Exhibit A D 77-20 (Revised) Voluntary Enhanced Conservation And Spill Mitigation Releases

New York City (City), at its sole discretion, and in cooperation with the states of New York, Delaware and the Commonwealth of Pennsylvania, will provide enhanced conservation and spill mitigation releases above the minimum releases specified in DRBC Docket D-77-20 CP Revised (Rev. 1) as follows.

1. Enhanced Conservation Releases

New York City may make enhanced conservation releases, above the specified minimum Rev. 1 releases, under normal conditions when an assessment by New York City determines that additional water is available for releases and that any risk to the City's water supply, as determined by the City at its sole discretion, is at an acceptable level.

In determining enhanced conservation releases, the City will use the Forecast-based Available Water (FAW) as advised by an OST assessment and best practices for water supply reliability in accordance with Figures 1 and 2. When the assessment indicates that no additional water is available, the City may make releases in accordance with Table 4a (Rev. 1 releases). The City is under no obligation to make enhanced releases beyond Rev. 1 releases when the risk to water supply, as determined by the City at its sole discretion, is unacceptable. Tables 4a through 4e present the releases tables under Normal conditions for pre-determined amounts of FAW.



Figure 1 New York City Delaware System Usable Combined Storage (Cannonsville, Pepacton, and Neversink Reservoirs)

The City will make available to the Delaware River Master the inputs to the OST model; the outputs from the model, including the forecasted probabilistic inflows; the status of the City Delaware Reservoirs; and the applicable operational assumptions. OST assessments shall be performed as frequently as necessary to confirm confidence in the selected FAW table but generally not less than monthly. The City shall provide the OST Summary Data described above through the River Master's website.

Figure 2 New York City Delaware System Usable Individual Storage (Cannonsville, Pepacton, and Neversink Reservoirs)



Schedule of Releases (cfs) during Normal Conditions

Table 4a Base Releases with no Forecast-based Available Water (FAW) as specified in D-77-20 CP Revised

	Column 1	Column 2 Proposed	Column 3
Reservoir and Operative Dates	Basic Conservation Release	Augmented Conservation + <u>Release</u>	Total New Conservation = Release
Neversink			
4/1 - 4/7	5 cfs	40 cfs	45 cfs
4/8 - 10/31	15	30	45
11/1 - 3/31	5	20	25
Pepacton			
4/1 - 4/7	6	64	70
4/8 - 10/31	19	51	70
11/1 - 3/31	6	44	50
Cannonsville			
4/1 - 4/15	8	37	45
4/16 - 6/14	23	22	45
6/15 - 8/15	23	302	325
8/16 - 10/31	23	22	45
11/1 - 11/30	23	10	33
12/1 - 3/31	8	25	33

Table 4bReleases with 10 mgd Forecast-based Available Water (FAW)

	Wi	nter	Sp	ring		Summer		Fall		
Cannonsville	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	1500	1500	*	*	*	1500	1500	1500	1500	1500
L1-b	400	400	*	*	*	*	400	400	400	400
L1-c	125	125	225	300	300	300	300	300	200	125
L2-a	85	85	160	235	245	245	245	235	160	85
L2-b	70	70	140	200	210	210	210	200	140	70
	Wi	nter	Sp	ring		Summer			Fall	
Pepacton	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	700	700	*	*	*	700	700	700	700	700
L1-b	300	300	*	*	*	*	300	300	300	300
L1-c	85	85	110	130	150	150	150	150	110	85
L2	55	55	75	100	110	110	110	100	75	55
	Wi	nter	Sp	ring		Summer			Fall	
Neversink	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	190	190	*	*	*	190	190	190	190	190

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* Indicates storage zone not present at this time period; release is entry in cell below

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L1-b

L1-c

L2

<u>Table 4c</u>	Releases with 20 mgd Forecast-based Available Water (FAW)
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	Winter		Spring		Summer			Fall		
Cannonsville	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	1500	1500	*	*	*	1500	1500	1500	1500	1500
L1-b	500	500	*	*	*	*	500	500	500	500
L1-c	150	200	250	300	325	325	325	325	225	150
L2-a	90	140	175	260	275	275	275	260	170	90
L2-b	80	90	150	220	240	240	240	220	145	80
	Winter		Spring			Summer		Fall		
Pepacton	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	700	700	*	*	*	700	700	700	700	700
L1-b	300	300	*	*	*	*	300	300	300	300
L1-c	100	100	110	130	150	150	150	150	125	100
L2	60	60	85	110	125	125	125	110	85	60
	Wii	ıter	Spi	ring	Summer			Fall		
Neversink	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	190	190	*	*	*	190	190	190	190	190
L1-b	125	110	*	*	*	*	150	150	150	125
L1-c	70	70	85	100	110	110	110	100	85	70

* Indicates storage zone not present at this time period; release is entry in cell below.

