

Report on the Status of Yuma Desalting Plant Pilot Run



CAP
CENTRAL ARIZONA PROJECT

Arizona – Mexico Commission:
Water Committee
June 3, 2011

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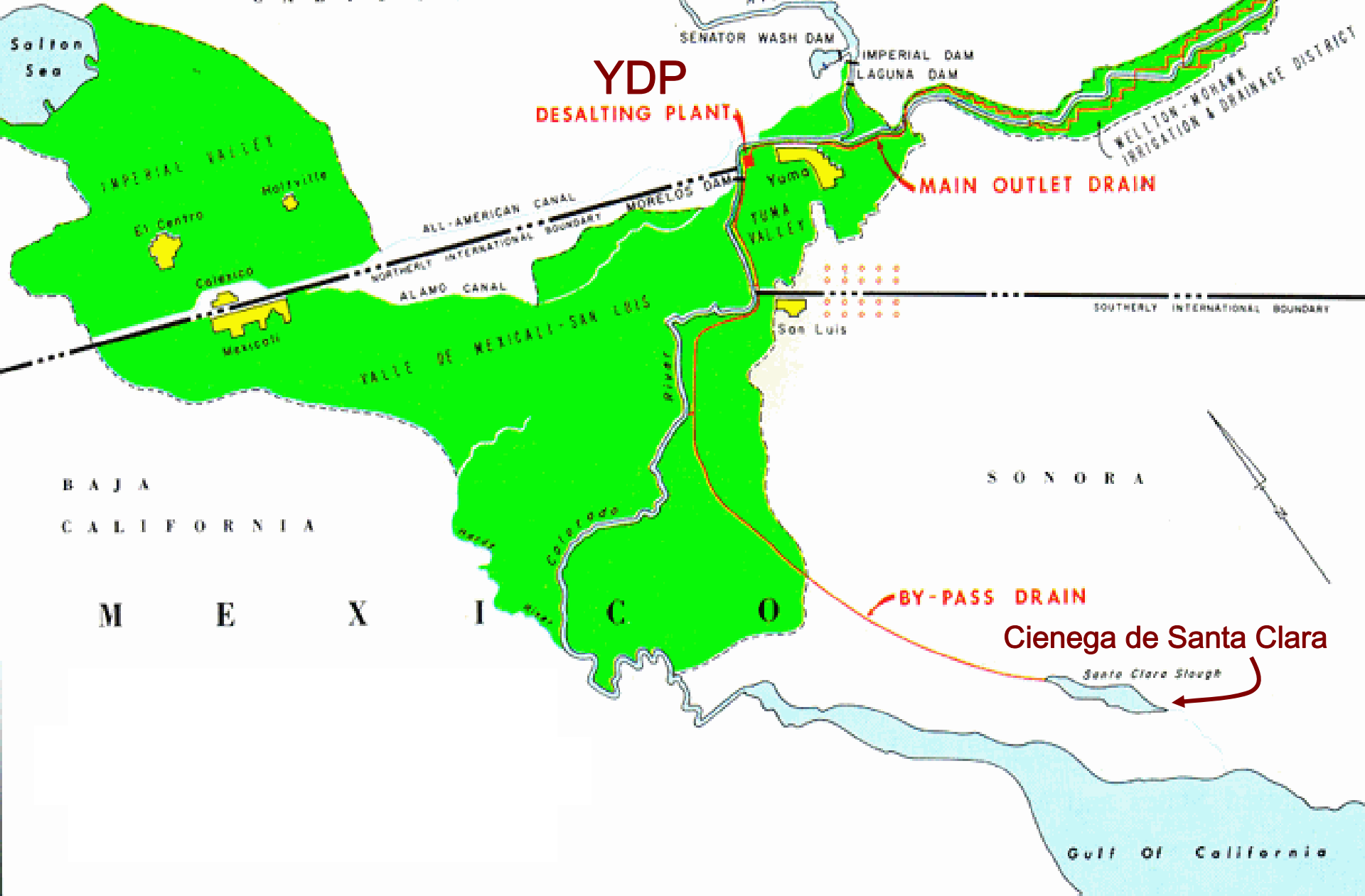
Brief History of the YDP

