PCWAA / GUAC WATER FORUM – DROUGHT, DCP, PINAL IMPACTS

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Changes Ahead for Pinal Ag Users of Central Arizona Project Water

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MSIDD History/Milestones

- Late 1930’s: First Wells/Farming
- Late 1950’s: Area Fully Developed on Groundwater
- 1962: Established as Special District Under Title 48 A.R.S. with Hope of Receiving Colorado River Water
  - Governed By Nine Member Elected Board of Directors
- 1968: CAP Authorized
  - Arizona Settles for Junior Priority with Future Augmentation
- 1980: Groundwater Management Act
• 1981: Landowner Election to Approve District Project

• 1985-1989: Project Construction (10 Contracts)
  • First Delivery of CAP Water – May 22, 1987

• 1989: District Acquires Wells and Completes Delivery System

• 1994: 10-Year CAP Water Pricing Policy

• 2004: Arizona Water Settlements Act (GRIC Settlement)
  • Created Excess Water – Ag Pool Priority
    • 400,000 AF thru 2016; 300,000 AF thru 2023; 225,000 AF thru 2030

• 2007: Basin States Agree to Shortage Sharing Guidelines

• 2019: Lower Basin Drought Contingency Plan (DCP) ????
BEFORE 1989

- Crops: Cotton, Grains, Fruits, Nuts, Vegetables
- Pumped 350,000 – 400,000 AFA of Groundwater
- Groundwater Levels Declining at > 10 ft. Per Year
- Subsidence Up to 18 Feet in Stanfield Area
- Fallowed Acreage High by Early 1980’s

SINCE 1989

- Pumped 3,000,000 AF of Groundwater (100K / Year)
- Delivered over 4,600,000 AF of CAP Water
- Groundwater Levels Recovered / Stabilized
- More Land Back in Production
- Crops Shifted to Alfalfa and Feed Grains for Dairies
District “Conjunctive Use” Project

480 Square Miles - West of Casa Grande
Between Gila River and Tohono O’Odham Nations

87,000 Gross Acres (80,000 Farmable in 1989)
Canal System Completed in 1989
District Acquired Over 400 Operable Irrigation Wells in 1989 (1,000 cfs)
40-year Lease Agreements with Landowners

- **Canal System:**
  - Santa Rosa Canal: 56 Miles
    - Serves Ak-Chin Community & CAIDD
  - East Main Canal: 17 Miles
  - Lateral Canals: 130 Miles
  - 193 Delivery Turnouts (95% Gravity)
  - Entire Service Area Has Equal Access to CAP Water
  - SCADA/ No Regulatory Storage

- **Groundwater System:**
  - Current Capacity: Over 450 cfs (152 Wells)
    - Capacity Lost to Development: 150 cfs (70 Wells)
  - Current Production Capability: 186,000 AFA*
    - 74% of Wells Connected to Canal System
  - Uneven Access - “GW Poor/Dry” Areas
  - Capital Improvement Program for 2019
    - Increase Capability by 10,000 AFA*
    - 78% of Wells Connected to Canal System

* Depends on Annual Demand and Well Location
## The Shortage Challenge

<table>
<thead>
<tr>
<th>Recent Supplies</th>
<th>Supplies During Level 1 Shortage</th>
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<tbody>
<tr>
<td>CAP: 140,000</td>
<td>50,000**</td>
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<tr>
<td>GW: 130,000*</td>
<td>&gt; &gt; &gt; ? ?</td>
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<td>270,000</td>
<td>170,000</td>
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<td>220,000</td>
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Can MSIDDD Increase Groundwater Production to 200,000 AFA?

* District Capability 180,000 – 190,000 AFA
** Assumes 15,000 AF from GSF Partners
Forbearance: Protect Lake Mead Water Levels
Delayed Onset of Level 1 Shortage Until 2020 or Later
- CAP Ag Contribution – 200,000 AF = 2’ in Lake Mead

Drought Contingency Plan Among AZ, CA & NV
An Insurance Policy?

