

2019 | *Oklahoma City*  
**ANNUAL FORUM**



Download the GWPC Events Mobile App for interactive agenda updates, abstracts, speaker information and to network with other attendees. Available on the App Store and Google Play.



## Key Event Information

Welcome to the 2019 Annual Forum! We're looking forward to this year's conference and hope you are too. On this page you will find key hotel information to help you throughout the conference. For an interactive experience, download our event mobile app: <https://crowd.cc/s/3hROA> or visit our interactive web agenda here: <https://crowd.cc/2019annualforum>. If you have any questions, please visit our registration desk, located on the second floor of the Sheraton in the Century Foyer.

## Airport Travel to Hotel

The Sheraton Downtown Oklahoma City does NOT offer an airport shuttle. In addition to Uber or Lyft, the hotel recommends Airport Express (28 USD one way, reservation required) or taxi (estimated fare 40 USD one way.)

## Parking

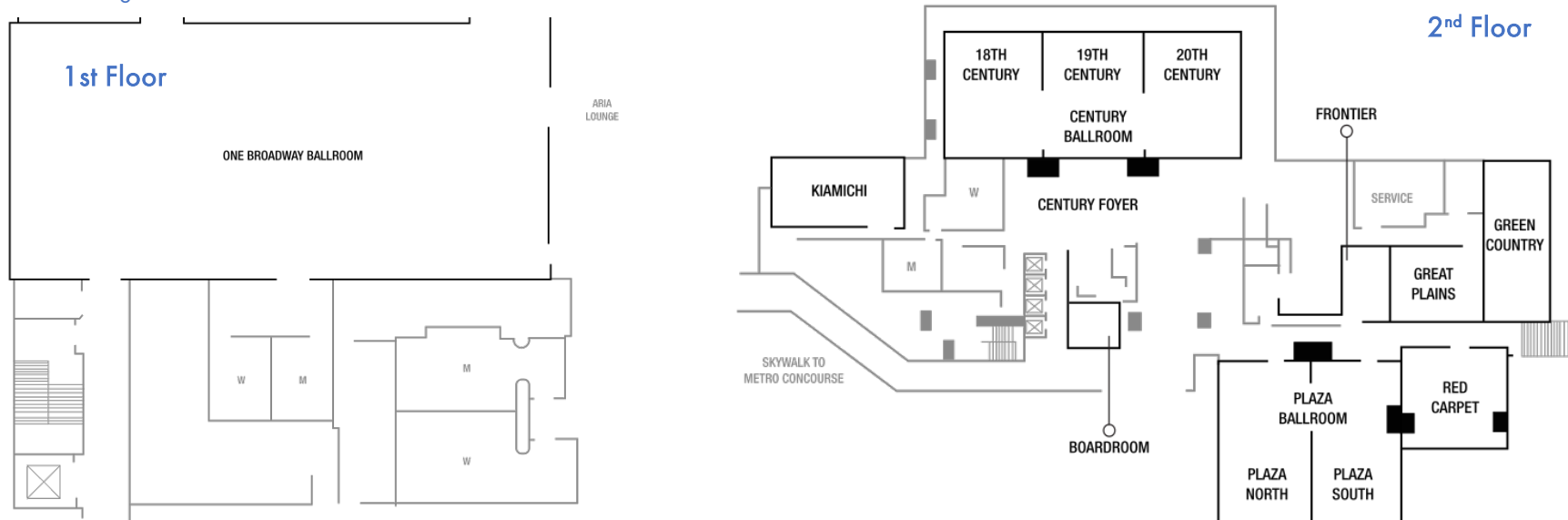
Attendees can purchase a \$10 parking ticket at the Sheraton front desk. Each ticket is good for 24 hours once entering the garage. Attendees do not have to have the paid ticket to enter the garage. When entering, go UP and take a time stamped ticket from the booth. When exiting, you will need the time stamped ticket and the ticket that has already been paid for. Enter the time stamped ticket into the machine first and then the paid ticket.

