# Report on the Status of Yuma Desalting Plant Pilot Run

CAP
CENTRAL ARIZONA PROJECT

Arizona – Mexico Commission:
Water Committee

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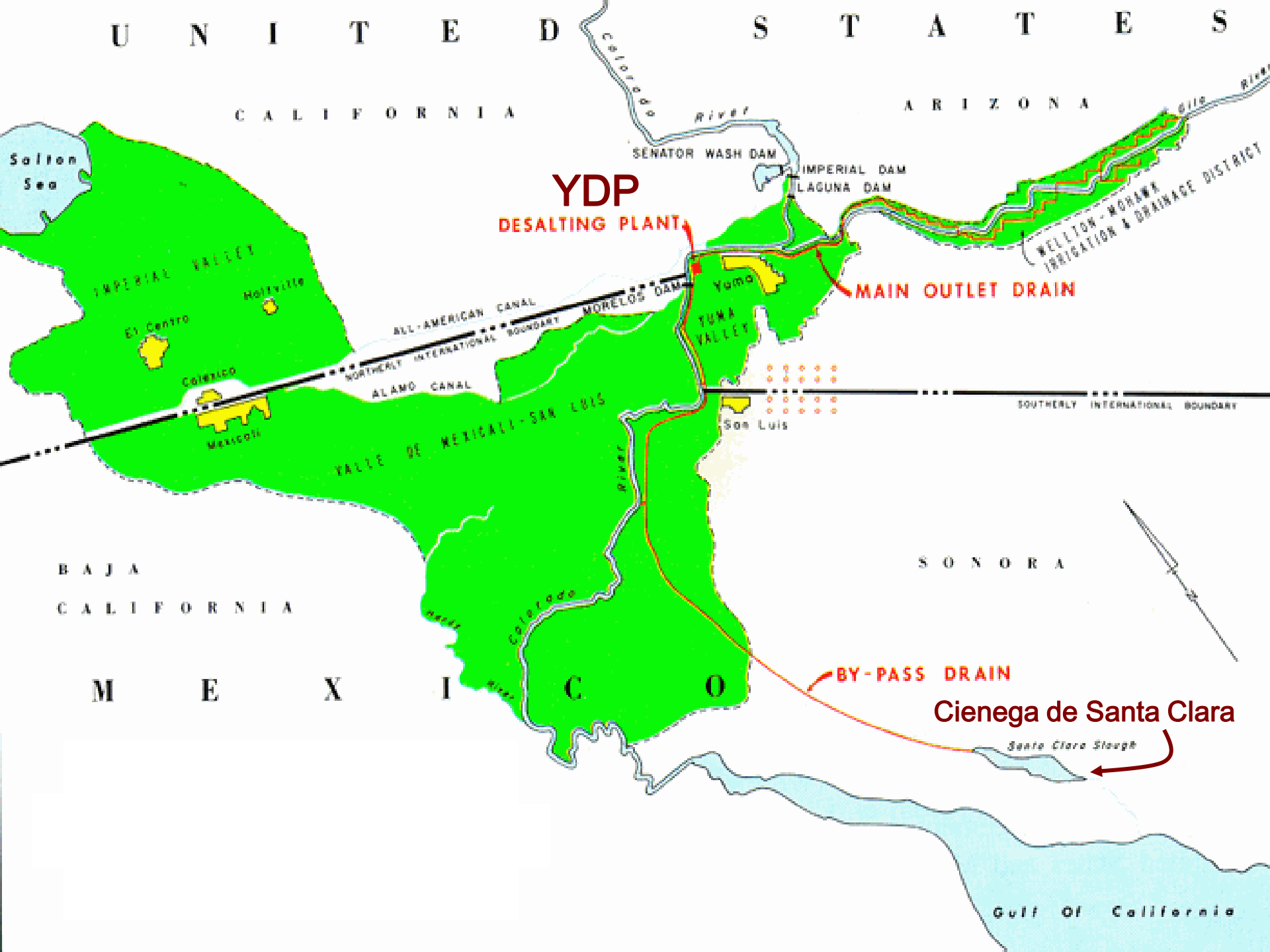
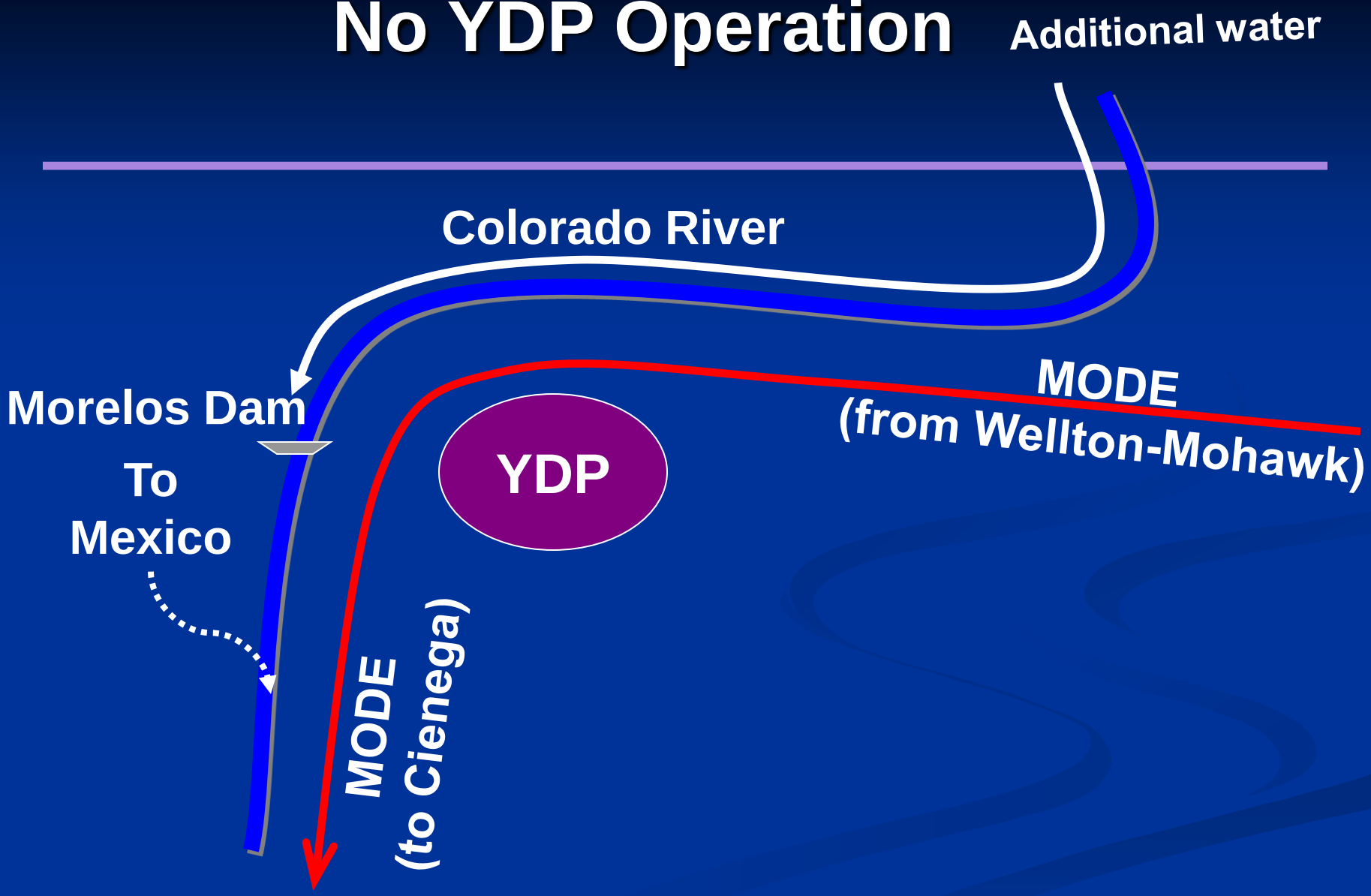
# Brief History of the YDP

