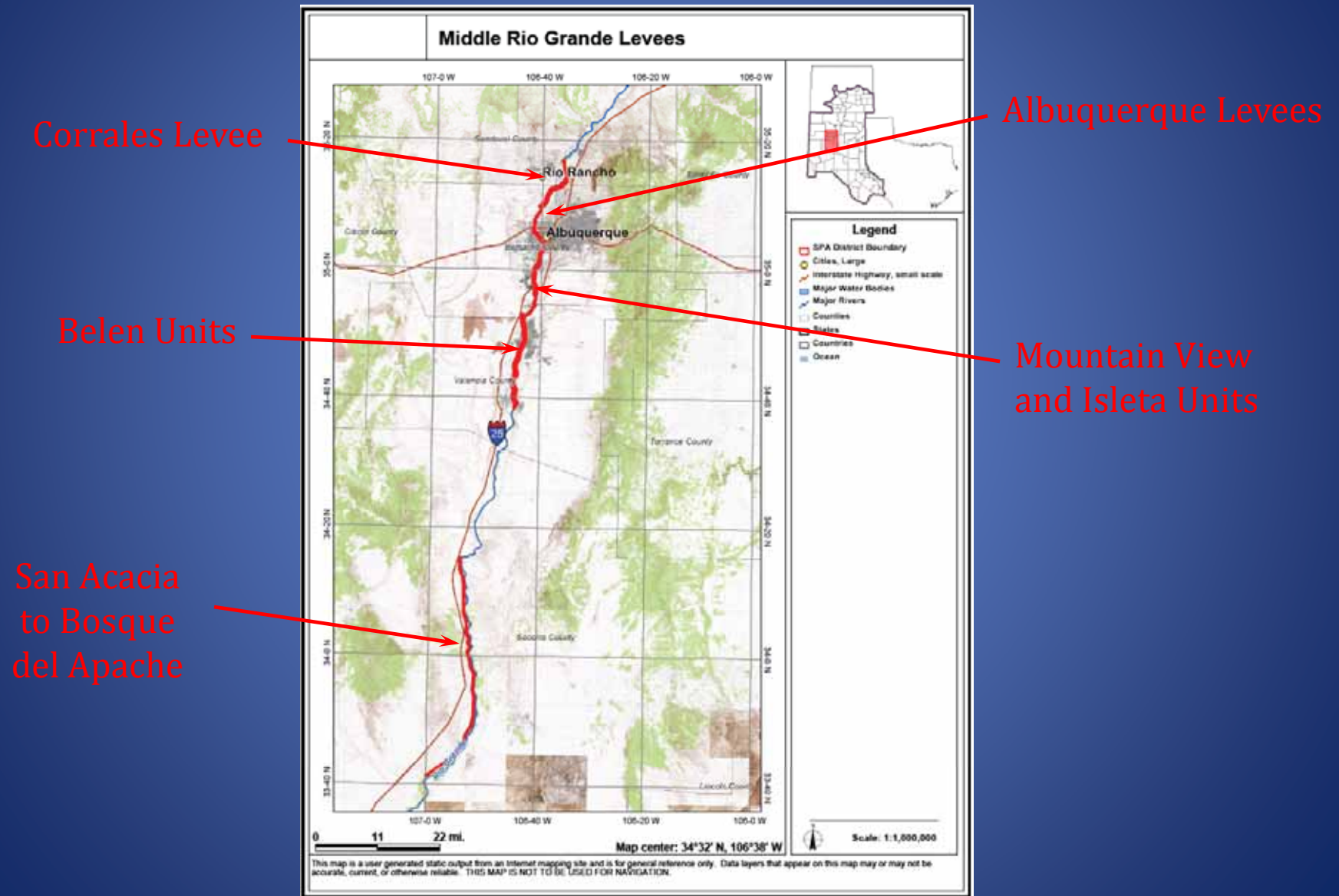


# DEALING WITH OUR AGING INFRASTRUCTURE



# History of Flooding along the Middle Rio Grande



1941 Belen Bridge Washout

## Corrales Unit

- 1874 flood estimated at 100,000 cfs (9 to 10 day duration)
- 1904 flood Albuquerque Journal report a 4 mile wide river at Albuquerque

