

Progress of OST Table Development

Brenan Tarrier

New York State Dept. of
Environmental Conservation

March 8th, 2011

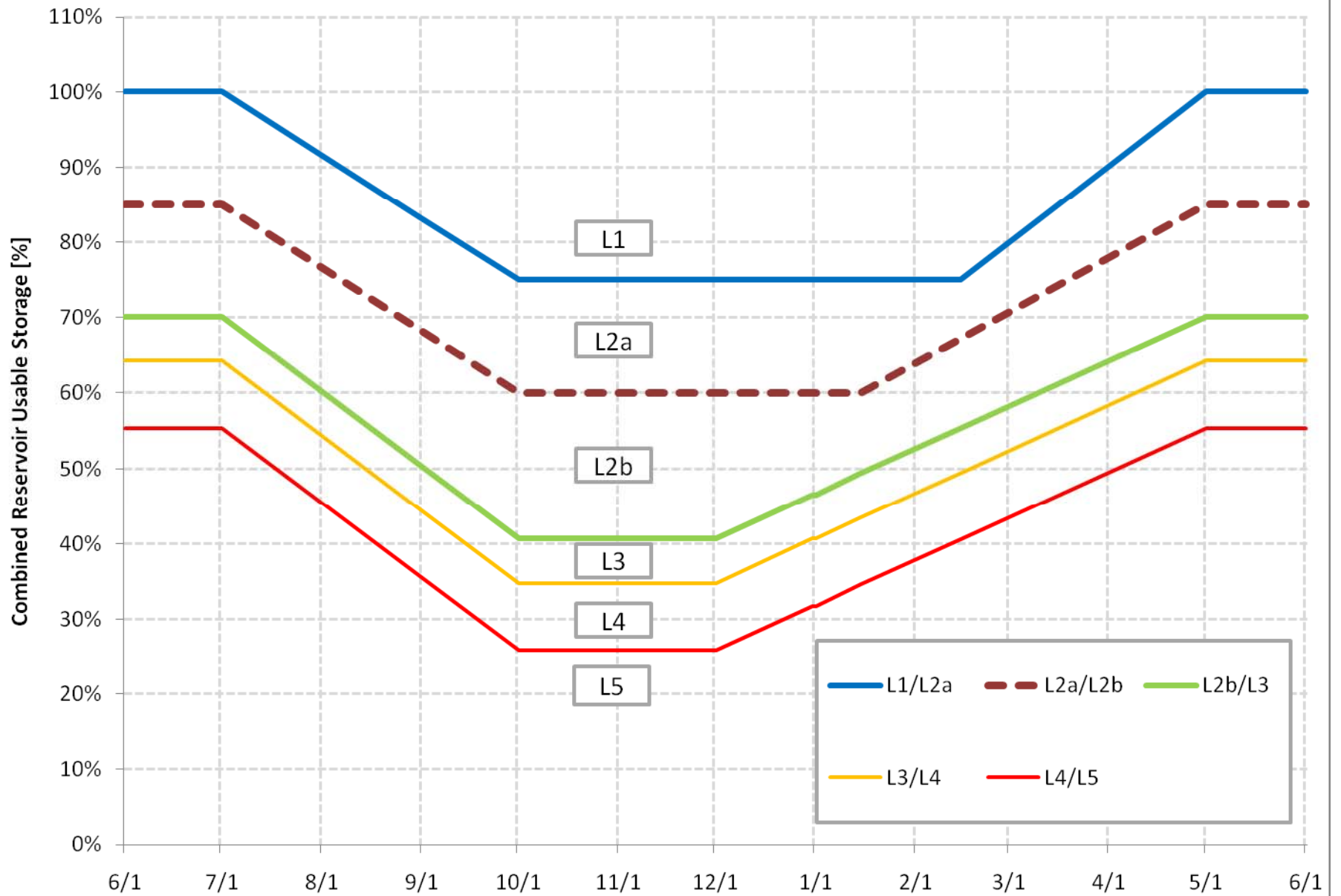
Goals and Constraints

- Target of PFBC/NYSDEC White Paper releases
 - “Joint Fisheries White Paper” (JFWP)
- Each table developed to be drought risk-neutral (drought days) with respect to stated water availability
- Equal or greater likelihood of voids being present at any given time