## Getting Around Downtown

There are a number of shops and restaurants nearby, including the Bricktown Canal – an entertainment district just east of Downtown Oklahoma City. When traveling around downtown, into Bricktown, and Midtown, attendees can utilize the OKC street car system. Fares are \$1 per boarding for 1 hour or \$3 for a 24 hour pass. Visit [okcstreetcar.com](http://okcstreetcar.com) for a route map, or you can find it on the map section of the GWPC Event mobile app.

## Hotel Maps

The majority of event sessions are located on the Second Floor in the conference spaces. [Please see the last page for a map to the Monday night reception, which is within walking distance.](#)



# ANNUAL FORUM



## OKC FINAL AGENDA

*(Updated September 13, 2019)*

**Sunday, September 15, 2019**

12:30 – 5:00	Registration (Century Foyer, Second Floor)		
1:00 – 4:00	<b>Mechanical Integrity Workshop</b> (18 <sup>th</sup> Century Ballroom)	<b>Groundwater/Surface Water Interactions Workshop</b> (20 <sup>th</sup> Century Ballroom)	<b>GWPC Board Meeting</b> (Red Carpet)
	<p><i>Instructor: Elwood Vogel &amp; Brian Pfeiff, Halliburton</i></p> <p><i>Geared toward Class I and II Underground Injection Control (UIC) state regulatory technical staff as an introduction or refresher, this 3 hour training workshop will focus on well cementing and the use of geophysical logs to demonstrate well mechanical integrity.</i></p> <p><i>The workshop will provide technical staff a better understanding of processes and procedures of primary and remedial well cementation, principals of geophysical logging, evaluating cementation quality and fluid flow behind casing using cased hole geophysical logs, the use of casing evaluation tools to determine casing integrity and an introduction to the latest logging technologies.</i></p> <p><i>The training will cover the following:</i></p> <ul style="list-style-type: none"> <li>• <i>Introduction to Open Hole Logging</i></li> <li>• <i>Primary Cementing 101</i></li> <li>• <i>Interpreting Cement Evaluation Tools (e.g. CBL/VDL, Radial CBL, Ultrasonic (CAST/USIT), RAT's etc...)</i></li> <li>• <i>Remedial Cementing 101</i></li> <li>• <i>Casing Inspection 101 (e.g. Calipers and other methods)</i></li> <li>• <i>New Technologies (e.g. WPC and CEM)</i></li> </ul>	<p><b>Instructor: Joseph J. Lee, Jr., P.G., GWPC</b></p> <p><i>This workshop will review the principals that control groundwater flow, nutrient migration, water quality implications, and interactions with surface water. The past decades has seen considerable research and analysis of this process and implications for water quality. Attendees do not need a background in geology, hydrogeology or surface water hydrology to benefit from attending this workshop. The workshop will support a working knowledge of these concepts for understanding groundwater and surface water issues.</i></p>	<p><b>(2 – 5pm)</b></p>
5:30 – 7:00	Hotel Networking Reception (One Broadway Ballroom, First Floor)		

# Monday, September 16, 2019

7:30 – 5:00

Registration (Century Foyer, Second Floor)

7:30 – 8:30

Breakfast (One Broadway Ballroom, First Floor)

8:30-10:00

Opening General Session: Welcoming Speakers (Century Ballroom)

- **Lawrence Bengal**, Arkansas Oil & Gas Commission, GWPC President - "Welcome"
- **Scott Thompson**, Director, Oklahoma Department of Environmental Quality – "Welcome"
- **Kenneth Wagner**, Oklahoma Secretary for Energy & Environment
- **Claudio Ternieden**, Sr. Director, Government Affairs & Strategic Partnerships, Water Environment Federation
- **Anita Thompkins**, Director, U.S. EPA Drinking Water Protection Division, Office of Ground Water and Drinking Water

10 – 10:30

Break (Century Foyer)

10:30 – 12:00

Produced Water  
(Century Ballroom)

Emerging Groundwater Contaminants  
(Plaza Ballroom)

**Moderator: John Baza**, Utah Department of Natural Resources

*"GWPC Produced Water Final Report: Regulations, Current Practices and Research Needs"*