L2

Table 4dReleases with 35 mgd Forecast-based Available Water (FAW)

	Wi	nter	Spi	ring		Summer			Fall	
Cannonsville	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	1500	1500	*	*	*	1500	1500	1500	1500	1500
L1-b	600	600	*	*	*	*	600	600	600	600
L1-c	175	250	300	375	400	400	400	375	275	175
L2-a	110	175	225	300	325	325	325	300	210	110
L2-b	90	115	175	250	275	275	275	250	150	90

	Winter Spring			Summer		Fall				
Pepacton	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	700	700	*	*	*	700	700	700	700	700
L1-b	300	300	*	*	*	*	300	300	300	300
L1-c	100	100	110	130	150	150	150	150	125	100
L2	70	70	90	125	140	140	140	125	90	70

	Winter Spring			Summer		Fall				
Neversink	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
Storage Zone	31-Mar	30-Apr	20-May	31-May	15-Jun	30-Jun	31-Aug	15-Sep	30-Sep	30-Nov
L1-a	190	190	*	*	*	190	190	190	190	190
L1-b	125	110	*	*	*	*	150	150	150	125
L1-c	75	75	100	100	125	125	125	100	100	75
L2	50	50	70	90	100	100	100	90	75	50

* Indicates storage zone not present at this time period; release is entry in cell below.

Winter Spring Summer Fall Cannonsville Jun 16 -Dec 1 -Apr 1 -May 1 -May 21 -Jun 1 -Jul 1 -Sep 1 -Sep 16 -Oct 1 -30-Apr 31-<u>Mar</u> Storage Zone 20-May 30-Jun 31-May 15-Jun 31-Aug 15-Sep 30-Sep 30-Nov L1-a 1500 1500 1500 1500 1500 1500 1500 * * * L1-b 700 700 700 700 700 700 400 500 500 500 L1-c 200 325 400 400 325 200 L2-a 125 200 250 325 400 400 325 250 125 400 L2-b 100 150 200 275 300 300 275 150 100 300 Fall Winter Spring Summer Dec 1 May 21 Sep 16 Pepacton Apr 1 -May 1 Jun 1 Jun 16 -Jul 1 -Sep 1 -Oct 1 -Storage Zone 31-Mar 20-May 31-May 30-Apr 15-Jun 30-Jun 31-Aug 5-Sep 30-Sep 30-Nov 700 L1-a 700 700 700 700 700 700 * * * L1-b 500 500 500 500 500 500 150 150 L1-c 150 150 150 150 150 150 150 150 L2 80 80 100 125 140 140 140 140 100 80 Fall Winter Spring Summer Neversink Dec 1 Apr 1 -May 1 -May 21 -Jun 1 -Jun 16 -Jul 1 -Sep 1 -Sep 16 -Oct 1 -30-Apr Storage Zone 31-Mar 20-May 31-May 15-Jun 30-Jun 31-Aug 5-Sep 30-Sep 30-Nov 190 L1-a 190 190 190 190 190 190 * * × L1-b 125 110 150 150 150 125 * 100 100 140 140 100 L1-c 75 75 140 100 75 50 50 L2 75 90 100 100 100 90 75 50

Table 4eReleases with 50 mgd Forecast-based Available Water (FAW)

* Indicates storage zone not present at this time period; release is entry in cell below.

2. Spill Mitigation

New York City may, at its sole discretion, make releases to establish a Conditional Seasonal Storage Objective (CSSO) as defined by the rule curve in Figure 2. Consistent with good practices for water supply reservoirs, and in order to ensure that sufficient resources are available during an extended dry period to support both lower basin and NYC needs, it is essential to ensure that the City Delaware Basin Reservoirs are filled on or around June 1st every year. To accomplish this, the CSSO (boundary between the L1-b and L1-c storage zones in Figure 2) must be limited and ramped. New York City will endeavor, to the maximum extent possible without adversely affecting water supply reliability, to maintain reservoir levels at the CSSO, thus creating a high probability of maintaining 10 percent void spaces from September 1 through March 15 to help mitigate flooding events. In determining the releases needed to maintain the CSSO, the following parameters are considered in the OST evaluation: forecasted inflows over the next seven days including inflow from the snow water equivalent (snowmelt) as forecast by the National Weather Service's (NWS) Hydrological Ensemble Forecasting System (HEFS), FAW table releases in effect over the next seven days, anticipated diversions over the next seven days, and the current usable reservoir storage. Based on any projected seven-day storage surplus, the City will calculate new release volumes to progress toward the CSSO and allocate those volumes over the upcoming seven-day period within the limitations of the release works and good practices for water supply for each reservoir.

