements do not pertain to the City of Wilmington or the New Castle Board of Water and Light.

Temporary Water Coordinator

By Executive Order No. 74 dated December 30, 1999, the Governor appointed the Water Resources Agency at the University of Delaware as the State's Temporary Water Coordinator for a period that expires December 31, 2000. The responsibility of the Water Coordinator is to work cooperatively with the public and private water purveyors to ensure that additional water supplies are developed within an agreed upon schedule without slippage. The DGS and the DNREC were appointed as water advisory agencies. HB No. 549 has been introduced which would appoint the Water Coordinator through December 31, 2003, when the options for expanded water supplies identified in the Task Force report are scheduled to be completed.

The WRA, DGS, and the DNREC conducted a series of coordination and water project progress meetings with the water purveyors on:

January 31, March 13, and May 30, 2000 – the City of Wilmington

March 20, May 1, and May 16, 2000 – the Artesian Water Company

January 28, March 20, May 15, May 26, 2000 – the City of Newark

February 25, February 28, March 28, April 18, April 26, May 8, May 15, and May 26, 2000 – United Water Delaware

May 8, 2000 - the New Castle Board of Water and Light

Water Supply Coordinating Council

The Water Supply Coordinating Council was appointed by Executive Order No. 74 on December 30, 1999. HB No. 549, introduced on April 13, 2000, would appoint the Council until December 31, 2003. The following public and private entities were appointed to the Council:

Office of the Governor

Secretary of the Delaware Dept. of Natural Resources & Environmental Control, Chair

Director of the Delaware Division of Public Health

Secretary of the Delaware Department of Public Safety

Secretary of the Delaware Department of Agriculture

Executive Director of the Public Service Commission

Director of the Delaware Emergency Management Agency

Director of the Delaware Geological Survey

Public Advocate

Executive Director of the Delaware River Basin Commission

New Castle County Executive

Artesian Water Company

City of Newark

City of Wilmington

New Castle Board of Water and Light

Tidewater Utilities, Inc.

United Water Delaware
New Castle County Chamber of Commerce
Delaware State Chamber of Commerce
Delaware Nursery and Landscape Association
Delaware Professional Grounds Management Society
Delaware State Golf Association
Delaware Nature Society
Coalition for Natural Stream Valleys

The Water Supply Coordinating Council met on the following dates:

- March 3, 2000, Carvel State Office Building, Wilmington, DE
- March 24, 2000, Carvel State Office Building, Wilmington, DE
- May 22, 2000, Delaware Geological Survey, Newark, DE

The charges to the Water Supply Coordinating Council are to:

- As identified in the Governor's Water Supply Task Force Report dated December 2, 1999, encourage the implementation of additional water supplies in Northern New Castle County within the next 1 to 3 years to meet peak demands during drought.
- Work together cooperatively in a public-private effort between government and the water purveyors to manage water supplies more efficiently in Delaware.

Water Conditions Update

As of May 31, 2000, water conditions were in the normal range throughout Delaware. Water conditions are significantly better at this time than during the corresponding period one year ago.

Precipitation – Precipitation for the 2000 Water Year (October 1, 1999-May 22, 2000) is 2.5 to 3.2 inches greater than the long-term average in northern Delaware with total precipitation 2.5 to 4.3 inches more than the corresponding period one year ago.

Ground-Water Levels – Water levels in shallow water-table observation wells in May are in the normal range. Water levels exhibited a general rising trend from October through late April in response to significant ground-water recharge and are generally 1 to 3.5 ft higher than in May 1999, when water levels were generally below normal and falling.

Streamflows – Monthly mean streamflows on the Brandywine, White Clay, and Red Clay creeks, and the Christina River have been in the normal to above normal range since October. For March a record high monthly mean streamflow was recorded on Red Clay Creek whereas the fourth highest mean flows of record were recorded on the Brandywine and White Clay creeks. The high streamflows were associated with well above normal precipitation recorded in March (9.17 inches in New Castle and 9.63 inches in Wilmington).

Hoopes Reservoir – Hoopes Reservoir is currently full with a useable storage capacity of 1.3 billion gallons.

Water Conditions Index (WCI) for New Castle County – The Delaware Geological Survey WCI for NCC has been in the “wetter” range since September 1999.

