



**AQUATIC CONSERVATION
UNLIMITED INC.**

Topics of Today's Presentation

Delaware River Equity

Supreme Court Special Masters Report

NYC Management of Water Supply

The Right to Know

Delaware River Equity

- **“Allocation of Advantage” destroys River Equity.** The equitable sharing of water resources between upstream and downstream users will always imply that upstream users have to forego some potential water benefits.
 - Why are the water releases determined by the capacity of reservoirs rather than the needs and safety of the river continuum ecosystem needs and the doctrine of equitable apportionment?
 - Out of Basin Diversions are to have least priority by definition, by ethos and by Supreme Court Special Masters Report.
- **Concerning the FFMP, Rev 1 and DRBC/DECREE PARTIES:**

The continued loss of Basin Equity of the Delaware River to the Lower Basin States implies that government interest in the long-term future of the landscape is not part of any proposed plan.

(i.e. - Tom Murphy/Paul Rush’s statements that NYC will not sustain a cold water fishery today because they may not be able to sustain it in 40 years). Do the Decree Parties and the DRBC accept this?
- **“Decisions in the field of water development and management should aim toward the preservation of the integrity of the hydrologic continuum. The idea of a continuum implies a maintenance of balance -- an operational quasi-equilibrium in the processes within the hydrologic cycle.”**
 - **“Ethos, Equity and the Water Resource”** By Luna B. Leopold February 1990 University of California, Berkeley; The Abel Wolman Distinguished Lecture; found @
 - <http://sofia.usgs.gov/publications/lectures/ethos/>

FFMP, REV 1, Supreme Court Decree

REV 1	FFMP			Supreme Court Decree
Assumes 800 Million Gallons a DAY Constant Diversion regardless of consumptive demand.	Assumes 765-800 Million Gallons a DAY Constant Diversion regardless of consumptive demand.	Evisceration of the ERQ, which is the protections for: The Lower Basin's water supply - Cold water aquatic ecosystem - Flood protection - Lower Basin drought protection - Creates "Interim Excess Release Quantity" which eliminates the Drought Emergency salt-front vernier.	- OASIS assumes multiple fictitious droughts: - which overestimates storage voids - which obscures actual increased flood risks.	1954 Decree stipulates the ERQ is to be based on the expected year's demand (with a 7.25 BG allowance for a spike in NYC's growth in demand and an 83 % reduction for the statistical probability (10 of 12 months) the reservoirs would not spill.
No Seasonal Variation in Rate of Demand in NYC Diversions, only in releases.	No Seasonal Variation in Rate of Demand in NYC Diversions, only in releases.	A "placeholder" set for an unnecessary concession of increasing storage at Cannonsville Reservoir.	Further reduction in the calculation of any excess storage for fishery banks.	NYC still has windfall in extra water over 70 BG ERQ threshold. Based on the true numbers, the current windfall = 57,563 BG.
Unrealistic and Obsolete Design Assumptions. Non-Safe Yield based; overdraft based.	Unrealistic and Obsolete Design Assumptions. Non-Safe Yield based; overdraft based.	- Maintain 3000 cfs at Trenton from 6/15 - 03/15 only under "normal" (same as above); short changes the Lower Basin's water resources during low flow days.	Assumed Improved Fisheries for West Branch; ignores the other two tributaries; plan has failed to protect aquatic life.	- No OASIS needed. - No OST needed. - No Drought Rule Curve needed.
Poor Performance based on theoretical demand.	Disastrous Performance based on theoretical demand.	- Montague Target: 1,750 cfs to 1,850 cfs only from 6/15 - 9/15 -under "NORMAL" conditions of the DR Reservoirs. Changes Montague target from inviolate to a variable target, short changing the Lower Basin's water resources during low flow days.	Near full, full or spilling reservoirs greater frequency, longer durations, increased volumes.	NYC. takes what water it needs when it needs it. This year's diversions to NYC is based on Actual Demand from previous year.
Use of a non-scientific drought rule curve that unfairly disadvantages the Delaware River Basin.	Use of a non-scientific drought rule curve that unfairly disadvantages the Delaware River Basin.	No reassessment, as per the FFMP, properly sizing the Delaware River Basin Safe Yield and NYC Safe Yield.	Increase of TDS by virtue of a forced, unnecessary artificial low flow in the river.	Inspection Permitted: Lower Basin States has the right to inspect all NYC works & records pertaining to in/outflow, & diverted flow.
Not used w/ Catskill System and/or Croton conjunctively for balance and coordination.	Not used w/ Catskill System and/or Croton conjunctively for balance and coordination.	Evisceration of cold water habitat with constant fixes is needed for conservation and no mechanism in place to prevent spilling reservoirs that create dangerous reservoir induced flooding.		NYC has incentive to manage its water supply wisely within the parameters of the Decree.
NYC can manipulate individual reservoirs & draw down each at will, forcing drought release schedule, harming the Delaware River Lower Basin.	NYC can manipulate individual reservoirs & draw down each at will, forcing drought release schedule, harming the Delaware River Lower Basin.	Uses a non-scientific reservoir discharge curve which unfairly disadvantages the Lower Basin. In Drought Emergency designation: NYC cuts diversions back 35% to 520 mgd, still above their REAL avg Daily Diversion of 481 mg. Releases to River are cut back 90%. How is this equitable?		Releases to be Continued In Spite of Interference: NYC. shall continue to make the releases specified which would be required in the absence of interference.
DOES NOT USE the non-scientific reservoir discharge curve therefore NO unfair disadvantage to the Lower Basin.	Hale Eddy, Fishs Eddy Bridgeville: No L1 Discharge Mitigation Release w/in 48 hrs of potential flood level @ gauges.	In Drought Emergency designation, NYC's Montague Target obligation drops to 1150 cfs, thereby INCREASING NYC's Safe Yield, further insulating NYC from Drought, while at the same time, increasing the burden of drought onto the Del. River Basin.		* Propose stakeholders council to determine best schedule of releases of 70 BG.

