



**NETL Oil & Gas Center of Excellence**  
**National Energy Technology Laboratory (NETL), Pittsburgh, PA**  
1538 Wallace Rd, South Park, PA 15129

**Wednesday, April 8, 2026 | 9:00 AM - 2:30 PM**

**Building 922 Conference Center, Administrative Plateau**

<b>Time</b>	<b>Activity</b>	<b>Speaker</b>
8:30 AM	Guest Check-in & Registration in Building 922 Reception	
9:00 AM	Welcome by Assistant Secretary HGEO	Kyle Haustveit
9:15 AM	Remarks	John Lassek
9:30 AM	NETL Overview	Sean Plasynski
9:45 AM	NETL Oil & Gas Research and Capabilities Briefing	Bryan Morreale Alexandra Hakala Dirk Link
10:15 AM	Transportation to R&D Plateau	Bryan Morreale
10:30 AM	R&D Laboratory Tour (Detailed tour agenda attached)	Bryan Morreale Alexandra Hakala
12:15 PM	Transportation back to Administrative Plateau	Bryan Morreale
12:30 PM	Working Lunch	All
1:30 PM	Roundtable Discussions	All
2:30 PM	Adjourn	

# NETL Oil & Gas Center of Excellence

## National Energy Technology Laboratory (NETL), Pittsburgh, PA

### Attendees List

#### **U.S. Department of Energy, Hydrocarbons and Geothermal Energy Office (HGEO)**

Kyle Haustveit, Assistant Secretary, Hydrocarbons and Geothermal Energy Office

Curt Coccodrilli, Principal Deputy Assistant Secretary

Toby Deen, Senior Advisor

John Lassek, Deputy Assistant Secretary for Subsurface Energy

Ryan Peay, Deputy Assistant Secretary for Strategic Resources

David Alleman, Director for Office of Oil & Natural Gas

Grant Bromhal, Senior Science Advisor for Subsurface Energy

#### **National Energy Technology Laboratory (NETL)**

Sean Plasynski, Acting Laboratory Director

Angelos Kokkinos, Acting Principal Deputy Director

Bryan Morreale, Associate Laboratory Director for Research & Innovation Center

Alexandra Hakala, Acting Director, Oil and Gas Center of Excellence

Dirk Link, Acting Associate Laboratory Director, Oil and Gas Center of Excellence

Jim Bielenberg, Senior Fellow, Materials Engineering and Manufacturing

Mark Ackiewicz, Executive Director, Technology Development Center

Jim Wilson, Chief Financial Officer, Finance & Acquisition Center

Heather Quedenfeld, Chief Operating Officer, Laboratory Operations Center

Susan Malie, Chief Counsel

Cliff Whyte, Associate Director, Research Partnerships & Tech Transfer

Peter Balash, Associate Director, Strategic Systems Analysis & Engineering

#### **Attendees - TBD**



## Oil & Gas Center of Excellence

Wednesday, April 8, 2026, 10:25 am – 12:30 pm  
Pittsburgh, Pennsylvania  
Group 1

# LABORATORY TOUR AGENDA

Time	Tour Stop	Speaker	Location
10:25 am	<b>Research &amp; Innovation Center Safety Briefing</b>		B83-104
10:30 am	<b>Advancing Fuel-Flexible Solutions for Industrial Heat and Boosting Efficiency for Base Load Power</b>	Kristyn Johnson May Justin Weber	Fundamental Combustion Laboratory, B84-117
10:50 am	<b>Enhanced Oil Recovery Laboratory</b>	Angela Goodman Deepak Tapriyal	CO <sub>2</sub> Fundamental Interaction and Reaction Experimental Lab, B84-120
11:10 am	<b>Subsurface Experimental Laboratory and Advanced Imaging</b>	Barbara Kutchko Yongkoo Seol Shelby Isom	Geomechanics and Flow Lab, B84-122
11:30 am	<b>NETL's Subsurface Multiphysics Simulation Facility</b>	Greg Lackey Bob Dilmore Hema Siriwardane	B83-104
11:50 am	<b>Produced Water Management Tools</b>	Markus Drouven	Visualization Lab, B83-102
12:10 pm	<b>Sensors Development Laboratory</b>	Ruishu Wright	Advanced Sensors Development Lab, B83-315

