Texas Produced Water Consortium (TxPWC)
Stakeholder Meeting – Membership & Subcommittee Structure
September 28, 2021

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Water Demands in Texas are Growing

Water resources are dwindling in many places; can treated produced water have a more beneficial use beyond industry reuse and/or injection?
Substantial “New” Water Available

Excess water 2009-2017

Statewide Produced Water Projections

<table>
<thead>
<tr>
<th>Year</th>
<th>MMBbls/yr</th>
<th>Calculated KAF/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>7,400</td>
<td>953</td>
</tr>
<tr>
<td>2021</td>
<td>7,670</td>
<td>989</td>
</tr>
<tr>
<td>2022</td>
<td>7,990</td>
<td>1030</td>
</tr>
<tr>
<td>2023</td>
<td>8,240</td>
<td>1062</td>
</tr>
<tr>
<td>2024</td>
<td>8,510</td>
<td>1097</td>
</tr>
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“Sustainable Produced Water Policy, Regulatory Framework, and Management in the Texas Oil and Natural Gas Industry: 2019 and Beyond,” Lyons et al, 2019
Texas Produced Water Consortium

Created by SB 601 during 2021 Legislative Session

“The consortium shall study the economic, environmental, and public health considerations of beneficial uses of fluid oil and gas waste and technology needed for those uses. After October 1, 2022:

(1) the research and investigation goals of the consortium shall be directed by the members of the consortium; and

(2) the host university may disband the consortium if the host university determines that the consortium does not have sufficient membership.”
Report Requirements of SB601

“Not later than September 1, 2022, the consortium shall produce a report that includes:

(1) suggested changes to law and administrative rules to better enable beneficial uses of fluid oil and gas waste, including specific changes designed to find and define beneficial uses for fluid oil and gas waste outside of the oil and gas industry;

(2) suggested guidance for establishing fluid oil and gas waste permitting and testing standards;

(3) A technologically and economically feasible pilot project for state participation in a facility designed and operated to recycle fluid oil and gas waste; and

(4) an economic model for using fluid oil and gas waste in a way that is economical and efficient and that protects public health and the environment.”
Consortium Structure

Texas Tech University
Administrator of the Texas Produced Water Consortium and Appoint the Advisory Councils

Stakeholder Advisory Council
Advise TTU on consortium goals including research, investigation, and contract development. Membership will include representation from the following areas, but not limited to:
- oil and gas industry
- agricultural water users
- industrial water users
- environmental interests
- oil and gas fluid waste recycling operations
- public water utilities
- landowners/groundwater owners
- commercial water recyclers & midstream companies

Government Agency Advisory Council
Include members to consult with on permitting, regulations, and treatment standards:
- Texas Railroad Commission
- State Energy Conservation Office
- Texas Commission on Environmental Quality
- Texas Economic Development & Tourism Department
- Texas Parks & Wildlife
- Texas Department of Agriculture
- Texas Water Development Board

Consortium Members
**TxPWC Leadership**

**Faculty Co-Directors**
- Eric Bernard: Landscape Architecture, College of Agricultural Science and Natural Resources (CASNR)
- Venki Uddameri: Water Resources Center, College of Engineering
- Marshall Watson: Petroleum Engineering, College of Engineering

**Executive Director**
- Rusty Smith
  - Extensive legislative experience in water, energy and agriculture

**Technical and Economic Steering Committee**
- Christy Bratcher, Associate Dean CASNR
- Brad Ewing, McLaughlin Chair of Free Enterprise, College of Business
- Danny Reible, Donovan Maddox Distinguished Chair, College of Engineering
TxPWC Membership/Participation

- The consortium seeks input from a broad range of stakeholders
- First year membership fees and structure are currently being worked out
  - Statute requires collaboration with the agency advisory board on fee structure
  - First year membership agreement draft in process
- For more information or to become a member, email Txpwc@ttu.edu
Agency Advisory Council – Comprised of representatives from the following state agencies: Texas Department of Agriculture, General Land Office, Texas Parks & Wildlife Department, Railroad Commission of Texas, Texas State Energy Conservation Office, Texas Commission on Environmental Quality, Texas Economic Development and Tourism Office within the office of the Governor, and Texas Water Development Board. Advises the consortium on matters related to the subject matter expertise of the agencies represented, including matters related to the regulation and permitting of and treatment standards for fluid oil and gas waste. Works with TTU to create a fee structure that establishes membership costs at various levels.

Stakeholder Advisory Council - Members appointed by TTU to represent each of the following entities: oil and gas industry, ag water users, industrial water users, environmental interests, fluid oil and gas waste recycling operators, public water utilities, landowners or owners of groundwater rights, commercial water recyclers and midstream water companies, and other appropriate interests or industries as necessary.

Technical and Economic Steering Committee – Members appointed by TTU. Provides technical, economic & scientific expertise. Committee will determine the feasibility of proposals for research or investigation by the consortium and decide which proposals the consortium will accept for research or investigation.

Consortium Members – Private entities paying the membership fee and executing a membership agreement. Membership allows for participation in open committees/subcommittees as well as granting access to data produced as a result of investigation by the consortium in an amount proportionate to the entity’s level of membership (to be determined).
For the inaugural year of the Texas Produced Water Consortium a membership fee of $1,000 will be enacted and a membership agreement effective for one year will be executed. The membership fee is statutorily mandated to support the research and investigation activities of the consortium. The consortium may also accept gifts and grants of money, equipment, or other resources necessary to accomplish its duties.

Members will be expected to join and contribute to one or more subcommittees focused on the following:

**Policies** – identify potential changes to law and administrative rules to better enable the beneficial use of produced water.

**Standards** – develop guidance for establishing produced water permitting and testing standards.

**Technologies** – identify scalable technologies for potential use in a state pilot project at a facility designed and operated to recycle produced water.

**Economics** – develop an economic model for using produced water efficiently.

For subcommittees where it is necessary to share IP to achieve its purpose, a non-disclosure agreement will be executed among the subcommittee members.

Inaugural members will also work together to make recommendations for the membership fee and structure to be established for year two and beyond, and a new membership agreement will need to be executed.