Innovative Water Recycling

The “Santa Paula” Case Study

Presented by Steve Owen,

Vice President, PERC Water Corporation

”We don’t use water. We just borrow it.”

Johan Persson

Santa Paula, California

- Located about 65 miles northwest of Los Angeles
- Current population of approximately 30,000
- Known as the “The Citrus Capital of the World”

Santa Paula, California

The “Problem”

The “Problem” for Santa Paula

- City was out of Compliance with the State of California with its 70 year old facility
- City discharged Effluent without Reuse
- City faced $8 million of Fines by the State of California
- City spent $2.5 million on 60% Design
- City entered into a Settlement Agreement with the State to get into Compliance by December 2010
- City lacked certainty of capital cost and schedule
- City lacked certainty of funding

Santa Paula, California

The “City’s Goals”

The “Goals” for Santa Paula

- Comply with the State Compliance Deadline
- Avoid Fines
- Recycle and Reuse Wastewater
- Provide certainty of costs for at least 30 years
- Transfer Water Quality and Performance Risk away from the City
- Limit economic exposure of citizens via long-term sewer rate stability
- City to maintain control over setting rates

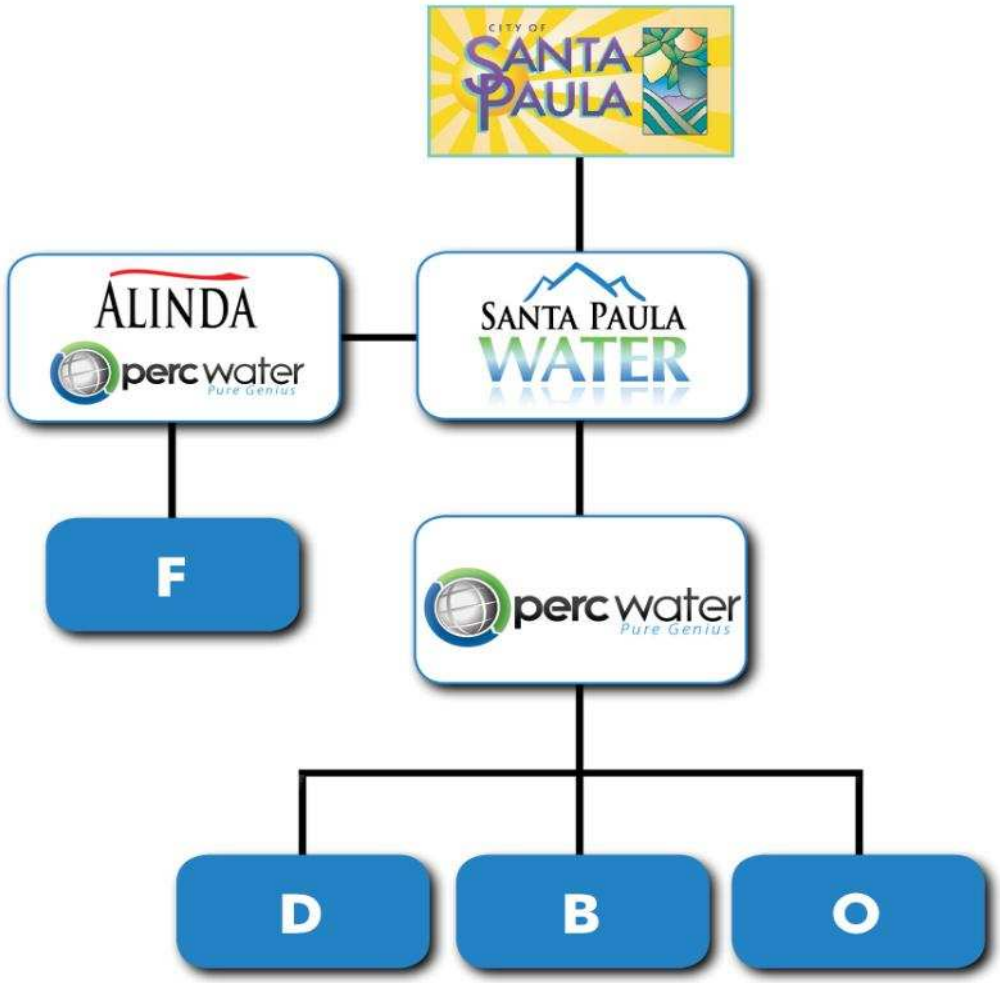
Santa Paula, California

The “Total Solution™”