Chester County, Pennsylvania – Significant portions of the Brandywine, Red Clay, and White Clay Creek drainage basins are located in Chester County, PA. Thus, overall water conditions (precipitation, ground-water levels, and streamflows) in Chester County have an impact on streamflows in these watercourses in northern Delaware. Chester County reported that precipitation has generally been normal to above normal, April streamflows were close to historic averages, and for the first time since the drought of 1999 ground-water levels have fully recovered to “normal” conditions.

Supply and Demand

The Governor's Water Supply Task Force compiled estimates of public water supply and demand in Northern New Castle County for worst case drought conditions for the planning years 2000, 2010, and 2020. The supply and demand curves forecast a deficit of 17 million gallons per day (mgd) or 1020 million gallons (mg) for a 60-day drought period by the year 2020 assuming that the environmental standards for minimum instream flow are in effect along Brandywine Creek and White Clay Creek.

<u>Scenario Year</u>	<u>Supply (mgd)</u>	<u>Demand (mgd)</u>	<u>+/- (mgd)</u>	<u>Volume (mg)</u>
2000	73	86	-13	-780
2010	73	88	-15	-900
2020	73	90	-17	-1020

Future Water Supply Options

The Water Supply Coordinating Council is working to develop a series of water supply options to close the 17 mgd (1020 mg) gap between supply and demand projected for the year 2020 in Northern New Castle County. The water purveyors have committed to installing the following “A” list options which have relatively few environmental constraints, enjoy community support, and are planned to be implemented in the near term (1 to 3 years):

A. Future Water Supply Options – Committed to by Water Providers:

Newark Reservoir	200 mg	3 mgd
Wilmington Hoopes Reservoir Deep Storage Plan	500 mg	8 mgd
Artesian Water Co. New Wells North of the C&D Canal	120 mg	2 mgd
Newark South Wellfield Iron Treatment Plant	60 mg	1 mgd
<u>Artesian Water Co. Aquifer Storage and Recovery</u>	<u>300 mg</u>	<u>5 mgd</u>
Total	1180 mg	19 mgd

United Water Delaware withdrew an option from the "A" List for offstream storage lagoons at its White Clay Creek intake as an evaluation indicated the project would add inadequate storage of fresh water during drought.

The Water Supply Coordinating Council is also working on the following institutional and governance options that are designed to manage water supplies more efficiently in Delaware:

- Conduct tests to optimize and expand the interconnections to convey water from suppliers with excess capacity to suppliers in need of additional water to meet peak demands.
- Encourage the water providers that currently do not have them to adopt inclining block rates (the more water used, the more one pays) or seasonal water conservation rates as demand side management measures in a manner that does not hinder economic development.
- Work with the water purveyors to develop cooperative cost and capacity interconnection agreements.
- Advise the DNREC and provide technical input to the recently authorized U.S. Army Corps of Engineers Groundwater Availability Study for Northern New Castle County.
- Develop a water quality survey for Hoopes Reservoir.
- Develop a chloride-monitoring plan for the tidal White Clay Creek and Christina River to ensure withdrawal of fresh water at the United Water Delaware Stanton Intake during drought.
- Develop legislation which would transfer the responsibility for awarding water supply franchise areas from the Delaware DNREC to the Public Service Commission.

Progress

Exhibits 2 and 3 summarize the agreed upon schedules by the Water Supply Coordinating Council for the achievement of the "A" list of water supply options and the institutional alternatives. The members of the Water Supply Coordinating Council have made the following progress to date:

Artesian Water Company

- Artesian is implementing plans to bring new wells on-line north of the C&D Canal at Artisans Village and Middle Run Crossing. In 1999, Artesian increased its peak permitted allocation at Old County Road by 0.6 mgd (36 mg for a 60 day period). This summer, Artesian will place a new well in service at Artisans Village adding 0.4 mgd (24 mg) to its supply. Artesian plans to place a new well at Middle Run Crossing adding 0.4 mgd (24 mg) to its supply by June 2001. Both new wells at Artisans Village and Middle Run Crossing are pending final DNREC approval.
- Artesian is implementing Aquifer Storage and Recovery (ASR) which is basically an underground reservoir. Artesian has stored 140 mg at its Llangollen and Fairwinds wellfields

for use during the summer of 2000 at a rate of 2.3 mgd. These sites are estimated to have a capacity of as much as 3 mgd upon certain upgrades. Artesian plans to develop an additional ASR site at Llangollen in the next year, and to place ASR on-line by September 2002 at an additional site along the Delaware River and by September 2003 at a site along Route 40.