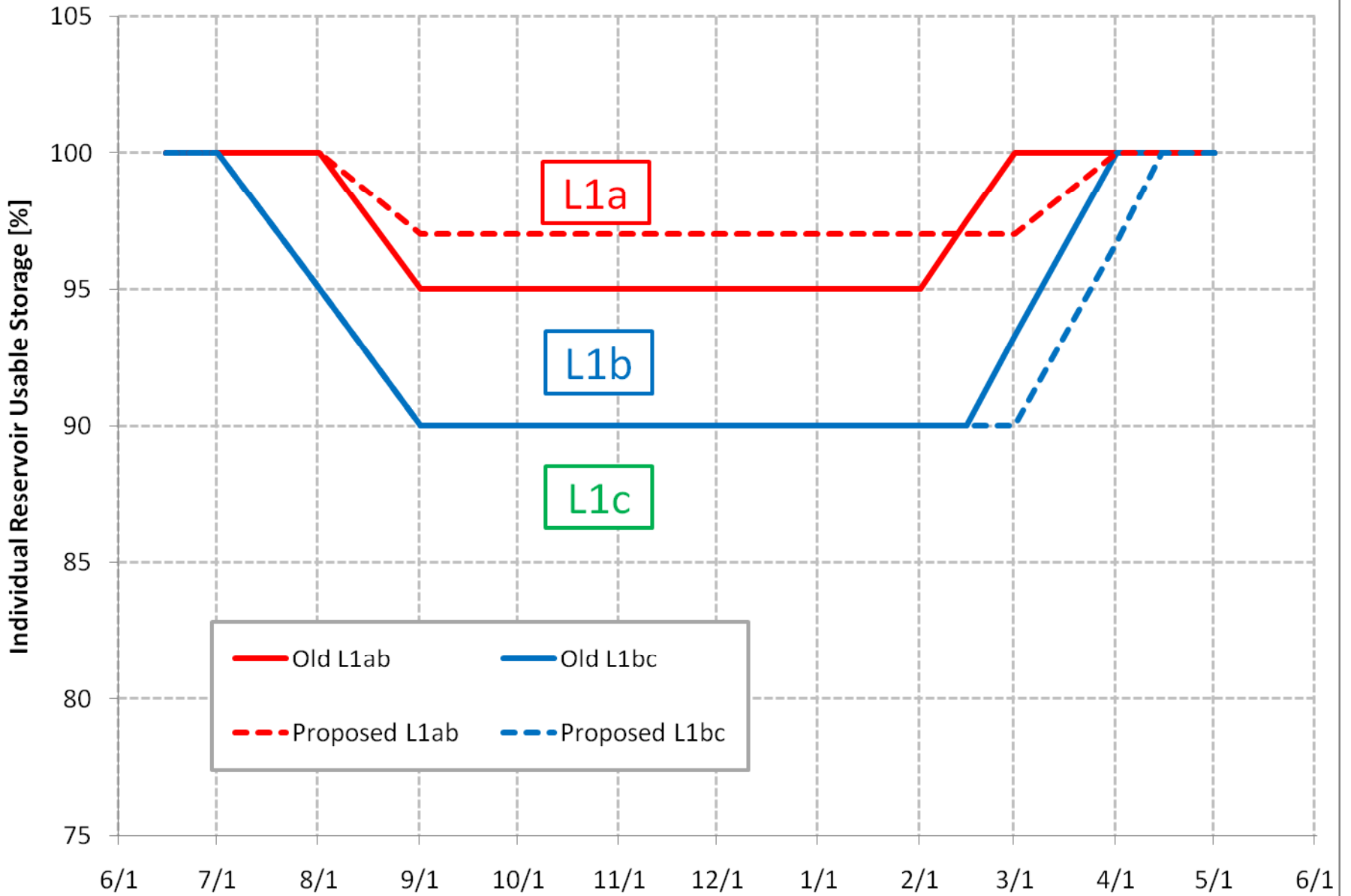
Assumption changes from FFMP

- Summer Release Program Concepts
 - Seasonal Increment to Montague Flow Objective eliminated
 - ERQ allocation
- Salt Front Vernier reattachment
- Splitting of Storage Zone L2
- Shifting L1a & L1b zones

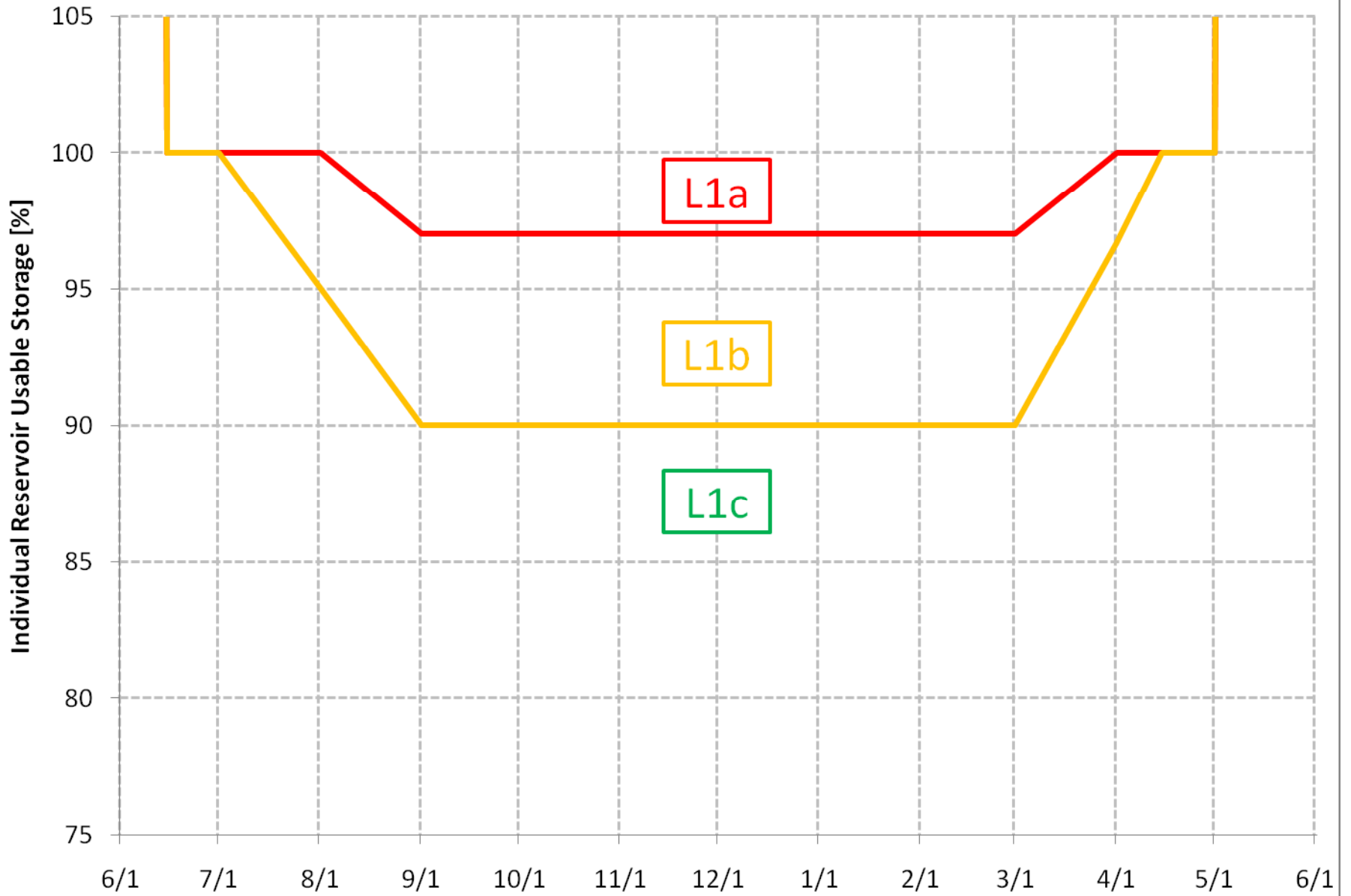
Combined System Usable Storage Zones - Revised for OST



