

# OKLAHOMA ENGINEERING CONFERENCE

JUNE 18-19, 2020

VIRTUAL EVENT

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## THURSDAY, JUNE 18

**8:00-8:25 a.m.**

**OEF Update (.5)**

*Adrienne Covington Graham, OEF Executive Director*

**8:30-8:55 a.m.**

**Meet the Army Corps of Engineers, Tulsa District Mission Overview (.5)**

*Ashley Allinder, P.E., PMP; U.S. Army Corps of Engineers*

**9:00-10:00 a.m.**

**May 2019 Arkansas River Flood: An Emergency Operations Center Perspective (1.0)**

*Brandon Claborn, P.E., CFM, CEO Meshek & Associates, LLC*

*Brooke Caviness, P.E., CFM, City of Tulsa Stormwater Department*

*David Williams, Ph.D., P.E., CFM, USACE, Tulsa District*

*Nicole McGavock, National Weather Service, Tulsa*

*Michael Couch, GISP, CFM, Meshek & Associates, LLC GIS Department Manager*

Historic rainfall across the Arkansas River basin in the Spring of 2019 resulted in substantial flooding in northeast Oklahoma. During the flood fight, close coordination occurred within the Tulsa Emergency Operations Center (EOC) between the City of Tulsa, the U.S. Army Corps of Engineers, the National Weather Service, private consultants, and regional Emergency Managers. There were many lessons learned during this event, including: the value of hydrology and hydraulic (H&H) studies, GIS data prepared before the event to assist with communication, the importance of having H&H experts in the room at the EOC with the decision makers, collaboration between City, State and Federal agencies allowed for division of the work for a quicker response, social media has incredible value but is uncontrollable, maps alone don't tell the whole story, and managing public officials.

In this presentation, we describe the actions taken from the various partner perspectives and share lessons learned as we walk through the timeline of events leading up to and during this historic multi week flood event. Our experiences will help others learn what they can do to be better prepared for a flood event.

**10:00-10:15 a.m.**

**BREAK**

**10:15-10:55 a.m. (.75)**

**Professional Engineers Licensure Board and Enforcement Update**

*Bruce Pitts, P.L.S.; OK Board of Licensure for Professional Engineers and Land Surveyors*

*Kathy Hart, Executive Director; OK Board of Licensure for Professional Engineers and Land Surveyors*

# OKLAHOMA ENGINEERING CONFERENCE

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---

**11:00-11:45 a.m. (.75)**

## **Business Planning**

*Greg Conder, P.E.; Owner, Conder Business Solutions*

Learn the basics of business planning and uses for new businesses, products and services. Areas explored include market research, marketing, operations and finance.

**11:45-1:00 p.m.**

**BREAK**

**1:00-1:55 p.m.**

## **BREAKOUT SESSIONS (1)**

### **Breakout I**

#### **A System for Creativity and Innovation**

*Greg Conder, P.E.; Owner, Conder Business Solutions*

Learn a new system for creativity and innovation that utilizes your team to generate, develop, vet and implement new ideas for products, services and processes. Focus will be given to the need for diversity among the idea generating team and unique tools to help them think creatively.

### **Breakout II**

#### **Ensuring the Performance of Concrete by Measuring Fresh Properties**

*Dr. Tyler Ley, Oklahoma State University*

Concrete is a material that we need to have a long service life. This presentation presents two tests that can be used to measure the water to cement ratio and the air void distribution in fresh concrete. These two parameters are critical for determining the long term performance of the concrete and are not currently measured in the fresh concrete. Two test methods will be presented that can measure these parameters. The test methods will be presented, as well as data from both the laboratory and the field from their usage.

**2:00-2:55 p.m.**

**BREAKOUT SESSIONS (1)**

### **Breakout I**

#### **DACR (Distribution Automation Circuit Reconfiguration) and CVR (Conservation Voltage Reduction)**

*Tyler Devereux, Customer Design Manager; AEP;*

*Edwardo Manzaneres, AEP; Eric Williams, AEP; Seungwon Yoon, AEP*

DACR (Distribution Automaton Circuit Reconfiguration): A SmartGrid application that allows the distribution grid to “self-heal” by operating smart switches or reclosers when a permanent fault occurs that isolate the fault and restore all other customers. DACR improves reliability by reducing customers impacted by a sustained outage.