City of Newark

- Newark is continuing to develop plans to build a 200 mg reservoir which when completed would make the city nearly self-sufficient and be the first major water supply reservoir built in Delaware in almost 70 years. The reservoir would enable Newark to operate its White Clay Creek water treatment plant year round and provide up to 3 mgd of water for a 60-day drought period. The city hopes to acquire land for the reservoir by September 2000 with the assistance of \$ 1.7 M in funding from the State Legislature. Permitting, design, and construction are expected to take 3 years with a planned operational date of June 2003.
- The city is preparing plans to construct an iron removal plant at the south wellfield to provide an additional 1 mgd (60 mg) during drought. The planned completion date is June 2002.
- Newark has commenced discussions with the City of Wilmington to develop an agreement to release up to 3 mgd from Hoopes Reservoir. Releases from Hoopes would improve the reliability of Newark's White Clay Creek intake and allow Newark to withdraw water from the White Clay Creek for 30 to 40 more days than presently possible during low flow conditions. The agreement is contingent upon a test during a low flow period this summer to ensure the releases provide suitable water to the Red Clay and White Clay creeks for withdrawal by United Water Delaware. This would be an interim arrangement until the completion of the Newark Reservoir.

City of Wilmington

- The City is planning to contract with an engineering consultant to prepare a scope of work to conduct a dam safety inspection of Hoopes Reservoir. In addition to the dam inspection, the consultant will evaluate the structural and hydraulic feasibility of raising the existing water level 5 feet prior to drought with an inflatable gate to provide an additional 300 mg (5 mgd) of storage. The dam safety inspection will be conducted this summer and may be funded (subject to approval from the following agencies) through a cost-share from:

Federal Emergency Management Agency WAWTAC Funds	\$35,000
State of Delaware Bond Bill	\$35,000
<u>City of Wilmington</u>	<u>\$35,000</u>
Total	\$105,000

- The City of Wilmington has developed a draft Water Supply Operating Plan for Hoopes Reservoir. The written plan will be finalized by June 2000 and will include provisions to operate the lower gates or pump the deep water (500 mg or 8 mgd) out of the reservoir during an extreme drought.
- The City is working with the Delaware Geological Survey to survey the water quality in Hoopes Reservoir.

New Castle Board of Water and Light

- New Castle has excess capacity from its wells and can presently sell water to Artesian Water Company through an existing interconnection during the summer months for peak demand purposes.
- The Board is evaluating the feasibility of adopting conservation water rates that could potentially reduce demands during high demand periods.

United Water Delaware

- United Water Delaware is evaluating additional reservoir storage options near the vicinity of its White Clay Creek at Stanton Water Treatment Plant to improve the reliability of its intake.
- United has met with Wilmington to renegotiate the Hoopes Reservoir agreement to release water to Red Clay and White Clay creeks for use at United's Stanton Treatment Plant. United is seeking a more substantive agreement to quantify and access available storage in Hoopes Reservoir to be used to supplement stream flows and for salt front maintenance within the tidal White Clay Creek at its Stanton Treatment Plant.
- United is pursuing several avenues to secure additional interconnected capacity for finished water transfers from the Artesian Water Company, the City of Wilmington, and the Chester Water Authority to provide reserve sources of water supply during drought.
- United has prepared a chloride monitoring plan for the tidal Christina River and White Clay Creek to optimize fresh water withdrawals from the creek and eliminate potential problems with salt in the drinking water supply during drought.
- United is reviewing options to adopt water conservation rates as part of future rate filings with the Public Service Commission.

Delaware DNREC

- The Division of Water Resources has signed an agreement authorizing the U. S. Army Corps of Engineers to conduct a groundwater study in the coastal plain of Northern New Castle County. The study is designed to reevaluate the availability of groundwater north of the C&D Canal for water supply purposes. The groundwater modeling area will extend north to south from Wilmington to Middletown and east to west from New Jersey to Maryland. The scheduled study completion date is July 2001.
- The Division of Water Resources is working with the Green Industry to revise the rules for nonessential water use during drought as they pertain to the Green Industry- the state's nurseries, golf courses, and landscaping firms.