Individual Reservoir Usable Storage Curves - Proposed Changes



Individual Reservoir Usable Storage Zones - Revised for OST



Drought Operations (L3-L5)

All OST Tables were generated using the same L3-L5 releases

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	55	55	85	85	135	135	135	85	85	55
L4	50	50	60	60	100	100	100	50	50	50
L5	40	40	40	40	90	90	90	40	40	40

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	45	45	60	60	75	75	75	45	45	45
L4	40	40	50	50	65	65	65	40	40	40
L5	35	35	35	35	60	60	60	35	35	35

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	30	30	40	40	55	55	55	30	30	30
L4	25	25	30	30	45	45	45	25	25	25
L5	20	20	20	20	40	40	40	20	20	20

Drought Operations (L3-L5)

OST L3-L5 releases are lower than FFMP-35 L3-L5

OST L3-L5

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	55	55	85	85	135	135	135	85	85	55
L4	50	50	60	60	100	100	100	50	50	50
L5	40	40	40	40	90	90	90	40	40	40

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	45	45	60	60	75	75	75	45	45	45
L4	40	40	50	50	65	65	65	40	40	40
L5	35	35	35	35	60	60	60	35	35	35

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	30	30	40	40	55	55	55	30	30	30
L4	25	25	30	30	45	45	45	25	25	25
L5	20	20	20	20	40	40	40	20	20	20

FFMP-35

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	70	70	100	100	175	175	175	95	95	70
L4	55	55	75	75	130	130	130	55	55	60
L5	50	50	50	50	120	120	120	50	50	50

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	55	55	80	80	100	100	100	55	55	55
L4	45	45	50	50	85	85	85	40	40	40
L5	40	40	40	40	80	80	80	30	30	30

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	40	40	50	50	75	75	75	40	40	40
L4	35	35	40	40	60	60	60	30	30	30
L5	30	30	30	30	55	55	55	25	25	25

Drought Operations (L3-L5)

OST L3-L5 releases are generally higher than FFMP-0 L3-L5

OST L3-L5

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	55	55	85	85	135	135	135	85	85	55
L4	50	50	60	60	100	100	100	50	50	50
L5	40	40	40	40	90	90	90	40	40	40

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	45	45	60	60	75	75	75	45	45	45
L4	40	40	50	50	65	65	65	40	40	40
L5	35	35	35	35	60	60	60	35	35	35

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	30	30	40	40	55	55	55	30	30	30
L4	25	25	30	30	45	45	45	25	25	25
L5	20	20	20	20	40	40	40	20	20	20

FFMP-0

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	51	51	73	73	128	128	128	69	69	51
L4	40	40	55	55	95	95	95	40	40	44
L5	37	37	37	37	88	88	88	37	37	37

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	40	40	58	58	73	73	73	40	40	40
L4	33	33	37	37	62	62	62	29	29	29
L5	29	29	29	29	58	58	58	22	22	22

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L3	29	29	37	37	55	55	55	29	29	29
L4	26	26	29	29	44	44	44	22	22	22
L5	22	22	22	22	40	40	40	18	18	18

OST Base Sustainable (0 MGD Available) L1 & L2

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
	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	110	110	200	250	275	275	275	275	175	110
L2-a	75	75	150	200	225	225	225	225	150	75
L2-b	60	60	135	175	190	190	190	190	135	60

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
	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	100	85
L2	50	50	75	90	100	100	100	100	60	50

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 -	Apr 1 -	May 1 -	May 21 -	Jun 1 -	Jun 16 -	Jul 1 -	Sep 1 -	Sep 16 -	Oct 1 -
	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	65	65	85	100	110	110	110	100	75	65
L2	35	35	55	65	75	75	75	65	50	35

