

Water Reuse

2020 CIFA SRF Workshop

Presented by

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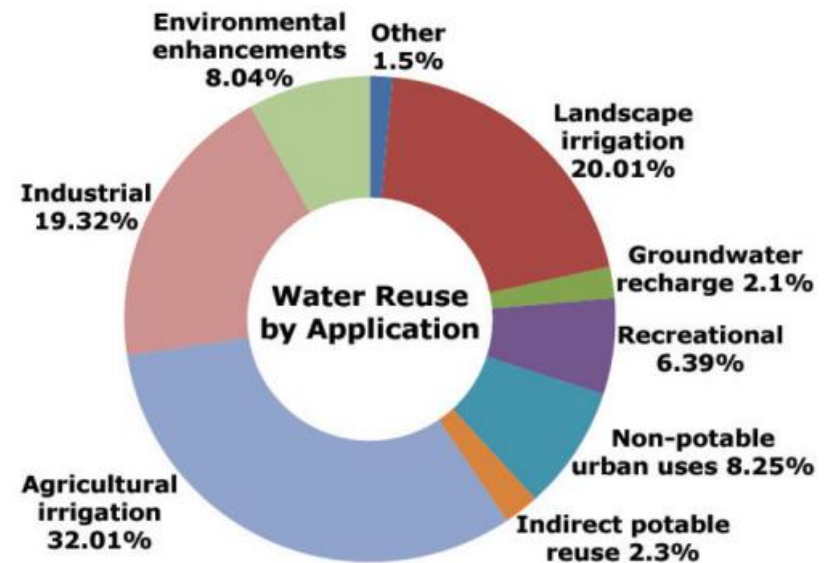
Financial Assistance Division

Oklahoma Water Resources Board

November 12, 2020



Global Water Reuse



Global water reuse after advanced (tertiary) treatment: market share by application. Source: 2012 Guidelines for Water Reuse, nepis.epa.gov/Adobe/PDF/P100FS7K.pdf.

Water Reuse in Oklahoma

- Oklahoma Water for 2060 Act
 - Overview
 - Water Reuse
- Water Reuse in Oklahoma
 - Permitting
 - CWSRF Case Study: Bartlesville
 - Other reuse initiatives

Oklahoma Water for 2060 Act

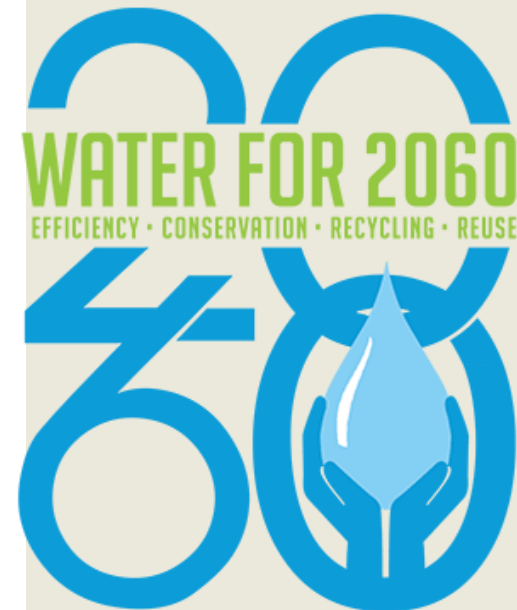
In 2012, House Bill 3055 established a statewide goal to consuming no more fresh water in 2060 than was consumed in 2010.

Water for 2060 emphasizes the use of education and incentives, rather than mandates, to achieve this ambitious goal without limiting Oklahoma's future growth and prosperity.

EDUCATION AND OUTREACH
PUBLIC WATER SUPPLY
CROP IRRIGATION
ENERGY & INDUSTRY

Water for 2060

- › Overview
- › Water Reuse



Categories of Reclaimed Water



Category 2

Public Access
Landscapes &
Unrestricted
Access Golf
Courses



Category 3

Cooling Towers
& New
Restricted
Access Golf
Courses



Category 4

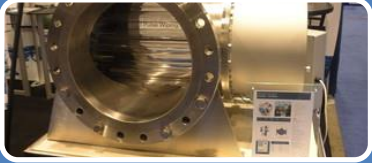
Soil Compaction
& Existing
Restricted
Access Golf
Courses



Category 5

Restricted
Access Irrigation
of Pasture and
Forage Crops

Treatment Requirements



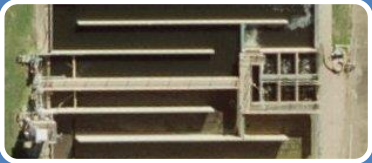
Category 2

Mechanical Treatment with High Disinfection



Category 3

Mechanical Treatment with Disinfection



Category 4

Lagoon Treatment with Disinfection



Category 5

Lagoon treatment

Water Reuse in Oklahoma

Reuse in Oklahoma

› Permitting

› Case Study: Bartlesville

› Other reuse initiatives

Permitting process for IPR in OK's Administrative Code

252:628-9-2. Permitting process

The permit application is a six-step process:

- (1) Submit a feasibility study;
- (2) Submit a pilot study protocol, if required;
- (3) Submit a Wasteload Allocation (Modification) Request letter:
 - (A) The applicant shall be required to provide a hydrodynamic water quality model and a hydrologic mass balance model; and
 - (B) Any new or modified wasteload allocations require an update to the Oklahoma Water Quality Management Plan (208 Plan) which also requires approval from EPA Region 6.
- (4) Submit an engineering report (as described in OAC 252:656-3-4), including the results from pilot studies. Also, the engineering report shall be accompanied by the proposed Parameter Monitoring Lists as described in OAC 252:628-11-7;
- (5) Submit an OPDES permit application (as described in OAC 252:606) along with the Contingency Plan described in OAC 252:628-1-3(h); and
- (6) Submit the final design report (as described in OAC 252:656-3-5) along with the required application forms.

