

GROUNDWATER ISSUES SUBCOMMITTEE  
OF THE  
TEXAS GROUNDWATER PROTECTION COMMITTEE  
RECORD OF MEETING  
Third Quarter Meeting, Fiscal Year 2022

Meeting Date: March 9, 2022  
Meeting No.: 29

Place: videoconference  
Room: N/A

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**MEETING ATTENDANCE**

Subcommittee Members

Kathy McCormack (Co-Chair)  
 Chris Heiligenstein (Co-Chair)  
 Natalie Ballew  
 Eric Lawrence  
 David Villarreal  
 T.J. Helton

Leah Martinsson  
 Maria D. (Rosario) Sanchez Flores  
 David Gunn  
 Ken Rainwater  
 Guy Fipps

Patricia Ging

Affiliation

Texas Commission on Environmental Quality (TCEQ)  
 Railroad Commission of Texas (RRC)  
 Texas Water Development Board (TWDB)  
 Texas Department of State Health Services (DSHS)  
 Texas Department of Agriculture (TDA)  
 Texas State Soil and Water Conservation Board (TSSWCB)  
 Texas Alliance of Groundwater Districts (TAGD)  
 Texas A&M AgriLife Research (AgriLife Research)  
 Texas Department of Licensing and Regulation (TDLR)  
 Texas Tech University (TTU)  
 Texas A&M AgriLife Extension Service (AgriLife Extension)  
 United States Geological Survey (USGS)

Agency Staff

Stanley Aniagu  
 Alan Barraza  
 Abiy Berehe  
 Alan Cherepon  
 Daniel Collazo  
 Lorrie Council  
 Kristin DeBone  
 Jason Godeaux  
 James Golab  
 Grant Gibson  
 Cindy Hooper  
 Peggy Hunka  
 Rebecca Storms  
 Scott Underwood

Affiliation

Program

TCEQ Toxicology Division  
 TCEQ Water Quality Division  
 TCEQ Water Availability Division  
 TCEQ Water Availability Division  
 TWDB  
 TCEQ Radioactive Materials Division  
 TCEQ Water Quality Planning Division  
 TCEQ Water Availability Division  
 TWDB  
 TCEQ Water Availability Division  
 TCEQ Water Availability Division  
 TCEQ Water Availability Division  
 TWDB  
 TCEQ Water Availability Division

Interested Parties

N/A

Affiliation

## MEETING HANDOUTS

1. Texas Groundwater Protection Committee (TGPC) Groundwater Issues (GWI) Subcommittee Meeting Agenda, March 9, 2022
2. TGPC GWI Subcommittee Meeting Record, December 15, 2021
3. TGPC Agricultural Chemicals (AgChem) Task Force (TF) Status Report, March 9, 2022
4. TGPC Publications Status Report, March 9, 2022
5. Texas Produced Water Consortium (TxPWC) homepage, <https://www.depts.ttu.edu/research/tx-water-consortium/>
6. Ground Water Protection Council (GWPC) Produced Water Round Up webpage, <https://www.gwpc.org/news/m.blog/540/produced-water-round-up>
7. *Environmental Science & Technology* article regarding PFAS in groundwater used as a source of drinking water in the eastern U.S., [https://mcusercontent.com/e4d95ec7676fac6a01f324ddd/files/2919a831-9f41-ee35-2c9e-7dba41d12d8a/McMahon\\_et\\_al\\_2022\\_PFAS\\_Substances\\_in\\_GW\\_Drinking\\_Water\\_Sources\\_Eastern\\_US.pdf](https://mcusercontent.com/e4d95ec7676fac6a01f324ddd/files/2919a831-9f41-ee35-2c9e-7dba41d12d8a/McMahon_et_al_2022_PFAS_Substances_in_GW_Drinking_Water_Sources_Eastern_US.pdf)
8. Cable News Network (CNN) article regarding rescuers racing to save a boy stuck down a well for four days in Morocco, <https://www.cnn.com/2022/02/04/africa/morocco-well-boy-intl/index.html>
9. CNN article regarding at least 13 dead after wedding guests fall into a well at an Indian ceremony, <https://www.cnn.com/2022/02/17/india/india-deaths-well-collapse-kushinagar-intl-hnk/index.html>
10. United States Department of Agriculture (USDA) press release about brackish groundwater being used to irrigate almond orchards, <https://content.govdelivery.com/accounts/USDAARS/bulletins/3079c04>
11. U.S. Environmental Protection Agency (EPA) press release about proposed federal steps to protect groundwater from coal ash contamination, <https://www.epa.gov/newsreleases/epa-takes-key-steps-protect-groundwater-coal-ash-contamination>
12. *Popular Science* article about overcrowded cemeteries due to COVID-19 causing heavy metal pollution, <https://www.popsci.com/environment/covid-public-health-risks-cemeteries/>
13. U.S. Department of the Interior (DOI) press release on a new federal program to address orphan oil and gas wells, <https://www.doi.gov/pressreleases/biden-administration-announces-115-billion-states-create-jobs-cleaning-orphaned-oil>
14. Draft *Opportunities and Challenges in Aquifer Storage and Recovery* white paper