Increase Groundwater Pumping
How Much More and For How Long
Concern Over Preserving Resource

Growers Increase Fallowing

Growers Continue Shift to Efficient Low-Head Irrigation Systems
Make GW Supplies More Effective
Must Be Affordable

Growers Change to Alternative Crops
Must Prove Profitability – Long Term
Requires Investment in Infrastructure
Preparing for Reduced CAP Supplies
Investments in GW Infrastructure

- Rehabilitation of Existing Wells
  - Preservation & Augmentation
- Pipeline Infrastructure

- 2009 – 2012: $1.5 Million Revenue Bond
  Prepare for 2017 Ag Pool Reductions – Target: 170,000 AFA
- 2013: 3-Year Plan- $1.2 Million in Reserves
- 2014: Construction Improvement Program Study
- 2015 – 2018: CIP Implementation
  Increase Use of Reserves by $2.0 Million
- 2019 - 2022: DCP GW Infrastructure Proposal
DCP – What It Means For Pinal Ag

• The Deal:
  • Years 2020 - 2022: 105,000 AF of CAP Water
    • Split Among 6 Ag Districts – 4 in Pinal County
  • Years 2023 - 2026: GW Infrastructure Funding for 70,000 AF
    • Split Among 7 Ag Districts – 5 in Pinal County
    • Presumes Continued Shortage – No CAP Supplies Available
    • Replaces Lost CAP Ag Pool Water
    • Requires Construction from 2019 Through 2022

• Changes to Colorado River Supplies
  • Current Ag Pool for MSIDD – Non-Shortage Conditions:
    • Years 2017 Through 2023 – 82,000 AF
    • Years 2024 Through 2030 – 61,000 AF
    • After 2030: Purchases/Leases of Higher Priority Supplies
  • Level 1 Shortage - 2007 Guidelines: 41,000 AF (Based on 2016)
  • Level 1 Shortage – Arizona DCP Agreement: 35,000 AF

• Changes to Groundwater Pumping
  • Planned Pumping for 2019: 150,000 AF
  • Planned Pumping for 2020 Shortage: 170,000 AF
  • Can We Get to 200,000 AF with Limited CAP Supplies?
    • Need CAP Water to Maximize System Capability
DCP – What It Means For Pinal Ag

• Potential Changes to Farmable Acreage
  • Cropped Acreage 2018: 60,000 acres
  • Estimated Cropped Acreage 2019: 55,000 acres
    • (Reduced from 4.4 to 4.0 AF/ac availability)
  • Projected Acreage in 2020 Shortage: 40,000 to 45,000 acres
  • Will Fallowing Be Uniform or Shift to Areas with More GW

• Potential Changes to Crop Mix?
  • Lower Water Use
  • Larger Margins / Higher Value
  • On-Farm Infrastructure Investments
  • Developing Markets

• Changes By 2030?
  • New Technologies for Pumping, On-Farm Irrigation Systems
  • Arizona Water Policy
    • Food Security = Water Security (Family Farm Alliance)

Why?: We Like to Eat & It’s the Right Thing To Do!
“A Few Random Thoughts”

- **“Additional” DCP Related Pumping**
  - Historic 350,000 to 400,000 AFA
  - Debt Restructure Limitation: 250,000 AFA
  - Likely District Pumping During Shortage: 170,000 to 180,000 AFA
    - Includes Pumping Funded By DCP Infrastructure Financing
    - Consistent With Pinal AMA Goal and Conservation Programs
  - 80,000 AF of the 14,000,000 AF to be pumped in next 100 Years
  - What is Risk of Renewed Subsidence?

- **Secondary Effects to Pinal Economy**
  - U of A Pinal Ag Study
  - Equipment, Seed, Fertilizer Suppliers, etc.

- **Conservation & Efficiency**
  - Conserving Water in Lake Mead by Fallowing 30–40%
  - Living the Dream Since 1980 – See CAP 2013 White Paper
  - MSIDDD Delivery System Losses <4%
  - On-Farm Systems 85-90% Efficient
QUESTIONS?