FFMP Drought cutbacks

Table 1

Interstate Operation Formula

For Diversions, Releases And Flow Objectives

<i>NYC Storage Condition</i>	<i>NYC Diversion (mgd)</i>	<i>NJ Diversion (mgd)</i>	<i>Montague Flow Objective (cfs)</i>	<i>Trenton Flow Objective (cfs)</i>
Normal (June 15 – Sept 15)	800	100	1,850*	3,000
Normal (Sept 16 – June 14)	800	100	1,750	3,000
Drought Watch (L3)	680	100	1,650	2,700
Drought Warning (L4)	560	85	1,550	2,700
Drought Emergency (L5)	520	85	1,100-1,500**	2,500-2,900***
Severe Drought (to be negotiated depending upon conditions)				

* To the extent supported by the IERQ pursuant to Section 4.c., otherwise 1,750 cfs

** Varies with time of year, in accordance with Table 2

*** Varies with time of year and location of salt front, in accordance with Table 2

- **Cutback for NY under Drought Emergency: from 800 mgd to 520 mgd = 35%**
- **520 mgd is still above actual safe yield for NYC's D. R. system of 481 mgd**
- **River releases are cut back 90 %**
- **Cutback to Montague Target further increases NYC's Safe yield (Water supply) during drought while further restricting water supply to the Basin.**

Delaware River Reservoir and River Management Plan Options VARIABLES SAFE YIELD & DEMAND (NYC's Total System)			ERQ Formula (MG) WITH 7,250 MG Growth Factor ERQ(MG)= .83*(SYSTEM mgd- Demand mgd) *365days - 7250 MG		As Per Supreme Court Decree: Default to 70,000 MG if ERQ Greater than 70,000 MG		Without 7,250 MG Growth Spurt Factor		Default to 70,000 MG if ERQ Greater than 70,000 MG		W/ Growth Spurt Factor- CFS Days: (factor: MG to CFS days = 0.646272) CFS- DAYS		Without Growth Spurt Factor CFS- DAYS	
Used In:	Safe Yield (mgd)	Expected Demand (mgd)		Units		Units		Units		Units		Units		Units
FFMP	1290	1257	2,747	MG	2,747	MG	9,997	MG	9,997	MG	4,251			(Approx. as used in FFMP IERQ w/o Growth Factor) 15,469
1954 Decree	1665	1220	127,563	MG	70,000	MG	134,813	MG	70,000	MG	108,314			108,314
Rev 1 Actual (Min Est)*	1360	1220	35,163	MG	35,163	MG	42,413	MG	42,413	MG	54,409			65,627
Original D-77-20-CP (5/25/1977) (Apparently Based on 1975 Use)	1665	1538.1	31,194	MG	31,194	MG	38,444	MG	38,444	MG	48,268			59,486
1983, D-77-20-CP REV 1	1665	1616	7,595	MG	7,595	MG	14,845	MG	14,845	MG	11,751			22,970

* Note: The estimate for NYC's legitimate MINIMAL Total System Safe Yield under Rev 1 is the minimum obtained by NJDEP; the actual NYC safe yield is significantly greater under both Rev 1 and the FFMP and likely between 1,390 mgd and 1,510 mgd, depending on appropriate conjunctive use analyses and the amount of reserve storage equitably held in NYC's Hudson reservoirs. The NJDEP estimated safe yield of NYC's System under the FFMP, w/o use of 55 BG of Hudson basin reserve storage is 1,470 mgd. The safe yield for NYC's D.R. System under the 1983 operating plan is about between 610 and 625 mgd; under the FFMP NYC's safe yield is about 620 mgd. New York City cannot take this much because of demand characteristics and peak aqueduct capacity limits. NYC can only take about 550 mgd at an ultimate annual rate under an equitable distribution of use between the Hudson Basin and Delaware Basin and under its current peak month to average annual use ratio of 1.33 to 1. This use ratio results in a sinusoidal demand pattern that, when applied in a proper operating model would allow a significant increase of the minimum flow at Montague, about 250 cfs, and significant allowable diversions to NYC during the worst drought and during the peak demand periods of that drought. In other words, a new optimized operating plan would be to NYC's benefit above all others.

What is NYC's True System Safe Yield?

- In the Special Masters Report of the Supreme Court Decree of 1954, NYC's petition to the Court, regarding the completion of Cannonsville stated: "... the dependable safe yield of its water supply systems would (increase) to 1800 mgd..."

and that NYC's operations would be: "...of great and lasting benefit to all parties by reason of release of more water during periods of particularly low stream flows..."

Special Masters Report, Article 3, The 1952-1954 Proceedings, Sec 3.01, The Original Pleadings, Cl, 3.0.11, page 18, 2nd paragraph

- What are the reasons NYC does not want a Reassessment?

Supreme Court Special Masters Report

- “...NYC shall not be controlled by another state **unless*** their choice of an interstate water supply was arbitrary and unreasonably injured the other State...” *page 11, S. M. R., as carried forth from the Special Masters Report of 1931.*
- It was recognized that NYC’s diversion would cause **more than*** slight damage to oysters and recreation and that adding all of the elements of damage together was more than NJ should be expected to bear. *Page 12, Special Masters Report.*
- “The retention of jurisdiction... was essential....(because) the State and City of New York must take “the risk of the future’ (and) that their plan might require modification.”
– *Page 17, Supreme Court Decree Special Masters Report*
- NYC - Re: Cannonsville - NYC planned to impound only flood & waste waters, a part of which would be released to augment (existing) flows”. *Page 5, Supreme Court Decree Special Masters Report, Article 2*

* Bolding, italicizing, and underlining added

Supreme Court Special Masters Report, cont'd

- PA insisted that NYC Diversions NOT constitute a prior appropriation (*Delaware concurred*) PA insisted on the principles of “Equitable Apportionment”.
- PA insisted on the creation of River Master to guard against prior appropriation and the maintenance of River Equity; Delaware concurred.
- PA requested retention of Supreme Court jurisdiction over this case.
- PA averred that: “...The 1931 decree had imposed a duty upon every diverter of Delaware River water to participate in the protection of the entire river from any injurious effect of any diversion.” — *page 20, Supreme Court Decree Special Masters Report, 1954*
- Pa insisted that the amended decree of the Supreme Court Decree must make it clear that PA shall never in the future be estopped from asking that the NY diversion be reduced or even eliminated, notwithstanding the large expenditures (made) by NY for the construction of Cannonsville. Delaware concurred.