The following item was also on display on the handout table:

1. N/A

## MEETING RECORD OF MARCH 9, 2022

### 1. PRE-MEETING REMINDERS

Before the meeting started, Chris Heiligenstein (RRC) provided the attendees with some tips that would facilitate a productive videoconference.

### 2. CALL TO ORDER AND INTRODUCTIONS

The TGPC approves all Subcommittee products and designated TGPC members attending this Subcommittee meeting participated as an employee or representative of their agency or organization, not as a designated TGPC member. Therefore, this Subcommittee meeting was not subject to the Open Meetings Act and it was held 100% virtually. The public was also able to attend this meeting via teleconference or videoconference at no cost.

Chris Heiligenstein (RRC), Co-Chair of the GWI Subcommittee, called the meeting to order at approximately 9:35 AM CST and then called the roll of GWI Subcommittee members. The representative from the Bureau of Economic Geology of The University of Texas at Austin (UTBEG) was not present at the meeting.

### 3. STATUS REPORTS

#### Agricultural Chemicals Task Force

Alan Cherepon (TCEQ) reported on the Agricultural Chemicals Task Force:

- The TCEQ Environmental Trade Fair was scheduled for May 10 – 11, 2022, and a table-top display of TGPC information was planned that would include pesticide-related activities for the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) grant work; and,
- The next Region 6 U.S. EPA/States/Tribes pesticide Spring meeting was scheduled for some time in April or May 2022, it would be hosted by Louisiana, and it was anticipated to be conducted virtually.

#### TGPC Publications

Cindy Hooper (TCEQ) reported on the following TGPC publications:

- *Joint Groundwater Monitoring and Contamination Report – 2021* (“*Joint Report*”, SFR-056)
  - Work on the *2021 Joint Report* had commenced; requests for 2021 cases lists and program updates were emailed to each TGPC member and to individual TCEQ programs;
  - TCEQ GPAT staff were working through the information submitted and would reach out individually with questions on the submittals; TGPC members could also contact Cindy Hooper (TCEQ) or Grant Gibson (TCEQ) with additional information, questions, or to provide input; and,
  - Prior to publication, the draft *2021 Joint Report* would be sent for TCEQ agency-wide review and staff would provide the draft report to TGPC members for review, as well.

- Groundwater Assessment for the *2022 Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d)* (“*Texas Integrated Report*”)
  - TCEQ GPAT staff were finalizing this biennial assessment and expected to transmit it by April 1, 2022, to TCEQ’s Water Quality Planning Division to include in the *2022 Texas Integrated Report*.
- *Activities and Recommendations of the Texas Groundwater Protection Committee: Report to the 88th Legislature* (“*Legislative Report*”, SFR-047)
  - The Legislative Report Subcommittee was reactivated during the 2QFY2022 TGPC meeting and they were scheduled to meet March 9, 2022 in order to start working on the *Legislative Report* for the 88th Legislature; and,
  - The *Legislative Report* for the 88th Legislature was anticipated to be published and distributed to the Texas Legislature by December 31, 2022.

#### 4. SET FUTURE MEETING DATE

The next TGPC GWI Subcommittee meeting was scheduled for Wednesday, June 8, 2022, at 9:30 AM CDT and it was planned as a videoconference.

#### 5. DISCUSS CURRENT GROUNDWATER ISSUES

##### Oil and Gas Produced Water

Links to two webpages related to oil and gas produced water were provided in the online Handouts list.