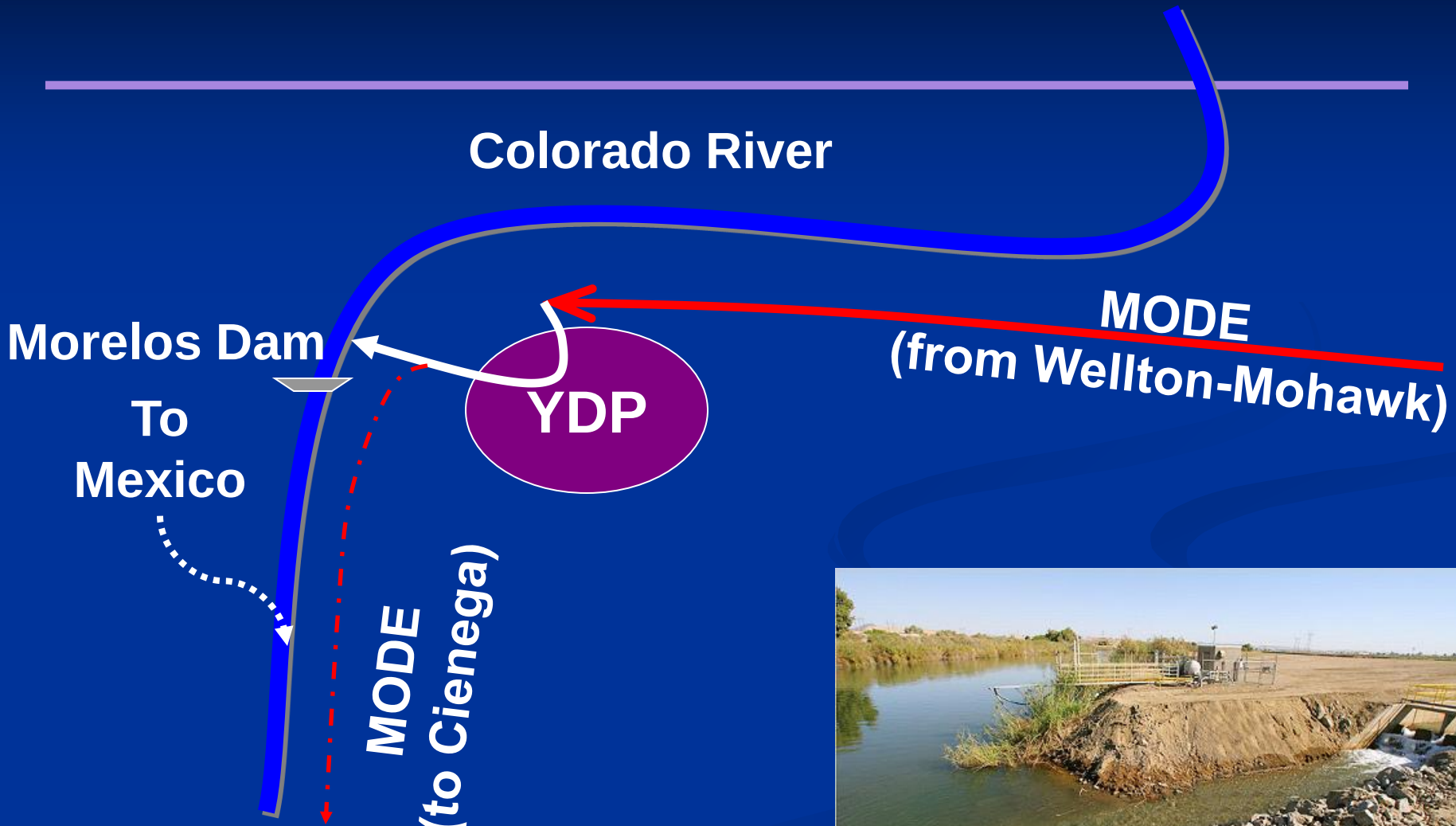
- 1973 - Minute #242 – “Permanent and Definitive Solution to the International Problem of Salinity of the Colorado River”
- 1974 – Colorado River Salinity Control Act
- 1977 – Completion of the Bypass Drain
- 1992 – Substantially Completed; operated for ~ 90 days
- 1992 – 1993 Gila River Floods damage YDP
- 2007 – Demonstration Run (10%, 90 days)
- 2010 – 2011 – YDP Pilot Run + Minute #316


