

DOCKET NO. D-1996-050 CP-3

DELAWARE RIVER BASIN COMMISSION

**Suez Environmental – United Water Delaware
Groundwater and Surface Water Withdrawal
Stream Encroachment Tidal Capture Structure
White Clay Creek, Stanton, New Castle County, Delaware**

PROCEEDINGS

This docket is issued in response to an Application submitted by Duffield Associates, Inc. on behalf of Suez Environmental – United Water Delaware (SE-UWD) to the Delaware River Basin Commission (DRBC or Commission) on April 14, 2015 (Application), for a renewal and approval of an allocation of groundwater and surface water and review of a groundwater and surface water withdrawal project and Tidal Capture Structure (TCS). The prior docket was approved by the Commission on January 19, 2005. The project sources located within the State of Delaware were approved by the Delaware Department of Natural Resources and Environmental Control (DNREC) as follows:

INTAKE OR WELL NO.	DNREC PERMIT NO.	DNREC APPROVAL DATE
Stanton Intakes Nos. 1, 2 and 2A	90-0013M	July 16, 1993
Christiana Intake No. 1	90-0014	April 8, 1996
Christiana Well No. 1	01-0011	June 16, 2001

The Application was reviewed for continuation in the Comprehensive Plan and for approval under Section 3.8 of the *Delaware River Basin Compact*. The New Castle County Planning Department has been notified of pending action on this docket. A public hearing on this project was held by the DRBC on September 15, 2015.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to renew the approval of an existing withdrawal of up to 30.0 million gallons per day (mgd) and 930 million gallons per month (mgm) of groundwater and surface water to serve the docket holder's public water supply distribution system from existing surface water Intakes Stanton No. 1, Stanton No. 2 and Stanton No. 2A on White Clay Creek, Christiana No. 1 on the Christina River and Christiana Well No. 1. The docket will also approve Christiana Well No. 1 for inclusion in the SE-UWD public water supply system and the transfer of ownership to Suez Environmental – United Water Delaware. SE-UWD is not requesting an

increase in groundwater withdrawal allocation from that contained in its prior approval. The application will also renew the approval of a Tidal Capture Structure (TCS) located on White Clay Creek, a tributary of the Christina River, at River Mile 70.73 - 10.3 - 1.8 (Delaware River - Christina River - White Clay Creek).

2. Location. The project intakes are located in the White Clay Creek and Christiana River Watersheds in New Castle County, Delaware. The project well is located in the Christiana River Watershed, in New Castle County, Delaware. Christiana Well No. 1 is completed in Potomac aquifer.

Specific location information has been withheld for security reasons.

3. Area Served. The docket holder's water distribution system serves a portion of New Castle County, Delaware. The SE-UWD service area consists of three districts; an area 13 square miles just north of the Chesapeake and Delaware Canals and west of the Delaware River (River Road Franchise Area); and area of approximately 18 square miles just north of the City of Wilmington and west of the Delaware River (North Franchise Area) and an area approximately 21 square miles south of the City of Newark (South Franchise Area) as shown on a map entitled "United Water Delaware and United Water Bethel Franchise Boundaries", submitted with the Application.

4. Physical features.

a. Design criteria. The SE-UWD's primary treatment facility is the Stanton Water Treatment Plant which has a 30 mgd treatment capacity. The Stanton intakes and the smaller Christiana Plant (6 mgd) located at Smalley's Dam on the Christina River constitute the entire SE-UWD public water supply system, other than bulk purchases from other water purveyors via interconnections.

The TCS was constructed in 1997 for the primary purpose of improving UWD's ability to withdraw from the White Clay Creek during low stream flows. The TCS operating status is determined by regular monitoring of stream flows as published continuously by the Delaware Geologic Survey's calibrated stream gages. The facility is controlled remotely from the Stanton WTP to provide for immediate operational adjustments as needed. Operations include inflation to improve intake conditions or to provide protection from downstream contamination which may be incoming with the tide. Deflation, to ensure upstream flooding is not exacerbated is also part of the remotely controlled operation system. An adjustable sluice gate at the south side of the TCS controls passing flow.

