

# ***Water Management Process***

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Tulsa District

**November 9, 2011**



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US Army Corps of Engineers  
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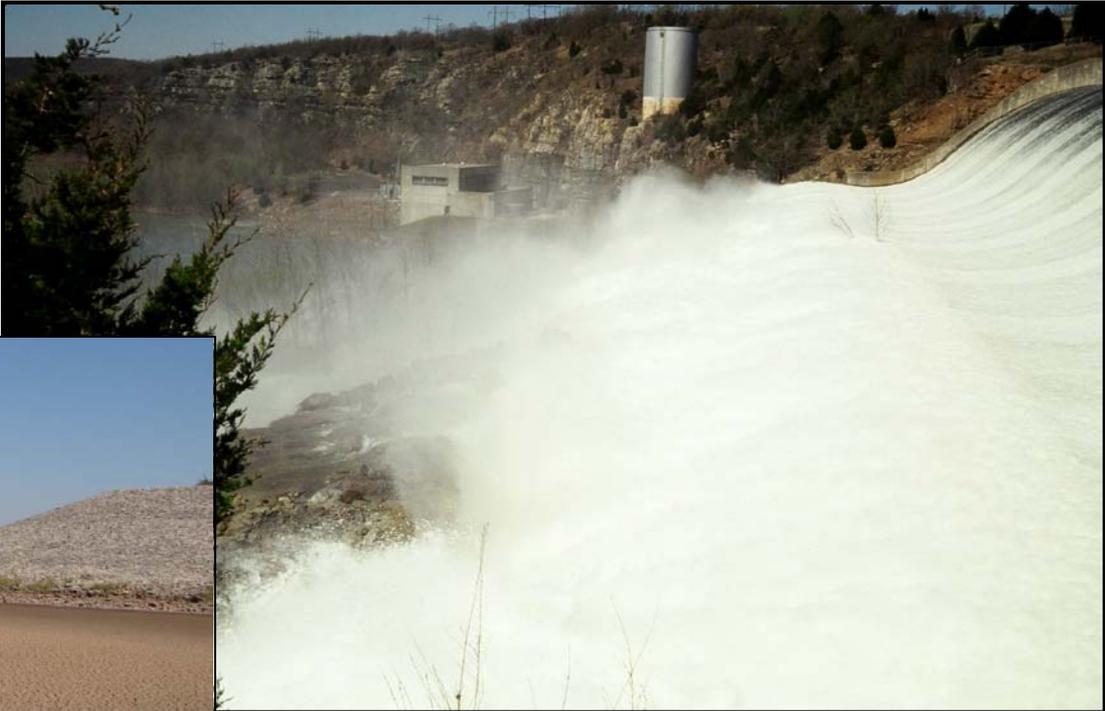


# Why Listen?

- 1. Improve awareness of the complex system of reservoirs and the systematic, consistent operation**
- 2. Understand the expertise and resources devoted to water mgmt**
- 3. See the cooperative effort of Federal, State and Local entities**
- 4. Find where you fit into the equation**



# Water Management Overview



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# Water Management Mission

Operate and manage the District's system of reservoirs in accordance with authorized purposes, using approved plans to maximize benefits while minimizing damages and protecting the general safety of the public.



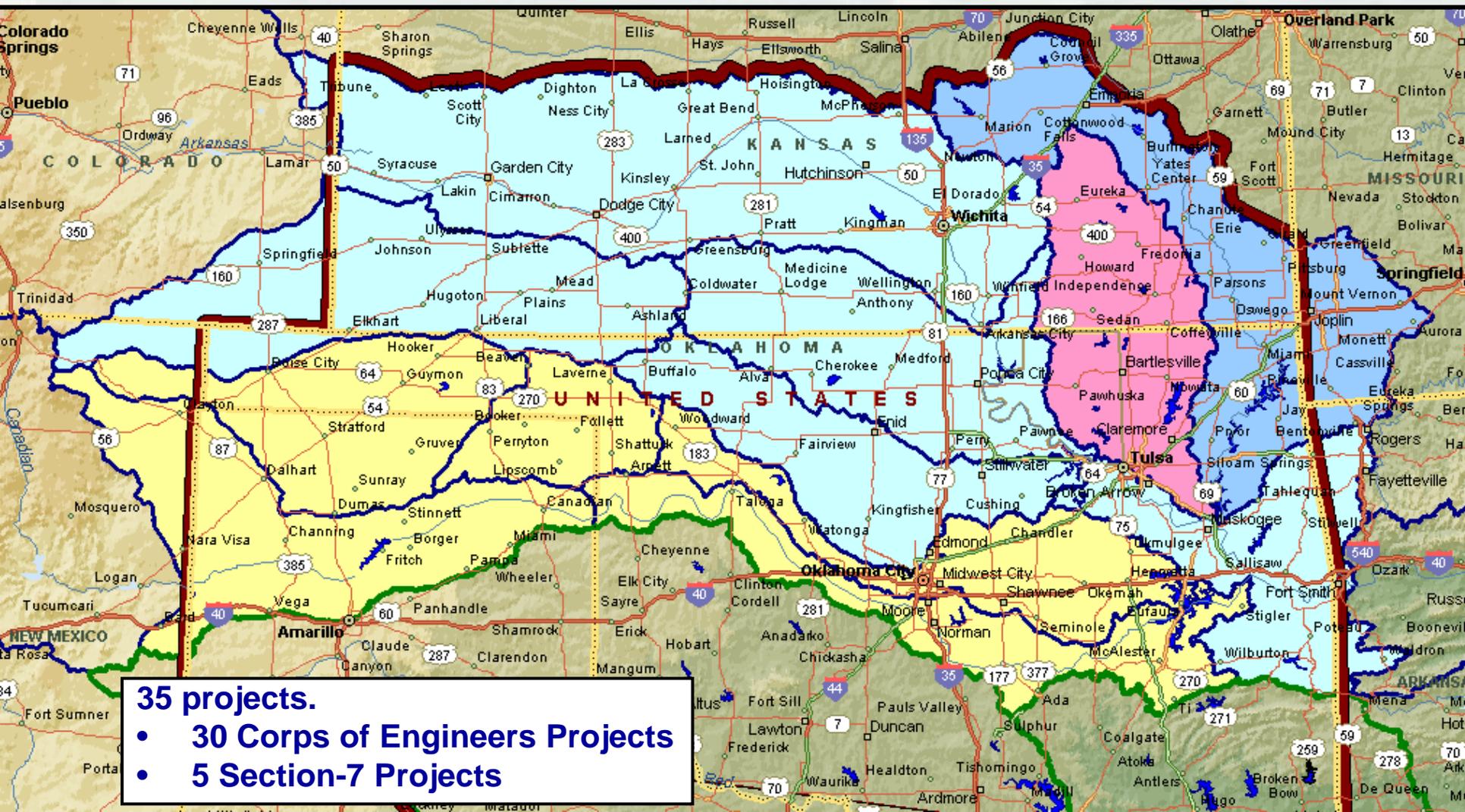
# Authorized Purposes

Reservoir purposes at Tulsa District projects fall into eight categories:

- Flood Risk Mgmt
- Navigation
- Hydroelectric Power
- Water Supply
- Fish and Wildlife
- Water Quality
- Irrigation
- Recreation



# Arkansas River Basin Watershed Map



**35 projects.**

- 30 Corps of Engineers Projects
- 5 Section-7 Projects

# Flood Operations

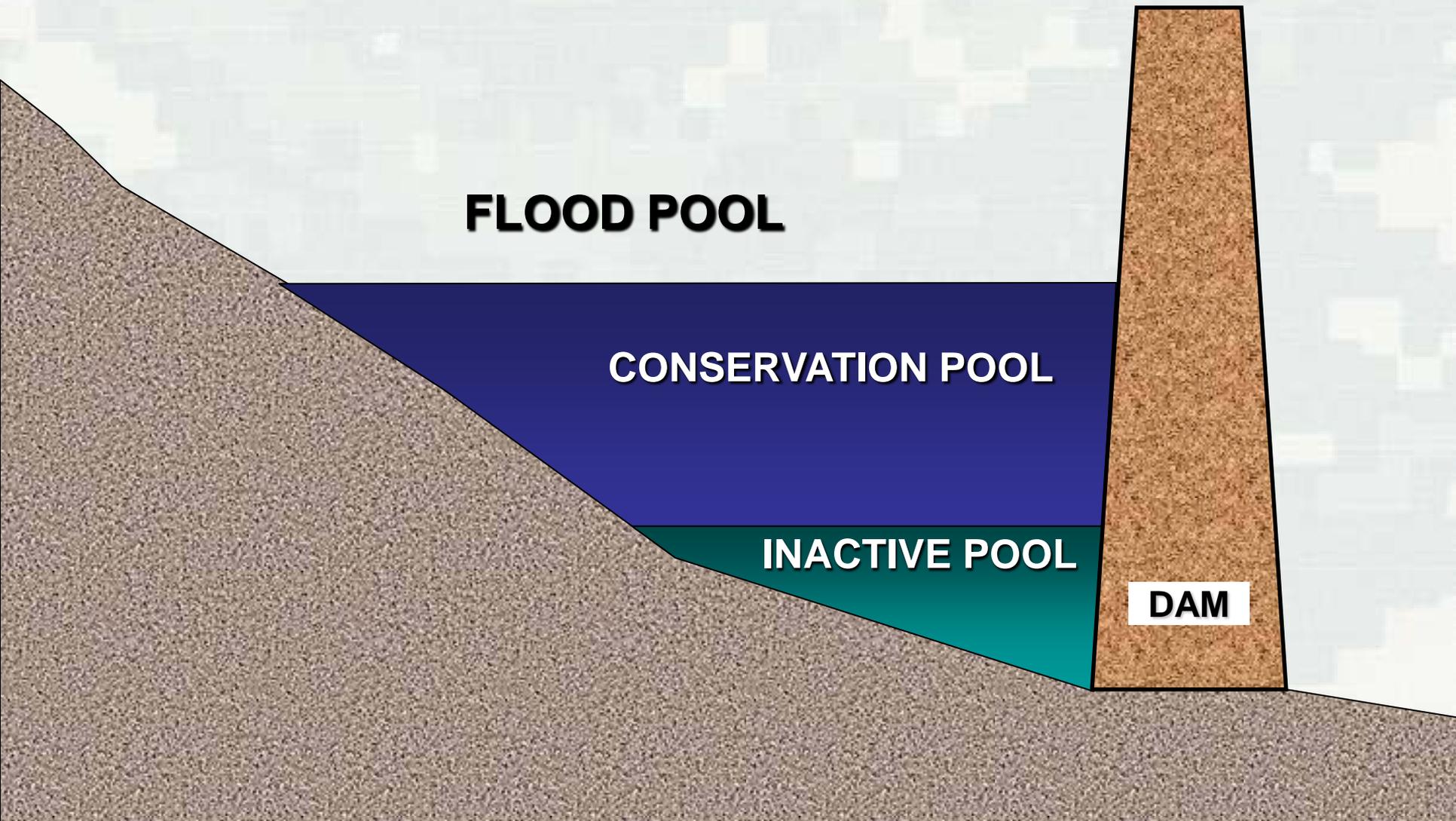


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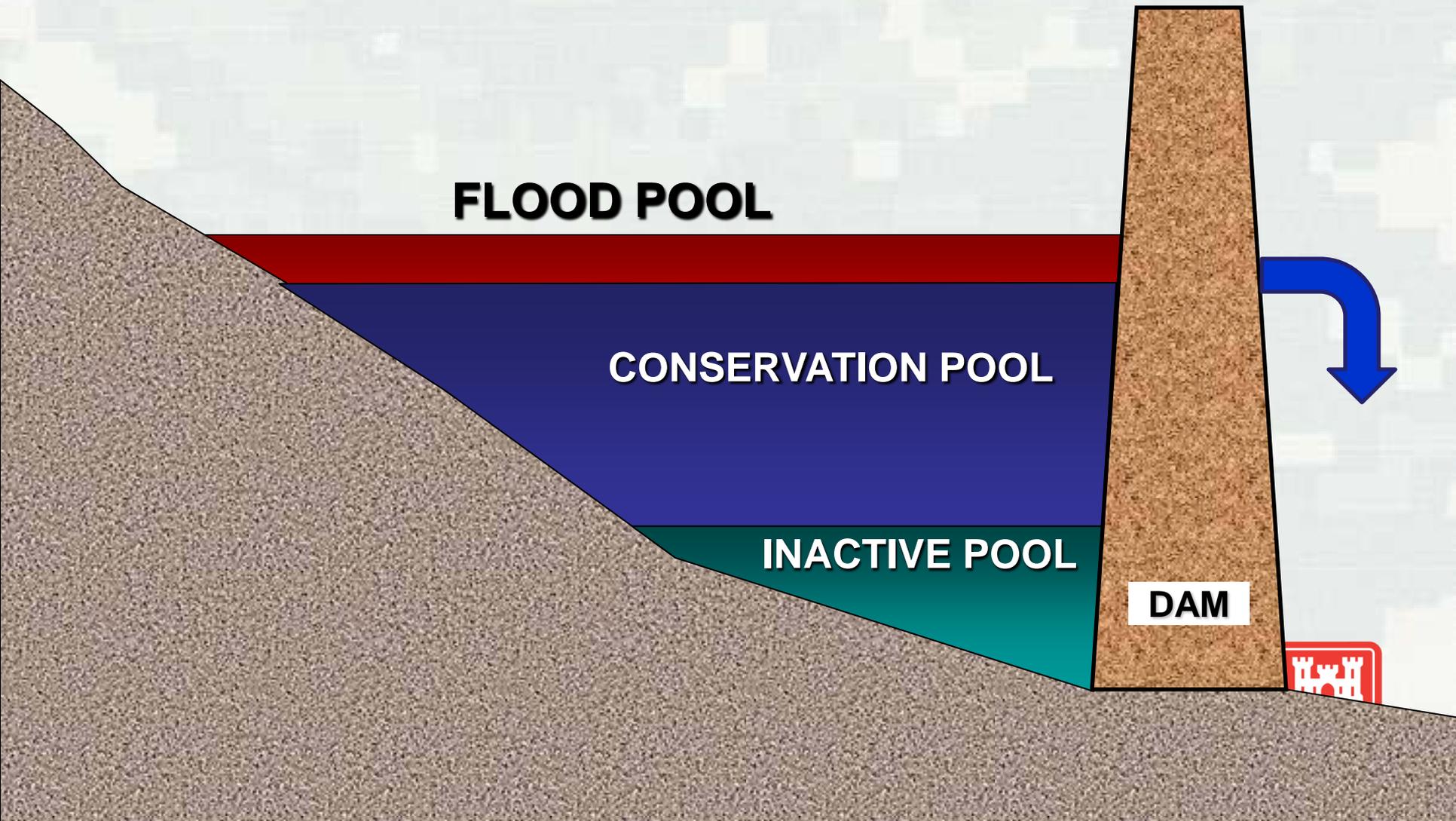
# Storage Zones