Public Service Commission

- Legislation has been developed (Senate Bill No. 370) that would transfer the jurisdiction for granting Certificates of Public Convenience and Necessity (CPCNs) from the DNREC to the PSC, effective July 1, 2001. SB 370 was introduced to the General Assembly on May 18, 2000. The bill will set minimum standards for granting CPCNs. Under the bill, a water utility applying for an expansion of service would be required to demonstrate that the expansion will satisfy the provisions of Title 26, § 403, which sets minimum pressure requirements for current and new customers. Additionally, the PSC would have discretion in denying applications for CPCNs upon finding that a water utility is unwilling or unable to provide safe, adequate, and reliable water service to existing customers.

Summary

The water purveyors on the Water Supply Coordinating Council are working in a positive manner to develop additional water supplies in Northern New Castle County. Water conditions are normal and currently better than last year. The Water Conditions Index for New Castle County is in the "wetter" range entering the upcoming summer low flow period. Additional supply options have been developed since last year to meet peak demands if needed this summer. The General Assembly is considering legislation that would overhaul the regulatory process for awarding water supply service areas (CPCNs) in Delaware. By December 31, 2000, the Water Coordinator will file the next report regarding the progress of the Water Supply Coordinating Council to the Governor and General Assembly.

EXHIBIT 2.
"A" LIST PROJECTS
GOVERNOR'S WATER SUPPLY COORDINATING COUNCIL

"A" LIST PROJECTS	Vol.	Rate	2000				2001				2002				2003	
			Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun *
Newark Reservoir	200 mg	3 mgd														
* Acquire Land			█	█	█											
* Additional State Funding					█											
* Obtain Permits					█	█	█	█	█							
* Design and Specifications					█	█	█	█	█							
* Construct Reservoir,Pumps											█	█	█	█	█	█
Wilmington Hoopes Reservoir Deep Storage	500 mg	8 mgd														
* Conduct Dam Safety Inspection				█												
* Prepare Water Supply Operating Plan				█												
Artesian Water Wells N. of C&D Canal	48 mg	0.8 mgd														
* Install New Well at Artisans Village	24 mg	0.4 mgd	█	█												
* New Well at Middle Run Crossing	24 mg	0.4 mgd	█	█	█	█	█	█	█							
Newark So. Wellfield Iron Treatment Plant	60 mg	1 mgd														
* Obtain Permits			█	█	█	█										
* Design WTP							█	█	█							
* Construct WTP											█	█	█	█		
Artesian Water Aquifer Storage & Recovery	300 mg	5 mgd														
* ASR Llangollen/Fairwinds Wells	140 mg	2.3 mgd	█	█	█											
* Delaware R. Wellfields, Feasibility							█	█	█							
- Pilot Testing											█	█	█	█		
- Commence ASR	100 mg	1.7mgd									█	█	█	█		
* Route 40 Wells ASR, Permits											█	█	█	█		
- Pilot Testing															█	█
- Commence ASR	60 mg	1.0 mgd													█	█
Total	1108 mg	17.8 mgd														
5/31/00 GJK UDWRA																

EXHIBIT 3.

Institutional/Management Options

GOVERNOR'S WATER SUPPLY COORDINATING COUNCIL

INSTITUTIONAL OPTIONS	2000				2001				2002		
	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep
Increase Interconnections											
* Field Tests/Modelling by All Purveyors		■									
* Secure Interconnection Agreements											
- Newark (w/ Wilming. for Hoopes Release up to 3 mgd)		■									
- United Water (Renegotiate Hoopes Agreement)		■	■								
- United Water (w/ Artesian, Wilmington and CWA)		■	■								
Review Feasibility of Conservation Water Rates											
* New Castle		■									
* Wilmington		■									
* United Water		■									
Northern NCC Groundwater Study											
* Commence Project by Corps of Engineers	■	■	■	■	■	■	■	■	■	■	■
* Determine Groundwater Availability in No. NCC (mgd)	■	■	■	■	■	■	■	■	■	■	■
Hoopes Reservoir Water Quality Survey											
* DGS Prepares Plan	■	■	■								
* Conduct Sampling/Lab Analysis	■	■	■								
UWD Chloride Monitoring Plan											
* Prepare Written Plan		■									
* Implement Monitoring at 3 Stations (Pending low flows)			■								
CPCN Water Supply Service Area Legislation											
* Introduce SB 370 to General Assembly		■									
* Effective Date of Transfer from DNREC to PSC (if adopted)						■					
UDWRA 5/31/00											