OST-10 L1 & L2

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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
L2	40	40	60	75	80	80	80	75	60	40

OST-20 L1 & L2

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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
L2	45	45	65	80	90	90	90	80	65	45

OST-35 L1 & L2

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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

OST-50 L1 & L2

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L1-a	1500	1500	*	*	*	1500	1500	1500	1500	1500
L1-b	700	700	*	*	*	*	700	700	700	700
L1-c	200	325	400	400	500	500	500	400	325	200
L2-a	125	200	250	325	400	400	400	325	250	125
L2-b	100	150	200	275	300	300	300	275	150	100

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L1-a	700	700	*	*	*	700	700	700	700	700
L1-b	500	500	*	*	*	*	500	500	500	500
L1-c	150	150	150	150	150	150	150	150	150	150
L2	80	80	100	125	140	140	140	140	100	80

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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	140	140	140	100	100	75
L2	50	50	75	90	100	100	100	90	75	50

OST-75 L1 & L2

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L1-a	1500	1500	*	*	*	1500	1500	1500	1500	1500
L1-b	700	700	*	*	*	*	700	700	700	700
L1-c	225	475	475	525	600	600	600	475	375	225
L2-a	150	400	400	450	525	525	525	400	300	150
L2-b	100	150	200	275	300	300	300	275	200	100

Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L1-a	700	700	*	*	*	700	700	700	700	700
L1-b	500	500	*	*	*	*	500	500	500	500
L1-c	150	150	150	150	150	150	150	150	150	150
L2	100	100	100	125	140	140	140	140	100	100

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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	140	140	140	100	100	75
L2	55	55	90	90	110	110	110	90	90	55

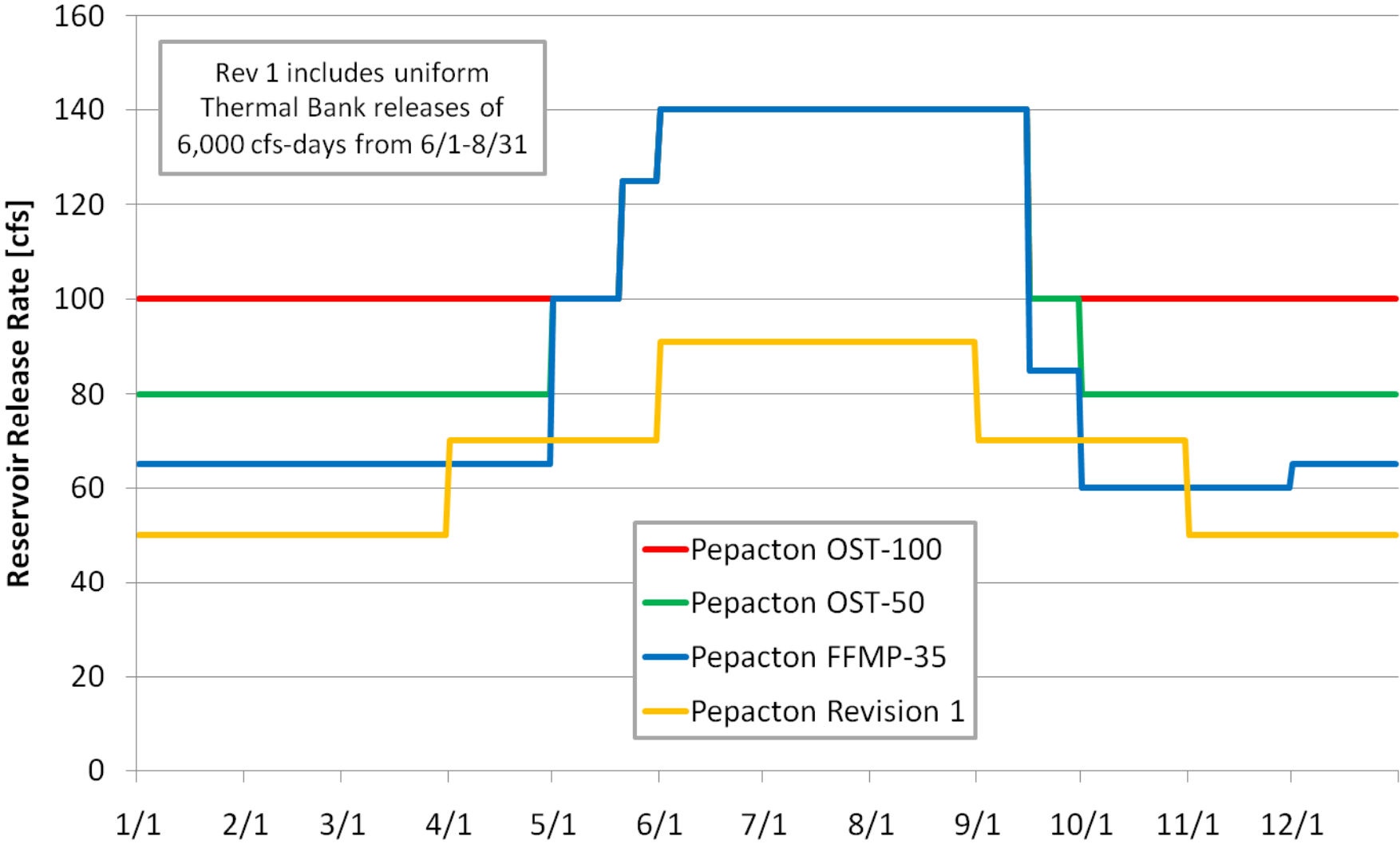
OST-100 L1 & L2

Cannonsville Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L1-a	1500	1500	*	*	*	1500	1500	1500	1500	1500
L1-b	700	700	*	*	*	*	700	700	700	700
L1-c	225	475	475	525	600	600	600	475	375	225
L2-a	150	400	400	450	525	525	525	400	300	150
L2-b	150	400	400	450	525	525	525	400	300	150

