

DEREK KLIETHERMES, PHD, CIH

CO-FOUNDER,
PRINCIPAL EXPOSURE SCIENTIST



PROFILE

Dr. Derek Kliethermes is Co-Founder and a Principal Exposure Scientist at ONYX Exposure Science, LLC. Dr. Kliethermes is a Certified Industrial Hygienist (CIH) with the American Board of Industrial Hygiene (ABIH), as well as a FEMA E/L 954 All-Hazards Safety Officer. Dr. Kliethermes has over 15 years of extensive experience in emergency response and industrial incidents involving large scale chemical releases, train derailments, on-shore/ off-shore well control, industrial fires, and chemical reaction/ thermal runaway events with lithium battery fires and large-scale pool chemical warehouse fires. As a consultant, Dr. Kliethermes has coordinated resources scaling from individual investigation to multi-state responses with thousands of responding workers in support of health & safety work plans derived by himself and fellow exposure scientists. Dr. Kliethermes completed his PhD in Fire Science with research emphasis on benzene exposure during crude oil tank firefighting. The research consists of firefighter exposure prevention and post-fire liquid mitigation efforts following the thermal chemistry involved in the firewater / foam application to hydrocarbon storage tank fires, with emphasis on steam cracking and benzene regeneration during extinguishment efforts.

EXPERIENCE

PRINCIPAL EXPOSURE SCIENTIST

ONYX Exposure Science, LLC.
2026 - Present

DIRECTOR, APPLIED SCIENCE GROUP PRINCIPAL EXPOSURE SCIENTIST

CTEH, LLC.
2025 - 2026

SENIOR IH/ER CONSULTANT

CTEH, LLC.
2018 - 2025

PROJECT MANAGER, TOXICOLOGY EMERGENCY RESPONSE PROGRAM

CTEH, LLC.
2010 - 2018

PROJECT MANAGER - CONSTRUCTION SAFETY

Powell & Company, LLC.
2005 - 2010

EDUCATION

PH.D. FIRE SCIENCE

Oklahoma State University, Stillwater, OK
2020 - 2025

M.S. KINESIOLOGY/EXERCISE PHYSIOLOGY

Arkansas State University, Jonesboro, AR
2001 - 2003

B.S. BIOLOGY

Univ. Central Missouri, Warrensburg, MO
1997-2001

EXPERTISE

- Chemical exposure prevention
- Chemical fire exposure analysis
- Fire/Explosion prevention
- Engineering controls
- Hazard assessment
- Emergency response
- Accident investigation
- Expert witness
- Hazard and Risk Communication



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CERTIFICATIONS & AWARDS

- Certified Industrial Hygienist (#10078)
- CTEH *Glenn Millner Innovative Services Award 2019*
- FEMA: E/L-954: All-Hazards Safety Officer (SOFR)
- EMT-Basic-NREMT #E3018023 (VS, 2017)

PUBLICATIONS

1. Kliethermes, D., Skelton, S., Agnew, R., Park, H., Bikkina, P. (In Press). Persistence of benzene in post-fire crude oil: Implications for hazard communication.
2. Skelton, S., Kliethermes, D., Agnew, R., Park, H., Bikkina, P., Kubicki, M., (In Press). Tank Fire Evolutions and Foam Extinguishment: A Novel Testing Apparatus Used to Confirm Benzene Persistence in Post-Fire (Heat Affected) Crude Oil.
3. Kliethermes, D., Skelton, S., Kubicki, M., Park, H., Bikkina, P., Agnew, R. (In Press). Steam Injection Treatment of Benzene Precursors: A Novel Testing Apparatus Simulating Crude Oil Tank Fire Conditions.
4. Skelton, S., Kliethermes, D., Agnew, R., Park, H., Bikkina, P., Kubicki, M., (In press). Diffusion of aromatics in crude oil during crude oil tank fires: Exploring the contribution of liquid-phase diffusion on benzene persistence using a novel simulation method.
5. Kliethermes, D. (2025) The Role of Steam Cracking in the Generation of Benzene in Crude Oil Tank Fires Extinguished with Foam: A Potentially Unrecognized Source of Firefighter Exposure. OSU FSEP/FEMP, CEAT, Dissertation.