## San Acacia Unit

- 1929 loss of the town of San Marcial from heavy rains in August

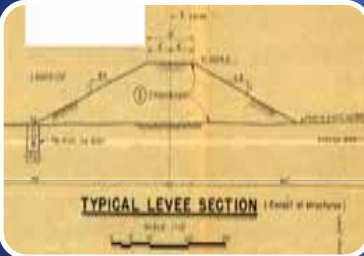
# History of Levees along the Rio Grande



In 1925, Middle Rio Grande Conservancy District (MRGCD) was organized to provide irrigation, drainage, and flood control from near Cochiti to San Marcial



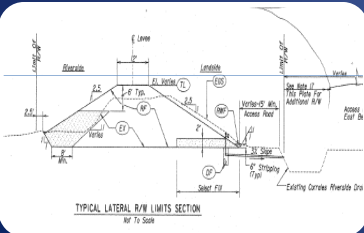
From 1930 to 1935 MRGCD constructed 190 miles of levee (spoil embankment) in the middle Rio Grande valley



From 1953 to 1957, U.S. Army Corps of Engineers constructs Phases I, II, III of the Albuquerque Levees

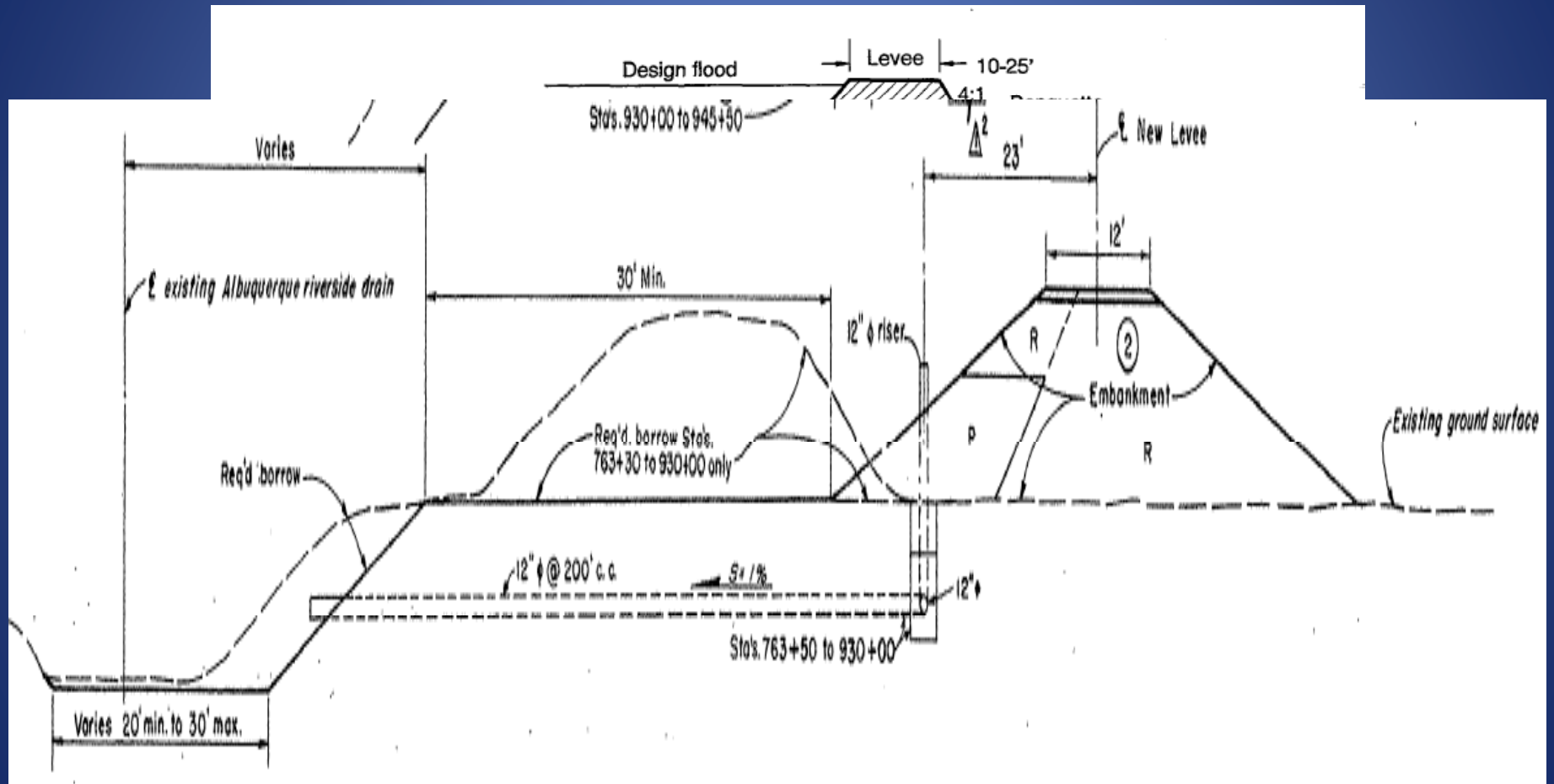


From 1951 to 1959, Bureau of Reclamation constructs the Low Flow channel to Elephant Butte. Spoils from construction used to bolster MRGCD levee (spoil embankment)



1997 U.S. Army Corps of Engineers constructs the Corrales levee