## Flood Risk Management Project

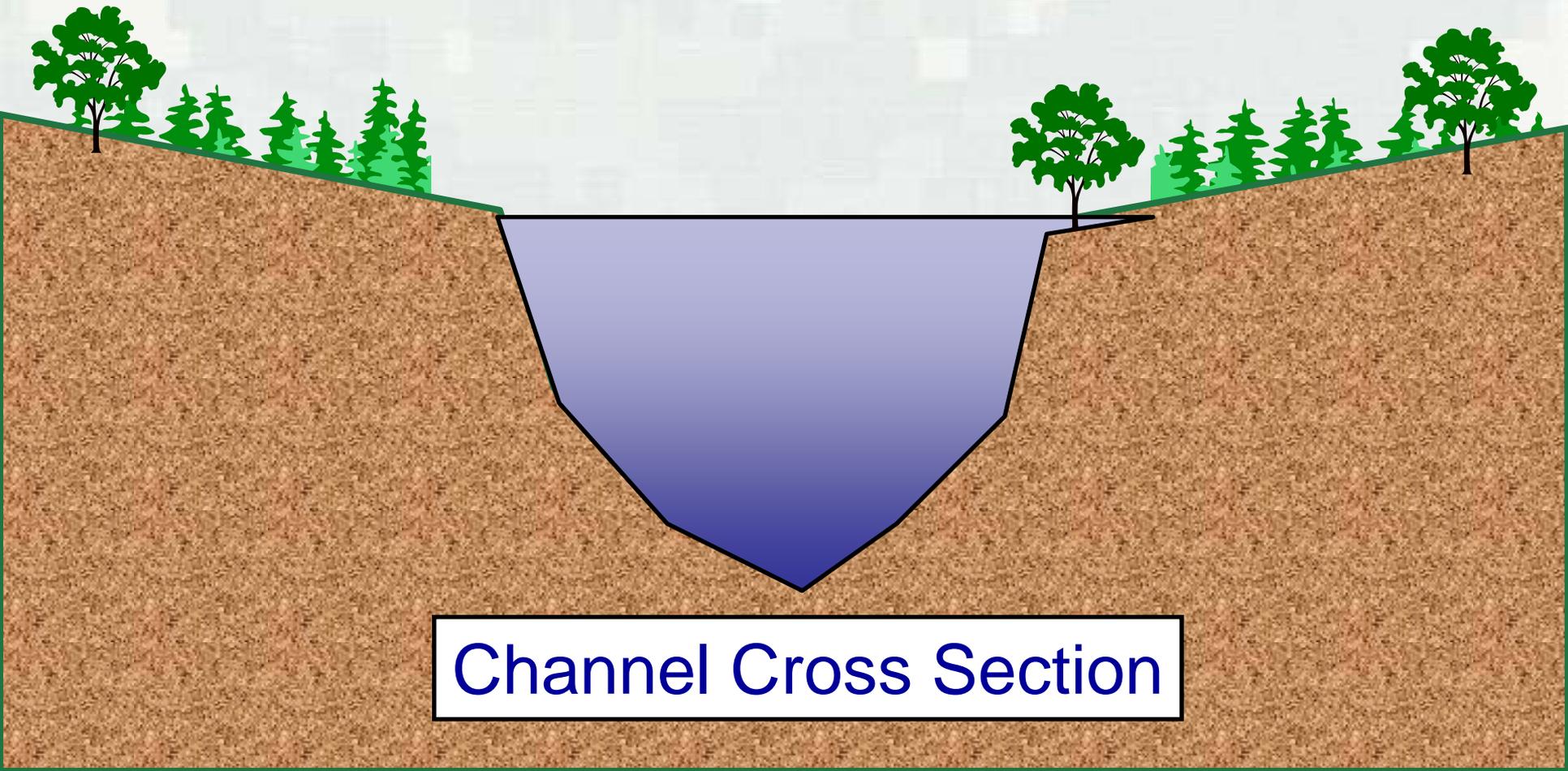


# Storage Zones

## Flood Risk Management Project



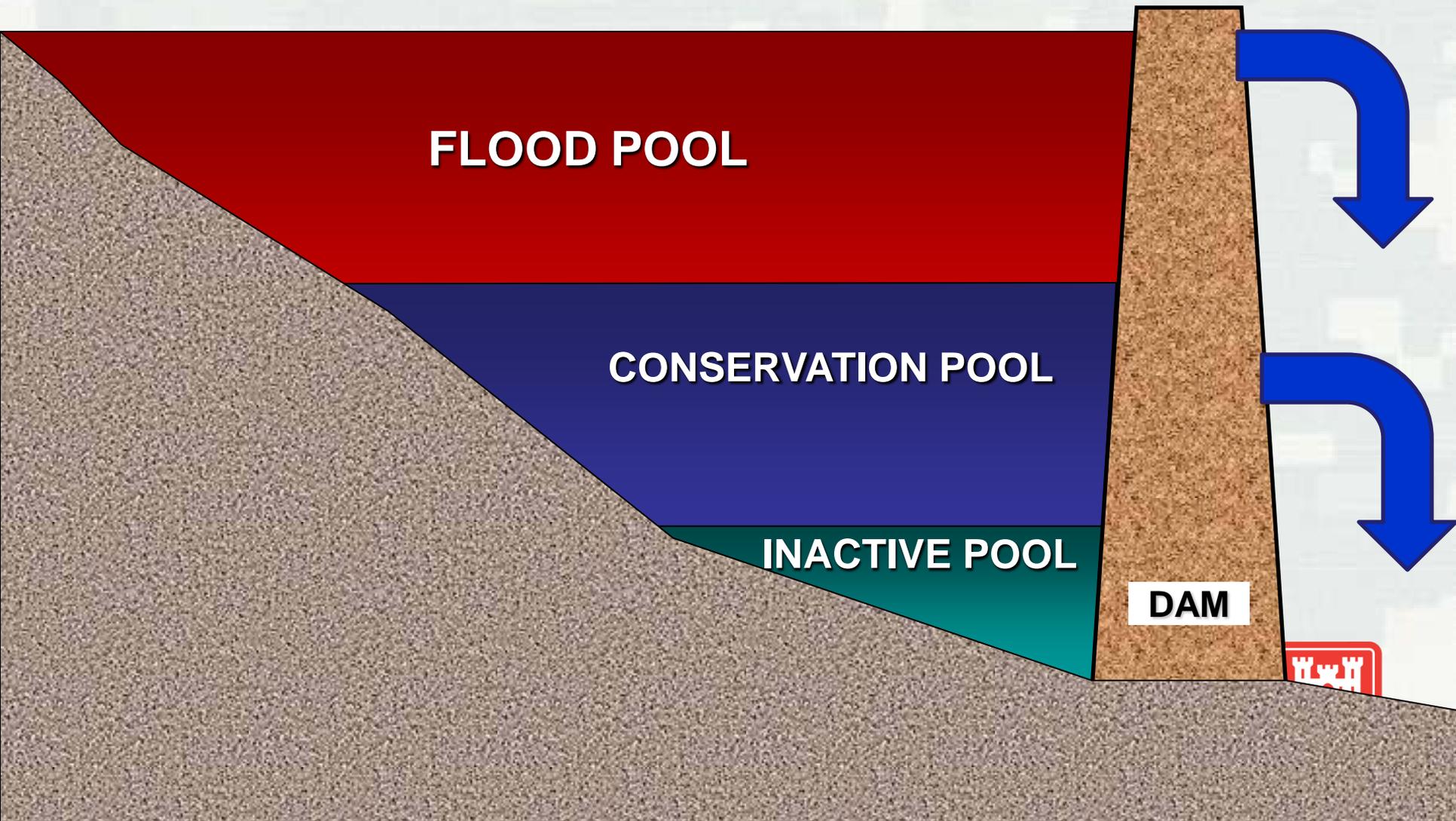