The TxPWC homepage (<https://www.depts.ttu.edu/research/tx-water-consortium/>) did not have a lot of information about their work so far, and there had not been a press release since October 2021, but they were required to produce a report by September 2022 that had a model outline for the economical, efficient, and environmentally-friendly use of produced water, as well as a plan for a statewide facility pilot program designed to recycle produced water. Ken Rainwater (TTU) reported that many Government Advisory Council and Stakeholder Advisory Council meetings had been taking place. Leah Martinsson (TAGD) asked if these meetings were open to the public, and Ken Rainwater (TTU) indicated that they were.

The GWPC Produced Water Round Up webpage (<https://www.gwpc.org/news/m.blog/540/produced-water-round-up>) was a proposed quarterly update from the GWPC Ground Water Research and Education Foundation and GWPC Produced Water Taskforce that was intended to share information about ongoing produced water research and foster collaboration between researchers, regulatory agencies, industry, and other stakeholders.

##### Emerging Contaminants

A link to a recent *Environmental Science & Technology* article ([https://mcusercontent.com/e4d95ec7676fac6a01f324ddd/files/2919a831-9f41-ee35-2c9e-7dba41d12d8a/McMahon\\_et\\_al\\_2022\\_PFAS\\_Substances\\_in\\_GW\\_Drinking\\_Water\\_Sources\\_Ea](https://mcusercontent.com/e4d95ec7676fac6a01f324ddd/files/2919a831-9f41-ee35-2c9e-7dba41d12d8a/McMahon_et_al_2022_PFAS_Substances_in_GW_Drinking_Water_Sources_Ea))

[stern US.pdf](#)) was provided in the online Handouts list regarding PFAS in groundwater used as a source of drinking water in the eastern U.S. In 2019, USGS collected 254 samples from five aquifer systems and 14 of the 24 PFAS analyzed in the samples were detected with 60% of public supply wells and 20% of domestic wells containing at least one PFAS detection. Model results indicated that it may be possible to predict PFAS detections in groundwater using existing data sources.

#### Aquifer Storage and Recovery (ASR)

Discussion of this topic occurred during the Business portion of the meeting.

#### Abandoned Water Wells

Unfortunately, links to two new articles about people falling down water wells were provided in the online Handouts list.

A five-year-old Moroccan boy died after falling down a 100-foot-deep well (<https://www.cnn.com/2022/02/04/africa/morocco-well-boy-intl/index.html>), and 13 Indian wedding guests died after the well cover slab that they were sitting on collapsed (<https://www.cnn.com/2022/02/17/india/india-deaths-well-collapse-kushinagar-intl-hnk/index.html>).

#### Brackish Groundwater

David Villarreal (TDA) reported on a USDA press release in the online Handouts list about brackish groundwater being used to irrigate almond orchards (<https://content.govdelivery.com/accounts/USDAARS/bulletins/3079c04>). As groundwater levels in California have declined with pumping and drought, the quality of extracted groundwater in some areas has also declined because wells have had to reach deeper into brackish portions of the aquifer. The higher salt content of this groundwater poses a significant threat to productivity with almond farmers reporting yield losses of more than 30 percent. Instead of flooding orchards with surface water, which washes out salt build-up in the soil, water-conserving drip irrigation concentrates water directly at the root zone of each tree. So although they found that almonds had more salt tolerance than expected, even a few years of exposure to high-salinity groundwater had affected the trees for multiple seasons and sometimes resulted in increased tree mortality and canker. David Villarreal (TDA) added that they were investigating crops that could tolerate salty irrigation water.

#### Evapotranspiration Networks

David Villarreal (TDA) reported that the Water Conservation Advisory Council (WCAC) was moving to support some type of Texas evapotranspiration (ET) network recommendation and that they appreciated the recent TGPC white paper on this subject. Alan Barraza (TCEQ) reported that TWDB's TexMesonet Advisory Committee held their kickoff meeting in January 2022 and that they were working on setting up their stations across the state.

Others

Links to two recent groundwater-related press releases and an article were also provided in the online Handouts list.

The U.S. EPA proposed federal steps to protect groundwater from coal ash contamination (<https://www.epa.gov/newsreleases/epa-takes-key-steps-protect-groundwater-coal-ash-contamination>). They were proposing decisions on requests for extensions to the existing deadline for initiating closure of unlined Coal Combustion Residuals (CCR) surface impoundments, putting several facilities on notice regarding their obligations to comply with CCR regulations, and laying out plans for future regulatory actions to ensure coal ash impoundments met strong environmental and safety standards. Their regulations required most of the approximately 500 unlined coal ash surface impoundments nationwide to have stopped receiving waste and begin closure by April 2021.

