

**APPENDIX K**  
**Water Storage Requirement**  
**for Alternative 2**

# Community System Flows

	# of Homes (ERC <sup>1</sup> )	Per Diem Water Use Gallons
Fentress	1	400
Blue Ridge	3	400
Centerville	15	400
Murray	42	400
Whittanore	34	400
Unaccounted Additional	5	400
Summation	100	400

Year	Service Connections	Daily Pumpage	(Gallons/connection/day) typ.
2009	100	400,000	avg. gpd
		27,78	avg. gpm
		120,000	(max day) gpd
		83.33	(max day) gpm
		240,000	(peak hour) gpd
		166.67	(peak hour) gpm
		139.61	(peak hour) gpm

(Using Peak Factor of 3.00)  
 (Using Peak Factor of 3.00)  
 (Using Peak Factor of 6.00)  
 (Using Peak Factor of 6.00)  
 Using VDH equation (below)  
 $= 11.4 \times N^{0.554}$

Peaking Factors Max Day: Avg Day 1.2 to 3	3
Peaking Factors Peak Hour: Avg Day 3 to 6	6

Year	Projected Daily Pumpage
Future	40,000 avg. gpd
	120,000 (max day) gpd
	201,033 (peak hour) gpd

(Existing average day demand summed with projected growth demand)  
 (Using Peak Factor of 3.0)  
 Using VDH Equation

<b>Fire Protection</b>	120,000	gallons	City of Chesapeake
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Method	Peak Hour Equalization Reserve	gallons - equalization storage reserve -VDH Requirement
200/ERC	20,000	gallons - equalization storage reserve -VDH Requirement

Emergency Reserve <sup>2</sup>	gallons
Method 1: 100% of average daily demand	20,000
Method 2: 100% of average daily demand	24,000
Method 3: 25% of total storage capacity	20,000
Method 4: 25% of total storage capacity	20,000

(Not Required)

<b>Total Storage Required</b>	120,000	gallons
<b>Total Storage Presently Available</b>	0	gallons
<b>Additional Storage Needed</b>	120,000	gallons

(sum of check marked entries)

<sup>1</sup> Equivalent Residential Connection  
<sup>2</sup> The amount of emergency storage included within a particular water distribution system is an owner option based on an assessment of risk and the desired degree of system dependability. An assessment must be made of the type and nature of emergency conditions, including their frequency, intensity, and duration.