# Typical Levee Construction



(No scale)

Typical Levee Section from the Albuquerque Levees Construction Drawings

# Current Albuquerque Levee Conditions



# MRG Levee (Bosque Farms) Conditions



# Socorro Levee Conditions



# Changes in Criteria for Levees

United States  
Department of  
Agriculture  
Natural  
Resources  
Conservation  
Service

Part 633  
National  
Engineering  
Handbook

---

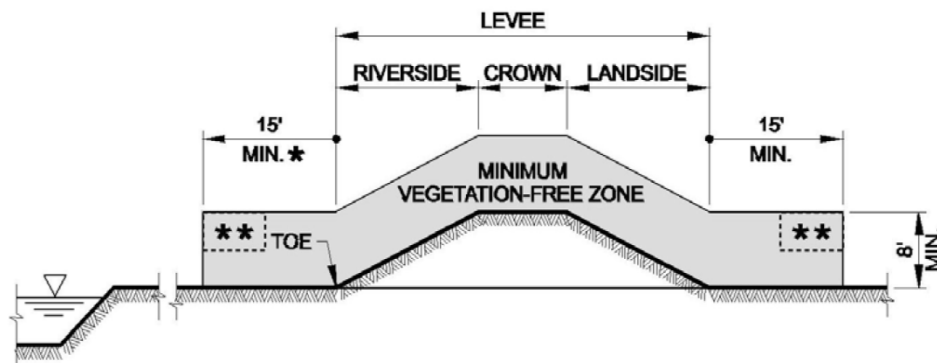
## Chapter 26 Gradation Design of Sand and Gravel Filters

To help prevent *drainage pipe*  
clogging



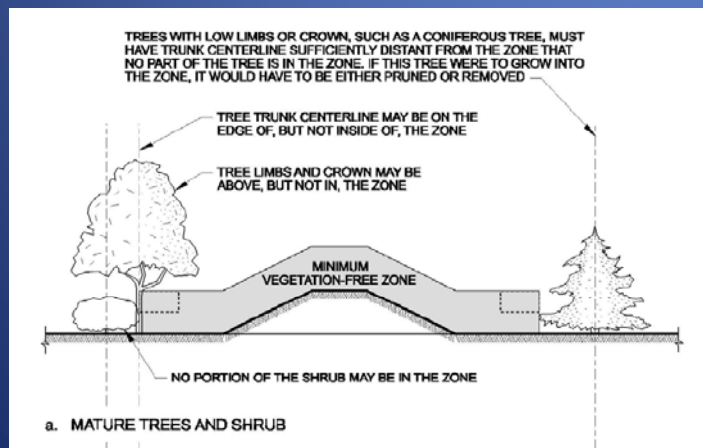


# Changes in Criteria for Levees



- \* 15' OR DISTANCE TO EDGE OF NORMAL WATER SURFACE, IF LESS
- \*\* IN THIS 4' X 7' TRANSITION ZONE, TEMPORARY OBSTRUCTION BY LIMBS AND CROWN IS ALLOWED DURING DEVELOPMENT OF NEW PLANTINGS, FOR UP TO 10 YEARS
- ▽ NORMAL WATER SURFACE