Supreme Court Decree Stipulations

- **3. Releases to be Continued in Spite of Interference.** *In the event that any works hereafter constructed by public or private interests in the watershed of the Delaware River outside of the State of New York shall prevent the proper operation of the U. S. G. S. gaging station at Montague or interfere with the effective operation of the above release requirements by diverting water past the station or by intercepting the natural flow and storing it in reservoirs with an aggregate storage capacity in excess of 25 billion gallons, the City of New York shall continue to make the releases above specified which would be required in the absence of such interference, and appropriate gaging stations shall be established for that purpose.*
- **4. Inspection Permitted.** *The States of New Jersey and Delaware and the Commonwealth of Pennsylvania, through accredited representatives, and the River Master, shall at all reasonable times have the right to inspect the dams, reservoirs and other works constructed by the City of New York, to inspect the diversion areas and the inflow, outflow and diverted flow of such areas, to inspect the meters and other apparatus installed by the City of New York and to inspect all records pertaining to inflow, outflow and diverted flow.*

Questions Special Master tried to answer that still need answering today!!!!

- “Would a 800 mgd NYC diversion substantially harm navigation, water power, sanitation, industrial use, oysters, fish, water supply, agriculture and recreation in the Delaware Valley?”
- “Is 800 mgd necessary, which in issue in turn depended upon weather NYC was wastefully using its existing water supply and does NYC possessed other available intrastate supplies that were appropriate and suitable?”
- What is the true System breakdown of usage by the 3 NYC Subsystems (Croton, Catskill and Delaware) for water supply?
- What is the true consumption/demand level for NYC?

Questions Not Thought of In 1954:

- Does the unacceptable quality of NYC's two water subsystems, the Catskill and Croton system, give NYC the legal right to rely predominately on the Delaware River as its primary source for drinking water?
- Should the Lower Basin States subsidize NYC's refusal to pay to filter the whole of their water supply?
- Is quality an acceptable parameter for increasing reliance of the Delaware System to 75% and higher as doing so causes harm to the Delaware River and its people?

Flood Control

- A byproduct of “over drafting” the Delaware River Reservoirs: NYC has allowed massive spilling of their Reservoirs.
- The use of the word “Mitigation” with the word “Flood” is a euphemistic way to assuage the conscience.
- A main priority listed in the Delaware River Basin Compact is the control of Flood Damages.
- Regardless of the differing opinions of how the Flood Analysis Model was created or used, the fact remains that the Reservoirs can and do play an important role in Flood Management. The statement: “The NYC water impoundments were built for water supply only” does not excuse or release the Decree Parties and the DRBC from the responsibility or consequences of spilling reservoirs.
- The ethos of “Do No Harm” applies to all aspects of the Delaware River, including the prevention of reservoir induced flooding. To do no harm should be the guiding tenet of all government agencies involved with Delaware River management issues.

The Right and Duty to Know

- Shouldn't the Decree Parties, the DRBC and RFAC be made aware of any major changes to the NYC water supply system?
- How can the DRBC and the Decree Parties scientifically measure any yield or demand curve with incomplete information?
- Not knowing NYC total system and subsystem yield and consumption numbers destroys the scientific integrity of any basin/reservoir plan.
- For example, water quality problems have resulted in the Croton System being removed from service on numerous occasions. Mostly this occurs during the summer and fall months, and specifically occurred in the summer and fall months of the years 1992, 1993, 1994 and 1998. The entire system was shut down for most of 2000-2001 because of contaminants that leaked into the NCA.
 - “The Croton Water Filtration Project, NYC DEP Website:
http://www.nyc.gov/html/dep/html/drinking_water/wsstate.shtml

NYC Drinking Water Supply and Quality Reports

Year	% Water from Catskill/Delaware	% Water from Croton
2009	100	offline
2008	98.3	1.6
2007	99	1
2006	99	offline
2005	98	2
2004	94	5
2003	90	10
2002	Not stated	20
2001	90	10
2000	90* (Offline)	10* (Offline)

http://www.nyc.gov/html/dep/html/drinking_water/wsstate.shtml

- Conflicting data; NYC Croton Water Filtration Plant Project States system offline all year: http://www.nyc.gov/html/dep/html/drinking_water/wsstate.shtml

Don't Ask/Don't Tell NOT AN OPTION

- River Master, PA & NJ Have the right to inspect all records pertaining to inflow, outflow and diverted flow.
- It is an abdication of duty and responsibility NOT to know information on the whole and the piece parts of the NYC Water Supply System.
- How, what and when they do any manipulations of their water system affects our Delaware River flow.
- The public has the right to know this information, and we are asking RFAC, the DRBC and Decree Member states to obtain this information for us.

Glossary

- **Ethos** - Greek word, meaning character or tone. Guiding principles that are not written into law, but provide an overarching framework govern or to live by.
- **Equitable Apportionment** – concept of fairness for division of water resources based on watershed area.
- **Hydrologic Continuum** - the effective operation of forces in the drainage basin that maintain a balance among processes of rock weathering, soil formation, water and sediment delivery to stream channels, and the exit of water and sediment from the basin.
- **Over drafting** – NYC diverting water at 800mgd NYC, thereby utilizing the Delaware System Reservoirs as the primary drinking water source, regardless of the availability of water from the Catskill and Croton Systems. This method of operation results in reservoir levels dropping below below the drought-curves designations resulting in less flow to the Delaware River than could be if the D.R. System were only used for 55% of the water supply needed.
- **Prior Appropriation** - water rights are unconnected to land ownership, and can be sold or mortgaged like other property. The first person to use a quantity of water from a water source for a beneficial use has the right to use that quantity of water for that purpose. Subsequent users can use the remaining water for their own beneficial purposes provided that they do not impinge on the rights of the previous users. Definition derived from the Colorado Doctrine. (U.S. Supreme Court Case – Wyoming v. Colorado)
- **River Continuum** – A generalized conceptual framework for characterization of pristine running water ecosystems.