U N I T E D S T A T E S
C A L I F O R N I A
A R I Z O N A
Colorado River
Gila River
Salton Sea
SENATOR WASH DAM
IMPERIAL DAM
LAGUNA DAM
YDP
DESALTING PLANT
MAIN OUTLET DRAIN
WELLTON-MOHAWK IRRIGATION & DRAINAGE DISTRICT
IMPERIAL VALLEY
Holtville
El Centro
Calexico
Mexicali
ALL-AMERICAN CANAL
NORTHERLY INTERNATIONAL BOUNDARY
MORELOS DAM
Yuma
YUMA VALLEY
ALAMO CANAL
VALLE DE MEXICALI-SAN LUIS
San Luis
SOUTHERLY INTERNATIONAL BOUNDARY
Colorado River
B A J A
C A L I F O R N I A
S O N O R A
M E X I C O
BY-PASS DRAIN
Cienega de Santa Clara
Santa Clara Slough
Gulf Of California

# No YDP Operation



# With YDP Operation



# YDP Pilot Run Components

- Operate YDP – 1/3rd Capacity for 365 days,
- Cooperative Funding:  USBR, CAP, SNWA, & MWD
- Non-Federal Funders Obtain ICS Credits for Conserved Water
- Conservation Target = 29,000 af
- Work Cooperatively with Mexico

# Goal of the Pilot Run

- Obtain actual performance and cost data for YDP operations
- Test existing treatment processes for long-term suitability
- Define the optimal long-term YDP design
- Monitor the Cienega de Santa Clara to define its environmental values

# CAP's YDP Pilot Run Goals

- Implement the Next Step Leading to the Long-term Operation of the YDP to Conserve Colorado River Water in Lake Mead,
- Define Environmental Values of the Cienega de Santa Clara,
- Identify the Optimal Technology for Long-term Operation of the YDP
- Work Collaboratively with Other Water Users, USBR, and Mexico.

# Summary

- Pilot Run Completed (March 26, 2011)
- 30,496 af Conserved
  - 3,049.6 af CAWCD's share
- $293/af Operating Costs
- Total Spending 35% Below Estimates
- On-Going Activities
  - Cienega Monitoring
  - Research