The SE-UWD system currently serves an estimated population of 94,465 through 34,168 service connections, 2,731 commercial, 59 industrial, 838 institutional and other service connections with an average and maximum water demand of 16.555 mgd and 20.140 mgd, respectively. The docket holder projects an average and maximum water demand of 17.401 mgd and 21.170 mgd, respectively, by the year 2025. Intake Christiana No. 1 on the Christina River and Christiana Well No. 1 serve as back up and supplemental sources to the Stanton Intakes. The Christiana sources also serve as redundancy sources in the case one of the Stanton Intakes is

not in operation or SE-UWD is unable to purchase water from other water purveyors. The allocation of 930 mgm should be sufficient to meet the future demands of the SE-UWD system. SE-UWD currently purchases up to 0.722 mgd of water from purveyors and estimate purchasing up to 0.758 mgd of water by the year 2025.

b. Facilities. The docket holder's existing intakes and well have the following characteristics:

INTAKE NO.	WITHDRAWAL WATER BODY	PUMP CAPACITY (GPM)	YEAR CONSTRUCTED
Stanton No. 1	White Clay Creek	14,000	1947
Stanton No. 2	White Clay Creek	21,000	1960
Stanton No. 2A	White Clay Creek	21,000	1960
Christiana No. 1	Christina River	4,100	1906

WELL NO.	DEPTH (FEET)	SCREENED INTERVALS (FEET)	PUMP CAPACITY (GPM)	YEAR DRILLED
Christiana No. 1	306	216 to 239 and 274 to 306	200	1968

The TCS facility is an inflatable structure approximately 125 feet long installed across the White Clay Creek. The structure inflates to approximately 5 feet above the steam bed. Bypass sluice gates are used for the purpose of controlling pass-by flows as required. Remote controls from the Stanton Plant provide for immediate operational adjustments when needed.

The intakes, well and all water service connections are metered.

Prior to entering the distribution system, the groundwater is treated by coagulation, flocculation, sedimentation, high rate filtration, fluoridation and disinfection.

Christiana Well No. 1 is above the 100-year flood elevation.

The SE-UWD storage facilities total 29.8 mg, which is approximately 1 day of supply.

The SE-UWD water distribution system is presently interconnected with the following:

WATER COMPANY	INTERCONNECTION CAPACITY (MGD)	STATUS
Chester Water Authority	0.24	Regular
United Water Bethel	0.78	Regular
City of Wilmington (7 interconnections)	7.53	Emergency
Artesian Water Company (3 interconnections)	0.5	Emergency

c. **Other.** Wastewater is conveyed to the City of Wilmington sewage treatment facility most recently approved by DRBC Docket No. D-1998-026 CP on November 15, 2000. DNREC issued its most recent NPDES Permit No. DE0020320 on September 17, 2014 for this treatment facility. The treatment facility has adequate capacity to receive wastewater from the project.

d. **Relationship to the Comprehensive Plan.** The docket holder's sources were previously included in the Comprehensive Plan by Docket No. D-1991-072 CP on August 4, 1993. The TCS was previously included into the Comprehensive Plan by Docket No. D-1996-050 CP on April 30, 1997. The approval of the sources and TCS were continued in Docket No. D-1996-050 CP-2 which was approved on January 19, 2005. Christiana Well No. 1 was included in the Comprehensive Plan in Docket Nos. D-1967-110 CP and D-2001-037 CP approved on September 27, 1967 and April 3, 2002, respectively. Issuance of this docket will continue the SE-UWD public water supply distribution system in the Comprehensive Plan.

B. FINDINGS

Since the April 30, 1997 issuance of Docket D-96-50 CP, which approved the use of the TCS, SE-UWD has twice requested and received emergency suspension of the passby requirement of 17 mgd on the White Clay Creek. The emergency requests were made on July 29, 1999 and August 5, 2002, both after periods of extended low precipitation conditions, and during which chloride concentrations at the Stanton Plant intakes were in excess of 250 ppm.

Resolution 2002-27 revised the D-96-50 CP docket (Amendment No. 2) with the addition of Condition "m" which required UWD to:

- Continue to implement mandatory State water conservation measures;
- Conduct a feasibility analysis of raising the level of Hoopes Reservoir to increase its public water supply storage capacity;
- Conduct a cost/benefit analysis of the feasibility of installing desalination facilities at UWD's Stanton Plant; and

- Develop a new operating plan that addresses minimum instream flow needs at the tidal/fresh water interface near the TCS during normal and drought conditions.

Water Audits for Public Water Supply Systems Serving Greater than 100,000 gpd

Section 2.1.8 of the Water Code states that it is the policy of the Commission to establish a standardized water audit methodology for owners of water supply systems serving the public to ensure accountability in the management of water resources. Effective January 1, 2012, the owners of each public water supply system are required to implement an annual calendar year water audit program conforming to IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance (Section 2.1.8.C). Water audits shall be submitted annually to the Commission by March 31. SE-UWD submitted their most recent Water Audit on April 13, 2015.

Water Supply Charges

Prior to this docket, pursuant to a settlement agreement dated March 11, 2015 Certificates of Entitlement Nos. 385 and 386 were terminated effective July 27, 2000. SE-UWD shall pay for surface water use in accordance with the provisions of *Administrative Manual Part III Basin Regulations – Water Charges*. The DRBC estimates that the project withdrawals, used for the purpose of public water supply, result in a consumptive use of 10 percent of the total water use. The DRBC definition of consumptive use is defined in Article 5.5.1.D. of the Administrative Manual – Part III – Basin Regulations – Water Supply Charges.

