The Clarkdale Project
Recycling a Complete Wastewater Treatment Plant

ADVANTAGES OF ALTERNATIVE DELIVERY PROCUREMENT METHOD
- Timing
- Cost Control
- Flexibility
- Inventive Thinking
- Institutional Knowledge

Project Team
Fred Goldman, PhD, PE

Thank You
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Project Team

FELIX CONSTRUCTION COMPANY

CLARKDALE, ARIZONA, A HISTORIC TOWN

SEC INC.
-SINCE 1974-

Pulte Homes Centex

WIFA

ADEQ
Arizona Department of Environmental Quality

Fred Goldman, PhD, PE
PROJECT EVOLUTION

2005

DEsert Oasis WWTP

ClARKDALE WWTP

2007

CLARKDALE Wastewater Improvements Needed
- Developer Moratorium
- ADEQ Compliance

$14.4M - Original Estimate to build a 65MGD WWTP

2010

Feasibility Study
Fred Goldman/SEC are asked by Clarkdale to perform a feasibility study to see how they could get a plant for less than $5M that would meet the needs of the Town and ADEQ.

2011

City of Yucca Valley WWTP is Commissioned in February 2011
Desert Oasis WWTP - No Longer Needed

2012

The teams were assembled

Fred Goldman has an idea!
To expand the Desert Oasis WWTP to Yucca Valley to support Clarkdale, AZ is it feasible to do it?

Desert Oasis Decommissioned
Clarkdale buys the entire plant and refurbishes all equipment.
Clarkdale Wastewater Improvements Needed

- Developer Moratorium
- ADEQ Compliance

$14.4M - Original Estimate to build a 0.65MGD WWTP
Feasibility Study

Fred Goldman/SEC are asked by Clarkdale to perform a feasibility study to see how they could get a plant for less than $5M that would meet the needs of the Town and ADEQ.
City of Surprise SPA2 WWTP is Commissioned in February 2011

Desert Oasis WWTP No Longer Needed

Pulte/Centex needs to Decommission Desert Oasis WWTP - Seeks help from original team.

2011

Fred Goldman, PhD, PE
Fred Goldman has an idea!

Is it possible to decommission the Desert Oasis WWTP in Surprise AZ, transport it to Clarkdale, AZ, and rebuild the plant?
2012

The teams were assembled

Desert Oasis Decommissioned

Clarkdale buys the entire plant and refurbishes all equipment
Engineering CHALLENGES

- How to decommission a WWTP
- How to reconstruct a WWTP
Permitting CHALLENGES

- Clean Closure on existing WWTP lagoons at site of reconstructed plant
- Interim Operating Permit during construction of the new plant
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Construction CHALLENGES

Multiple GMP's

Timing
Construction CHALLENGES

- Conceptual Estimating
- Use of Allowance for unknowns

Cost Control

Cost vs. Percent Design Completion Graph:
- 0% to 30%: $4.3M
- 30% to 60%: $5M+
- 60% to 100%: $4.3M
Construction CHALLENGES

Expected Quantity Sludge

Flexibility
Construction CHALLENGES
Bypass Pumping Inventive Thinking
Construction CHALLENGES

Institutional Knowledge

Reconstruction of Plant
Thank You
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Fred Goldman, PhD, PE

Wastewater Project of the Year - 2013