- 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

CALIFORNIA

ARIZONA



YDP
DESALTING PLANT

MAIN OUTLET DRAIN

BY-PASS DRAIN

Cienega de Santa Clara

Santa Clara Slough

Gulf Of California

BAJA
CALIFORNIA

SONORA

M E X I C O

Salton
Sea

IMPERIAL VALLEY

Yuma
TUNA VALLEY

VALLE DE HERICALLI-SAN LUIS

WELDON-ROHRER
IRRIGATION & DRAINAGE DISTRICT

ALL-AMERICAN CANAL
NORTHEAST INTERNATIONAL BOUNDARY
ALAMO CANAL

SENATOR WASH DAM
IMPERIAL DAM
LAGUNA DAM

MORELOS DAM

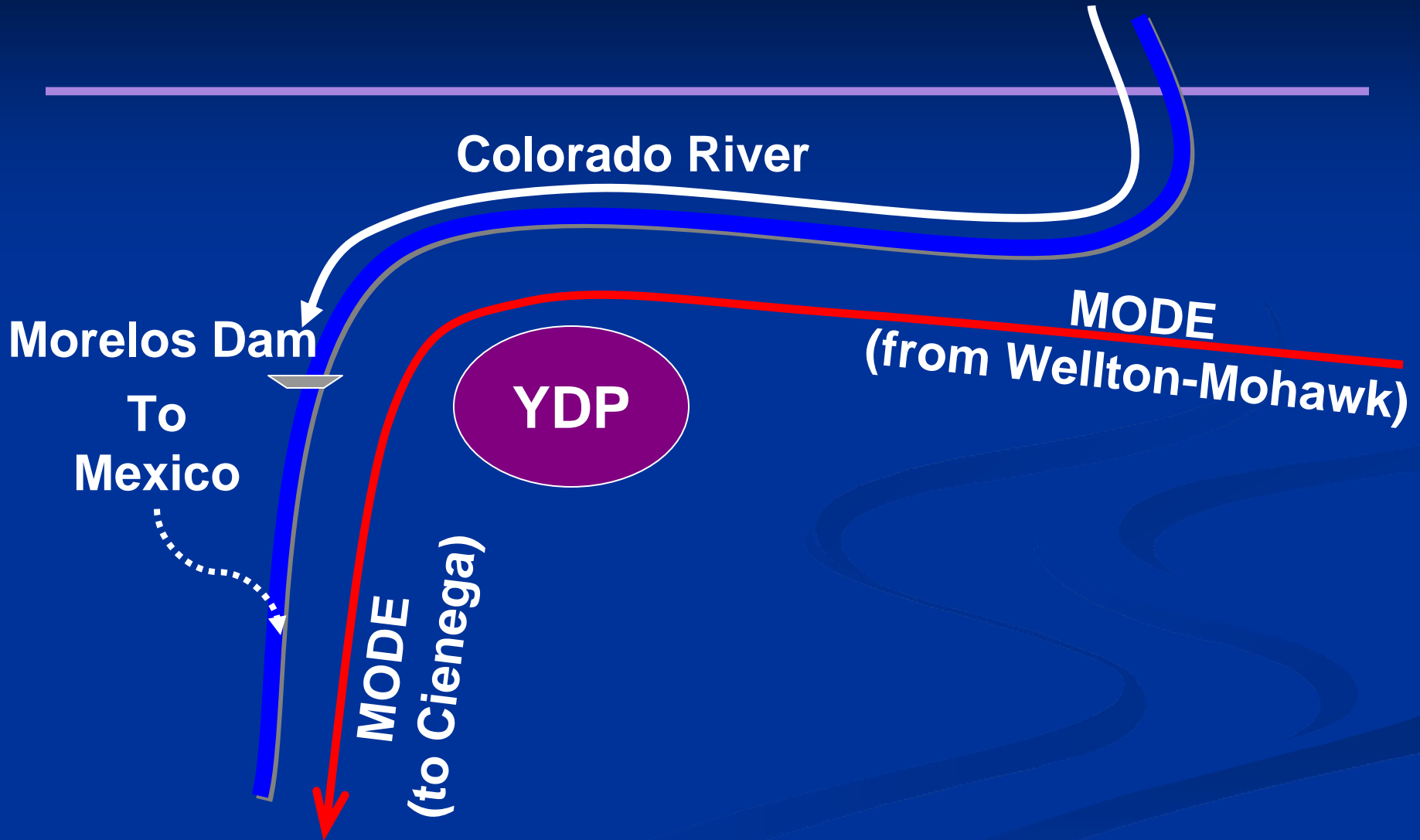
SOUTHERLY INTERNATIONAL BOUNDARY

San Luis

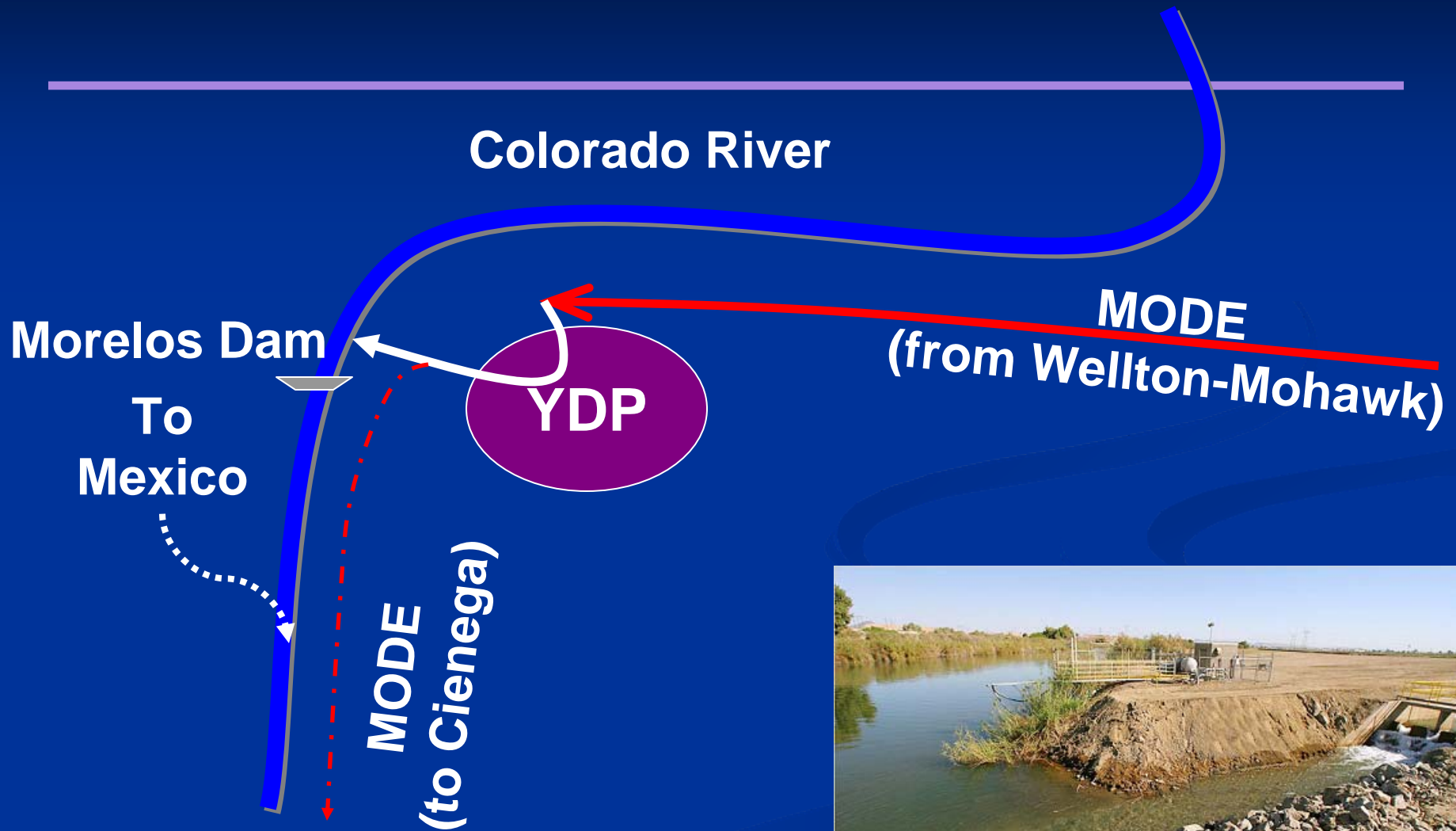


No YDP Operation

Additional water



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

