HARRISONBURG WATER

PLANT EVENT

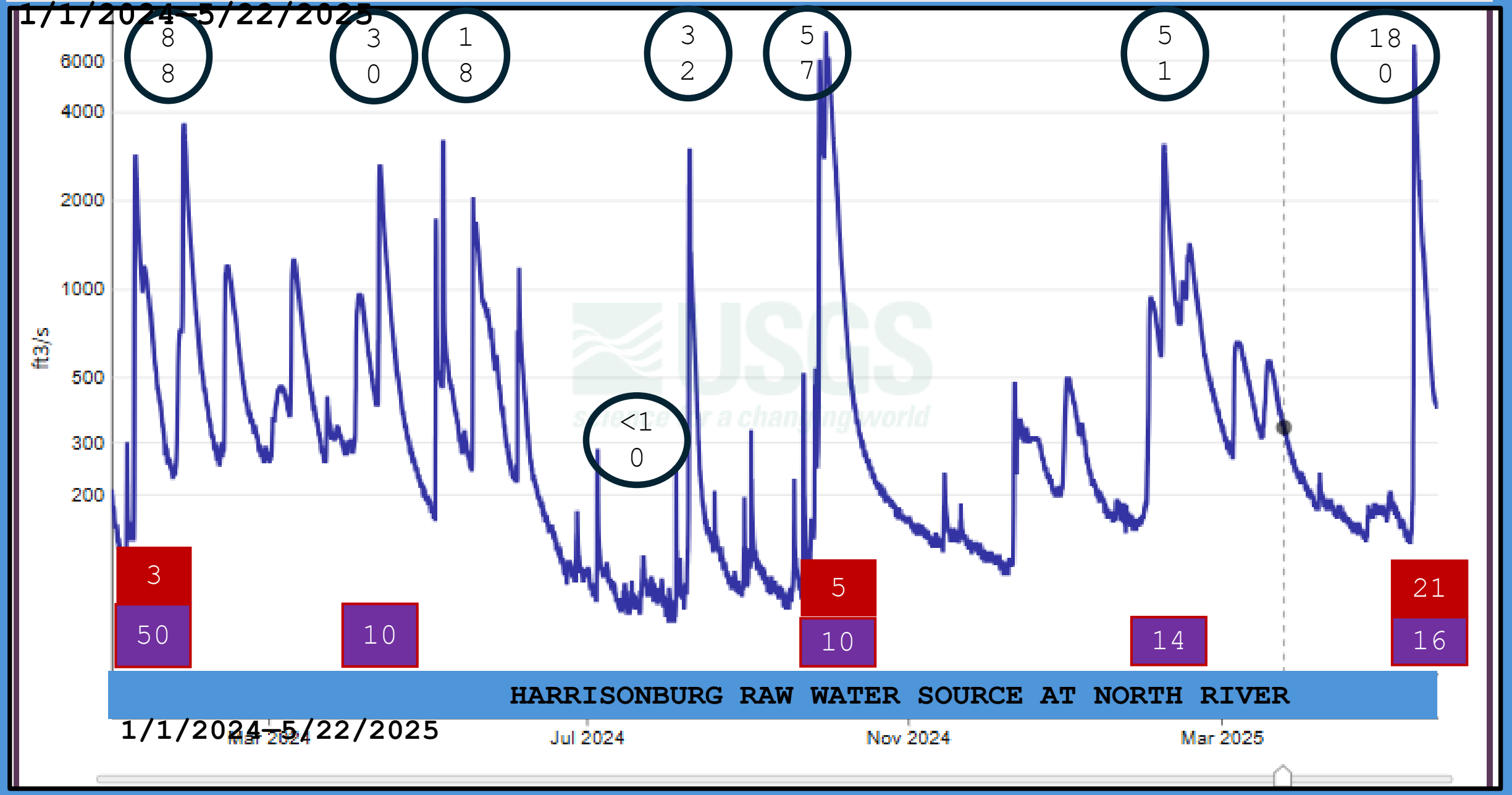
Sec. 7-2-19. - Conservation of water during emergencies or drought.