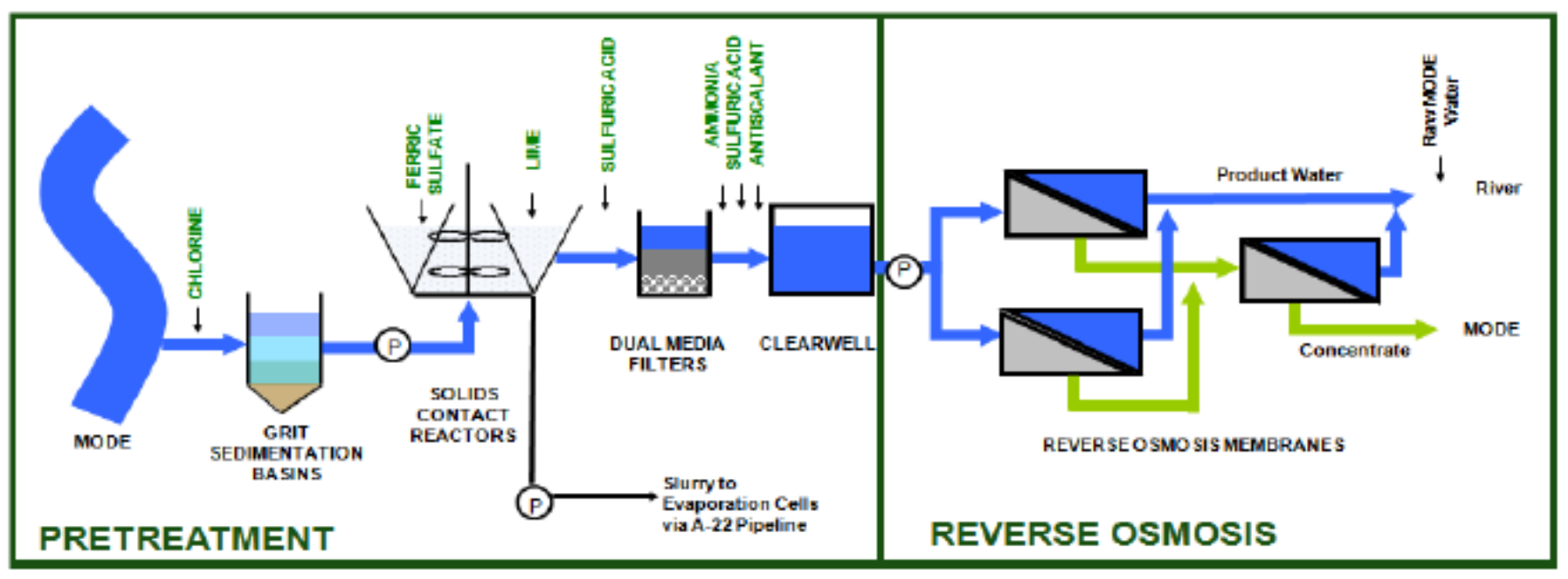
# YDP Pilot Run Overview

- Funding Partnership:
  - USBR, CAWCD, MWD, SNWA
  - CAWCD = 10% of non-Federal Share
- RO Treatment Process
- MODE Brackish Water Source
- 1/3rd Capacity – 30 kaf or 365 day Run
- Determine “Real World” Cost and Performance

# YDP Process Review

- Pre-treatment:
  - Lime softening/acid treatment
  - 40% of operations costs
  - Bulk of chemical loads
- RO Treatment:
  - Cellulose acetate membranes
  - High pressure ~ 300 psi
  - Bulk of energy use
- Treated water blended w/MODE to River
  - Product Water ~ 240 ppm
  - Blended to ~ 700 ppm