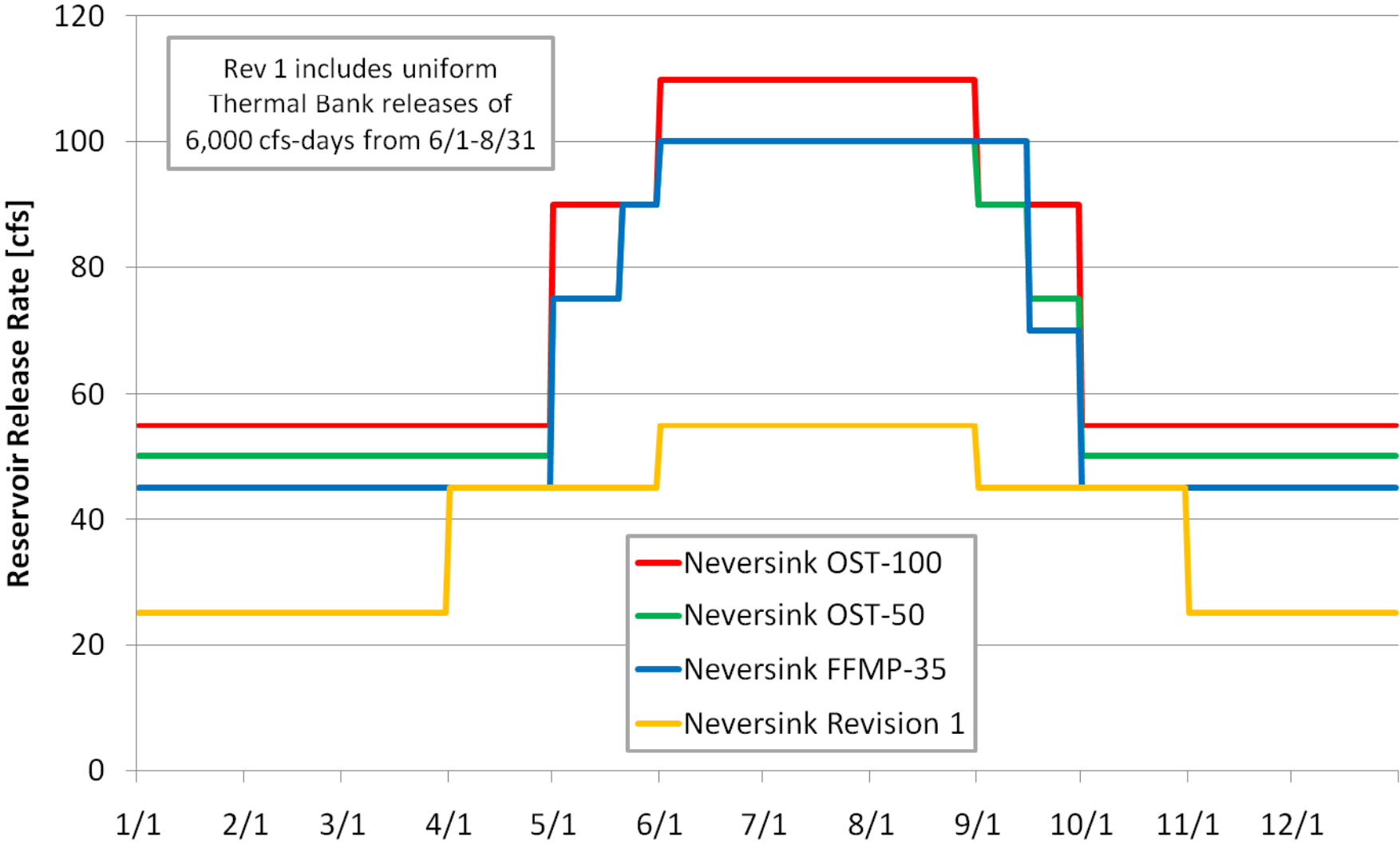
Pepacton Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 30-Nov
L1-a	700	700	*	*	*	700	700	700	700	700
L1-b	500	500	*	*	*	*	500	500	500	500
L1-c	150	150	150	150	150	150	150	150	150	150
L2	100	100	100	140	140	140	140	140	100	100

Neversink Storage Zone	Winter		Spring		Summer			Fall		
	Dec 1 - 31-Mar	Apr 1 - 30-Apr	May 1 - 20-May	May 21 - 31-May	Jun 1 - 15-Jun	Jun 16 - 30-Jun	Jul 1 - 31-Aug	Sep 1 - 15-Sep	Sep 16 - 30-Sep	Oct 1 - 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	140	140	140	100	100	75
L2	55	55	90	90	110	110	110	90	90	55