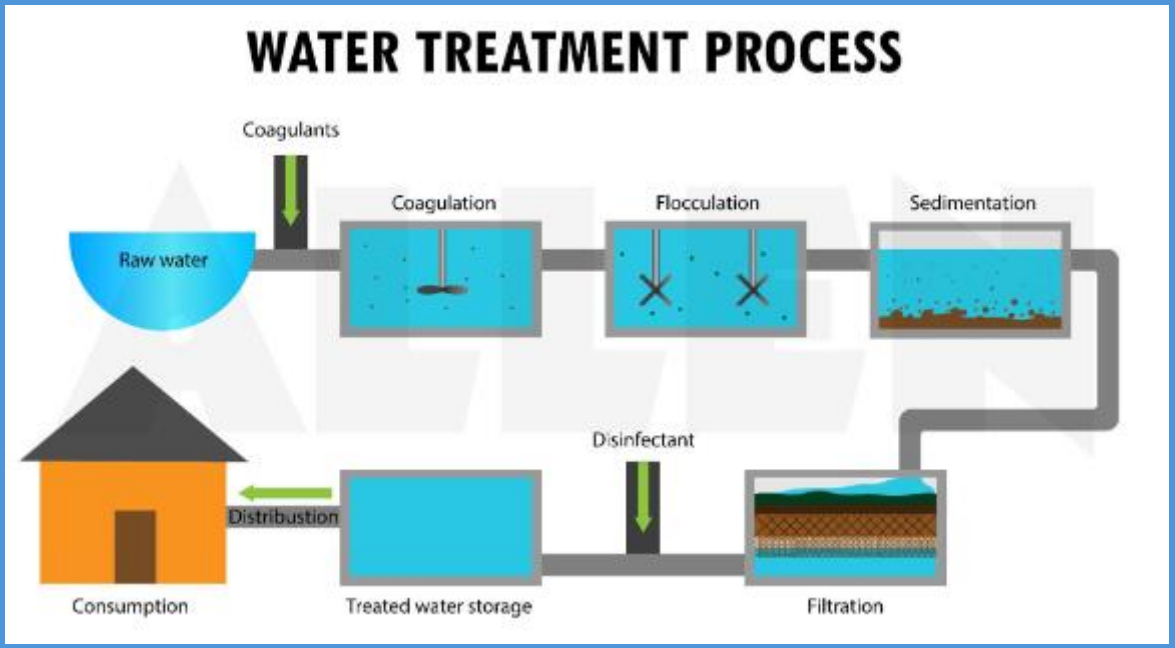
2010, 2016,2019

(a) *Emergency water shortages ordinance.* The director of public utilities shall prepare and oversee an action plan to implement conservation activities as necessary to preserve sufficient supplies of water for the citizens of the city. In the event of abrupt shortages, the director of public utilities may establish conservation activities for selected water customer groups, or the city wide water customer base, which conservation measures shall be typical for the water supply industry. This is further defined as limitations and restrictions to the uses of water that are supported by state agencies that regulate public water delivery and organizations such as the American Water Works Association. The director of public utilities shall implement these conservation activities by direct contact with customers or by distribution and publication through local media, which shall include newspapers, radio, television or city information sites. The director of public utilities shall report to city council any conservation activities implemented under this emergency water shortage ordinance at its next regular council meeting.

HARRISONBURG RAW WATER SOURCE AT NORTH RIVER

1/1/2024-5/22/2025





COAGULATION

Alum **+ Alkalinity** to make the reaction

Natural alkalinity vs feed alkalinity

Dosage is specific for the water characteristics

SEDIMENTATION

Remove the precipitate (bottom=20 minutes)

