

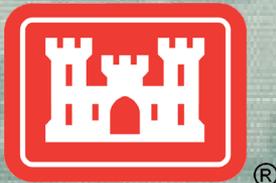
DAM SAFETY

Andrew Brooks, P.E.

Norfolk District

U.S. Army Corps of Engineers

June 5, 2019



US Army Corps of Engineers
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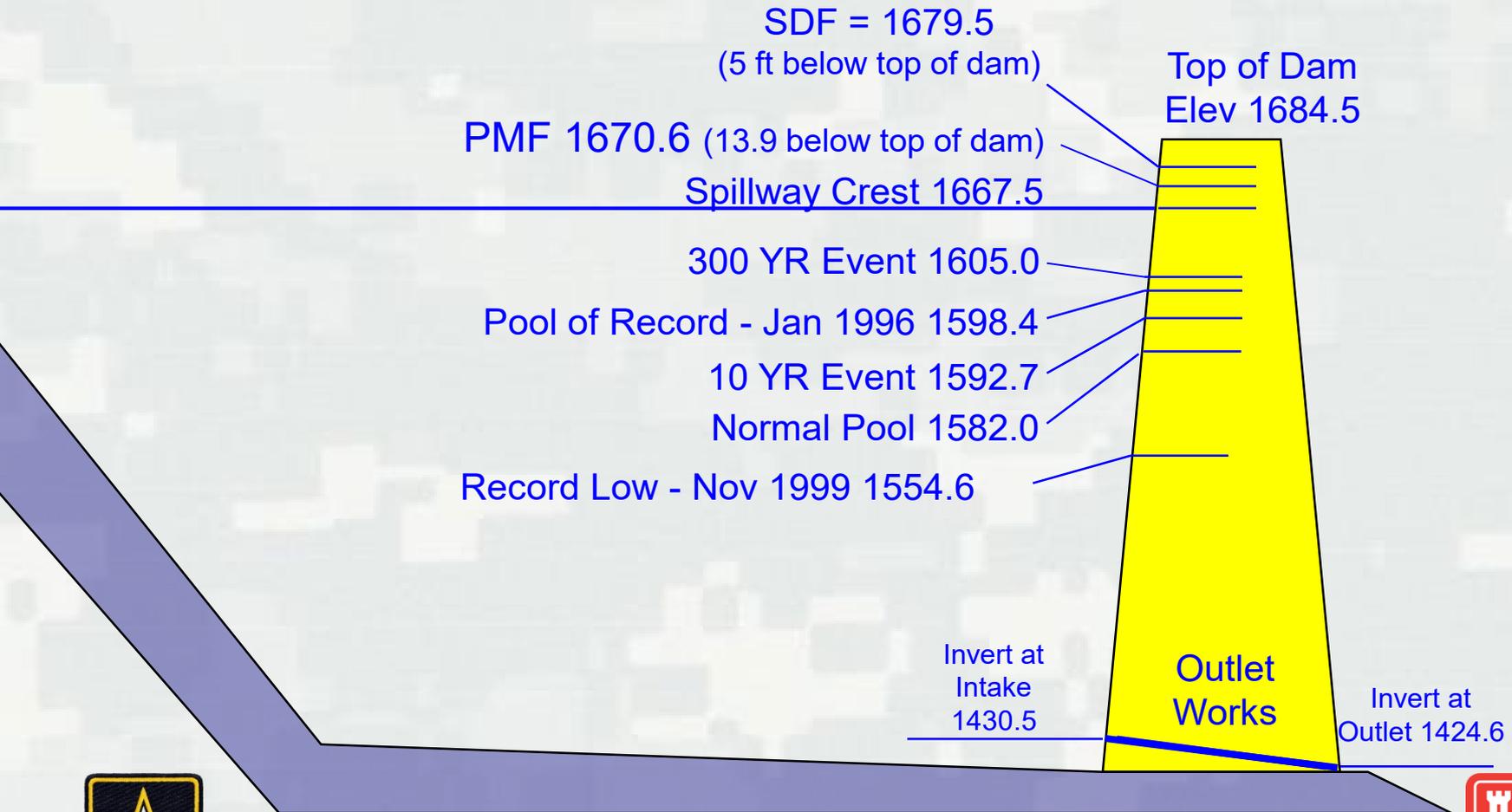