The “Total Solution™” for Santa Paula

- Abandon Design-Bid-Build Approach and voted for Design/Build/Operate/Finance Approach
- Retain PERC Water / Infrastructure Fund Manager Team to provide a Total Solution™:
  - 100% Privately Funded
  - 30 Years of “Certainty” for Costs
  - Guaranteed to meet Compliance Deadlines
  - Guaranteed Water Quality / Permit Compliance
  - Produce Recycled Water for City Reuse

PPP / Service Agreement Structure



Risk Allocation Table

		Traditional Design-Bid-Build Approach	PERC Water Design-Build Approach (DB)	PERC Water Design-Build-Operate Approach (DBO)	PERC Water Design-Build-Operate-Finance Approach (DBOF)
Design & Build	Design/Build Cost	Client	PERC Water	PERC Water	PERC Water/Finance Partner
	Schedule/Completion	Client	PERC Water	PERC Water	PERC Water/Finance Partner
	Construction Warranties	Client	PERC Water	PERC Water	PERC Water/Finance Partner
Asset Management	Water Quality Performance	Client	Client	PERC Water	PERC Water/Finance Partner
	Capital Replacement	Client	Client	PERC Water	PERC Water/Finance Partner
	Power	Client	Client	PERC Water	PERC Water/Finance Partner
	Biosolids	Client	Client	PERC Water	PERC Water/Finance Partner
	Life Cycle Costs	Client	Client	PERC Water	PERC Water/Finance Partner
	Operation & Maintenance	Client	Client	PERC Water	PERC Water/Finance Partner
Financing	Long Term Financing	Client	Client	Client	PERC Water/Finance Partner
	Interest Rate	Client	Client	Client	PERC Water/Finance Partner

2009 GWI Water Deal of the Year
"Award of Distinction"

- Recognizes deals that have made the biggest contribution to the advancement of public-private partnerships in the international water sector in 2008
- "bold new direction in the financing of US water infrastructure"
- "ground-breaking transaction which can be emulated across the United States"

Introducing the Santa Paula Water Recycling Facility

Project Type: 30 Year Design/Build/Operate/Finance

Capacity: 15,900 m3/day (4.2 MGD)

Population Capacity: 50,000

Design: 6 Months (Started May 2008)

Construction: 20 Months (Scheduled for May 2010 Operations)

Total Cost (All-In): $4.82 per 1,000 Gallons / $1.27 per 1,000 Litres (Year 1)