Water Reuse in Oklahoma

Reuse in Oklahoma

- › Permitting
- › **Case Study: Bartlesville**
- › Other reuse initiatives

Case Study: Bartlesville

Bartlesville has been working with OWRB since 1991. Over the last 30 years, they have used the CWSRF, DWSRF and FAP programs to fund projects for over \$65M.

Bartlesville just secured funding through OWRB for an IPR project which will increase their water availability through a new CWSRF loan for \$8,220,000.



Water Reuse in Oklahoma

Reuse in Oklahoma

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- › **Case Study: Bartlesville**
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Case Study: Bartlesville – Project Timeline

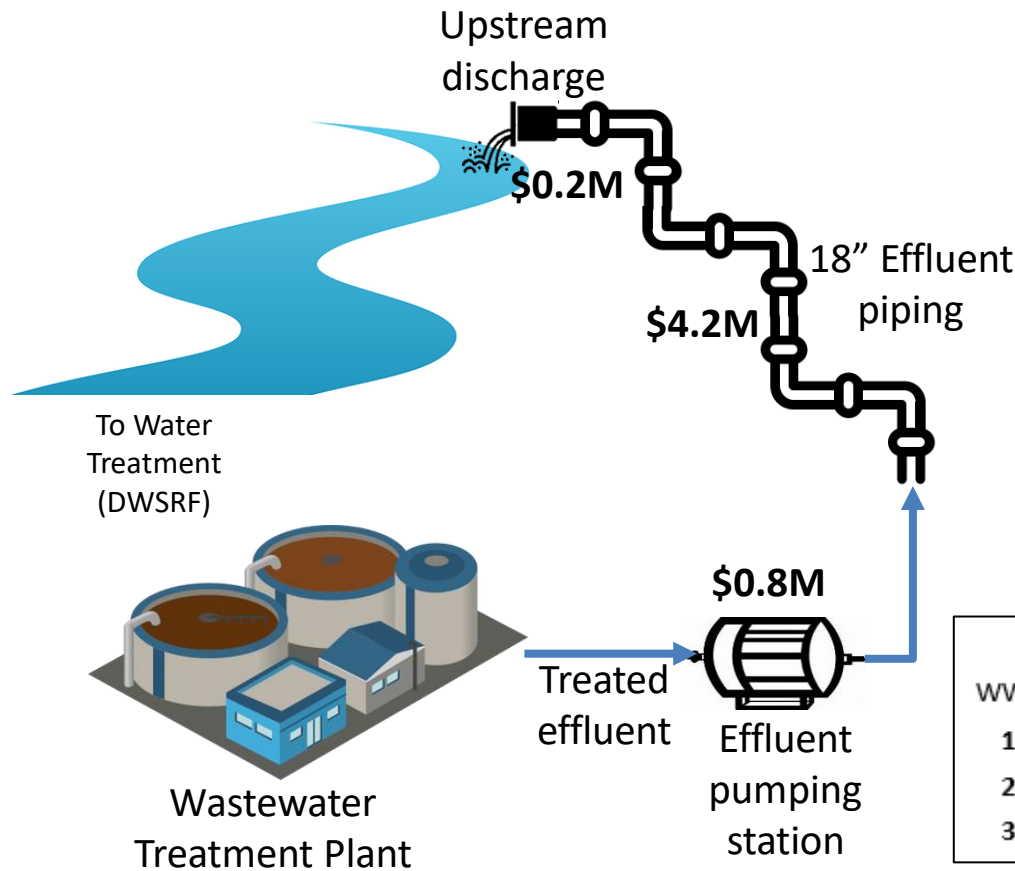
Milestone	Date
Engineering Report (ER) submitted to DEQ	March 2020
DEQ submitted comments	May 2020
Revised ER submitted to DEQ	June 2020
ER Conditional approval obtained from DEQ	07/07/20
Application for funding to OWRB (\$8.22M, 30 yr)	07/16/20
Board approval for loan ORF-21-0002-CW	08/18/20
Loan closing	08/19/20
Advertising	TBD
Construction start	TBD
Tentative project completion	Nov. 2021

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Case Study: Bartlesville – Project Description



PROPOSED PROJECT: Indirect Potable Reuse
WWTP's effluent pumped upstream. We need:

- | | |
|---------------------------|-------------------------------|
| 1. Pump station (0.8M\$) | 4. Mobilization (0.5M\$) |
| 2. Effluent line (4.2M\$) | 5. Contractor's profit (1M\$) |
| 3. Cascade (0.2M\$) | 6. Contingency (1.2M\$) |

Water Reuse in Oklahoma

Water Reuse funded through CWSRF

- Pawnee Public Works Authority (2011): Non-Potable gray water system (\$85,000)
- Tulsa Municipal Utility Authority (2012): Non-potable gray water system (\$1.08M)
- Norman Utilities Authority (2014): Non-potable washdown (\$50,000)
- Lawton Water Authority (2016): Alternative water supply feasibility study (\$200,000)
- Broken Arrow Municipal Authority (2018): Non-potable reuse water system (\$759,520)
- Elgin Public Works Authority (2019): Reuse irrigation system (\$1.4M)

Reuse in Oklahoma

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Thank You

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