# OKLAHOMA ENGINEERING CONFERENCE

JUNE 18-19, 2020

VIRTUAL EVENT

---

CVR (Conservation Voltage Reduction): An Energy Efficiency program that PSO offers that reduces the voltage along a circuit along with maintaining a unity power factor that in turn reduces energy consumption by the end user.

## **Breakout II**

### **The History of Phillips 66**

*Mandy Johnston, P.E.; Director, Engineering & Site Operations, Phillips 66 Research Center*  
Phillips 66 has a sizable presence in Oklahoma and employs many engineers to ensure our vision of Providing Energy. Improving Lives® is realized in the state. The history of Phillips 66 and scope of operations in Oklahoma will be presented. The variety of roles that engineers fill for the company in the state will also be discussed.

**3:00-3:15 p.m.**

**BREAK**

**3:15-4:10 p.m.**

**BREAKOUT SESSIONS (1)**

## **Breakout I**

### **Gilcrease Expressway Project**

*Joe Echelle, P.E., MBA, Asst. Executive Director for Maintenance, Engineering, and Construction of the Oklahoma Turnpike Authority*

The Gilcrease Expressway West project is unique in that it has been a part of the areas development plan since 1961 and only now come to fruition due to a unique partnership and unique funding. The 5 mile, 4 lane divided highway, will connect I-44/I-244 on the South to US-64/US-412 on the North with anticipation it will connect to L.L. Tisdale Parkway someday. The project includes 22 bridges 4 of which are over 1,000 feet long spanning the Arkansas River and Berryhill Creek. The project broke ground in early 2020 and is anticipated to open to traffic in late 2022.

## **Breakout II**

### **Introducing Students to STEM and STEM Careers**

*Richard Willoughby, P.E., F.NSPE, Senior Design Engineer, Trencher and CUE Design Group, Ditch Witch*

**4:15-5:15 p.m.**

**BREAKOUT SESSIONS (1)**

## **Breakout I**

### **Pikepass Cashless Tolling**

*Darian Butler, P.E., Director of Engineering; OK Turnpike Authority*

# OKLAHOMA ENGINEERING CONFERENCE

JUNE 18-19, 2020

VIRTUAL EVENT

---

## **Breakout II**

### **Food Engineering and Related Programs at Oklahoma State University**

*Tim Bowser, Ph.D.; Food Process Engineer, Oklahoma State University*

*Jaymee Zabienski, Graduate Assistant, Oklahoma State University*

Listeners will learn about the Food Engineering and related programs at Oklahoma State University, Department of Biosystems & Agricultural Engineering and the R.M. Kerr Food & Ag Products Center.

**5:15-6:15 p.m.**

**OSPE Annual Membership Meeting**

# OKLAHOMA ENGINEERING CONFERENCE

JUNE 18-19, 2020

VIRTUAL EVENT

---

## FRIDAY, JUNE 19

**8:00-8:55 a.m.      BREAKOUT SESSIONS (1)**

### **Breakout I**

#### **Occupational Fatalities in Oklahoma and OSHA Enforcement and COVID-19 Resources**

*Jorge DeLucca, MS, MA, CAIH; OSHA*

This presentation will give an overview of National and Regional Enforcement programs OSHA is conducting in Oklahoma, new developments, and explanation of fatalities OSHA has investigated in Oklahoma during this fiscal year.

### **Breakout II**

#### **ODOT Modernization and Innovation**

*Brian Taylor, Chief Engineer, P.E., ODOT*

ODOT is challenged with the vast, quickly changing technology that drives the transportation industry. This discussion will address what ODOT is doing to modernize their systems through innovative changes in technology that will help improve the efficiency and output of the agency.

**9:00-9:55 a.m.      BREAKOUT SESSIONS (1)**

### **Breakout I**

#### **The Production of Drilled Pier Foundations: Reality and Costs**

*Cara Cowan Watts, Ph.D.; CEO and Majority Owner, Tulsa Pier Drilling, LLC*

Learn more about production issues for drilled piers to consider lowering your construction costs from design, bidding, and production realities for drilling, rebar cages, anchor bolts, and placement of concrete. An overview of rigs, tooling, physical access, soils reports, and design documents including pending changes for engineers forecasted by the ADSC International Association of Foundation Drilling.