Spill mitigation releases are designed to help mitigate the effects of flooding immediately below the City Delaware Basin Reservoirs. When the combined reservoir usable storage in Figure 1 is in Zone L1, the spill mitigation zone, Figure 2 defines three zones of reservoir-specific storage (L1-a, L1-b and L1-c) relative to two rule curves for each reservoir. When combined storage is in Zone L1, releases will be made at rates up to but not exceeding Tables 4b through 4e based on reservoir-specific storage. When combined usable reservoir storage is below Zone L1, reservoir-specific storage zones as defined in Figure 2 are not applicable and the releases to be made, as set forth in the tables, are for conservation purposes only.

The City may, at its sole discretion, make spill mitigation releases from the City Delaware Basin Reservoirs in accordance with the following:

- i. If combined reservoir usable storage is in Zone L1 in accordance with Figure 1, spill mitigation releases will be calculated based upon individual reservoir usable storage in accordance with Zones L1-a, L1-b and L1-c as provided in Figure 2 and Tables 4b through 4e. HEFS will explicitly model the amount and timing of snowmelt in reservoir inflow forecasts. By incorporating the most recent City snowpack survey data, as well as the City's automated snowpack sensor network data and the NWS's meteorological forecasts into a runoff model, HEFS will determine an up to date prediction of reservoir inflows from rainfall and snowmelt.
- The NYCDEP and the New York State Department of Environmental Conservation (NYSDEC) reservoir releases managers, upon mutual agreement, may transfer spills to bottom releases to the extent possible at any reservoir.
- iii. The current National Weather Service (NWS) flood stage for the West Branch Delaware River at Hale Eddy is 11 feet. Accordingly, Zone L1 spill mitigation releases will not be made from Cannonsville Reservoir when the river stage for the West Branch Delaware River at Hale Eddy is above 9 feet, or is forecasted to be above 9 feet within 48 hours of planned spill mitigation releases, and releases shall be made in accordance with Zone L2 as provided in Table 4a.
- iv. The current NWS flood stage for the East Branch Delaware River at Fishs Eddy is 13 feet. Accordingly, Zone L1 spill mitigation releases will not be made from Pepacton Reservoir when the river stage for the East Branch Delaware River at Fishs Eddy is above 11 feet or is forecast to be above 11 feet within 48 hours of planned spill mitigation releases, and releases shall be made in accordance with Zone L2 as provided in Table 4a.
- v. The current NWS flood stage for the Neversink River at Bridgeville is 13 feet. Accordingly, Zone L1 spill mitigation releases will not be made from Neversink Reservoir when the river stage for the Neversink River at Bridgeville is above 12 feet, or is forecast to be above 12 feet within 48 hours of planned spill mitigation releases, and

releases shall be made in accordance with Zone L2 as provided in Table 4a.

- vi. Spill mitigation releases may be suspended from the respective reservoir if NYCDEP and NYSDEC, in consultation with the NWS, determine that ice conditions threaten flood prone areas of the West Branch Delaware River below Cannonsville Reservoir, East Branch Delaware River below Pepacton Reservoir, or Neversink River below Neversink Reservoir.
- vii. Spill mitigation releases will be designed so that the combined discharge from each reservoir's controlled release works and spillway does not exceed the maximum rate given in Table 5 below. Respective controlled releases will be reduced to basic conservation releases in Tables 4a.
- viii. To more naturally effect downward or upward transitions between spill mitigation releases rates identified in Tables 4b through 4e, spill mitigation releases rates may be ramped, in cooperation with NYSDEC, generally over a period of three days at Cannonsville and Pepacton Reservoirs, and two days at Neversink Reservoir or up to seven days to avoid unreasonable fluctuations in releases.

Table 5Maximum Combined Discharge Rates

Reservoir	Maximum Combined Discharge Rate (cfs)
Neversink	3,400
Pepacton	2,400
Cannonsville	4,200