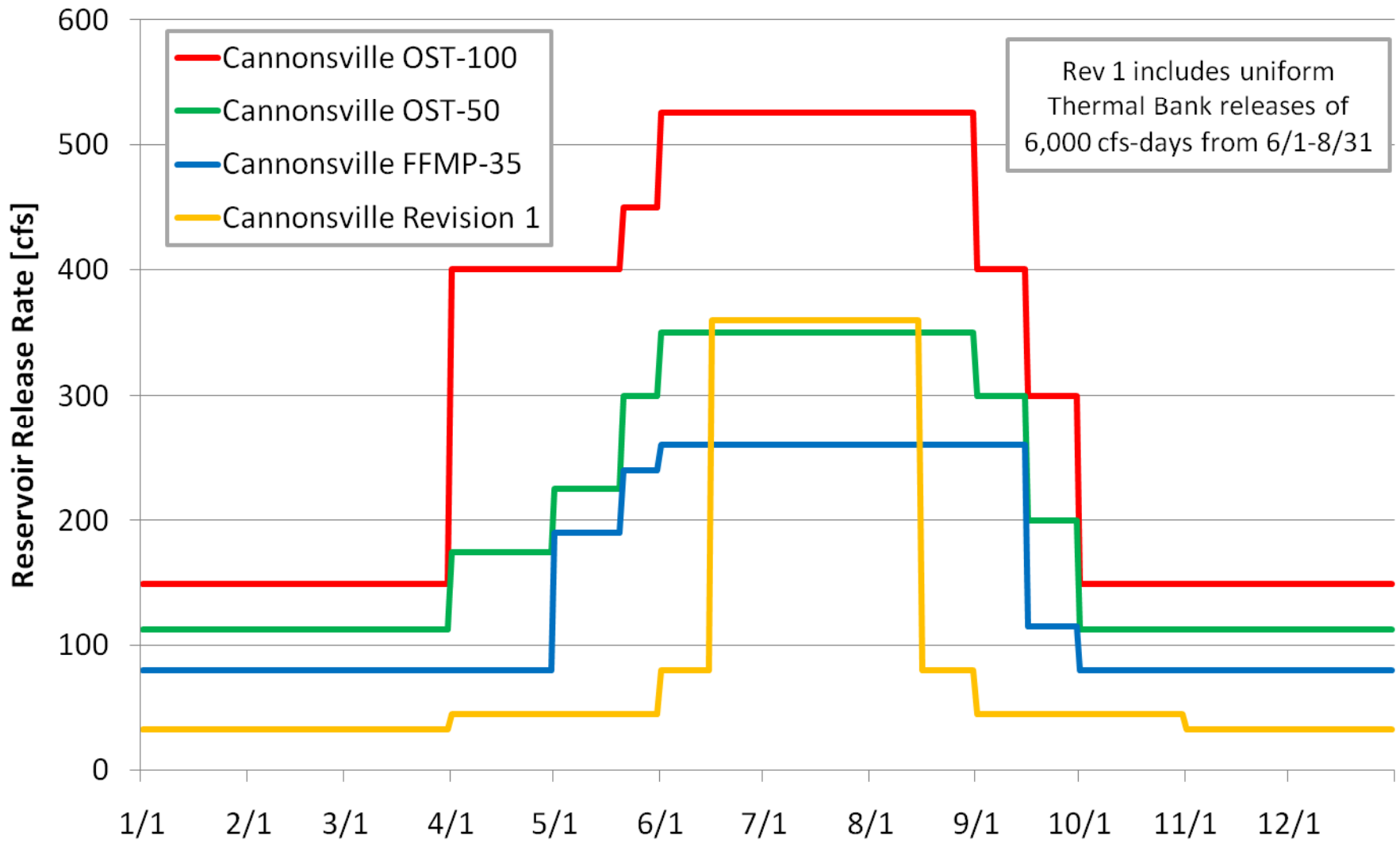
Comparison of Operating Plans Releases Under Normal Storage Conditions Pepacton Reservoir