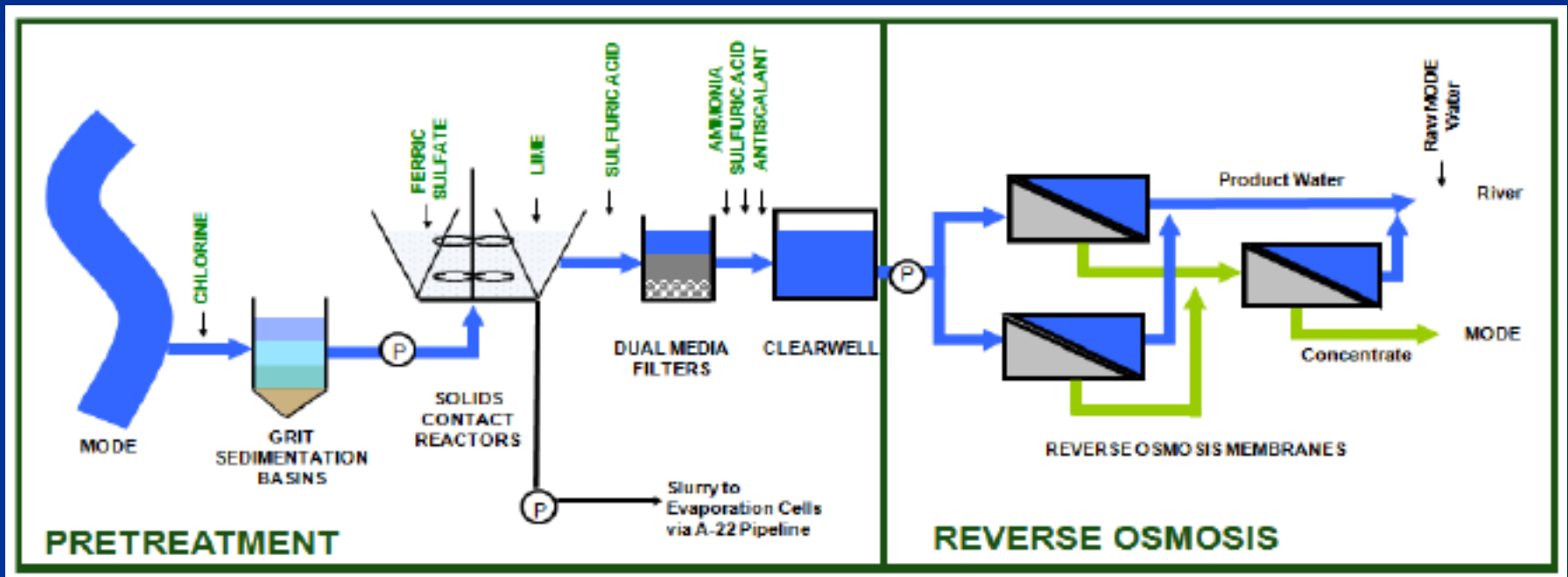
YDP Pilot Run Overview

- 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



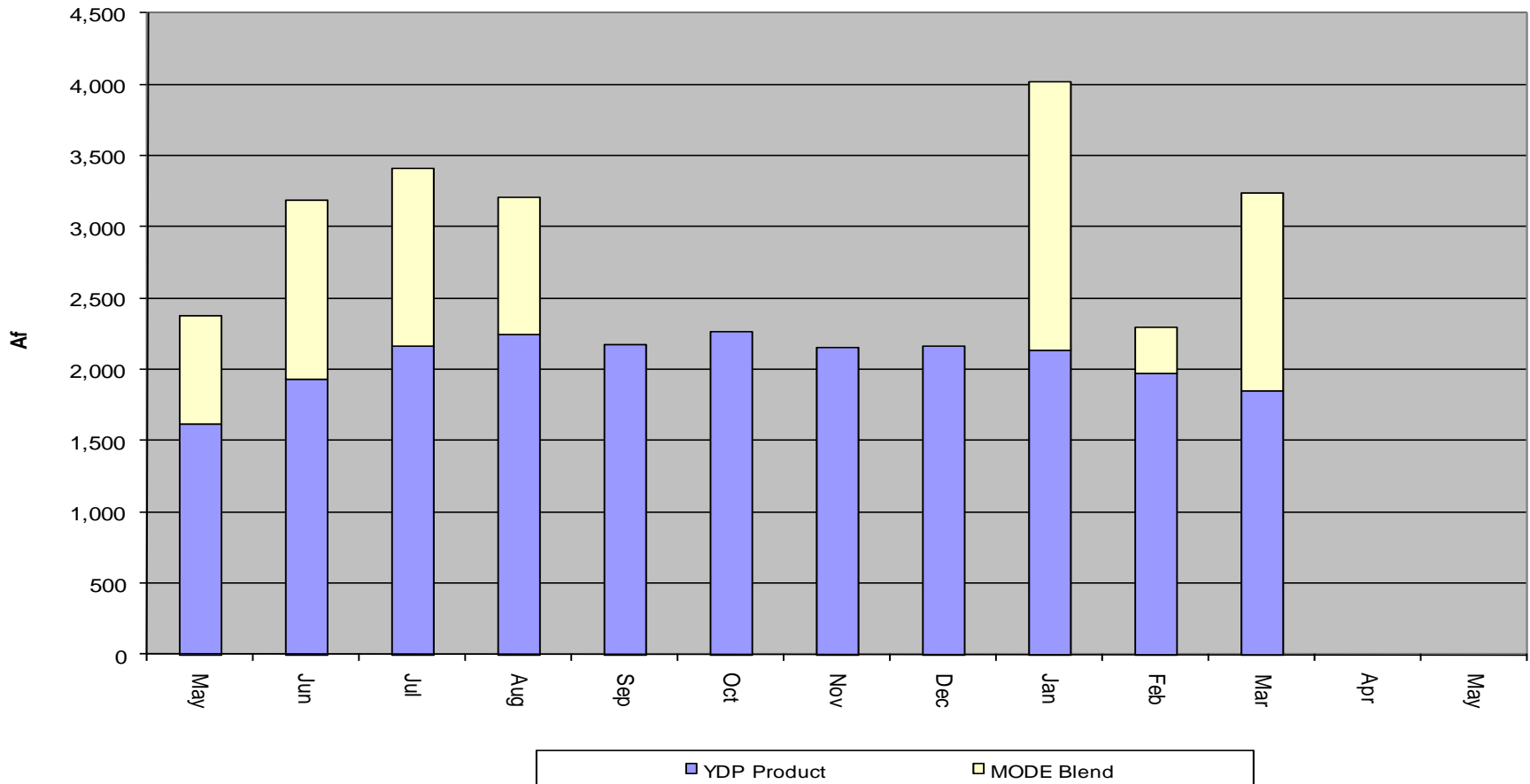
Pilot Run RO Feed Pumps

- 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)