Referencing Documents

- <http://www.state.nj.us/drbc/regula.htm#decree>
 - Good Faith recommendations;
 - D-77-20 CP
 - D-77-20 CP Rev 1
 - 1954 Supreme Court Consent Decree
- <http://water.usgs.gov/osw/odrm/>
 - FFMP
- <http://www.aquacon.org/Site/ NYC Safe Yields Report 2.html>
 - Draft of NJ DEP findings about NYC's Water Supply System.
- <http://sofia.usgs.gov/publications/lectures/ethos/>
 - *"Ethos, Equity and the Water Resource"* By Luna B. Leopold February 1990 University of California, Berkeley; The Abel Wolman Distinguished Lecture
- http://www.nyc.gov/html/dep/html/drinking_water/wsstate.shtml
 - NYC Drinking Water and Supply and Quality Report

Attachments

1. Email requesting Diversion/Spill/release info for whole of NYC Water Supply System
2. “Creek Advocates Want NYC Aid” article referenced in email.
3. Special Masters Report to the 1954 Supreme Court Decree page 16.
4. NYC DEP “The Croton Water Filtration Plant Project”.
5. “Croton Water Filtration Plant, New York, USA” by WaterTechnology.net.
6. “United Water New Rochelle Completes Connection To Delaware” found @ <http://www.unitedwater.com/newrochelle/newscenter.aspx?id=4798>

From: Aqua Conservation Unlimited <aquacon@me.com>
Subject: **Is NYC dumping water? Creek advocates want NYC aid | recordonline.com**
Date: November 16, 2010 12:43:11 PM EST
To: John Hanger <jhanger@state.pa.us>, bob.martin@dep.state.nj.us, sfbianch@usgs.gov
Cc: John Plonski <John.plonski@dep.state.nj.us>, John Hines <johnhines@state.pa.us>, Gary Paulachok <gnpaulac@usgs.gov>, Michelle Putnam <Michele.Putnam@dep.state.nj.us>, Fred Sickels <Fred.Sickels@dep.state.nj.us>, Tom Brand <Thomas.Brand@dep.state.nj.us>, Hoss Liaghat <callaghat@state.pa.us>, Joe Miri <Joe.Miri@dep.state.nj.us>, Joan Homovich <joanh42@frontiernet.net>, Garth A Pettinger <GAPETTI@lirr.org>, Peter Bousum <pbousum@starband.net>, Diane & Chet Tharp <diane@thetharps.net>, Mark Hartle <mhartle@state.pa.us>, Bob Bachman <bbachman@ptd.net>, Mary Ellen Noble <nobleme@comcast.net>, Scott Burgess <scottb@nordoninc.com>, Jeff Zimmerman <jzimmerman@comcast.net>, "Timothy S. Churchill" <timothy@wrti.org>, Joseph Dellapenna <dellapen@law.villanova.edu>, Jim Flagg <jflagg@Express-Times.com>, Sharron Dallas <SMDALLAS@VERIZON.NET>, Sandy Bauers <sbauers@phillynews.com>, Joseph De Avila <Joseph.DeAvila@wsj.com>, Chris Crockett <chris.crockett@phila.gov>, Gail Pedrick <gailpedrick@comcast.net>
2 Attachments, 4.8 MB

Stephen F. Blanchard, Delaware River Master
U.S. Geological Survey
National Center, MS-415
Reston, Virginia, 20192

John Hanger, Secretary
PA Department of Environmental Protection
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pa 17101

Bob Martin, Commissioner
NJ Department of Environmental Protection
401 State Street
7th Floor, East Wing
P.O. Box 402
Trenton, NJ 08625-0402

Sent via electronic mail:

Dear Commissioner Hanger, Commissioner Martin, and Delaware River Master Blanchard,

Is NYC dumping water out of the Catskill and Croton Water Supply Systems to bolster their diversions - to support their claim that they "need" more Delaware River water than they actually require? Are there larger than normal NYC operational releases being made by NYC DEP to increase the NYC Total Water System safe yield and demand numbers in preparation of defending the need for the OST (NYC's "new" software tool) to manage their Water System at a higher Delaware River diversion level?

This is not the first time members of the ACU and other river advocates have noticed a trend of NYC diverting larger than normal water amounts from the Delaware System while at the same time what appears to be drawdowns of capacities in their other systems. Generally, (and I know there are other factors in the equation that affect capacity levels), when NYC uses more water out of the Delaware System, the other two systems' reservoir capacity increases. With the NYC's lessened water demand pattern hovering around one billion gallons a day, the stepped up diversions from the NYC Delaware River should result in higher than recorded levels in the rest of NYC's water supply system. Specifically, over the past few months it seems that there is even a greater total system drawdown. The numbers and data, such that are available to the public, do not add up the way they historically have in the past and we suspect, as the below article indicates, that NYC is dumping water from its other two water supply reservoir systems. If this is not the case, where is the water going?

<http://www.recordonline.com/apps/pbcs.dll/article?AID=/20101027/NEWS/10270330>

We would like to know what the data shows for both the Catskill Water System and the Croton System.

How can we, the public, check the releases and diversions of the Hudson System? (aka the Catskill Water System and the Croton System, referred to as such because both these water systems are located in the Hudson River Watershed) Will you obtain the data for us?

We believe NYC should also provide us all with all the internal DEP water quality tests of the three water supply systems before the water is blended so that a quality assessment can be made and known by the Lower Basin States, the River Master and the Public.

