



Appendix D

Back-to-Back Storms Analysis



**US Army Corps
of Engineers**
Norfolk District

Chesapeake
VIRGINIA

Department of Public Works

URS

Table D-1. Back-to-Back Storms Analysis

Back-to-Back 10-Year Storm Analysis													
SWMM Storage Node	Ground Elevation (ft)	Maximum Storage Capacity (ft ³)	Initial Water Surface Elevation (ft)	Dead Storage Vol., Before Storm (ft ³)	Available Net Storage Capacity, Before Storm (ft ³)	Peak Water Surface Elevation (ft)	Peak Storage Vol., During Storm (ft ³)	Peak Storage Vol. Minus Dead Storage, During Storm (ft ³)	Final Water Surface Elevation (ft)	Vol. In Storage, After 48-hrs (ft ³)	Vol. In Storage Minus Dead Storage, After 48-hrs (ft ³)	Available Net Storage Recovered in 48 Hours (%)	Available Net Storage Used (%)
186	15.80	48,212,621	10.50	41,565,500	6,647,121	11.42	42,680,396	1,114,896	11.42	42,680,396	1,114,896	0%	17%
194	11.50	55,489,606	10.10	52,120,338	3,369,268	10.72	53,603,339	1,483,001	10.72	53,603,339	1,483,001	0%	44%
216	13.20	15,490,334	11.30	14,021,837	1,468,496	12.00	14,558,854	537,016	11.51	14,182,451	160,614	70%	37%
290	10.00	92,425,600	4.00	72,388,096	20,037,504	5.84	78,347,265	5,959,169	5.45	77,070,464	4,682,368	21%	30%
386	12.80	1,310,467	7.80	616,793	693,674	9.98	890,088	273,295	8.00	639,988	23,195	92%	39%
390	12.80	492,410	7.80	222,750	269,660	9.57	306,736	83,987	7.95	229,379	6,630	92%	31%
396	9.80	638,529	4.80	419,854	218,675	7.09	520,007	100,153	4.82	420,729	875	99%	46%
402	11.30	1,366,830	5.30	571,617	795,213	6.98	762,611	190,994	5.53	596,310	24,693	87%	24%
462	10.00	1,273,208	4.80	540,184	733,024	7.62	907,580	367,396	4.93	555,551	15,367	96%	50%
490	11.80	2,335,157	2.90	584,807	1,750,350	6.29	1,125,993	541,186	3.71	700,073	115,267	79%	31%
494	11.30	2,028,194	2.90	521,513	1,506,681	5.94	961,298	439,785	3.71	626,998	105,486	76%	29%
538	12.00	416,478	8.50	263,635	152,843	12.00	416,478	152,843	8.66	269,896	6,261	96%	100%
594	11.80	2,688,532	6.80	1,709,762	978,771	10.75	2,466,033	756,272	7.07	1,757,394	47,632	94%	77%
610	8.00	508,855	5.00	301,703	207,152	8.00	508,855	207,152	5.07	306,109	4,406	98%	100%
618	11.40	778,268	6.40	390,143	388,126	10.67	714,637	324,494	7.07	435,669	45,526	86%	84%
690	10.10	299,195	5.80	148,968	150,227	7.01	186,123	37,155	5.88	151,300	2,333	94%	25%
696	9.80	958,544	6.20	614,482	344,061	8.25	802,272	187,789	6.22	616,211	1,728	99%	55%
698	10.00	374,612	8.20	270,626	103,986	9.43	339,858	69,232	8.25	273,286	2,661	96%	67%
772	12.00	1,060,276	7.00	569,768	490,509	8.92	745,655	175,888	7.01	570,644	876	100%	36%
828	11.30	1,262,070	4.60	573,391	688,679	7.36	834,069	260,678	4.82	592,987	19,596	92%	38%
848	8.10	59,641	5.10	27,597	32,044	8.13	60,021	32,424	5.16	28,121	525	98%	101%
882	8.10	358,767	3.90	196,241	162,527	6.26	281,855	85,615	4.04	200,911	4,670	95%	53%
906	5.30	777,405	1.80	495,240	282,165	4.64	719,504	224,264	3.55	628,655	133,415	41%	79%