Project History

- Reservoir authorized for construction by Congress in the Flood Control Act of 1946
- 1967-1968: Construction started with rock removal at the abutments contacts, opening of test quarry and constructing test fills.
- 1970-1975: Tower, Bridge, Diversion Tunnel and Stilling Basin
- 1973-1979: Embankment Fill, Emergency Spillway and Foundation Rock Preparation
- Construction operationally completed in 1979
- Filling of Reservoir from December 1979 to April 1982



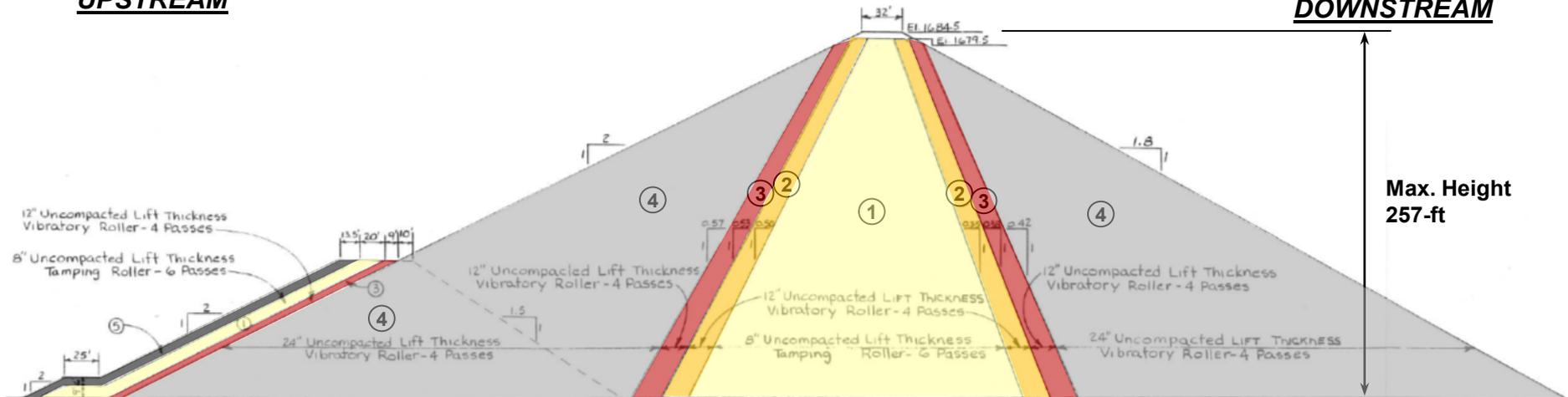
Significant Elevations



Typical Dam Cross Section

UPSTREAM

DOWNSTREAM



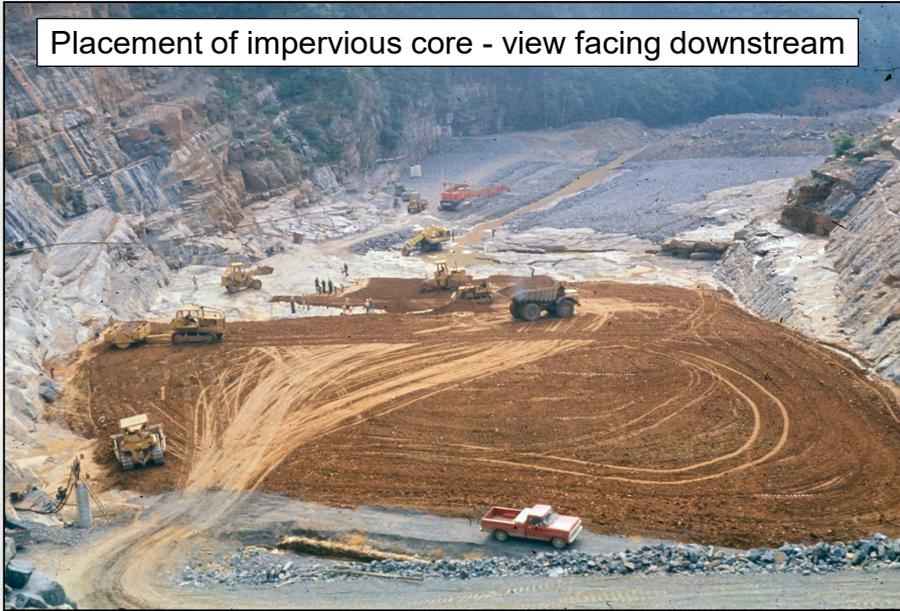
EMBANKMENT MATERIALS

- ZONE ① Impervious Core: *clayey silts and silty clays*
- ZONE ② Transition Material No. 1: *sand-gravel size material*
- ZONE ③ Transition Material No. 2: *quarry spall material (2"-6" size)*
- ZONE ④ Rock Shell: *up to 16"*
- ZONE ⑤ Dumped Rock