TECHNICAL PRESENTATIONS

1. AAR-DHS Advanced IH and ER Chlorine Exercise; Dugway, UT-2015
2. ACL Barge – Chlorine Hazard Assessment Review; Cairo, IL-2018
3. AIHCE – AAR RR IH Forum Advanced IH and ER Training: Quick reference Guides and JSAs; Minneapolis, MN-2019
4. AIHCE – Research Roundup: Hazard Recognition and Exposure Assessment: “The Isolated Worker: A New Approach to Chemical-Specific Worker Protection with Remote Real-Time Air Monitoring Strategies and Hazard Communication - The Sentinel Protocol”; Nashville, TN-2022
5. AIHCE – AAR RR IH Forum Advanced IH and ER Training: Sentinel Protocol - Isolated Worker Monitoring using Patent-Pending Remote Gas Chromatography; Phoenix, AZ-2023
6. AIHA Connect – Benzene Exposure from Firefighting Crude Oil Tank Fires with Foam – Kansas City, MO-2025
7. Anadarko Safety Officer Certification Training; Woodlands, TX-2016
8. Anadarko – Annual GOM Exercise – SOFR Exercise; Woodlands, TX-2016 - Present
9. Anadarko MEXUS Full-Scale Gulf Exercise; BP Houma Command Post-2017
10. CIMA Zone 4 and La Porte LEPC Exercise; La Porte, TX-2015.
11. City of La Porte-FRAMP Training and Emergency Response; La Porte, TX-2015

PUBLICATIONS CONTINUED

12. Clean Gulf – Advanced IH for Emergency Response Training; NOLA-2019
13. Clean Gulf – Chemistry in Oil Spill Response: Hydrocarbon Exposure Risk from Crude Oil During Tank Fire Burn Evolutions; San Antonio-2023
14. Clean Gulf – Assessment of Industrial Hygiene Exposure during Large Scale Fire Suppression Tests using Fluorine-Free Foams; Houston-2024
15. Colonial Pipeline – SMT Safety Officer Certification Training; Atlanta, GA-2016
16. DOW ER and Advance IH Training for ER Group; Plaquemines, LA-2016, 2018, 2023
17. DOW ER and Advance IH Training for Global ER Group; Philadelphia, PA-2022
18. E3 Annual Safety Manager Meeting – Industrial Hygiene & Emergency Response: Chemical Awareness & Air Monitoring Fundamentals; Clinton, MS-2025
19. Enterprise Products ECHO Facility Spill Exercise; Houston, TX-2016
20. Exxon LA LPG Chem Zone Tabletop Exercise; Baton Rouge, LA-2019
21. FFPO and DOE – Advanced IH and ER Training; NOLA-2017, 2018, 2022
22. HWCG – GoM Worst Case Discharge Exercises & Sub-Sea Dispersant Injection (SSDI) Application; Katy, TX-2021, 2022, 2023
23. Kuraray Safety & Air Monitoring Presentation; Houston, TX-2016
24. Marathon Advanced IH and ER Training: Sentinel Protocol – Isolated Worker Monitoring Strategy – Dräger; Findlay, OH-2019
25. P66 IMAT Exercise – SOFR and Air Ops; Lake Charles, LA-2017
26. P66 SOFR and Hazard Assessment IMAT Training Event; Galveston, TX-2018
27. Plains All American Pipeline – Crude Release SOFR Exercise; Long Beach, CA-2015
28. Sea Robin OSRP Spill Response Plan - BSEE Exercise; Kemah, TX-2018
29. UP Advanced IH and ER Training – HMMG; Roseville, CA-2019
30. UP IHST-ER Training – Manager Meeting; Pueblo, CO-2017
31. Users Group-Pipeline – HAZWOPER and SOFR Training; Kemah, TX-2018
32. Users Group-Railroad – HAZWOPER and SOFR Training; Kemah, TX-2017, 2018, 2019,
33. Valero Advanced IH and ER Training – Dräger; Texas City, TX-2019
34. Williams Fire and Hazard Bakken Crude Burn Exercise; Beaumont, TX-2014