# YDP Process Diagram



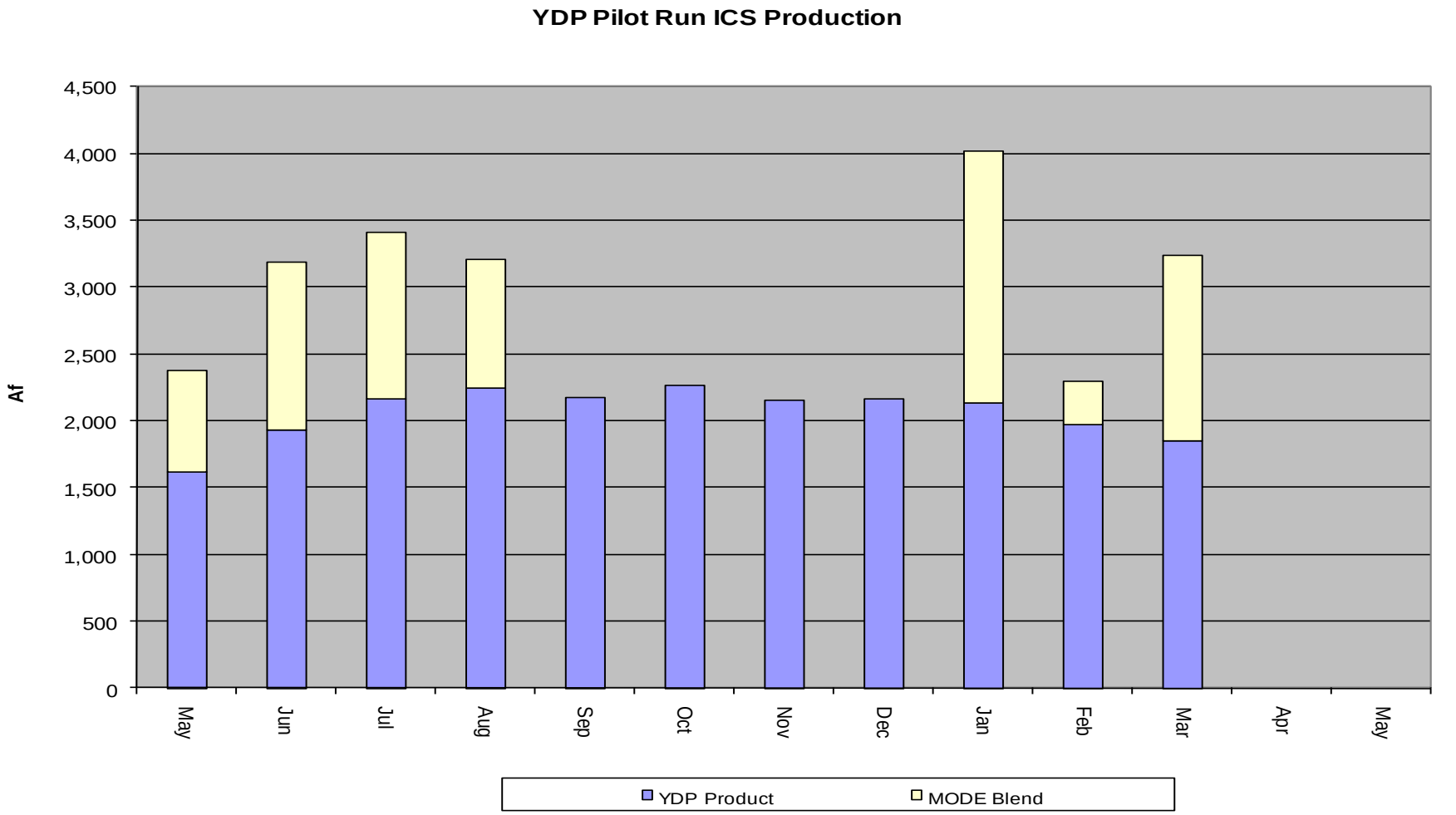
# Pre-treatment Chemical Usage (Total & tons/month)

- Lime 11,700 tons, 1,060 tons/mo
- Ferric Sulfate 1,200 tons, 109 tons/mo
- Sulfuric Acid 2,295 tons, 209 tons/mo
- Chlorine 320 tons, 29 tons/mo
- Ammonia 134 tons, 12 tons/mo