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Placement of impervious core - view facing downstream



Embankment construction - view from LT abutment



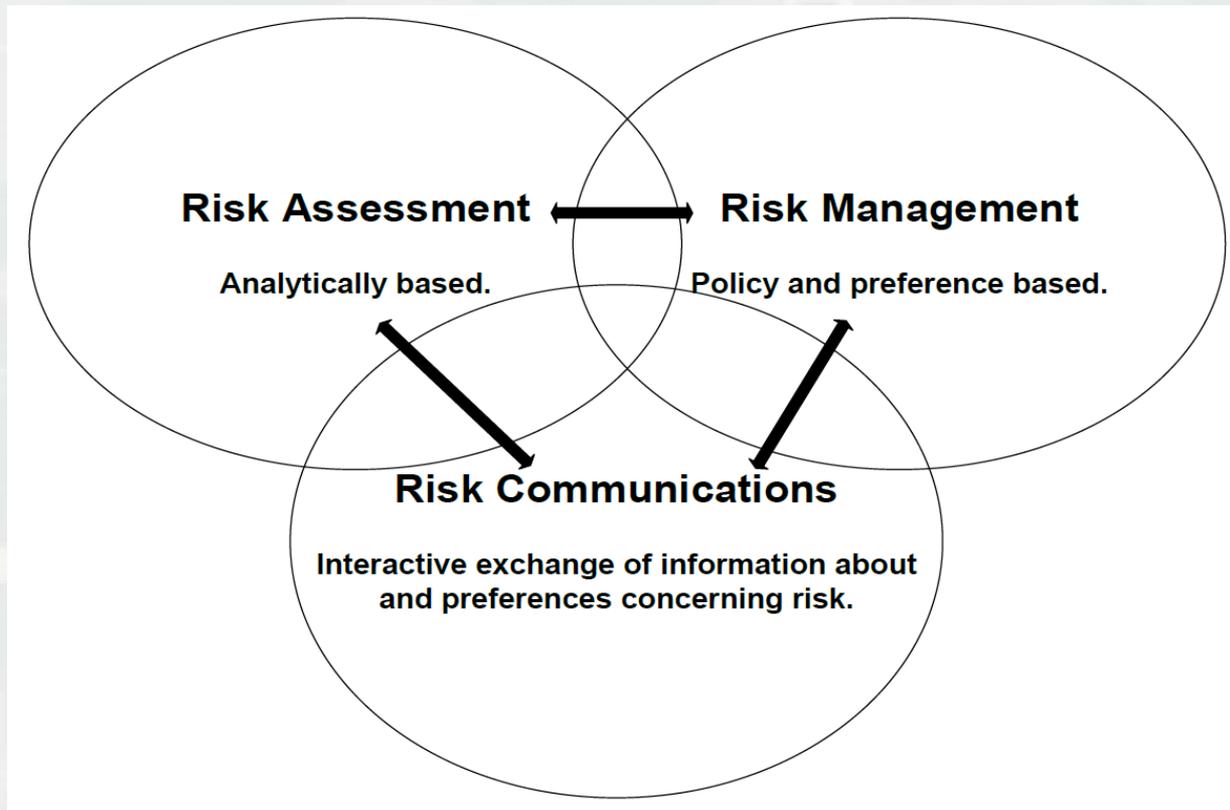
Embankment construction, view from RT abutment



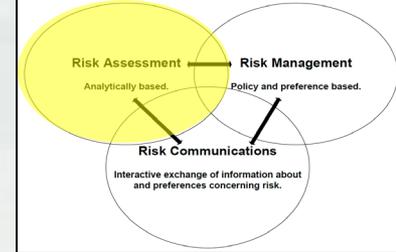
Embankment construction nearing crest



Risk Framework



Risk Assessment



- Periodic Assessment (every 10 years)
- Potential Failure Modes
 - ▶ Failure likelihood
 - ▶ Estimated consequences