**ETL 1110-2-571**  
**"Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures"**



# USACE Levee Studies

- Albuquerque Levees Condition Report 2005  
Recommends rehabilitation of current levees **Preliminary Estimate \$120 million**
- MRG Flood Protection, General Reevaluation Report (Mountain View, Isleta, and Belen Units) **Budget Estimate of \$100 + million**
- Rio Grande Floodway, Limited Reevaluation Report ( San Acacia to Bosque del Apache)  
**Preliminary Estimate of \$115 million**

# DEALING WITH OUR AGING INFRASTRUCTURE

The 500 yr snowmelt flood is a long duration event with a 14300 cfs peak discharge.

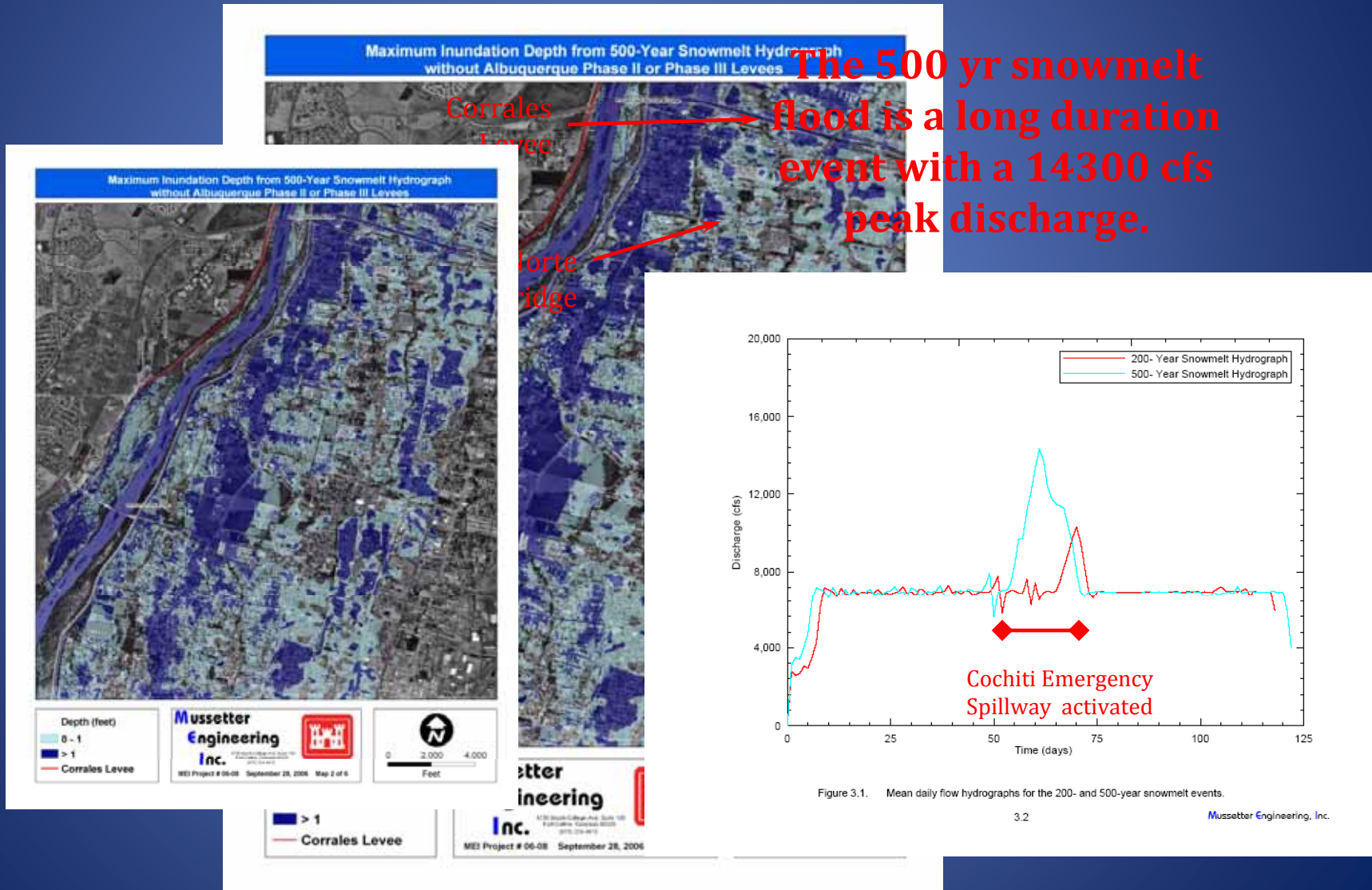


Figure 3.1. Mean daily flow hydrographs for the 200- and 500-year snowmelt events.

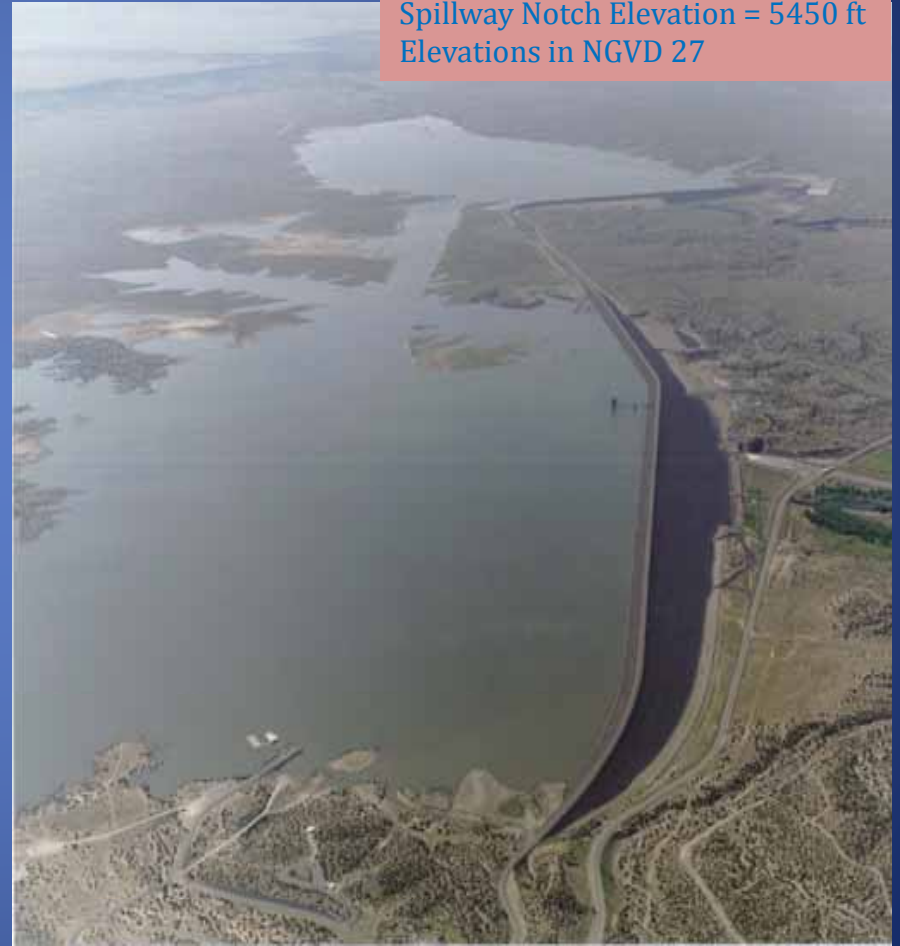
# Cochiti Dam

Recreation Pool Elev. = 5340.3 ft



Normal Pool

Record Pool Elev. = 5434.5 ft  
Spillway Crest Elev. = 5460.5 ft  
Spillway Notch Elevation = 5450 ft  
Elevations in NGVD 27



1987 Record Pool