As the *1954 Supreme Court Decree of NJ, *Complainant v. State of NY and the City of NY, Defendants, Commonwealth of Pennsylvania and the State of Delaware, Intervenors*, clearly shows, each of you individually and collectively has the right, as does Delaware, to ask for this information: (Emphasis via bolding, italics and underlining added)

VII. RIVER MASTER.

A. *Designation.* Subject to the concurrence of the Director of the U. S. Geological Survey, the Chief Hydraulic Engineer of the U. S. Geological Survey, or such other engineer of the U. S. Geological Survey as shall at any time be designated by the Chief Hydraulic Engineer, is hereby designated as River Master.

B. *Duties.* The River Master shall either in person or through his assistants possess, exercise and perform the following duties and functions:

1. *General Duties.*

(a) *Administer the provisions of this decree relating to yields, diversions and releases so as to have the provisions of this decree carried out with the greatest possible accuracy.*

(b) *Conserve the waters in the river, its tributaries and in any reservoirs maintained in the Delaware River watershed by the City of New York or any* which may hereafter be developed by any of the other parties hereto;

(c) *Compile and correlate all available data on the water needs of the parties hereto;*

4. Inspection Permitted. The States of New Jersey and Delaware and the Commonwealth of Pennsylvania, through accredited representatives, and the River Master, shall at all reasonable times have the right to inspect the dams, reservoirs and other works constructed by the City of New York, to inspect the diversion areas and the inflow, outflow and diverted flow of such areas, to inspect the meters and other apparatus installed by the City of New York and to inspect all records pertaining to inflow, outflow and diverted flow.

Please accept this email as an official request for the information that you (The River Master, the State of NJ, and the State of PA) are legally permitted access to by the 1954 Supreme Court Consent Decree. We are requesting that you obtain the data, in whatever form it exists, pertaining to NYC total system safe yield, sub system (Delaware, Hudson and Croton) safe yield and actual demand for the years water years June 1, 2000 - to 2010 (year to date). We also would like you to initiate an inspection of NYC's water quality tests for each of the NYC reservoirs and lakes in the NYC water supply system.

My intention is to use some of this data in my presentation to the Regulated Flow Advisory Committee of the DRBC on

December 14, 2010.

I am attaching the OST White Paper published by NYC that clearly states their intention of using greater amounts of Delaware River Water now and in the future in spite of NYC's provable decreasing demand pattern. It is clear that NYC intends to compensate for the increasingly unacceptable (read: unable to pass EPA Clean drinking water standards) potable water supply of the Hudson System by increasing its reliance on Delaware River Water, shortchanging the water resources of Pennsylvania and New Jersey in the process.

Respectfully,

Elaine Reichart
President
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www.aquacon.org



[OST_Executiv...pdf \(2.5 MB\)](#)



[OST White Paper.pdf \(2.2 MB\)](#)

News

Creek advocates want NYC aid Esopus partnership asks city to release more clean water

By Adam Bosch
Times Herald-Record

Published: 2:00 AM - 10/27/10

HURLEY — Distress comes in two varieties on the Lower Esopus Creek.

Sometimes the creek's water is so packed with dirt that it looks like chocolate milk. On other days the creek is so shallow that you can walk across it without wetting your ankles.

In both cases, locals believe New York City can help.

The Lower Esopus Watershed Partnership — a team of local governments and environment advocates — is pushing New York City to release more clean water from its reservoir system to improve the ailing Lower Esopus.

In September, the group delivered a letter to state regulators, asking them to force New York City to release more clean water from the Ashokan Reservoir into the creek. It suggested making those daily releases a requirement of the city's pollution discharge permit, which expires at the end of 2011.

The city's Department of Environmental Protection never released water into the creek until 2006. That's when the DEP started releasing high volumes of turbid water into the Lower Esopus to remove the clay and silt that harmed the quality of New York City's drinking water in the Ashokan.

During a 10-day stretch ending last week, the DEP released 4.4 billion gallons of dirty water that turned the creek brown.

"We got a lot of questions from concerned citizens," said Gary Bellows, supervisor in Hurley and a LEWP member. "You kind of wonder what the effect is on fish and wildlife living in and around the creek."

The creek faces a different problem in the summer, when New York City holds onto its drinking water and halts releases. That causes the Lower Esopus to become so shallow that it pools instead of flowing.

"I can show you places that when I was a kid we used to swing out on a rope and drop into water above our heads," farmer John Gill of Hurley said. "Now you can walk across that same spot."

In its letter, the LEWP outlines several ideas to help the Lower Esopus. Chief among them was daily releases of at least 65 million gallons of clean water from the Ashokan to dilute turbidity and create natural water patterns in the creek. Because the lower part of the creek was cut off from its headwaters during the construction of the Ashokan a century ago, advocates estimate it loses out on at least 150 percent of water it would gather naturally.

Paul Rush, the DEP's assistant commissioner for water supply, said the city would be open to changes.

"We are willing to engage in a discussion with the folks in the Lower Esopus basin," he said, adding that the DEP has also released water from the Ashokan for flood protection in recent years.

Unlike at most of its other reservoirs, the DEP is not required by law to release water from the Ashokan. That dates back to an apparently outdated law from 1980 that said the Ashokan had a "lack of release works" to put water into the Lower Esopus.

Given the billions of gallons released in recent years and weeks, advocates believe the law is faulty and deserves to be changed.

abosch@th-record.com

FOR A HEALTHIER CREEK

The following are recommendations made by the Lower Esopus Watershed Partnership to improve the health of the creek:

- Require minimum daily releases from the Ashokan Reservoir into the Lower Esopus Creek.
- Set limits for releases of turbid water from the Ashokan Reservoir.
- Allow free and easy public access to data on releases from the Ashokan Reservoir.
- Conduct a study to determine how releases from the Ashokan Reservoir are affecting aquatic life and the sediment makeup of the Lower Esopus Creek.

Source: Lower Esopus Watershed Partnership

tion of the Commonwealth was otherwise in full accord with the recommendations of the Special Master.