## TOUR STOP DESCRIPTIONS

### **Advancing Fuel-Flexible Solutions for Industrial Heat and Boosting Efficiency for Base Load Power**

NETL's BLAZE facility explores fuel-flexible combustion options for industrial heat while our rotating detonation engine (RDE) facility focuses on boosting efficiency and lowering base load costs. The BLAZE facility is a user-accessible test bed, available as a test-as-a-service or collaborative research platform, exploring innovative combustion systems, enabling partners to evaluate adaptive heat solutions to reduce fuel costs and improve operational stability with diverse fuel supplies. BLAZE combines physical testing assets (furnaces, burners, instrumentation) with digital assets (computational fluid dynamics [CFD] models, artificial intelligence [AI] tools) to address key industry challenges like burner technology and multi-burner flame interactions, safety and sensor accommodation, and materials testing. RDEs can lead to a significant improvement in overall cycle efficiency, substantially reducing fuel consumption. NETL's RDE facility uses two specialized RDE testbeds, coupled with advanced diagnostics and AI, to accelerate pressure gain combustion technology toward higher efficiencies and lower fuel costs for gas turbines. Researchers extract detailed operational data from these rigs using advanced laser diagnostics, high-speed imaging, and AI-driven image processing. This comprehensive approach combining physical testing with advanced digital tools bridges the gap between fundamental research and commercial integration for both industrial heat and power generation.

### **Enhanced Oil Recovery Laboratory**

Enhanced oil recovery in unconventional formations is challenging due to the extremely low permeability and mixed wettability of shale. Primary recovery from unconventional formations through hydraulic fracturing with water typically recovers between 3% and 10% of oil in place, leaving most oil behind. The Enhanced Oil Recovery (EOR) Laboratory focuses on improving oil production from unconventional shale formations by altering wetting properties of shale by injection of water and/or nonaqueous fluids such as rich natural gas and CO<sub>2</sub> with or without additives such as surfactants. NETL's advanced and customized capabilities include contact angle, interfacial tension, and huff-n-puff with nuclear magnetic resonance that allows researchers to visualize different fluids involved in the system and evaluate the effectiveness of various strategies that promote oil recovery at reservoir pressure and temperature conditions. This facility aims to evaluate targeted enhanced recovery additives and strategies while collaborating with industry partners to link lab tests with field tests and improve energy recovery in unconventional resources.

### **Subsurface Experimental Laboratory and Advanced Imaging**

Research efforts in this laboratory focus on subsurface materials, processes and infrastructure to optimize development of oil and gas resources. Unique pressurized core flood capabilities examine fluid flow behaviors associated with oil recovery. Researchers use high-temperature and high-pressure equipment to study the petrophysical, geochemical and mechanical properties of reservoir rocks and cement/wellbore casings under in-situ conditions including confining stress, overburden and cycling loading. Coupled with NETL's unique in-situ computed tomography imaging facility, which focuses on understanding the interaction of hydrocarbons, additives and geomaterials to enhance production flow in the subsurface for our nation's energy production, this facility provides comprehensive insight into reservoir quality, drilling and completions, fluid behavior, and how to maximize hydrocarbon extraction.

### **NETL's Subsurface Multiphysics Simulation Facility**

NETL's Subsurface Multiphysics Simulation Lab focuses on understanding the complex multi-scale, multi-physics phenomena that impact performance of engineered subsurface systems to improve forecasting, enhance resource recovery, and support stakeholder decision-making. The lab's unique capabilities span from non-equilibrium molecular dynamic modeling and pore-scale simulation through well-scale CFD and reservoir-scale reactive transport modeling. Drawing on data and information from laboratory and field experiments, as well as expert industry perspective, researchers simulate complex phenomena and extend results to reservoir scale. Deep learning and other advanced AI techniques are used to build fast forecasting, integrated assessment, and decision support tools. Applications include rock and fluid property characterization, multi-phase flow dynamic simulation for EOR operations, mineral-fluid interaction quantification, coupled flow and geomechanical modeling, production forecasting, and reservoir management under uncertainty.

### **Produced Water Management Tools**

PARETO (Produced Water Application for Beneficial Reuse, Environmental Impact and Treatment Optimization) is an optimization framework for produced water management and beneficial reuse, developed as open-source software to support the onshore oil and gas industry. It can optimize produced water activities, incorporating various aspects such as buildout of the produced water infrastructure, management of produced water volumes, selection of effective treatment technologies, placement and sizing of treatment facilities, identification of beneficial water reuse options, and distribution of treated produced water for reuse. The PARETO initiative develops decision-support tools to ensure that produced water can be managed at the lowest possible cost while domestic hydrocarbon production increases.

### **Sensors Development Laboratory**

Ensuring the resiliency of energy infrastructure helps avoid product loss, structural failures and increased costs. Advanced energy systems require affordable cutting-edge materials that can withstand high-pressure, high-temperature and corrosive or otherwise harsh service environments. This laboratory develops novel optical fiber sensors and passive wireless sensors in combination with AI and digital twins for energy infrastructure monitoring in areas including oil and gas pipelines, subsurface wellbores, gas turbines and combustion systems, and power grid. The novel sensors can monitor corrosion, gas leaks, cracking, intrusion and degradation using multi-parameter sensors over long distances of hundreds of kilometers. The lab emphasizes new sensor material technologies integrated with advanced sensing device platforms to allow for operation under harsh environments and enhanced sensor device functionality to ensure safe, reliable and secure energy infrastructure.