**Shellie Chard**, Oklahoma DEQ

*"EPA Oil and Gas Extraction Study and Next Steps"*

**Rob Wood**, US EPA, Office of Water, Engineering & Analysis Division

*"The National Energy Technology Laboratory's Water-Energy Nexus R&D Program"*

**Tom Feeley**, US DOE, NETL

**Moderator: Jon Kenning**, Montana Department of Environmental Quality

*"Groundwater Protection from PFAS Contaminants"*

**Viraj deSilva**, Ph.D, PE, BCEE, SCS Engineers

*"Stepping on the Train, or in Front of It? Proactive Approaches to PFAS Contaminants"*

**Kenneth Sansone**, SL Environmental Law Group

*"Recommendations to Improve the Management & Response to Contaminants of Emerging Concern – Recommendations from ACWA & ASDWA"*

**Brandon Kernen**, New Hampshire DEQ

12:00 – 1:30

Lunch On Own

*Source Water Workshop Luncheon: Opportunities for Source Water Protection in the 2018 Farm Bill*  
*(Ticket Purchased via Online Registration Required)*

(One Broadway Ballroom, First Floor)

Facilitator: Christene Jennings, Marketing for Change

*Check-in / Lunch Served (Please wear your badge for ticket)*

**Workshop Goals**

- Provide key information on actionable source water protection opportunities;
- Share participant successes, challenges, and questions; and
- Plan for outcomes – take home actions and follow-up.

**Welcome**

Shellie Chard, Oklahoma Department of Environmental Quality

**Working with Natural Resources Conservation Service (NRCS): Farm Bill Opportunities for Source Water Protection & Tips for Working with NRCS State Conservationists**

- Salvador Salinas, Acting NRCS Regional Conservationist - Central
- Gary O'Neill, NRCS State Conservationist - Oklahoma

**Mini-Networking Break**

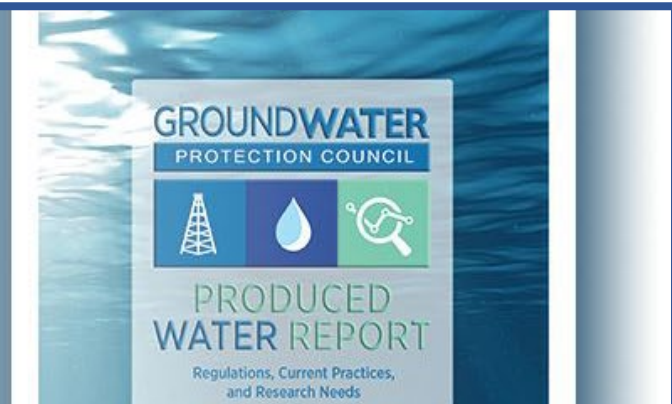
REPORT RELEASED

# PRODUCED WATER

Regulations, Current Practices, and Research Needs

**Download the Report**

[www.gwpc.org/producedwater](http://www.gwpc.org/producedwater)



1:30 – 3:00

Geologic Storage of Carbon Dioxide  
(Class VI/Class II UIC)  
(Century Ballroom)

Source Water Workshop  
(One Broadway Ballroom, First Floor)

Moderator: Mike Nickolaus, GWPC

*"Comparative Summary of O&G Injection Wells and CO<sub>2</sub> EOR and CO<sub>2</sub> Storage Wells"*

Talib Syed, TSA, Inc.