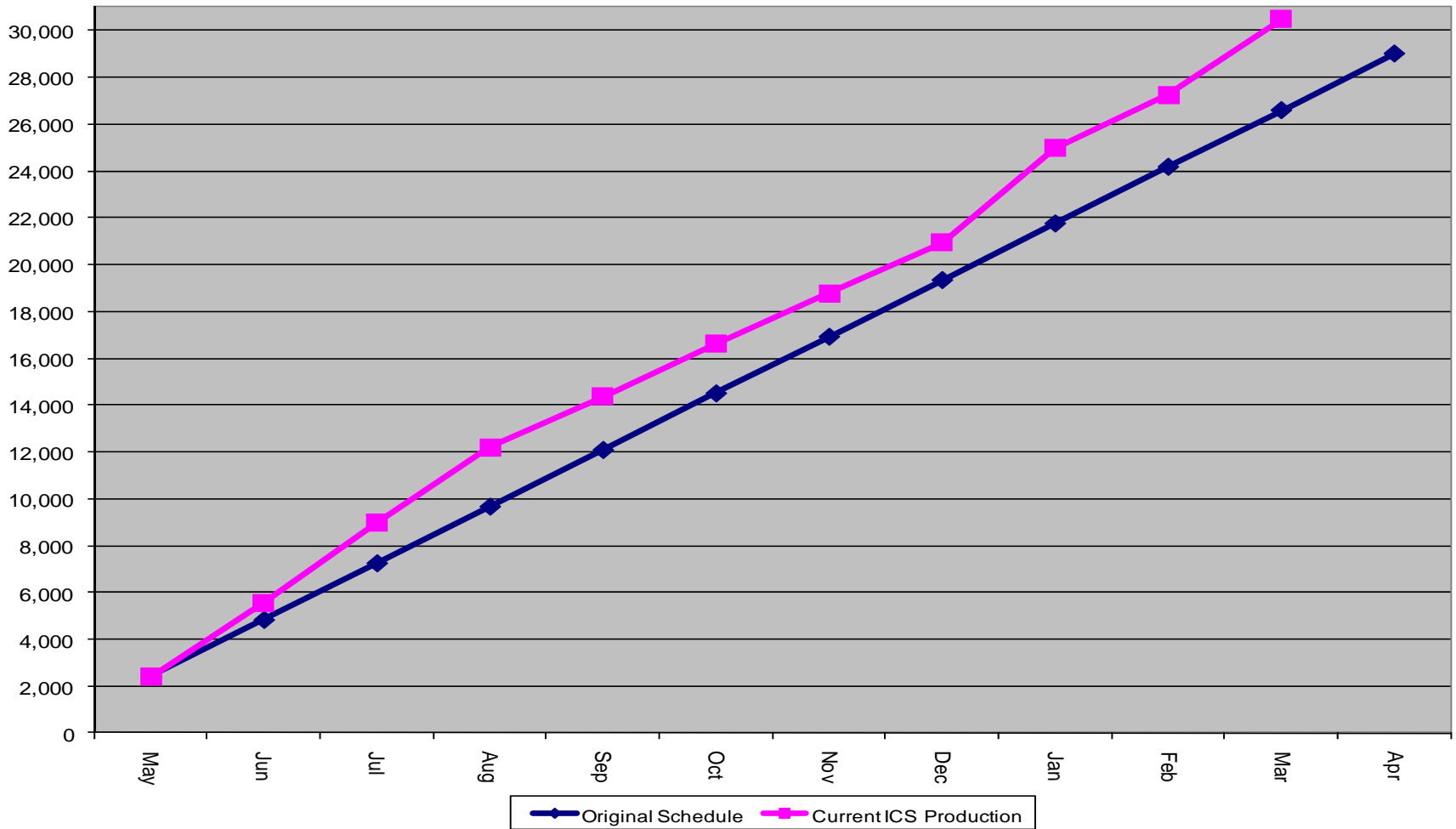


YDP Pilot Run Water Production

YDP Pilot Run ICS Production



YDP Pilot Run Production

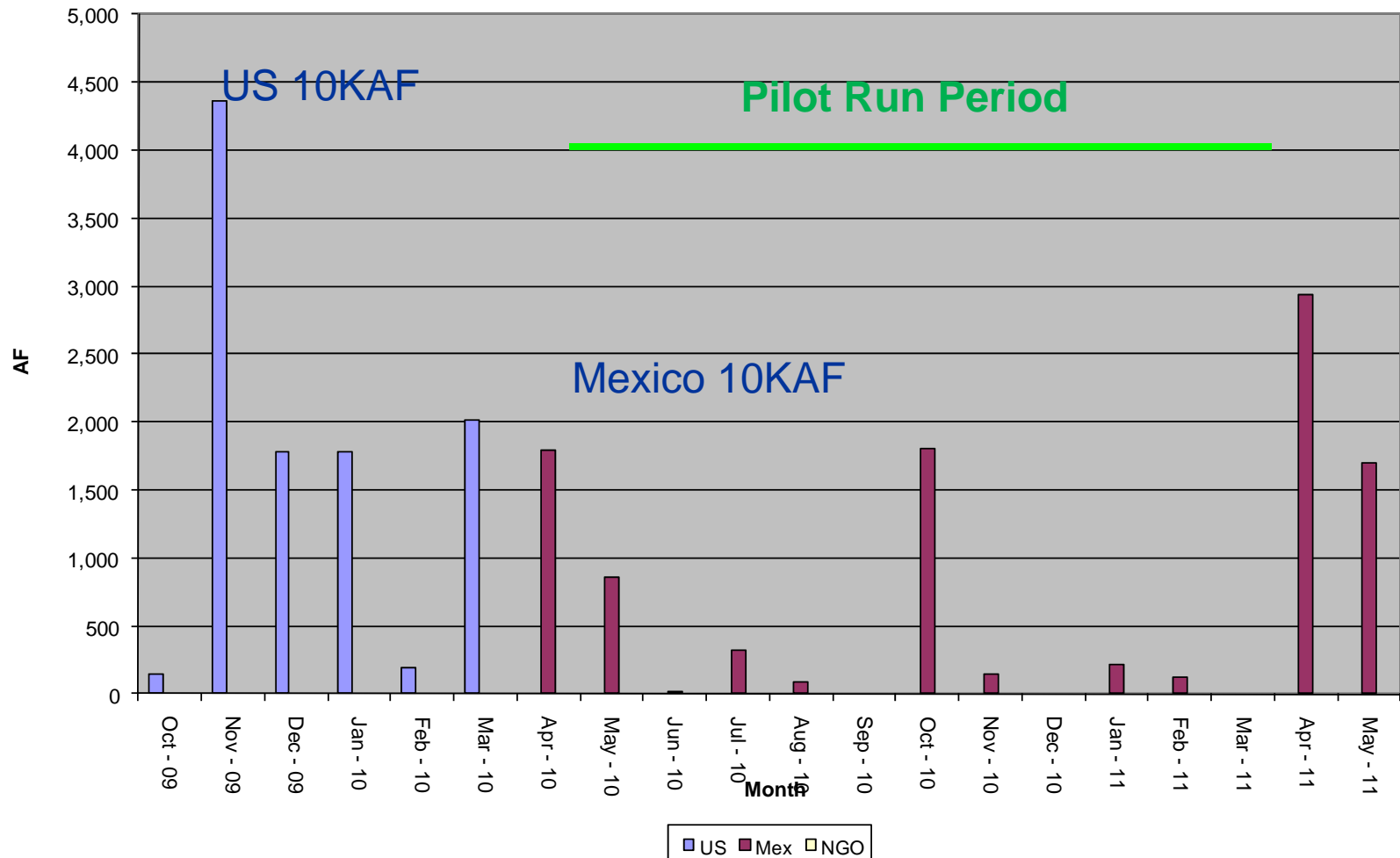


Cost Summary

- 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)

Arranged Water Deliveries



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?