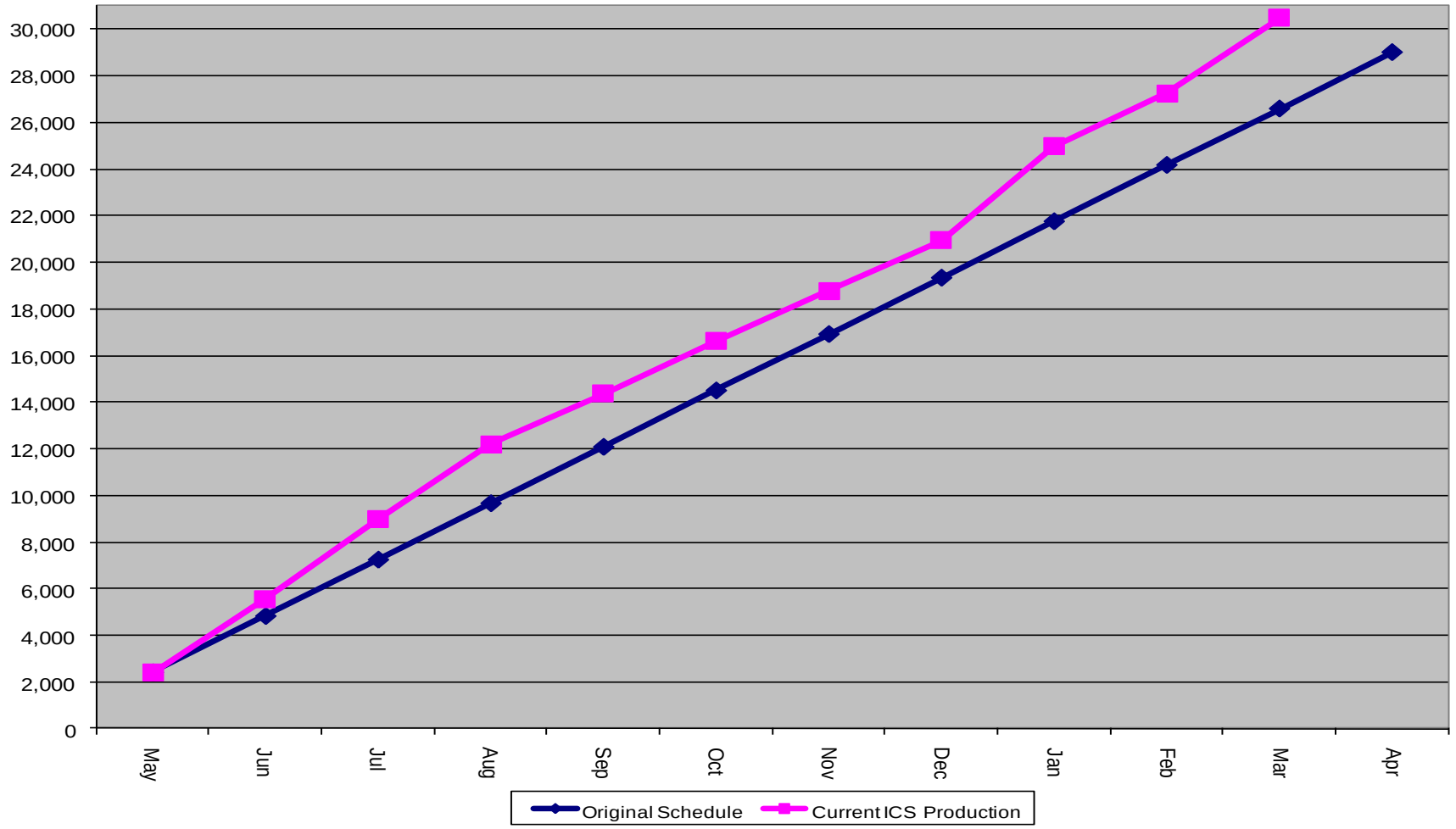
# Pilot Run RO Feed Pumps

- RO Pumps
  - 2 x 2,250 hp
  - 1 x 1,250 hp
- 37,541 mWh
- 3,412 mWh/mo
- ~ 1.66 mWh/af
- ~ 1.23 mWh/af (MODE blend)