The project is designed to conform to the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

The project does not conflict with the Comprehensive Plan, and is designed to prevent substantial adverse impact to the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

C. DECISION

- I. Effective on the approval date for Docket No. D-1996-050 CP-3 below:
 - a. The project described in Docket Nos. D-1967-110 CP, D-1996-050 CP-2 and D-2001-037 CP are removed from the Comprehensive Plan to the extent that it is not included in Docket No. D-1996-050 CP-3; and
 - b. Docket Nos. D-1996-050 CP-2 and D-2001-037 CP are rescinded and replaced by Docket No. D-1996-050 CP-3; and
 - c. The project and the appurtenant facilities described in the Section A “Physical Features” of this docket shall be added to the Comprehensive Plan.

II. The project as described in the Section A “Physical features” is approved pursuant to Section 3.8 of the *Compact* and is granted this withdrawal permit pursuant to Section 10.3 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the DNREC, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission’s. The wells and operational records shall be available at all times for inspection by the DRBC.

b. The intakes and well shall be operated at all times to comply with the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

c. During any month, the combined withdrawal from all sources shall not exceed 30.0 mgd (930 mgm). No source shall be pumped above the maximum instantaneous rate and monthly allocation as indicated below:

INTAKE OR WELL NO.	INSTANTANEOUS RATE (GPM)	MONTHLY ALLOCATION (MILLION GALLONS)
Stanton No. 1	14,000	604.8
Stanton No. 2	21,000	302.8
Stanton No. 2A	21,000	302.8
Christiana No. 1	4,100	177.2
Christiana Well No. 1	200	8.7

d. The docket holder shall operate the Tidal Capture Structure (TCS) in accordance with the attached operating plan. Any revision to the TCS operating plan shall be approved by the Executive Director.

e. The docket holder shall pay for surface water use in accordance with the provisions of *Administrative Manual Part III Basin Regulations – Water Supply Charges*.

f. The well shall be equipped with readily accessible capped ports and drop pipes so that water levels may be measured under all conditions.

g. The project withdrawals shall be metered with an automatic continuous recording device that measures to within 5 percent of actual flow. An exception to the 5 percent performance standard, but no greater than 10 percent, may be granted if maintenance of the 5 percent performance is not technically feasible or economically practicable. A record of daily withdrawals shall be maintained, and monthly totals shall be reported annually by March 31, to the DNREC. Withdrawal records shall be available at any time to the Commission if requested by the Executive Director.

h. Each new water service connection shall include a water meter in accordance with the DRBC's Resolution No. 87-7 (Revised).

i. The docket holder shall continue to implement its Water Conservation Plan as approved by DNREC, and shall report to the DNREC on the actions taken pursuant to this program and the impact of those actions as requested by the DNREC.

j. No water service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

k. In accordance with DRBC Resolutions No. 87-6 (Revised) and No. 2009-1, the docket holder shall continue to implement to the satisfaction of the DNREC, the systematic program to monitor and control leakage within the water supply system. The program shall at a minimum include: periodic surveys to monitor leakage, enumerate non-revenue water and determine the current status of system infrastructure; recommendations to monitor and control leakage; and a schedule for the implementation of such recommendations. The docket holder shall proceed expeditiously to correct leakages and unnecessary usage identified by the program.

l. In accordance with DRBC Resolution No. 2009-1 and Section 2.1.8 of the Water Code, the docket holder shall implement an annual calendar year water audit program conforming to IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding guidance. Water audits shall be submitted annually to the Commission by March 31.

m. No new water service connections shall be made to premises connected to sewerage systems which are not in compliance with all applicable effluent limits contained in State permits and the *Water Quality Regulations* of the Commission.

n. The docket holder shall implement to the satisfaction of the DNREC, a continuous program to encourage water conservation in all types of use within the facilities served by this docket approval. The docket holder will report to the DNREC, on the actions taken pursuant to this program and the impact of those actions as requested by the DNREC.

o. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

p. The area served by this project is limited to the service area as described above. Any expansion beyond this area is subject to review in accordance with Section 3.8 of the *Compact*.

q. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in

the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

r. The issuance of this docket approval shall not create any private or proprietary rights in the water of the Basin, and the Commission reserves the right to amend, alter or rescind any actions taken hereunder in order to insure the proper control, use and management of the water resources of the Basin.