US Army Corps of Engineers

Gathright Dam (VA00501)
Jackson River
Virginia
Embankment and Spillway

Periodic Inspection No. 14
Periodic Assessment No. 01

Norfolk District, North Atlantic Division



May 2014

Report Date: April 2015

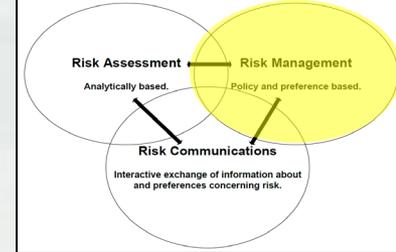
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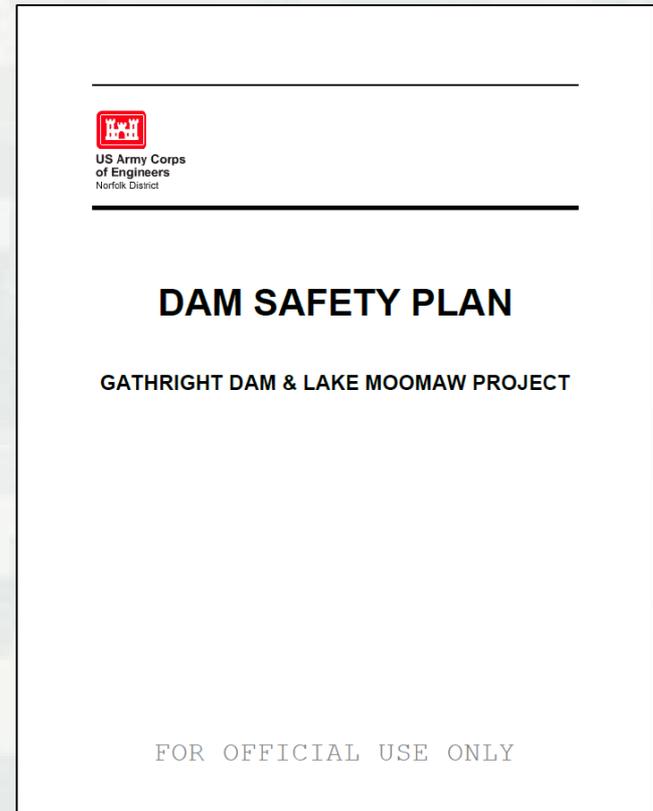


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Risk Management Dam Safety Plan

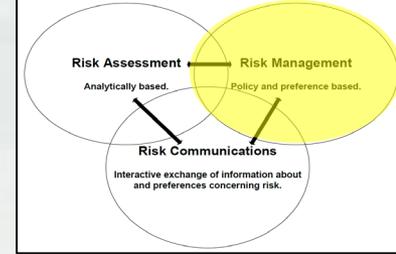


- Reviewed annually
- Specifies procedures to follow for various situations
- Contact information for downstream communities