# BANKFULL CAPACITY



Channel Cross Section

# Storage Zones

## Flood Risk Management Project



# El Dorado Lake



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# Cheney Lake

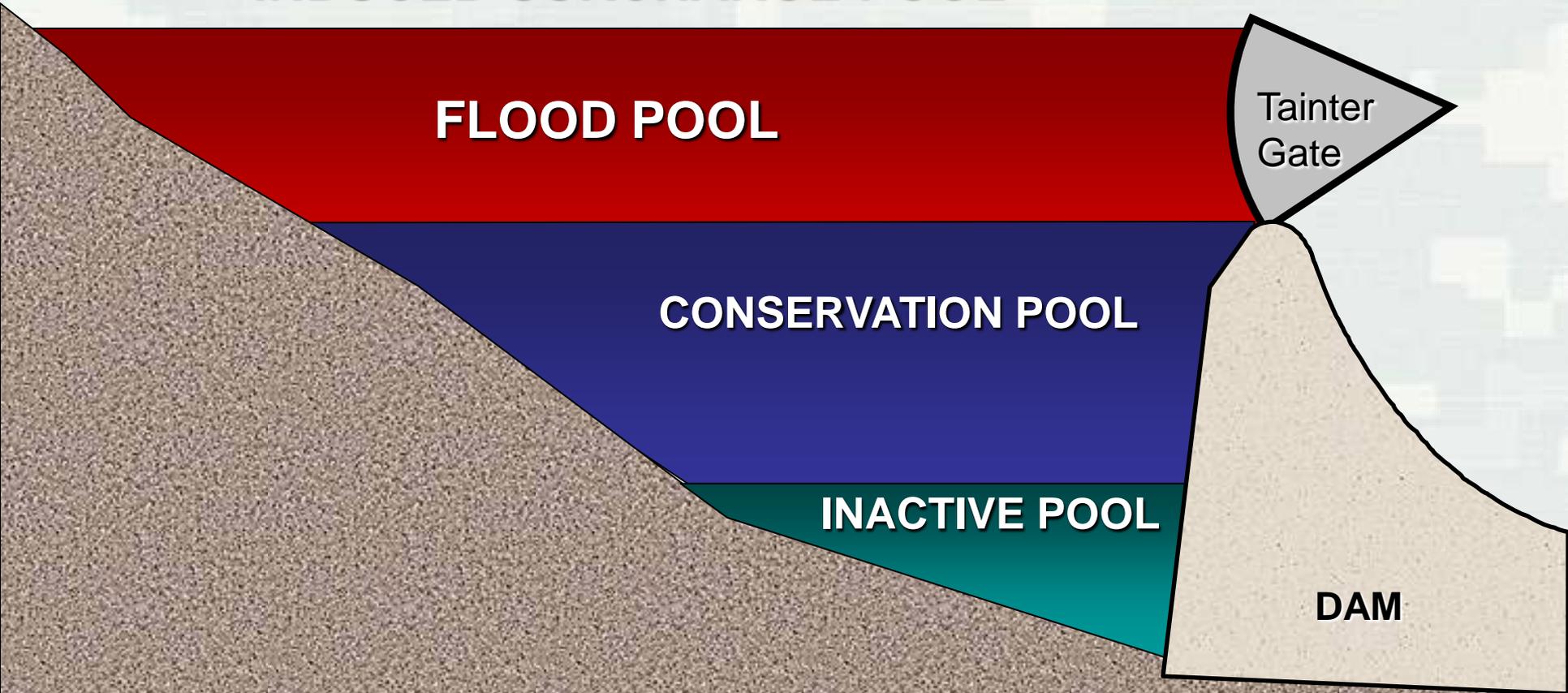


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# Storage Zones

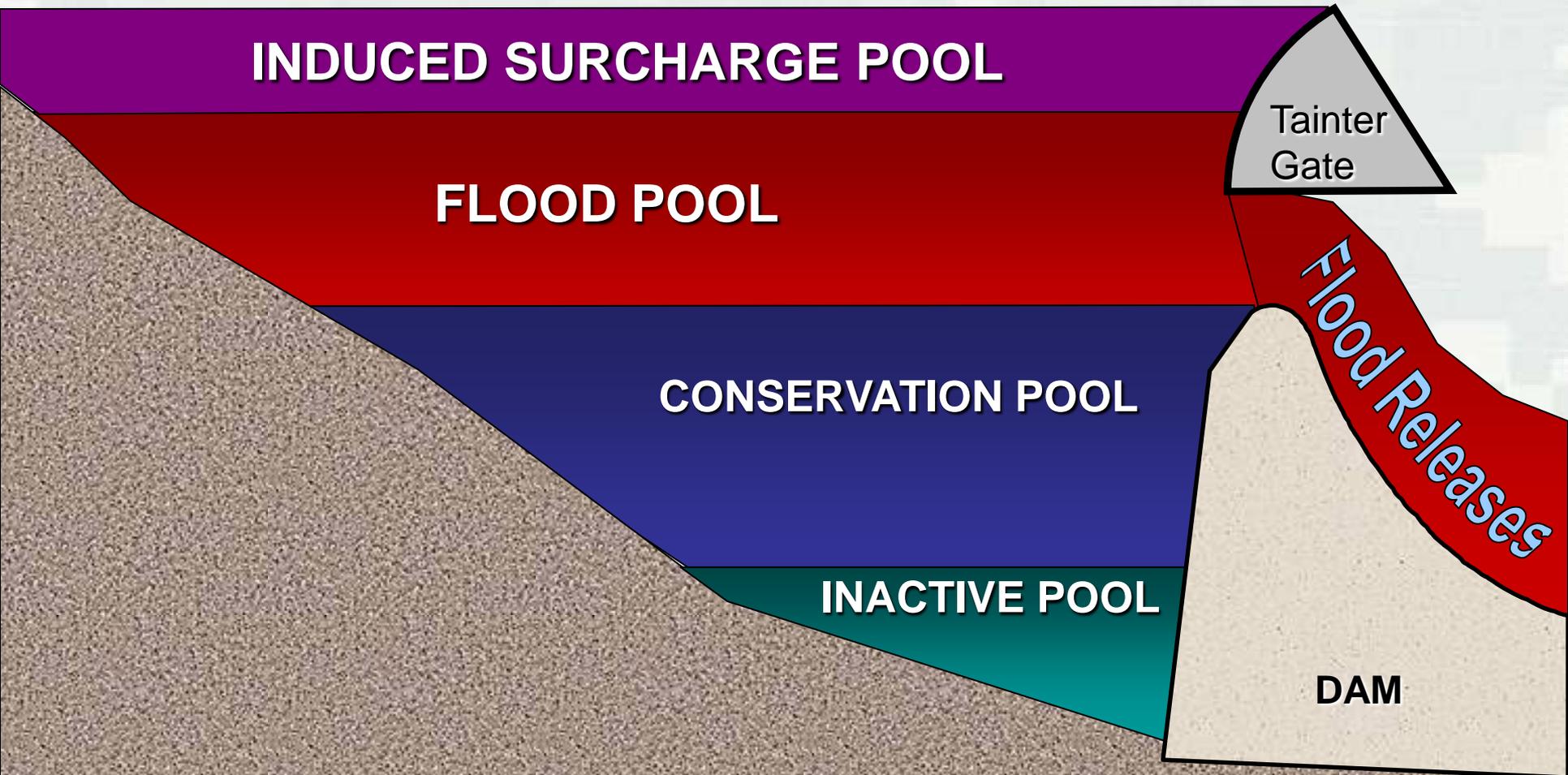
## Flood Risk Management Project with Surcharge