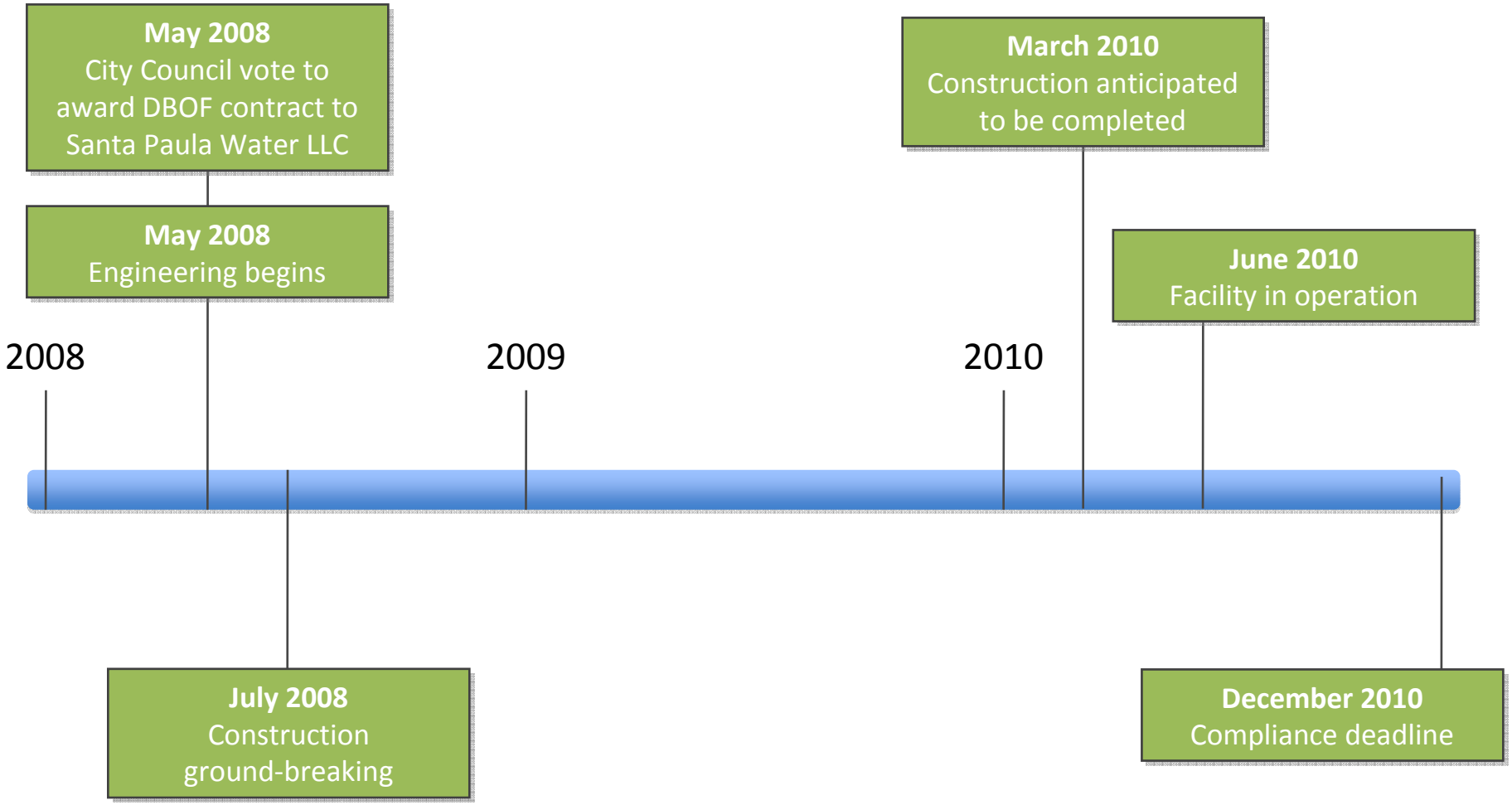
Innovative Design

- Membrane Bioreactor using Koch's Puron Membranes
- California Title 22 Unrestricted Reuse Facility
- Total Tank Area less than 1 Acre
- Built Underground, Covered Tanks with Concrete Slab
- Operations Buildings constructed above Tank Area
- Water Feature donated to the City
- Integrated Solar Power Connectivity

PERC Water ASP® Tank Layout

PERC Water ASP® “Above-Tank” Building Layout

Timeline


May 2008
City Council vote to award DBOF contract to Santa Paula Water LLC
May 2008
Engineering begins
March 2010
Construction anticipated to be completed
June 2010
Facility in operation
2008
2009
2010
July 2008
Construction ground-breaking
December 2010
Compliance deadline