*"UIC Class VI Permit Refinements"*

Bob Van Voorhees, Robert F Van Voorhees PLLC

*"Tools for Evaluating Environmental Risks at Geologic Carbon Storage Sites – U.S. DOE's National Risk Assessment Partnership"*

Robert Dilmore, Ph.D., US DOE, National Energy Technology Laboratory

*"Evaluating the Risk to Groundwater from Geologic Carbon Storage Projects"*

Diana Bacon, Ph.D., Pacific Northwest National Laboratory

Facilitator: Christene Jennings, Marketing for Change

Panel Presentations and Discussion: Leveraging Opportunities and Building Partnerships for Source Water Protection

- *Collaboration to Improve Source Water Protection on Agricultural and Forested Lands*  
Darcia Routh, Geologist Supervisor and Source Water Protection Manager, Arkansas Department of Health (ADH)
- *Water Utility Perspective on NRCS Regional Conservation Partnership Program*  
James McCarty, Water Quality Manager, Beaver Water District, Lowell, Arkansas
- *Clean Water Act (CWA) and NRCS Conservation Programs - Including source water in watershed plans to leverage CWA funding and NRCS conservation projects*  
Ryan Chapman, Water Quality Assessment Section Supervisor, Nebraska Department of Environment and Energy (NDEE)

*Participant Idea Exchange and Questions*

- *Lightning Round: Experiences engaging with NRCS*
- *Open idea exchange and questions*
  - What successes, lessons learned, and challenges have you experienced related to implementing Farm Bill opportunities to protect source water?
  - What questions do you have and/or based on what you've heard so far, what do you plan to follow-up on when you return to your work?

3:00 – 3:30

Break (Century Foyer)

3:30 – 5:00

Energy & Water Environmental Initiatives  
(Century Ballroom)

Source Water Workshop (Continued)  
(One Broadway Ballroom, First Floor)

**Moderator:** Catherine Dickert, New York Department of Environmental Conservation

*“Case Study: Design and Construction of Produced Water Infrastructure for Start-Up Operators and Midstream Companies”*

Jason Seneker, Ross Group

*“Risk Posed to Groundwater Resources by the Disposal of Produced Water into Unlined Produced Water Ponds in California”*

Dominic DiGiulio, Ph.D., PSE Healthy Energy

*“Preliminary Results of New Produced Water Volume and Management Study – A GWREF Funded Project”*

John Veil, Veil Environmental

**Facilitator:** Christene Jennings, Marketing for Change

*New Opportunities & Incentives to Advance Source Water Protection*

- *Leveraging the Drinking Water State Revolving Fund (DWSRF) Set-Asides*

Kara Goodwin, US EPA

- *Using EPA’s Drinking Water Mapping Application to Protect Source Waters (DWMAPS) to Update Source Water Assessments*

Erica Pauken, Source Water Protection State Lead, West Virginia American Water

*Lightning Round:*

- What are States doing to update source water assessments, advance source water protection plans, and develop and improve statewide source water protection strategies? Successes, challenges, and lessons learned related to improving these programs.

*Open idea exchange and questions*

- What successes, challenges, and lessons learned have you experienced related to advancing source water protection?
- What questions do you have and/or based on what you’ve heard during this session, what do you plan to follow-up on when you return to your work?

**Workshop Wrap-up:** Take Home Action Items & Next Steps

6:00 – 8:00

Reception – Park House Event Center Downtown OKC



Join us for music, networking, heavy hors d’oeuvres, and drinks at the Park House Event Center within walking distance from the Sheraton.

The event center features a striking panoramic view of the Myriad Gardens, breathtaking sunsets, and nighttime glow of the Crystal Bridge Tropical Conservatory and is located in the heart of downtown Oklahoma City. *(Business Casual Attire)* [See last page for walking map to the event center.](#)

## Tuesday, September 17, 2019

7:30 – 5:00

Registration (Century Foyer, Second Floor)

7:30 – 8:30

Breakfast (One Broadway Ballroom, First Floor)

8:30-10:00

Regional Induced Seismicity Collaborative (RISC) Workshop  
(Century Ballroom)

Aquifer Management  
(Plaza Ballroom)

**Moderator: Michael Young**, Bureau of Economic Geology, Univ. Texas at Austin

*In the general field of wastewater disposal and the potential for inducing earthquake activity, different states are experiencing different connections, and the regulators and operators of disposal wells are communicating and making decisions in different ways. Discussions are needed to better understand differences and to identify improved connections between science and decisions. In this interactive session, we will discuss the experiences of regulators and scientists within states and between states, and seek effective and understandable solutions that could lead to safer disposal of wastewater.*