### INDUCED SURCHARGE POOL



# Storage Zones

## Flood Risk Management Project with Surcharge



# John Redmond Lake



2/18/2000 11:05am

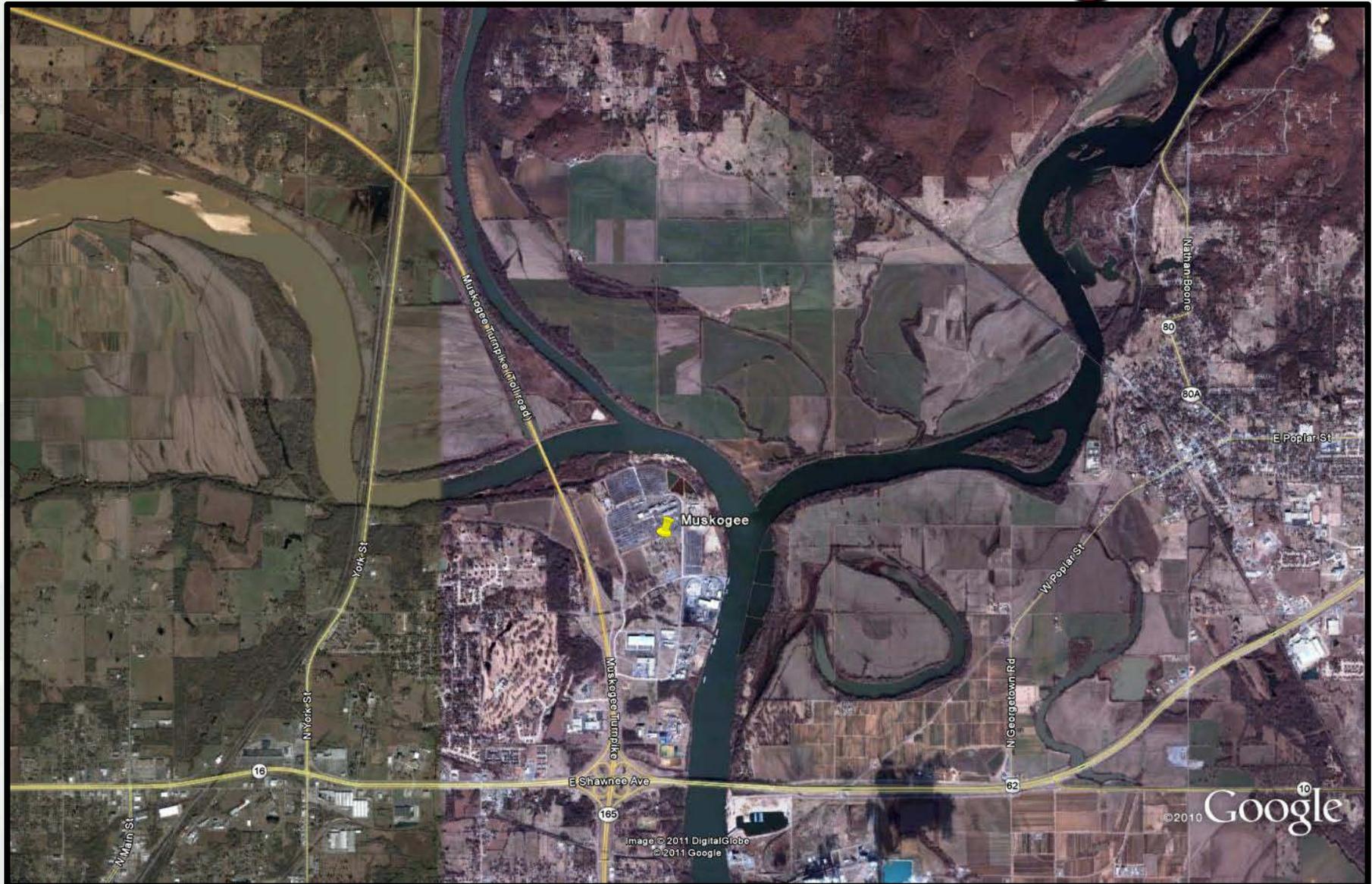
# John Redmond Lake



06/16/2005 13:56

# Flood Management Issues

## Downstream Flooding



# Arkansas River System Water Evacuation Plan

- **VAN BUREN, ARKANSAS**
- **All projects above Van Buren share the control point at Van Buren.**
- **Flows at Van Buren are restricted to 150,000 cfs or less.**



# Flood Management Issues

## Dam Safety

- Daily Observation
- 24 hr Observation
- Piezometers, relief drains, seepage, depressions, etc



# Flood Management Issues

## Fish and Wildlife



# Flood Management Issues Fish and Wildlife

## Notice

October 15th through May 15th

KDWP El Dorado Lake Fisheries Biologist  
Must be notified prior to water releases of  
250CFS or more due to the affects on the  
trout fisheries below the dam

Office Number is 316-322-7513

Cell Number is 316-772-2703

Only contact the Fisheries Biologist if the Lake Manager has not,  
if you are in doubt then go ahead and notify the Biologist. It is  
your responsibility to make sure the Fisheries Biologist has been  
contacted prior to the release.



