

# OILFIELDS 101

August 12-13, 2019  
Pittsburgh, PA

“

*“What an excellent course. If you ever need a crash course on basics of oilfield processes, terms, etc., this is the one.”*

Business Development,  
Dynamic Industries

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EUCI is authorized  
by IACET to offer  
1.5 CEUs for the  
course

## OVERVIEW

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This course will present an overview of oilfield operations, both subsurface (downhole) and surface. The downhole portion will present an overview, and then drill down into actual data from well files, and how the information in the files relates to the reality in the well. The facilities topics covered will include liquids and gas gathering and processing.

The intent is that participants will be able to apply the information learned the first day they return to their jobs. The information will be presented in terms of diagrams and photos of real equipment, and real example documents. The information will not be a gussied up "ideal" case, but will show the equipment or documentation as we actually experience it. Lessons learned from the instructor's experience will be incorporated throughout.

## LEARNING OUTCOMES

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Attendees to this course will

- Get a foothold in comprehending drilling and production reports and other documents that typically come across their desks
- Grapple with acronyms and jargon, and recognize that they are not the only one who doesn't understand them
- Relate concepts about fluids, pressure, and rate to the operations that take place in oilfields
- Describe the structure of the industry and the organizations within it, and identify communication paths within and between organizations as well as key vocabulary terms and scheduling processes
- State information about key points of environmental compliance
- Recognize the function of equipment items, procedures, and mechanical devices used in the oilfield developments
- Recognize practices that improve efficiency in operations

## WHO SHOULD ATTEND

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- New hire engineers, technicians, geologists, and operators
- Non-technical personnel who want to better understand oil field operations
- Personnel who need an overview of hydraulic fracturing
- Human resources personnel who need to understand terminology and buzzwords on resumes
- Project managers and directors
- Environmental, health, and safety personnel in water handling and injection, fired-equipment pollution control, and other areas
- Engineers involved in surface and down hole operations
- Geologists seeking to understand the overall process
- Accountants and financial professionals who need context to understand the money trail
- Technicians who input or manipulate oilfield data
- Other professionals in the oil and gas industry in the first 5 years of their career



*"My goal was to expose my sales team to technical knowledge of the oil & gas industry, particularly the shale. My expectations were exceeded. The depth and breadth of Lisa's knowledge is impressive, and she explains complicated subjects in an "easy to grasp" manner."*

EXVP/CMO, Dynamic Industries

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## TESTIMONIALS FROM PAST ATTENDEES

*"Overall a great course and a great instructor. Will definitely recommend to other colleagues." - EHS Technician, Apache Corporation*

*"Excellent presentation of oil well production and servicing. Great for anyone with business with the oil & gas industry." - Senior Risk Control Consultant, BITCO Insurance*

*"I recently transferred from our subsea division and needed a way to become familiar with surface/oilfield operations. This course provided lots of valuable information that will help me better understand the business and support our customers." - West Coast Site Manager, FMC Technologies, Inc.*

*"This class has helped me visualize how our oilfield operates. Thank you." - EH&S Specialist, Freeport McMoRan Oil & Gas (PxP)*

*"In-depth yet broad overview of the upstream operations. The course will help me ask the right questions in the field and when to ask the questions." - Environmental Engineer, Chevron Corporation*

*"Even if you come from another industry, this course explained terms and concepts that help to perform my job function - from improved understanding, knowledge of key terms and becoming involved in meetings." - Production Systems Specialist, Noble Energy*



***"Highly recommended for any new employees to the oil and gas industry. The presentation was clearly outlined, concisely technical, and relevant to all functions."***

Director of Supply Chain & cost Control, Sanchez Oil & Gas

*"Great class. Provided a broad overview of oilfield operations that gave me the background needed to support various applications used by my company." - Application Analyst, E&B Natural Resources*

*"This is a great course for personnel involved in the drilling and extraction as it pertains to oil & gas reserves." - Inside Sales Engineer, Caltrol*

*"Great overview of our industry and current issues." - Senior Facilities Engineer, SJVBU*

*"This course provides a solid foundation of knowledge for anyone working in or with oilfield companies. Excellent preparation for anyone new to the industry or returning to it after a long hiatus." - Risk Control Consultant, BITCO Insurance*

*"Excellent program for getting familiar with the basics of the oil/gas processing industry." - VP of Operations, Sewer Equipment*

*"Excellent primer for those new to the oilfield, and review for those not involved in daily oilfield operations." - Engineering Geologist, DOGGR*