Sec. 2.05. The Supreme Court Decision and Decree. The Supreme Court of the United States confirmed the Report of the Special Master; ordered the entry of a decree denying the injunction prayed for by New Jersey so far as it would restrain the State and City of New York from diverting from the Delaware River or its tributaries to the New York City water supply the equivalent of 440 m.g.d., but granting an injunction to restrain such State and City from diverting water in excess of that amount; and broadened the scope of the jurisdiction retained over the cause (283 U. S. 336, 345-46, 348).

In recognition of the possible future necessity of modifying the decree the opinion delivered by Mr. Justice Holmes prophetically observed (283 U. S. 334, 344):

“* * * Of course in that particular as in some others New York takes the risk of the future. If the War Department should in future change its present disinclination to interfere, New York would have to yield to its decision, and the possible experiences of the future may make modifications of the plan as it now stands necessary in unforeseen particulars. This will be provided for in the decree. * * *”

By reason of these uncertain risks of the future, paragraph 6 of the decree was inserted by this Court at its own instance, and provided (283 U. S. 336, 348, 807):

“6. Any of the parties hereto, complainant, defendants or intervener, may apply at the foot of this decree for other or further action or relief and this Court retains jurisdiction of the suit for the purpose of any order or direction or modification of this decree, or any supplemental decree that it may deem at any time to be proper in relation to the subject matter in controversy.”

From the NYC DEP website,

<http://www.nyc.gov/html/dep/html/news/croton.shtml>

The Croton Water Filtration Plant Project

The Croton System is the oldest of City's three systems (Croton, Catskill and Delaware) that provide drinking water to the City and upstate communities. Although it was once the only reservoir system supplying water from outside the City, the Croton System is now the smallest of the three systems. The Croton watershed is a series of interconnected reservoirs and lakes in northern Westchester and Putnam Counties. The Jerome Park Reservoir, a distribution reservoir, is located at the downstream end of the Croton System and is the point at which Croton water enters City's water distribution system. The Croton System provides an average of approximately 10 percent of the City's average daily demand. During droughts, the Croton System provides up to 30 percent of in-City consumption. Croton water is primarily used in low-lying areas of the Bronx and Manhattan, where the water can be conveyed by gravity. Two pump stations, the Jerome Avenue Pump Station and the Mosholu Pump Station, can supply additional Croton water to the Intermediate and High Level service areas, normally served by the Catskill and Delaware Systems. The project is being proposed to meet the public water supply and public health needs of the City, and to comply with State and federal drinking water standards and regulations.

The Croton Water Filtration Plant Project, page 2, cont'd

The project is being proposed to meet the public water supply and public health needs of the City, and to comply with State and federal drinking water standards and regulations.

The New York State Department of Health (NYSDOH) and the United States Environmental Protection Agency (USEPA) have mandated the filtration and disinfection of the Croton water supply to comply with standards set forth in sub-part 5.1 of Chapter 1, New York State Sanitary Code, and the USEPA Surface Water Treatment Rule (SWTR), a National Primary Drinking Water Regulation promulgated under the Safe Drinking Water Act (SDWA), 1974. The City did not apply for Filtration Avoidance for Croton water discharged into the New Croton Aqueduct (NCA) in 1991 under the SWTR because DEP believed that Croton water would require filtration. Instead, in 1992 the City entered into a Stipulation Agreement with NYSDOH for filtration of Croton water. Subsequently, in 1993, USEPA issued a determination pursuant to the SWTR, requiring the City to filter the Croton water supply. More recently, these two regulatory agencies, USEPA and NYSDOH sought a federal court order to obligate the City to construct a Croton filtration plant according to a specified schedule.

The Croton System has provided high quality water to consumers for many years. Although Croton water currently meets all existing health-based water quality regulations, it frequently violates the aesthetic standard for color. Water quality problems have resulted in the Croton System being removed from service on numerous occasions, typically during the summer and fall months (in four of the last several years – 1992, 1993, 1994 and 1998). The entire system was shut down for most of 2000-2001 because of contaminants that leaked into the NCA.

The Croton Water Filtration Plant Project, page 3, cont'd

While the USEPA distinguishes between health-based (primary) and aesthetic (secondary) standards with respect to mandatory compliance, NYSDOH considers all standards on an equal basis. Croton water consistently is more colored than the Catskill and Delaware Systems. The raw water, is above the color standard of 15 scu (standard color units), but the chlorination of the raw water generally bleaches the color and brings it into compliance in the distribution system before it reaches the consumer. The City's goal is to provide equally high quality water to all its users while minimizing the risks associated with the use of chemicals.

The 1996 SDWA Amendments and the rules and regulations that were promulgated subsequent to the SDWA Amendments placed further regulatory burdens on the Croton System. The Interim Enhanced Surface Water Treatment Rule (1998) increased required protection from microorganisms, lowered the turbidity standard, and required the covering of all new treated water reservoirs. One of the SDWA Amendments, the Disinfectants and Disinfection Byproducts Rule has rendered the filtration of Croton water a necessity. Stage 1 of this Rule limits certain by-products of chlorination. These disinfection byproducts have been implicated as a factor in bladder, colon and rectal cancers as well as congenital fetal defects and miscarriages. Stage 2 of this will require measuring the disinfection byproducts as a quarterly running average and to change the points of measurement in the distribution system. As a result of these regulatory changes, without filtration the Croton water is not predicted to consistently meet the Stage 2 Disinfectants and Disinfection Byproducts Rule. Recently Croton water has violated turbidity in 2002, requiring the notification of all users that the water exceeded standards.

The Croton Water Filtration Plant Project, page 4, cont'd

The proposed project is designed to meet all current and anticipated future water quality regulations and goals. In addition, the project is intended to allow the City to maximize the use of Croton water that can be conveyed down the NCA. This project is required to provide filtration and disinfection of the Croton System to: 1) allow DEP to continue to provide drinking water of the highest quality; 2) prevent the periodic shutdown of the Croton System, particularly at times of the year when the City water demand is at its highest; 3) meet the requirements of existing and future regulations; 4) augment the effective yield and operational flexibility of the City's overall water supply system, and 5) provide additional protection from contamination of the treated water in the water conveyances by pressurizing the treated water conveyances.