# Flood Management Issues Drowning, Construction, Etc



**I-244 Multi-Modal Bridge over the Arkansas River**  
Westbound Construction scheduled to begin Spring 2011



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# Flood Management Benefits



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# Flood Management Benefits



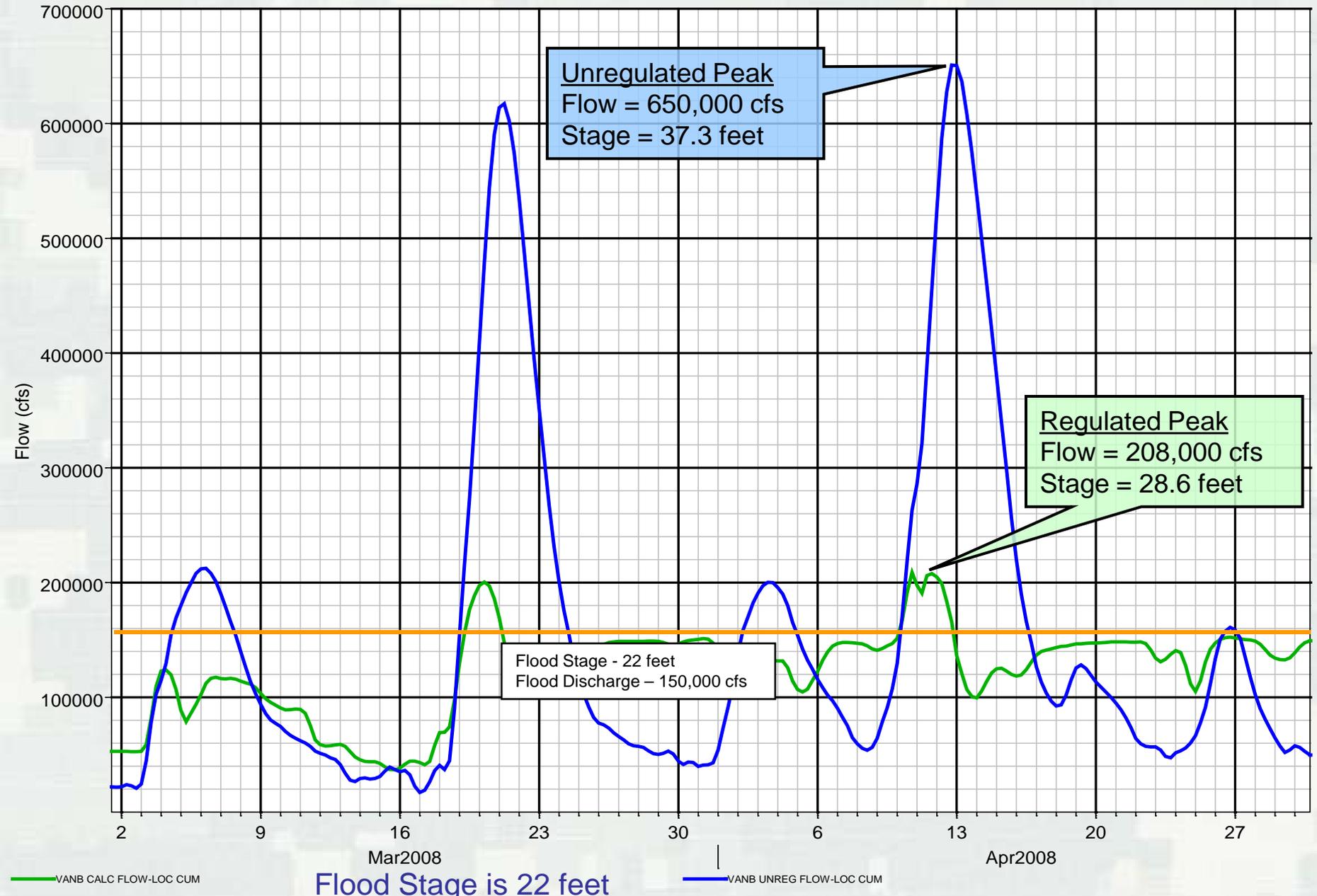
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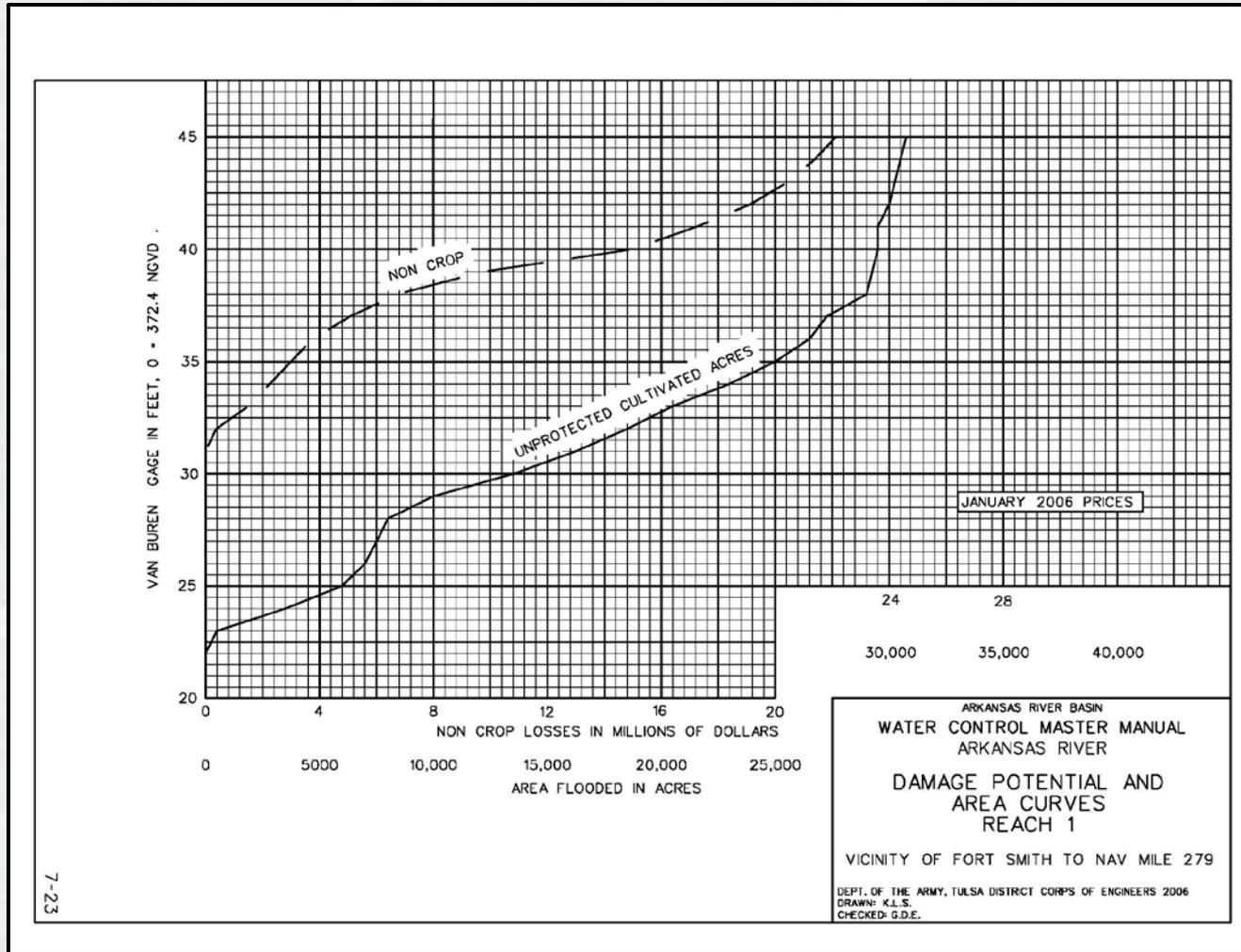


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# Arkansas River at Van Buren, AR