### **Breakout II**

Forensic Engineering

Chad Williams, P.E.; Valor Forensic Engineering Services, LLC

**10:00-10:15 a.m.      BREAK**

# OKLAHOMA ENGINEERING CONFERENCE

JUNE 18-19, 2020

VIRTUAL EVENT

---

**10:15-11:10 a.m. (1)**

## **Galveston Bay Park Plan**

*Charlie Penland, P.E., LEED A.P.; Senior Principal, Walter P. Moore*

In a sequence of years of major hurricanes hitting the Gulf of Mexico starting with Katrina, then Rita in 2005 followed in 2008 with Ike, the Severe Storm Prediction, Education & Evacuation from Disasters Center (SSPEED) was created to address the issues associated with each of these events. Two major themes came from these hurricanes, the need to plan better for organized evacuation of coastal areas in the time leading up to landfall of a severe storm, and better protection of residential, commercial and industrial areas from storm surge. The Galveston Bay Park Plan is a unique solution that proposes to use local funding to create a barrier within Galveston Bay that will provide protection for major storms, and also provide everyday benefits in providing for channel dredge disposal, recreation, and economic development. In doing so, it will lessen the flood risk and associated premiums for the residents and businesses along the west side of Galveston Bay.

**11:15 a.m.-12:15 p.m. (1)**

## **Engineering Students Projects at Oral Roberts University for Aerospace, International Development and Industry**

*Dr. Robert Leland, Professor of Engineering and Physics; ORU and Students*

**12:15-1:00 p.m.**

**BREAK**

**1:00-1:55 p.m. (1)**

## **Oklahoma Transportation Update**

*Tim Gatz, Secretary of Transportation*

Secretary of Transportation Tim Gatz will update attendees on the most current events for the Oklahoma Department of Transportation and Oklahoma Turnpike Authority with results from the latest Legislative session, budget impacts to their programs, as well as where these Transportation Agencies are headed in the future.

**2:00-3:00 p.m. (1)**

## **Professional Liability Insurance for Engineers**

*Gerald Brunner, CPCU, ARM; RISKPRO Insurance Agency, LLC*

*Zachary Whiting, ARM; RISKPRO Insurance Agency, LLC*

This workshop will focus on the professional liability exposures faced by professional engineers. The learning objectives will start with a case study on the collapse of the Florida International University (FIU) pedestrian bridge in Miami on March 15, 2018. This will include a review of the project, the probable cause of the collapse, the lessons learned or relearned, and the cost.

# OKLAHOMA ENGINEERING CONFERENCE

JUNE 18-19, 2020

VIRTUAL EVENT

---

After the case study review, the workshop will examine the anatomy and life cycle of a complex professional liability claim from the viewpoint of a professional engineer. This would include:

- What parties sue professional engineers and what are the general claim categories
- Use of pre-claims assistance services and other supplemental benefits
- Review of statutory and contractual defenses that may be in place
- Defending against claims, coverage review, reserving procedures/loss runs and reservations of rights letters
- Dispute resolution protocols and litigation processes (mediation, arbitration, and litigation)

**3:00-3:15 p.m**

**BREAK**

**3:15-4:10 p.m. (1)**

## **Digital Innovation in Engineering and Delivery (the BIM/GIS story)**

*Pat Restrepo, Account Executive; AEC*

*Micah Callough, Technology Director, AEC*

How can you bring geographic context to your engineering and design projects? More tightly connected GIS and BIM workflows can help stakeholders better understand how the natural and existing built environments connect with the new assets to be built. Autodesk and Esri have been driving the integration of spatial intelligence and 3D design model information to create a more direct, bi-directional and frictionless flow of information. Recent industry focused development now enables the merging of GIS and BIM or CAD driven workflow. During this session you will learn more about the recent updates and how the Engineering community can leverage GIS data more effectively in your planning and design workflows.

**4:15-5:15 p.m. (1)**

## **Professional Ethics for Engineers**

*Stephanie Buckingham, APTD, PHR; Freese and Nichols, Inc.*

*Paul Green, P.E.; Principal and Senior Transportation Engineer and Project Manager; Freese and Nichols, Inc.*

During this session participants will discuss the definition of ethics and explore the National Society of Professional Engineers (NSPE) Professional Code of Ethics for Engineers. This workshop is highly interactive and participants will review pertinent case studies published by the Board of Ethical Review. Small group discussions of each case will enable dialogue about ethical behavior in each situation. The facilitator will ask groups to report their opinion of the case and cite supporting sections in the NSPE Code of Ethics. Finally, the groups will review the BER's decision on the cases.