Facilities require cleaning multi-monthly

FILTRATION

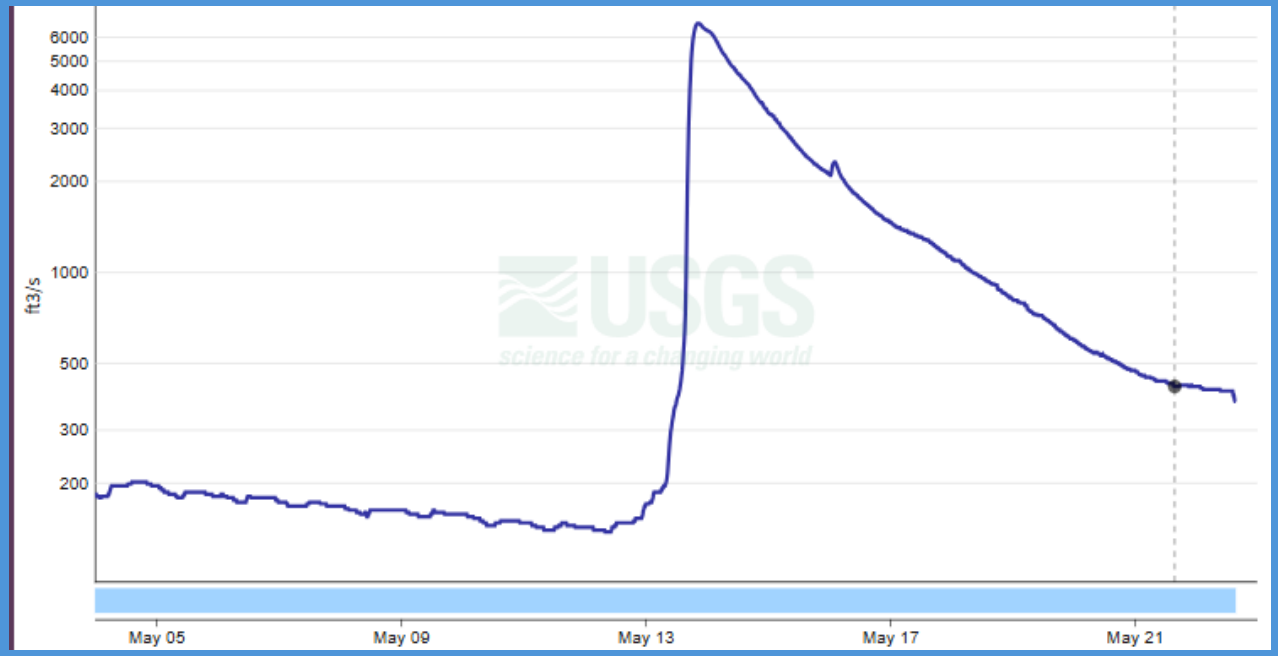
Remove the small particles in the supernatant (top)

30 hours operations then **requires cleaning**

CAUSE: HARRISONBURG WATER PLANT

EVENT MAY 12 2025

	Low Alkalinity	Medium Alkalinity	High Alkalinity
High Turbidity	**Rainwater Runoff**		
Medium Turbidity			
Low Turbidity	**Rawley Springs**	**North**	



The rains of May 12 quickly moved the Harrisonburg water sources to the characteristics of rainwater runoff

The recovery period created a moving coagulation target for an extended period of time

EFFECTS: HARRISONBURG WATER PLANT

EVENT MAY 12 2025

Typical week: consistent treatment & 11 MG minimum storage

Shutdowns & 6 MG storage

Recovery

Primary Effect: Less efficient coagulation created more extensive filtration cleaning & backwash volume

Secondary Effect: Disposal of backwash required plant shutdown & partial shutdowns

Tertiary Effect: Shutdowns created distribution storage depletion during 10+MGD demand!!!

ACTION: HARRISONBURG WATER PLANT

EVENT MAY 12 2025

ACTION #1: UPGRADE THE WTP BACKWASH HANDLING SYSTEM

ACTION #2: REINVEST INTO ADDED EVALUATION OF ALTERNATIVE COAGULANTS AND COAGULANT AIDS (ALKALINITY)—unsuccessful in past & limited by equipment

	Low Alkalinity	Medium Alkalinity	High Alkalinity
High Turbidity	Rainwater Runoff		
Medium Turbidity		South Fork	
Low Turbidity	Rawley Springs	North	Groundwater

ACTION #3: RWSM Plan
…2026 South Fork Shenandoah
…2040 Drought Augmentation

ACTION #4: CIP:WTP 2044-
85% VDH
…5% growth
…5 days-2 days demand pattern
…13.1 MGD * 5 gpm