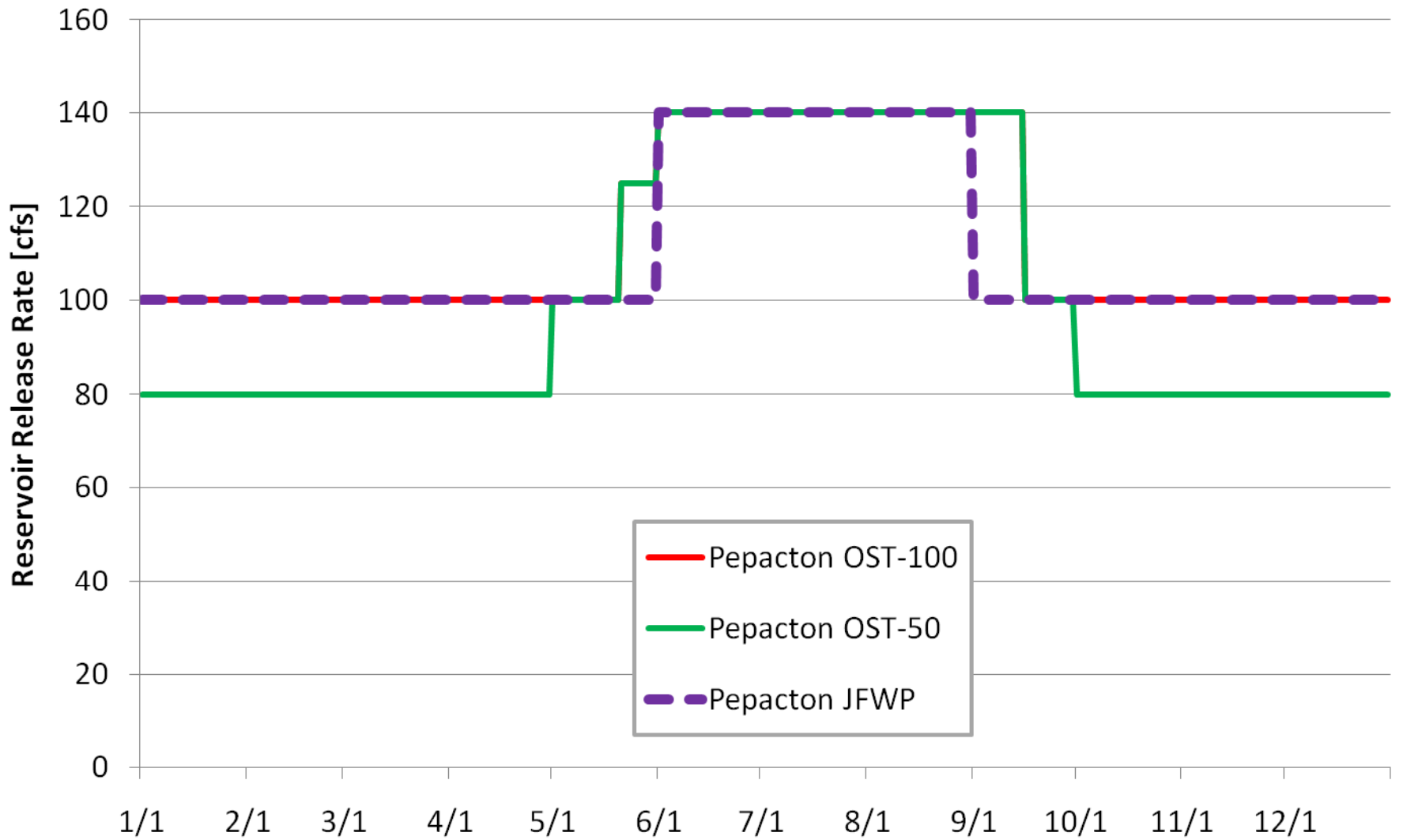
Comparison of Operating Plans Releases Under Normal Storage Conditions Neversink Reservoir



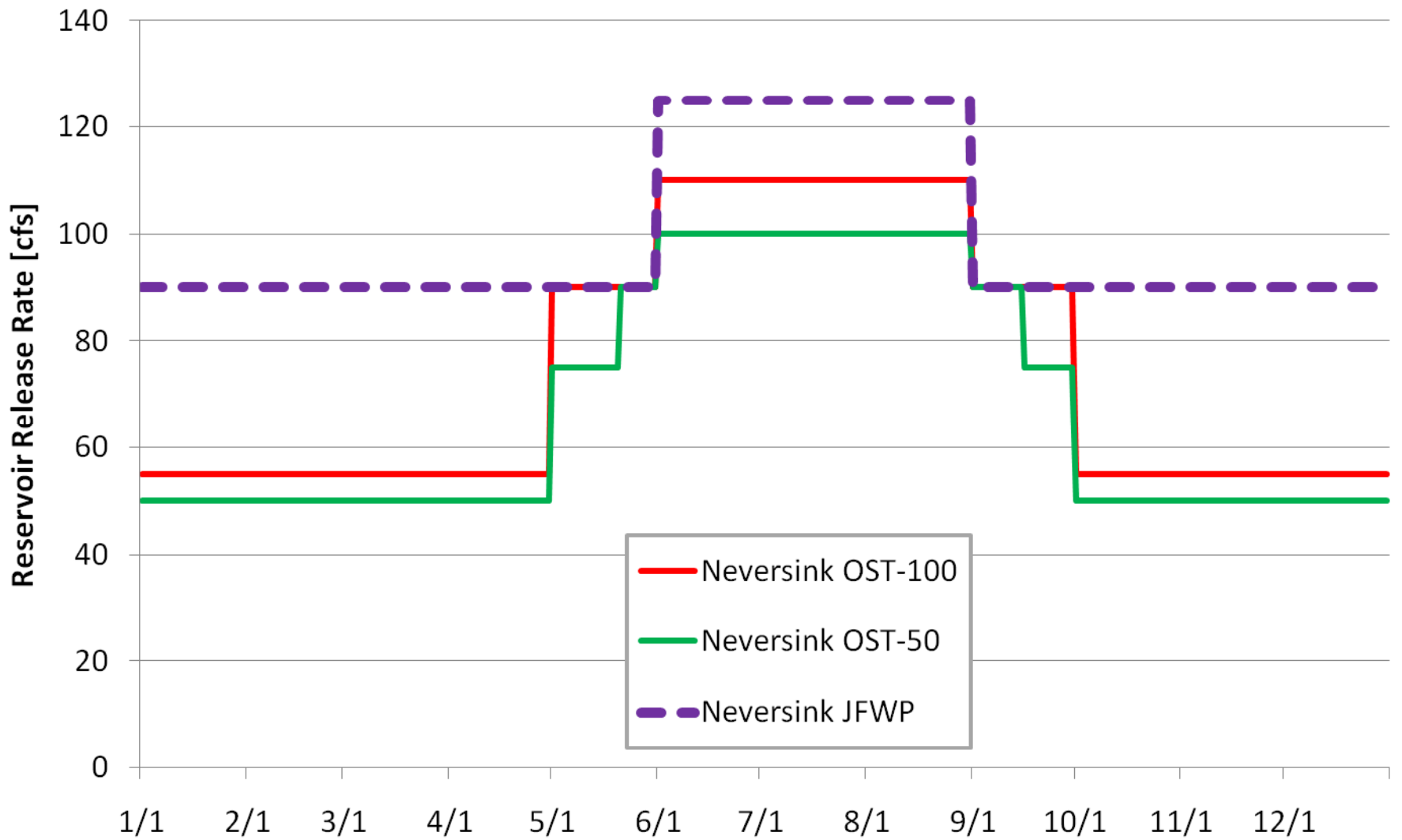
Comparison of Operating Plans Releases Under Normal Storage Conditions Cannonsville Reservoir