# Flood Management Benefits



# **Flood Management Benefits**

## **El Dorado Flood Benefits since 1985**

**\$295,476,000**



# Conservation (Drought) Operations



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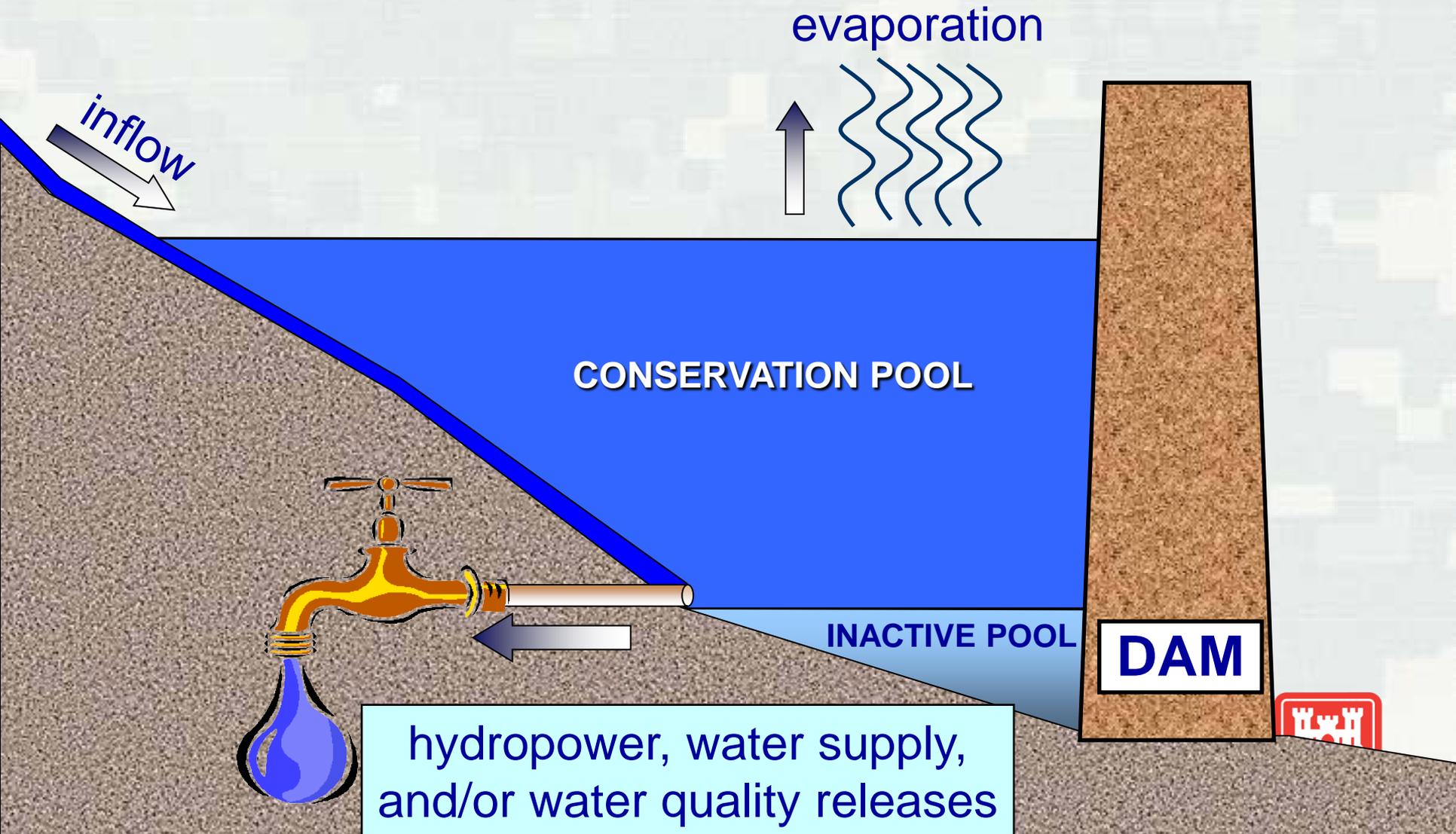
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# CONSERVATION POOL OPERATION

- The goal for conservation pool operation is to save water in the conservation pool while meeting all water supply and/or water quality requirements.
- Water in the lake will usually not be released for any other purpose.



# OPERATING AT CONSERVATION POOL



evaporation

inflow

CONSERVATION POOL

INACTIVE POOL

DAM

hydropower, water supply,  
and/or water quality releases

# Drought Level 1 (1339-1327)

Alert Phase-Normal Operations

# Drought Level 2 (1327-1318)

Expanding Actions-CDMC

# Drought Level 3 (1318-1309)

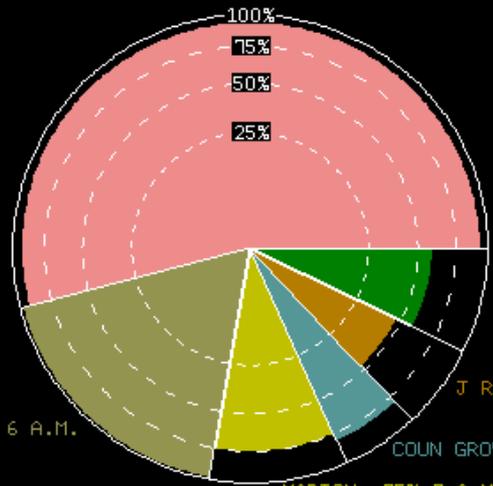
Expanding Actions-IDMC

# Drought Level 4 (1309-1296)



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THE FULL PIE IS 830744 ACRE-FEET  
PENSACOLA 93% 6 A.M.



FT GIBSON 58% 6 A.M.

J REDMOND 47%

HUDSON 38% 6 A.M.

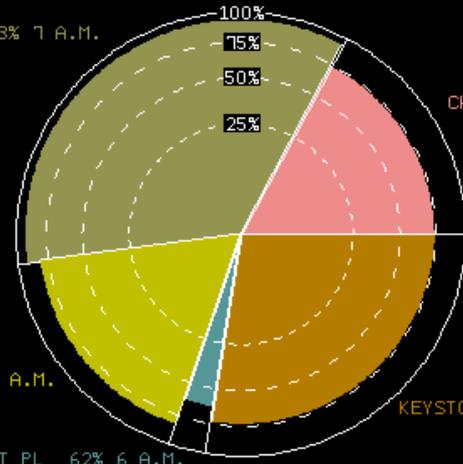
COUN GROV 80% 7 A.M.

MARION 75% 7 A.M.

IMAGE DATE: THU 03 NOV 11 IMAGE TIME: 7:34 A.M. CDT

THE FULL PIE IS 875435 ACRE-FEET

KAW LAKE 93% 7 A.M.



CHENEY 73% 6 A.M.

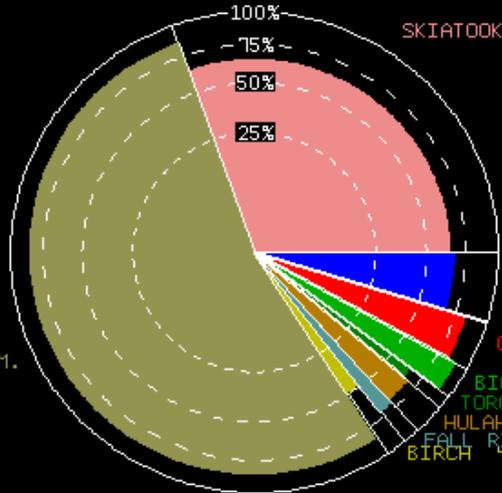
EL DORADO 82% 6 A.M.

KEYSTONE 74% 7 A.M.

G SLT PL 62% 6 A.M.

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THE FULL PIE IS 1008776 ACRE-FEET



SKIATOOK 64% 7 A.M.

ELK CITY 67% 7 A.M.

CANEY LEVEE 100% 6 A.M.

COPAN 83% 7 A.M.

BIG HILL 90% 7 A.M.

TORONTO 65% 6 A.M.

HULAH 69% 7 A.M.

FALL RIV 72% 7 A.M.

BIRCH 43% 7 A.M.

OOLOGAH 86% 7 A.M.

IMAGE DATE: THU 03 NOV 11 IMAGE TIME: 7:34 A.M. CDT



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# Tulsa District



**Comments?  
Questions?**



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