**Moderator: Steve Musick**, GWPC

*“ASR Operations in the US: Historic Analysis with Updates Beyond the 2013 Inventory”*

**Chi Ho Sham**, Eastern Research Group, Inc.

*“New Developments in Aquifer Storage and Recovery in Texas 2019”*

**Lorrie Council**, Texas Commission on Environmental Quality

*“A Case for Pipe-to-Pipe Reuse Over Groundwater Recharge: An Evaluation of Antibiotic Resistance and the Microbial Community”*

**Adam Smith**, Ph.D., University of Southern California

10 – 10:30

Break (Century Foyer)

10:30 – 12:00

Emerging Technology & Practices: Regulatory Impacts  
Industry Panel  
(Century Ballroom)

Groundwater Supply and Conservation  
(Plaza Ballroom)

**Moderator: Rick McCurdy**, RMc3 Consulting LLC

*In this panel, oil and natural gas industry reps will discuss emerging technologies and practices that may affect the regulatory community.*

**Panelists**

- **Mike Mathis**, Continental Resources, Inc.
- **Josh Bruening**, Devon Energy Corporation
- **Jesse Sandlin**, Noble Energy, Inc.

**Moderator: Tatiana Davila**, Nebraska Dept. of Environment & Energy

*“Inorganic Membranes for Produced Water Treatment”*

**Seok-Jhiin Kim**, Ph.D., Oklahoma State University

*“Are Horizontal Wells Right for Development of Groundwater Resources in Garber-Wellington Aquifer”*

**James Roberts**, CP&Y, Inc.

*“What Happens When a State Agency Wins a Farming Competition?”*

**Marty Link**, Nebraska DEE



12:00-1:30

Lunch on your own

1:30 – 3:00

State Panel: Emerging Technology & Practices - Regulatory Impacts  
(Century Ballroom)

Stormwater  
(Plaza Ballroom)

Moderator: Mike Nickolaus, GWPC  
  
*"Oklahoma Seismic Analysis"*  
Charles Lord, Oklahoma Corporation Commission  
  
*"Ohio Drone Program"*  
Rob Lowe, Ohio Department of Natural Resources

Moderator: Darcia Routh, Arkansas Dept. of Health, Engineering  
  
*"Urban Stormwater to Enhance Water Supply"*  
Sybil Sharvelle, Colorado State University  
  
*"The Influence of Green Infrastructure Practices on Groundwater Quality: The State of Science"*  
Douglas Beak, Ph.D., Robert S. Kerr Environmental Research Center

3:00 – 3:30

Break (Century Foyer)

3:30 – 5:00

State/EPA Closed Discussion  
(Century Ballroom)

Groundwater Monitoring & Data Management  
(Plaza Ballroom)

Moderators: William Bates, EPA | Lorrie Council, Texas Commission on Environmental Quality | Dan Yates, GWPC  
  
*(State and EPA Agency Employees Only)*

Moderator: Paul Jehn, GWPC  
  
*"A New Toolbox for Wellhead Protection"*  
Colby Osborn, Olsson & Ryan Chapman, Nebraska Department of Environment and Energy (NDEE)  
  
*"RBDMS-Environmental: A Foundation for Water Budgets and Shaping Policy in Alabama"*  
Ann Arnold, Geological Survey of Alabama  
  
*"RBDMS Environmental Overview"*  
Paul Jehn, GWPC  

- Tracking Water Quality and Quantity Related to Oil and Gas Operations with RBDMS-WellStar: **Thom Kerr**
- Pre and Post Drill Water Quality Monitoring for Wyoming Oil and Gas Operations: **Dan Jarvis**
- RBDMS Environmental Use at the Wyoming DEQ: **Joe Lee**