s. If the monitoring required herein, or any other data or information demonstrates that the operation of this project significantly affects or interferes with any domestic or other existing uses of ground or surface water, or if the docket holder receives a complaint by any existing ground or surface water users within the zone of influence of the withdrawal, the docket holder shall immediately notify the Executive Director of any complaints by any ground or surface users within the zone of influence of the withdrawal, and unless excused by the Executive Director, shall investigate such complaints. The docket holder should direct phone call notifications of potential well or surface water interference or complaints of interference to the DRBC Project Review Section at 609-883-9500, extension 216. Oral notification must always be followed up in writing directed to the Executive Director. In addition, the docket holder shall provide written notification to all potentially impacted users of wells or surface water supplies of the docket holder's responsibilities under this condition. Any ground or surface water user which is substantially adversely affected, rendered dry or otherwise diminished as a result of the docket holder's project withdrawal, shall be repaired, replaced or otherwise mitigated at the expense of the docket holder. A report of investigation and/or mitigation plan prepared by a hydrologist shall be submitted to the Executive Director as soon as practicable. The Executive Director shall make the final determination regarding the validity of such complaints, the scope or sufficiency of such investigations, and the extent of appropriate mitigation measures, if required.

t. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

u. For the duration of any drought emergency declared by either Delaware or the Commission, water service or use by the docket holder pursuant to this approval shall be subject to the prohibition of those nonessential uses specified by the Governor of Delaware or DNREC, to the extent that they may be applicable, and to any other emergency resolutions or orders adopted hereafter by the Commission.

v. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

BY THE COMMISSION

APPROVAL DATE: September 16, 2015

EXPIRATION DATE: September 16, 2025

SUEZ ENVIRONMENTAL - UNITED WATER DELAWARE**OPERATING PLAN****Tidal Capture Structure (TCS) Operating Plan**

Stage 1: Natural stream flow equal to, or greater than, 47.2 mgd and chlorides immediately at the outlet of the TCS bypass structure downstream of TCS less than 250 ppm.

TCS may be operated (partial inflation and gates open) in such a fashion that natural stream flows (less 30 mgd net withdrawal) will be released to the downstream side of TCS.

Stage 2: Natural stream flow less than 47.2 mgd but greater than or equal to 17.2 mgd and chlorides immediately at the outlet of the TCS bypass structure downstream of TCS less than 250 ppm.

TCS may be operated twice daily (full inflation/deflation at tidal cycles). Minimum flow-by rate of 17.2 mgd to be maintained for the two (2), ½-hour periods daily when there is an absence of tide immediately downstream of the TCS.

Stage 3: Natural stream flow less than 17.2 mgd and chlorides immediately at the outlet of the TCS bypass structure downstream of TCS less than 250 ppm.

The TCS may be operated twice daily (full inflation/deflation at tidal cycles). Minimum flow-by rate equal to the natural stream flow will be maintained for the two (2), ½-hour periods when there is an absence of tide downstream of the TCS.

Stage 4: Natural stream flow less than 17.2 mgd or chlorides immediately at the outlet of the TCS bypass structure downstream of the TCS greater than 250 ppm.

The TCS may be fully inflated and remain inflated throughout multiple tidal cycles. Bypass gates at the TCS to be used, as necessary, to blend, supplement and maintain the pool upstream of the TCS at chloride levels less than 250 ppm (average pool concentration). No minimum flow-by is required.

SUEZ ENVIRONMENTAL - UNITED WATER DELAWARE**OPERATING PLAN****(CONTINUED)****Salinity Monitoring**

- When the natural stream flow at the Stanton WTP is equal to or less than 37 mgd for five (5) consecutive days, United Water will commence twice-weekly conductivity measurements at the bridge over the Christina River near Ciba Specialty Chemicals.

Stream Flow at Stanton WTP = (White Clay Creek Stream Flow near Newark USGS Gage No. 01479000 x 1.11) + (Red Clay Creek Stream Flow at Stanton USGS Gage No. 01480015)

- When specific conductance at the bridge over the Christina River near Ciba Specialty Chemicals correlates to 250 ppm chloride concentration, United Water will notify the Temporary Water Coordinator for New Castle County and will begin daily measurements at the DNREC Churchman's Road Boat Ramp, the downstream side of the Tidal Capture Structure (TCS) and the Stanton WTP Low Service No. 1 Pump house intake.
- When specific conductance begins to show an upward trend at the Churchman's Road Boat Ramp, United Water will notify the City of Wilmington of an impending request for water releases from Hoopes Reservoir.
- The monitoring frequency may revert back to the twice-weekly schedule at Ciba Specialty Chemicals after stream flows at the Stanton WTP exceed 37 mgd for 5 days.
- The monitoring may cease after significant rainfall events indicated chlorides are at normal background levels of around 50 ppm at the Churchman's Road Boat