*"Must have for anyone new to oilfields, or requiring a high level understanding to the full scope of work/operations." - HSE Analyst, Macpherson Oil Company*

*"For those that are new to the industry, this class will give you the insight you need to understand the oilfield industry." - Business Development, Dynamic Industries*

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# AGENDA

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MONDAY, JULY 15, 2019

**8:00 – 8:30 am            Registration and Continental Breakfast****8:30 am – 5:00 pm        Course Timing****12:00 – 1:00 pm         Group Luncheon****Overview of Upstream Activities**

- Distinguishing upstream, midstream and downstream
- Types of organizations: operating companies, vendors, service companies, engineering firms, regulatory agencies
- Recognize surface facilities and subsurface (downhole) activities and the people who work on them
- Schedules and planning processes used in the industry

**Reservoir and Geology**

- The resource available in the reservoir is what drives our business
- Role of reservoir engineers: both technical and leadership
  - o Planning
  - o Economics
  - o CAPEX, OPEX
- Reservoir engineers and geologists determine where to drill, infill spacing, injection and similar activities
  - o Logging, reservoir evaluation
  - o What sorts of data do we get from logs? What is it used for?
  - o What is correlation? Log analysis?
  - o 3D models
  - o Reserves estimation
- Secondary recovery
  - o Why we need it
  - o What it entails

**Drilling**

- Mechanical process: how it works
  - o Circulation
  - o Mud (and how it differs from completion fluid)
  - o Purpose of casing and cement
- Making sense of jargon and acronyms
  - o What's an "annulus?" Is gas considered a "fluid?" Why would we want "isolation?"
- Wellwork building blocks and deciphering reports
- How do they drill sideways?

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# AGENDA

MONDAY, JULY 15, 2019 (CONTINUED)

## Completion

- We drill the well, then we complete it
- Types of completions
  - o Cased and perforated
  - o Fractured
  - o Slotted liner
  - o Gravel pack
- What are “tools?” Hammers and wrenches?
  - o Packers
  - o Bridge plugs
  - o Frac ports and sleeves

## Production

- Production people wear a lot of hats
- Examples of production operations
  - o Pulling wells
  - o Well testing
  - o Analyzing mechanical failures in wells
  - o Acidizing
  - o Steam, waterflood, and CO2 injection
- Artificial lift
  - o Why we need it
  - o Pumping units
    - Rod pumps, balls and seats
    - Traditional and long stroke units
  - o Gas lift
  - o Plunger lift
  - o Electrical submersible pumps

## Decommissioning

- Plugging and abandonment

## Well File Examples

- Go through a well summary report line by line, explain jargon and what’s happening
- Go through a well history report line by line, explain jargon and what’s happening
- Go through a squeeze cementing report line by line, explain jargon and what’s happening



*“This course enhanced and solidified my background knowledge of the topics.”*

Engineering Technician  
III, E&B Natural Resources



*“I understand technical aspects of my job a lot better as a result of this course.”*

Inventory Specialist,  
JD Rush



*“EUCI’s course was very informative, and provided a very good overview of the oil and gas process. The Oilfield 101 course is a very good introduction course to the upstream process. The presenter conveyed the information in a way that ensured everyone on any level could understand.”*

Air Quality Specialist, Chevron Corporation

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# AGENDA

TUESDAY, JULY 16, 2019

**8:00 – 8:30 am**            **Continental Breakfast**

**8:30 am – 5:00 pm**        **Course Timing**

**12:00 – 1:00 pm**        **Group Luncheon**

## Fracturing

- How is fracturing done?
  - o Equipment
  - o Pad, frac stages, proppant, flush, flowback
  - o Computer modeling
  - o Frac fluid chemistry
    - Why are different additives used?
  - o Proppant
    - Sand
    - Man-made proppant
    - Embedment
    - Crushing
- What does well integrity consist of, and how do we achieve it?
  - o Zonal isolation examples
  - o Cement problems
  - o Crossflow between zones
  - o Old wells
- How can we avoid having problems?
  - o Suppose we are buying an oilfield. What do we analyze, to see if there is a problem?
  - o Well files
  - o Water chemistry
  - o Earthquakes
  - o Where can we get solid information on fracturing?
    - Usefulness of technical papers vs. press reports
    - Getting useful results from search engines
- What's different about shale fracturing, compared to traditional fracturing?
- What happens in the formations?
  - o Stress contrast between zones and where the frac goes
  - o Fracture geometry
  - o Tiltmeters, microseismic: monitoring where the fracs go
  - o Pressure charts
    - ISIP
    - Fracture extension