5:00 – 6:00

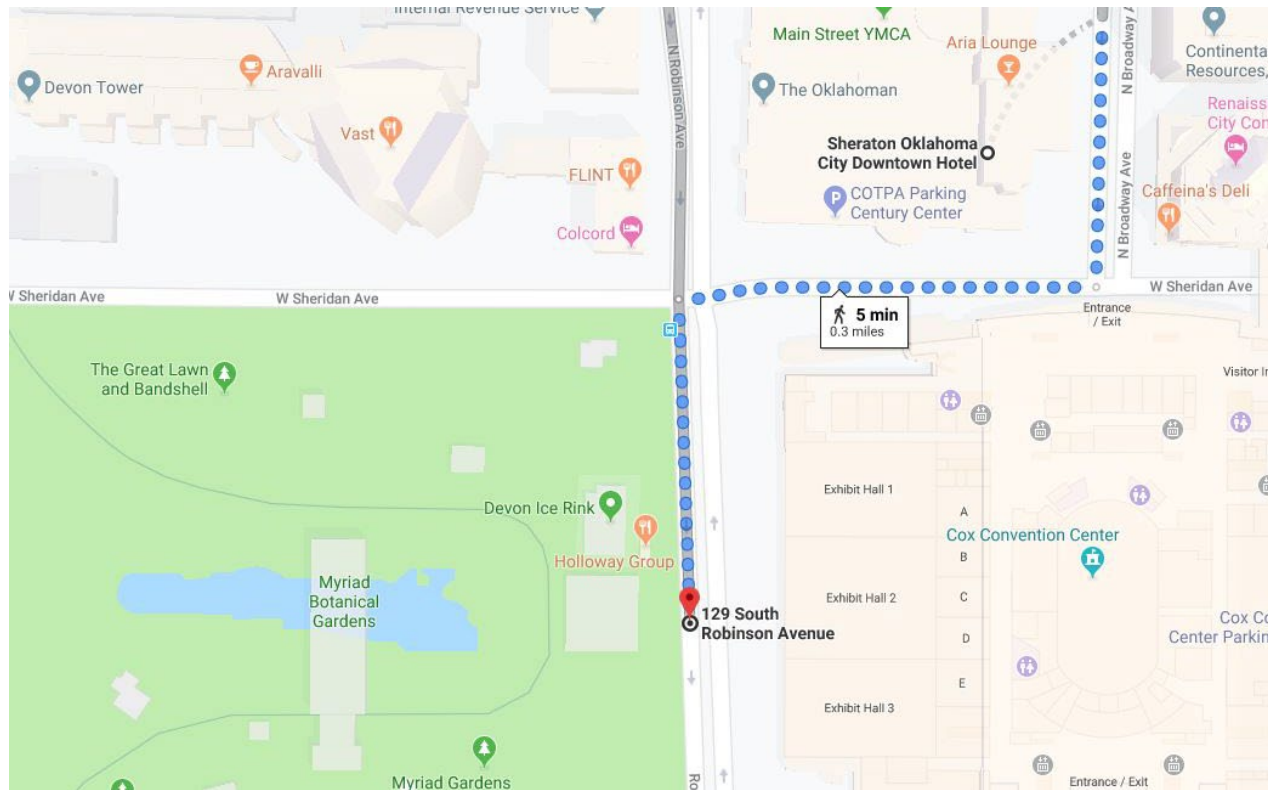
## Conference “Wine Down” Reception (Brick Room at the Block 23 Restaurant, First Floor, Sheraton)



“Wine down” and take advantage of one last chance to network before you head home following the conference. Join us for light hors d’oeuvres and drinks at Block 23, a restaurant and outdoor patio located within the Sheraton Downtown OKC.

## Map to Monday Night Reception at the Parkhouse Event Center

The Parkhouse Event Center is located just east of the Myriad Botanical Gardens and is less than a 5 minute walk from the Sheraton. The physical address is 301 W Reno Ave, Oklahoma City, OK 73102. If you would have difficulties walking to the event center, please let a member of the staff at the registration desk know prior to the event, and we will arrange alternate transportation.



### Walking Directions

- Head South on N Broadway Ave. toward W Sheridan Ave.
- Turn right onto W Sheridan Ave.
- Turn left on to Ron Norick Blvd.
- The Event Center is on the west side of Ron Norick Blvd. (also called Robinson)