Overcrowded cemeteries due to the COVID-19 pandemic were reported to be causing heavy metal pollution in soil and thus increasing the risk of groundwater contamination (<https://www.popsoci.com/environment/covid-public-health-risks-cemeteries/>). Approximately 10 percent of cemetery leachate is composed of organic substances and various naturally-present metallic compounds such as calcium, chromium, iron, manganese, lead, arsenic, zinc, aluminum, and copper. Cemeteries located in regions that experience high temperatures and frequent rainfall are more likely to have higher levels of metal pollutants in the soil. Researchers argued that the COVID-19 pandemic had exposed a need for more environmentally-sustainable cemeteries that use septic tanks for treating the leachate before it is allowed to come into contact with the soil.

The U.S. DOI announced a new federal program to address orphan oil and gas wells (<https://www.doi.gov/pressreleases/biden-administration-announces-115-billion-states-create-jobs-cleaning-orphaned-oil>). Chris Heiligenstein (RRC) gave a quick summary of their eligibility for \$343M to plug these wells where the parties that drilled them were no longer operational (<https://www.rrc.texas.gov/oil-and-gas/environmental-cleanup-programs/federally-funded-well-plugging/>). RRC will utilize its existing State Managed Plugging Program to oversee this effort and will issue solicitations for well plugging contractors.

## 6. BUSINESS DISCUSSION AND POSSIBLE ACTION

*Draft Opportunities and Challenges in Aquifer Storage and Recovery White Paper*

Ken Rainwater (TTU) presented an updated draft of the *Opportunities and Challenges in Aquifer Storage and Recovery* white paper noting that it still needed an Executive Summary and it did not mention produced water. Several members indicated that they would provide written feedback after the meeting.

Lorrie Council (TCEQ) announced two recent TCEQ publications related to ASR:

- *Guidance for Understanding and Minimizing the Potential for Arsenic Mobilization during Aquifer Storage and Recovery*, AS-218

<https://www.tceq.texas.gov/downloads/permitting/radioactive-materials/uic/guidance-for-understanding-and-minimizing-the-potential-for-arsenic-mobilization-during-aquifer-storage-and-recovery-as-218.pdf>); and,

- *Guidelines for Treatment and Management of Injected Water at Aquifer Storage and Recovery Sites to Minimize the Potential Release of Arsenic, AS-219* (<https://www.tceq.texas.gov/downloads/permitting/radioactive-materials/uic/guidelines-for-treatment-and-mgmt-of-injected-water-at-aquifer-storage-and-recovery-sites-to-minimize-the-potential-release-of-arsenic-as-219.pdf>).

#### Draft *Abandoned Water Wells and the Challenges They Pose* White Paper

David Gunn (TDLR) reported that they were training new staff and the white paper's author did not have an update of the *Abandoned Water Wells and the Challenges They Pose* white paper for review at this meeting.

#### Discussion of White Papers Under Development

Kathy McCormack (TCEQ) led a brainstorming discussion of future white paper topics. Some of the ideas included:

- Nonpoint source pollution in groundwater;
- Federal infrastructure funding for cleaning up groundwater sources of drinking water;
- Challenges faced by small Public Water Supply (PWS) systems;
- The *Joint Report* and its connection with the TCEQ Groundwater Contamination Viewer and Groundwater Assessment for the *2022 Texas Integrated Report*;
- Microplastics;
- Solid waste landfill leachate;
- Reduced surface water flows in the Rio Grande / Rio Bravo basin concentrating contaminants in associated shallow/minor aquifers;
- Depleted or contaminated private water wells;
- Private water wells supporting childcare facilities;
- Climate change and groundwater resiliency; and,
- The effects of Texas Gulf Coast uranium deposits on local groundwater.

Potential Subject Matter Experts (SMEs) for these topics will be investigated and additional ideas were always welcome as new groundwater issues arise.

#### 7. ANNOUNCEMENTS

Rosario Sanchez (AgriLife Research) announced that the annual World Water Day (<https://www.worldwaterday.org/>) was scheduled for March 22, 2022, and this year's theme was "Groundwater – making the invisible visible".

#### 8. PUBLIC COMMENT

There was no public comment at the meeting.



9. ADJOURN

Chris Heiligenstein (RRC) adjourned the meeting at approximately 11:21 AM CST.