Croton Water Filtration Plant, New York, USA

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Key Data	
Decision to Build	June 2004
Construction Began	2007
Low Bidder Pulled Out	April 2007
Skanska Contract Awarded	August 2007
Construction Duration	50 months
Start-Up Phase	Six months
Project Completion	2012

Full specifications

The largest single construction contract in New York's history, when the Croton water filtration plant enters service in 2012 it will bring an end to a long, and at times controversial, saga which began back in 1989. Once completed, the plant will represent a significant step in improving the water quality of the one million New Yorkers who rely on the Croton water system - the city's oldest - which first began service in 1842.

Being built entirely underground and requiring deep excavation and extensive rock boring to provide the necessary water tunnels, the four-storey plant will ultimately treat around 1.2 million cubic metres a day. This represents roughly 10% of New York's daily requirement - though the plant will be able to increase its throughput to supply around 30% in times of drought or severe need.

The original construction contract was for \$1.3bn. However, as of September 2009, the cost increased to \$2bn.

New York city comptroller Bill Thompson has stated that the project was overdue and over budget for several reasons, including poor design up front, movement and design changes during the course of the project, slow execution and lack of focus at the management level.

Croton background

New York city obtains its drinking water from a system of 19 reservoirs located in a watershed which extends to nearly 2,000 square miles. The watershed itself naturally falls into two geographically discrete regions - the Catskill / Delaware, to the west of the Hudson river and the Croton to the east, comprising 12 reservoirs and three controlled lakes.

The Croton watershed is particularly exposed to an ongoing threat of contamination, chiefly as a result of stormwater run-off and there have been a number of pollution incidents historically. The system was removed from service for periods during 1992, 1993, 1994 and 1998 - and shut down entirely for much of 2000 and 2001, when contaminants leaked into the New Croton Aqueduct.

In 1989, the US Federal Environmental Protection Agency (EPA) introduced the Surface Water Treatment Rule (SWTR), requiring all surface drinking water to be filtered unless stringent water quality and disinfection criteria are met. Additionally, the Safe Drinking Water Act mandated the filtration of all surface water by June 1993 except where compliance with strictly defined public health standards made it unnecessary.

"New York city obtains its

In July 1992, New York City Department of Environmental Protection applied for filtration avoidance for the Catskill / Delaware system, which was granted in January of the following year. However,



Expand Image
New York's Croton water system is the oldest to supply the city and today accounts for around 10% of the drinking supply.



Expand Image
A stream in the Croton Watershed; stormwater run-off makes the likelihood of contamination high and there have been a number of pollution incidents historically.



Drinking water from a system of 19 reservoirs."

no similar waiver was sought for the Croton Watershed. In 1993, the EPA determined that the SWTR applied and that the water from this source would need to be filtered and disinfected.

Progressing the Croton project

Although planning began for the plant, by 1997 the slow progress led to the federal government bringing a legal suit against the city; the state of New York also intervened on the basis of non-compliance with the relevant state legislation. In 1998, in an attempt to resolve the issue in the best interests of the people of New York, all three parties arrived at agreement over a consent decree, which charged the city with building a plant by September 2006.

Getting started on the project was to prove difficult. The consent decree was to be twice amended - in 2002 and 2004 extending various deadlines because of violations, while missed deadlines for site selection lead to two fines, totalling some \$180,000. In the end, with residents near the preferred site suing to block the work, site approval was only to come after a State Court ruling. The first phase of the project was started in August 2006.

The problems were not to stop here, however. In February 2007, when three deadlines were missed - for the hiring of a main contractor and the resolution of electrical and HVAC contracts - the federal government imposed daily fines of \$30,000. Two months later, the low bidder - a consortium led by the Perini Corporation - pulled out, leaving only one other. In May 2007, the Skanska / Tully Construction JV were awarded the contract, which was finalised in August - Skanska's 80% share representing the company's largest order in the US to date.

The third phase of construction of the project started in August 2007. As of July 2009, excavation of the two treated water tunnels, concrete arrangement for lining the raw water tunnel and installation of mechanical piping and electrical work at the site were completed. Off-site work at the treated water shafts at one of the reservoirs of the Croton system, Jerome Park Reservoir, was also undertaken.

The water filtration plant


The processes to be used are largely conventional and well established, with water arriving at the plant undergoing the usual regime of pre-treatment stages - mixing / coagulation, flocculation and chemical balancing. Flocculation will be a two-stage process, with a minimum 144-second period for each stage.

Treatment itself will involve stacked Dissolved Air Flootation (DAF) / filtration - the combination of a DAF loading rate of 50gpm and a dual media filter containing 60cm anthracite, 30cm sand being chosen to optimise particulate removal. DAF sludge skimmed solids will be dewatered by centrifuge before disposal. The filtered water is then disinfected by treatment with UV and chlorine. After treatment, the water will be chemically adjusted as required and subsequently dosed with orthophosphate for corrosion control and hydrofluorosilicic acid to add fluoride.


The main construction houses the treatment plant itself, administration offices and an on-site laboratory, and additionally includes chemical storage and facilities for process residuals and backwash water, together with the necessary ancillary electricals, SCADA and piping. Associated work will provide a raw water tunnel from the New Croton Aqueduct, with a pumping station and wet well, corresponding pumping arrangements for treated water and a second tunnel linking to the city's distribution network.

Given the magnitude of the undertaking, plant control is a particularly significant aspect of the overall design. To ensure integrated process balancing together with careful monitoring and control of key treatment elements including the backwash and chemical feed facilities, the plant will make use of state-of-the-art digital automation architecture and expert systems.


In October 2007, the contract for this part of the plant was awarded to Emerson

 Expand Image
Image of the waterborne parasite Giardia from a scanning electron microscope; changes to Federal law regarding water quality and public health have driven the construction of the new Croton water filtration plant.