# YDP Pilot Run Water Production



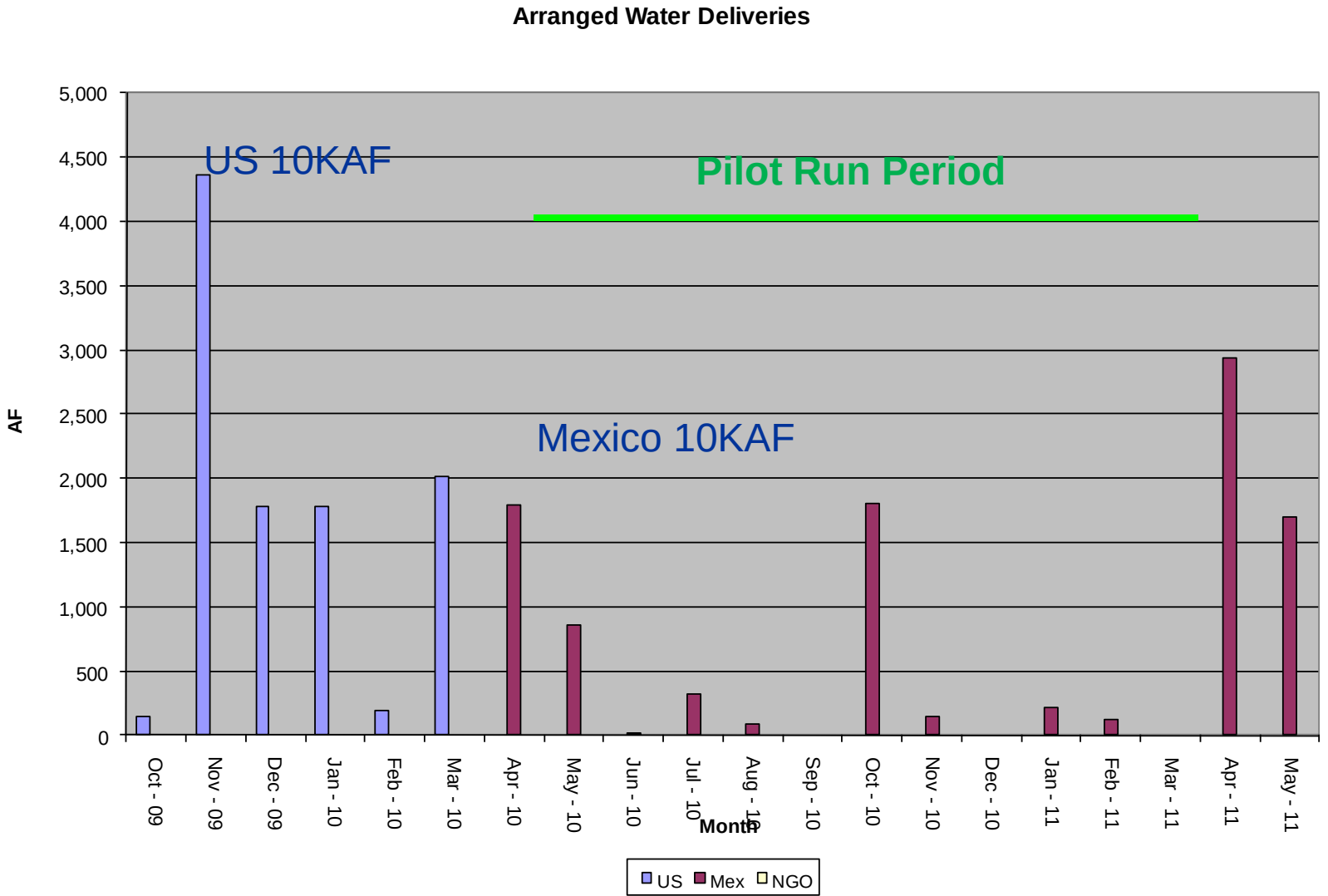
# YDP Pilot Run Production



# Cost Summary

- Total Operating Costs = $8.9 million
  - US = $1.8 million
  - Non-Fed = $7.9 million
  - Unit costs $293/af
- Total Project Costs = $14.7 million
  - US = $6.4 million
  - Non-Fed = $8.3 million
  - Unit costs = $483/af
- 56% Non-Federal Share
- 65% of Estimated Costs

# Cienega Deliveries (Arranged Water – Minute #316)



# YDP Pilot Run Summary

- Water Produced Ahead of Schedule
- Project Costs Less Than Projected
- Performance Consistent with Expectations
- Continued Binational Cooperation

# Other Activities

- Cienega Monitoring
  - Authorized by Minute #316
  - Started in Oct 2009 (US arranged water)
  - Extension to fit YDP operations
- RO Research
  - Starts in Sept
  - Test pre-treatment alternatives
  - Test PA membranes

# Next Steps

- Prepare Pilot Run Summary Report
- Complete Monitoring/Prepare Report
- Complete Research/Prepare Report
- Develop Plan for Long-term YDP Operations
  - Optimal Technology
  - Cienega de Santa Clara

# Questions?