Santa Paula Water Recycling Facility

As of September 2008

Santa Paula Water Recycling Facility

As of December 2008

Santa Paula Water Recycling Facility

As of November 2009

Santa Paula Water Recycling Facility

As of January 2010

Santa Paula, California

Future Reuse & Recharge

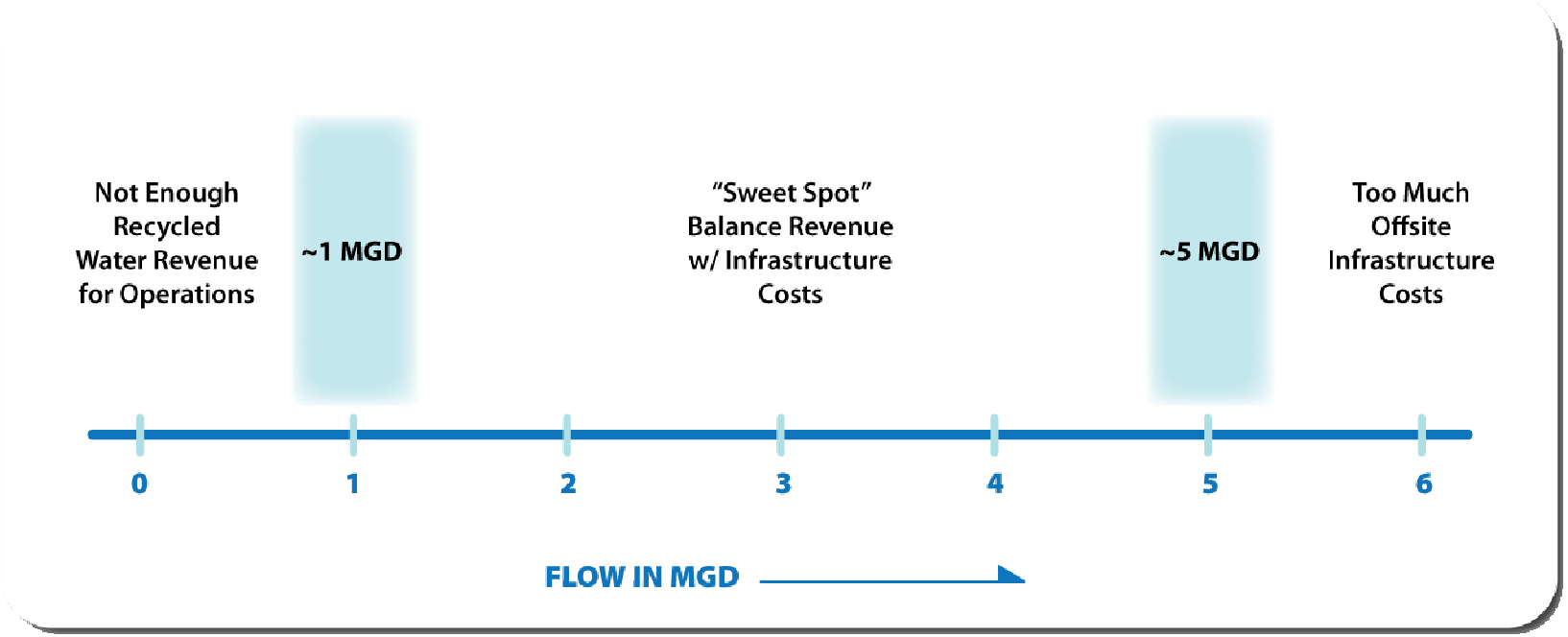
perc water
Pure Genius

Santa Paula, California

- 16 Acres of Percolation Basins
- Effluent Resource Currently Wasted / River Discharge
- Dispose of Effluent Underground

perc water
Pure Genius

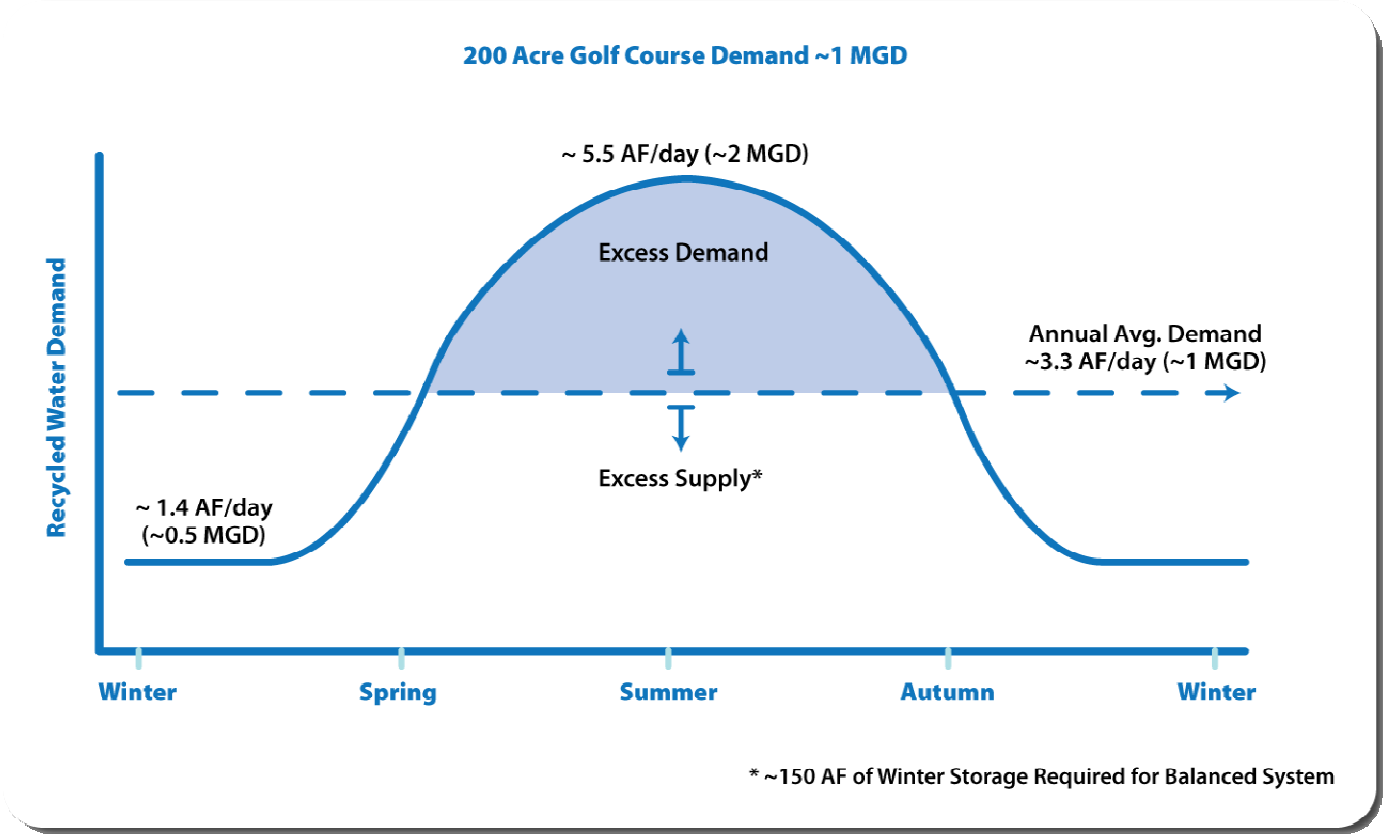
Tremendous Economic Opportunity for Reuse of Effluent at Santa Paula's Size