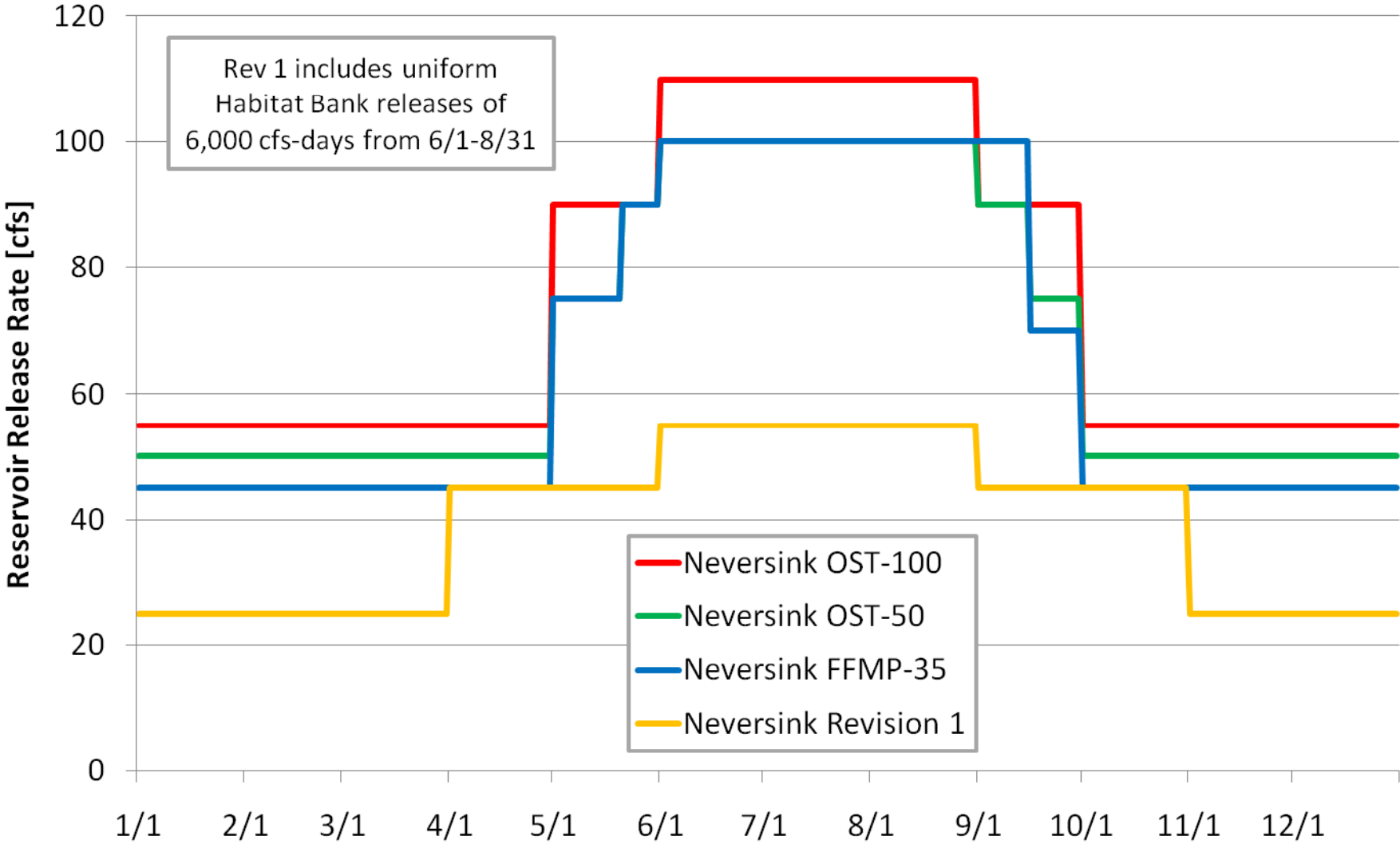
Comparison of OST & NYSDEC/PFBC White Paper ("JFWP") Releases Under Normal Storage Conditions Pepacton Reservoir



Comparison of OST & NYSDEC/PFBC White Paper ("JFWP") Releases Under Normal Storage Conditions Neversink Reservoir



Comparison of Operating Plans Releases Under Normal Storage Conditions Neversink Reservoir



Comparison of OST & NYSDEC/PFBC White Paper ("JFWP") Releases Under Normal Storage Conditions Cannonsville Reservoir