*“A good class for professionals unfamiliar with the oilfields.”*

Project Manager, Contra Costa Electric



*“This course is an excellent overview for oil and gas. Lisa Denke knows the material and presents it very well.”*

RCC, BITCO Insurance

# AGENDA

TUESDAY, JULY 16, 2019 (CONTINUED)

## Surface Facilities: Overall Process and Building Blocks

- Liquids separation
- Natural gas
- Common processes
  - Oil/Water separation
  - Flotation (WEMCO's & IGF's)
  - Metering
  - Filtration
  - Chemical reactions
  - Heat sources
  - Pumping/compression



*“Good course for people who are new to the oil industry.”*

Engineer 2,  
Processes Unlimited

## Natural Gas

- Gas handling
- Compression
- H<sub>2</sub>S removal

## Function of Equipment Items, Procedures, and Mechanical Devices Used in the Oilfield

- Pumps
  - Types of pumps – centrifugal, positive displacement
- Tanks and vessels
  - They are not just big cans, they have internals
  - Baffles, weirboxes, internals, steam coils, overflow lines
  - Level controls
  - Leak detection, wall thickness, bottom thickness testing
- Oil plant and water plant
  - Three elements of treating
  - FWKO/heater treater
  - LACT
  - Water flotation, filtration & softening, reverse osmosis
- Gathering and distribution systems
  - Liquids collection: flowlines and trunklines
  - Gas/vapor collection: flowlines and trunklines
  - Distribution: water & gas injection
  - Corrosion and materials
- Fired equipment
  - Heater treaters
  - Flares
  - Pollution control systems
  - Instruments and controls
  - Types of instruments
    - Flowmeters
    - Level
    - Temperature
    - BS&W, vibration, gas analyzers
  - Actuated valves
  - PLC's

## Practices that Improve Efficiency: Project Planning and Diagrams

- Overall budget process
- Pre-FEED > FEED > Detailed design > Construction
- Budget prices vs. “quote”
- What are PFD's, P&ID's? What are they good for?

## COURSE INSTRUCTOR

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Lisa Denke, P.E.

Lisa Denke began her career by getting a bachelor's in electrical engineering from the University of Wyoming. She took a job cementing, acidizing and fracturing wells with Schlumberger in Worland, Wyoming, and has worked in California, North Dakota, and the Rocky Mountain area. Her experience includes both subsurface and facilities engineering, as well as project management for Texaco, Aera and Berry. She understands the contract side of the business as well, having worked for the consulting firms TJ Cross, Ken Small, and Processes Unlimited. She currently works as a consultant in downhole and facilities operations. She is licensed as a mechanical engineer in Wyoming.

## INSTRUCTIONAL METHODS

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Case studies and PowerPoint presentations will be used in this program.

## REQUIREMENTS FOR SUCCESSFUL COMPLETION

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Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

## IACET CREDITS

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EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

**EUCI is authorized by IACET to offer 1.5 CEUs for the course**

## EVENT LOCATION

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A room block has been reserved at the Pittsburgh Marriott City Center, 112 Washington Pl, Pittsburgh, PA 15219 1 412-471-4000.  
***Please make your reservations early.***

## REGISTER 3, SEND THE 4TH FREE

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Any organization wishing to send multiple attendees to this event may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

Register Today. Call 201 871 0474 or [Click Here](#)

# REGISTRATION INFORMATION

# EVENT LOCATION

Mail Directly To:  
[PMA Conference Management](#)  
[PO Box 2303](#)  
[Falls Church VA 22042](#)

p:201-871-0474  
f: 253-663-7224

A room block has been reserved at the Pittsburgh Marriott City Center, 112 Washington Pl, Pittsburgh, PA 15219 1 412-471-4000. **Please make your reservations early.**

To Register Online  
Click Here

- OILFIELDS 101 COURSE**  
August 12-13 2019: US \$1495  
Early bird on or before July 26, 2019: US \$1295

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How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)

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Company

What name do you prefer on your name badge?

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City State/Province Zip/Postal Code Country

Phone Email

List any dietary or accessibility needs here

### CREDIT CARD INFORMATION

Name on Card Billing Address

Account Number Billing City Billing State

Exp. Date Security Code (last 3 digits on the back of Visa and MC or 4 digits on front of AmEx) Billing Zip Code/Postal Code

OR Enclosed is a check for \$ \_\_\_\_\_ to cover \_\_\_\_\_ registrations.

#### Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before June 14, 2019 in order to be refunded and will be subject to a US \$195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course cancellation, EUCI's liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices. EUCI reserves the right to alter this program without prior notice.