Proposed Effluent Reuse

- Up to 4.2 MGD (16,000m3/ day)
  - High level recycled water (Title 22 Compliant)
  - Potential Desalination Upgrade
  - Reuse Demands:
    1) Large Agriculture User
    2) City Parks

Seasonal Changes Means Demand Doesn't Equal Supply



Reuse Demand Doesn't Equal Supply

Two Options:

- Size for Summer & Have Winter Storage / Discharge of Excess
- Size for Winter & Have Summer Makeup Water Supply

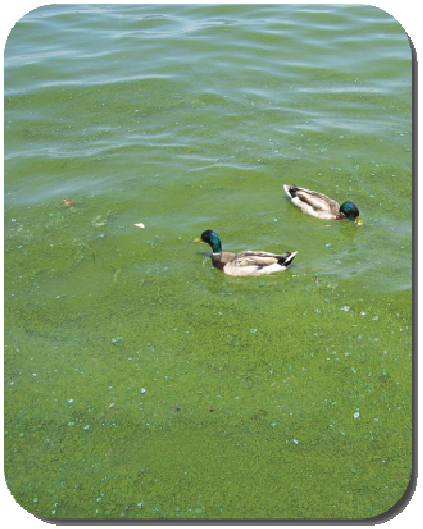
Underground Storage is Other Common Winter Storage:

- Vadose zone injection wells are popular due to excess quantity in winter and SAT of nutrients

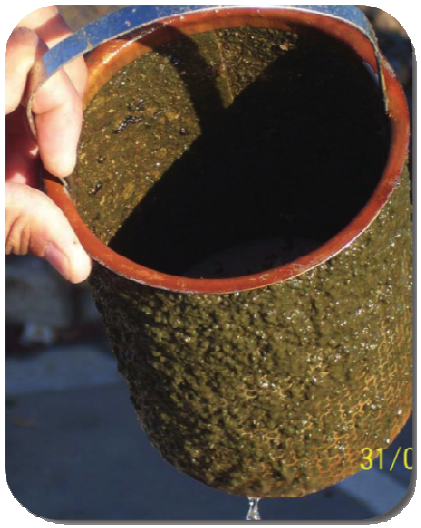
In Addition to High Clarity, Appeal for Recycled Water Dependent On Nutrients, Salts

- Membrane Bioreactor with Nutrient Removal and Desal Provides Highest Value Recycled Water

Eutrophic Lakes / Basin



Clogging of Filters



Difficult Control of Horticulture

Suggested Water Quality Better Than Agency Guidelines

Parameter	CA Title 22 Unrestricted Reuse Guidelines	EPA Recommended Reuse Guidelines	Suggested Objectives
Clarity			
Turbidity	< 2 NTU	Not Specified	**< 2 NTU**
Filtration Requirement	Required	Not Specified	**Install Filtration**
Nutrient Content			
BODs	< 10 mg/L	< 10 mg/L	**< 5 mg/L**
Total Nitrogen	Not Specified	Not Specified	**< 5 mg/L**
Salinity			
TDS	Not Specified	500 - 1000 mg/L	**< 750 mg/L**
SAR	Not Specified	< 4	**< 4**

Thank You for Listening

Questions?