Locking Down the Right Flood Mitigation Plan

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Flood Event: 4 October 2015

Radar-Estimated Storm Total Rainfall
Friday 7pm to Sunday 7pm
Emergency Flood Damage Response/Repair
PROJECT GOALS
Critical Utilities

120 MGD WATER TREATMENT PLANT (120 million gallons per day)

10 MEGAWATT (MW) HYDROPLANT
Cultural / Historic Resource  1790s to 1860s
Cultural / Historic Resource  1790s to 1860s
Cultural / Historic Resource  1900s to Present
Open Stakeholder Communication

FEMA

FERC
Decision-Metric Dilemma

FERC

RESOURCE PRESERVATION

REGULATED FACILITY

RESTORE DESIGN & FUNCTION FUNDING ASSISTANCE

FEMA
Paradigm Dilemma

SAME GOAL FROM 2 DIRECTIONS

FEMA
RETURN FACILITY TO SAFE FUNCTIONAL CONDITION
SITE-SPECIFIC

GOAL

FERC
MINIMIZE RISK TO POTABLE WATER SUPPLY (LIFE SAFETY)
GLOBAL
Paradigm Dilemma

DEMAND  CAPACITY

EQUILIBRIUM
Paradigm Dilemma

DEMAND  CAPACITY

⇒ ADD RESERVE CAPACITY
Paradigm Dilemma

SAFE
(FUNCTIONAL)
CAPACITY

DEMAND
CAPACITY
Paradigm Dilemma

DEMAND  CAPACITY

FEMA  AFFECTED CAPACITY

⇒ CAPACITY LOSS (EROSION)

FERC  POTENTIAL FAILURE MODE
(THREATENED CAPACITY)

DAMAGED
Paradigm Dilemma

DEMAND = CAPACITY

CURRENT CAPACITY

PRE-EVENT CAPACITY
Paradigm Dilemma

DEMAND

CAPACITY

DIMINISHED CAPACITY

DEMAND

DESTROYED
1. PRIOR TO EVENT: NORMAL POOL
2. FLOOD EVENT: BREACH - SUDDEN DRAWDOWN (EROSION)
3. CURRENT: COFFERDAM WITH LOWERED POOL
4. FUTURE: REFILL – DIMINISHED CAPACITY
Cost-Benefit Dilemma

- Repair facility
- Restore reliable water supply
  - Significant Hazard vs.
  - Low Hazard Potential
- Restore hydroplant
- Preserve resources
THANK YOU!