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Monitoring



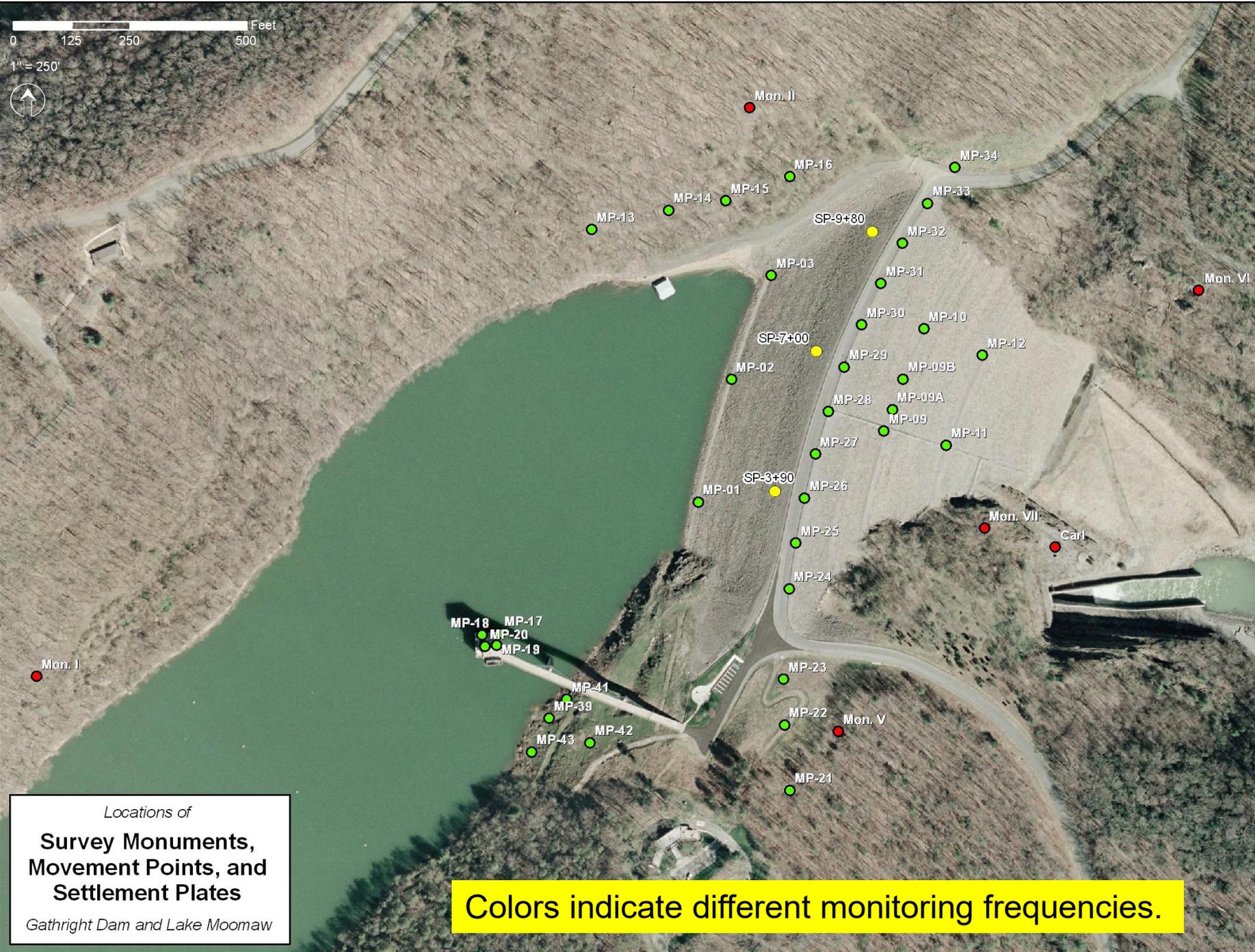
- Daily & Monthly
- Semi-Annual
- Periodic Inspection



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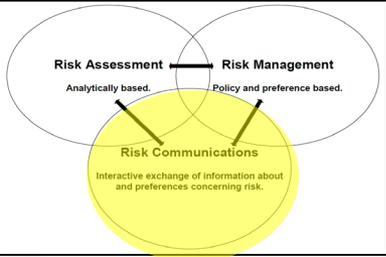
0 125 250 500 Feet

1" = 250'



Locations of
**Survey Monuments,
Movement Points, and
Settlement Plates**
Gathright Dam and Lake Moomaw

Colors indicate different monitoring frequencies.



Risk Communication

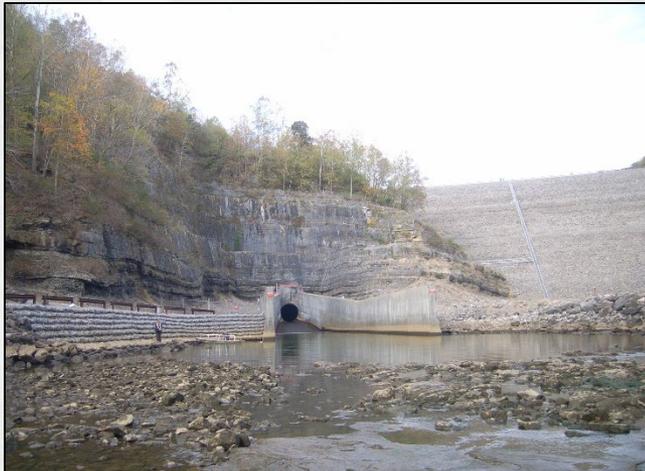
- Emergency Action Plan
 - ▶ Coordination with local emergency managers and planners



Gathright Dam

Managing Risks

- Human Life
- Economic
- Environmental



Benefits

- Flood Control
- Low Flow Augmentation
- Recreation



Risk Summary

- Norfolk USACE monitors Gathright Dam and assesses the risk (likelihood and consequences of failure)
- Risk is managed via the Dam Safety Plan
- Emergency Action Planning



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