 Expand Image
New York and the Hudson River from space. New York receives water from two geographically discrete sources - the Catskill / Delaware watershed, to the west of the Hudson river and the Croton to the east.



 Expand Image
New Croton Reservoir - one of 12 reservoirs and three controlled lakes in the watershed, responsible for supplying around one million New Yorkers - mostly in the Bronx and parts of Manhattan.



 Expand Image
The parks of New York; the

"The Croton treatment will involve stacked Dissolved Air Flootation (DAF) / filtration."

In October 2007, the contract for the part of the plant was awarded to CITTIPART Process Management, who will install PlantWeb digital automation architecture with the Ovation expert control system to control 15,000 I/O points relating to the new plant's operation.

The whole system will call for the provision of Ovation controllers, 12 workstations, four operator interfaces and a variety of 'smart' devices, including magnetic flow-meters, pressure and temperature sensor / transmitters and automatic chlorination analysers. To ensure the full integration of the whole facility, the contract also extends to providing the hardware, network design and maintenance of the administration buildings.

"The new Croton plant is to be the first WTP actually located within New York's boroughs."

The new plant is to be the first WTP actually located within New York's boroughs, being constructed at a 12-acre site within Van Cortlandt Park beneath the Moshulu Golf Course in the Bronx - with ten acres being turned back into a municipal golf course on completion.

This inevitably poses some serious construction challenges, including the need to drill, blast and excavate more than 730,000m³ of rock and soil.

The final excavation will be 150m x 180m in footprint and lie 30m down in the underlying rock and in addition to the plant itself, two water tunnels are to be constructed to transport water into and out of the filtration system. Originally intended to filter and disinfect 1.1 million cubic metres daily, the additional 100,000m³ a day appeared as part of the latest contract.

Key players

The project sponsor is the New York City Department of Environmental Protection, who will ultimately be responsible for running the plant. The main contractor is a Skanska / Tully Construction joint venture, with Haley & Aldrich as geo-technical consultants, digital automation architecture being provided by Emerson and a Hazen & Sawyer / Metcalf & Eddy JV acting as client consultant.

location of Van Cortlandt Park, underneath which the new filtration plant is to be built, is shown at '2'.



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United Water New Rochelle Completes Connection to Delaware

New supply improves reliability, pressure and water quality for 150,000 people

West Nyack, NY, Dec 24, 2009, 9:00 AM

United Water New Rochelle officials announced today that the company has completed its connection to New York City's Delaware Aqueduct, thus securing a necessary and high-quality supply of water for approximately 150,000 people in the City of New Rochelle and the surrounding 12 communities.

The Delaware Aqueduct is the newest of the New York City aqueducts. It was constructed between 1939 and 1945 and carries approximately half of New York City's 1.3 billion gallons per day water demand. It takes water from the Roundout Reservoir through the Chelsea Pump Station, the West Branch Reservoir, and the Kensico Reservoir, ending at the Hillview Reservoir in Yonkers, NY. This feed forms the bulk of New York City's drinking water supply.

United Water installed a 1,225-foot, 48-inch diameter pipeline to connect its 43 million gallon per day pumping station constructed in Eastchester in 2008 to the Delaware Aqueduct. The connection will become necessary as New York City plans to shut down the Catskill Aqueduct, a major source of supply for United Water, in the near future to repair leaks. The company's connection will ensure uninterrupted water service while that work takes place.

"We've made substantial investments in the last four years to improve and maintain quality service, most notably including the new \$68 million Delaware Pump Station, supply pipeline and system wide improvements," said Michael Pointing, vice president and general manager of United Water. "This level of capital investment is necessary for us to continue to ensure the

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Our experts will be happy to answer media inquiries regarding these topics: drinking water quality and treatment, wastewater treatment, and more.

safety and reliability of our water system for our customers.”

History of the Delaware Interconnection Project and Shaft 22

In 1991, the New York State Department of Health notified United Water that the Croton Supply, a significant supply of drinking water for United Water customers at that time, did not meet new surface water treatment rules promulgated by the United States Environmental Protection Agency in 1989. In addition, New York City had defined plans for repairs to both the Catskill and Delaware Aqueducts with sustained shutdowns in the future. In order to provide uninterrupted service in the future, in 1992 United Water began planning for treatment or replacement of the Croton supply.

In 1993, the New York State Department of Health ordered United Water to eliminate the Croton supply and develop a connection to the Delaware Aqueduct. United Water responded by developing the concept of the Delaware Interconnection Project with a new pump station to be located on United Water property in the Town of Eastchester, NY. The company proceeded by initiating an engineering plan and the permitting process.

After prolonged resistance from the public and litigation from the Town of Eastchester, United Water successfully settled the case and began construction of the pump station in December of 2005. The company furthered the project by gaining approval to construct the Shaft 22 Transmission Main that connects the station to the Delaware Aqueduct.

Today, the Delaware Pump Station and the Shaft 22 Transmission Main are fully operational, providing a reliable and sustainable supply of high-quality drinking water. “As a result of the construction of the Delaware Interconnection Project, our customers in New Rochelle and the surrounding communities will not have to face severe water restrictions,” said Pointing. “This project will provide reliable service for many years to come.”

The connection to the Delaware Aqueduct will also significantly help stabilize seasonal fluctuations in water pressure, particularly during times of high demand, and will help improve water quality. The project is part of United Water’s ongoing effort to improve infrastructure throughout lower Westchester County, where the company has invested nearly \$100 million in the past four years. These investments reflect United Water’s commitment to provide safe, reliable drinking water today and for the long-term.

“This project vividly demonstrates United Water’s proactive efforts to improve service in southern Westchester,” said Pointing. “We’re constantly reinvesting much of the money we receive from our customers to ensure that they continue to receive the best service possible,” said Pointing. “Even with the substantial level of capital that was necessary to build projects like these, water remains an exceptional value at less than one penny per gallon.”

With approximately 31,000 customers throughout southern Westchester, the company’s capital spending amounts to an average investment of about \$3,032 per customer – significantly more than what the typical residential customer pays annually for water.

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