



## CURRICULUM VITAE

Carolyn J. LaFleur, M.Eng., P.E.

### Research Scientist

Houston Advanced Research Center (HARC)

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### Education

#### McNeese State University

- Master of Engineering, 1989 – Environmental and Geotechnical emphasis
- Bachelor of Science, Civil Engineering, 1988
- Awarded ‘Outstanding Student in Civil Engineering’ 1989

### Licensure & Certification

- Professional Engineer, Texas and Minnesota
- OSHA 40-hour Hazardous Waste Operations & Emergency Response (HAZWOPER)
- SafeLand USA Oil & Gas Operations Safety
- FLIR Optical Gas Imaging Thermographer

### Professional Experience

#### Research Scientist – Energy & Sustainability | HARC November 2012 – Present

Regional and nationwide initiatives to integrate sustainability and resilience in the natural and built environments. Innovative infrastructure solutions, responsible resource management, energy efficiency and environmental aspects of oil and gas activities. She has been involved in pioneering research on high-horsepower engines used in oilfield applications, and the use of infrared optical gas imaging for characterization of methane emissions at production facilities.

- Infrastructure resilience
- Oil & gas exploration and production
- Energy efficiency, renewables, energy transition
- Combined Heat and Power (CHP) deployment
- Solid waste and resource recovery, recycling, composting
- Life Cycle Assessment (LCA)
- Water resources



## **Principal Civil Engineer | Sustainable Systems Engineering**

Houston, Texas 2003 – 2012

- Responsible resource management in public and private enterprise
- Solid waste and resource recovery facilities
- Stormwater management, water quality engineering, sediment & erosion control
- Technology evaluation and feasibility studies
- Forensic investigations

## **Project Manager | HDR Engineering, Inc.**

Houston, Texas 2000 – 2003

- Permitting, design, construction and regulatory compliance for solid waste and resource recovery facilities
- Forensic investigations
- Environmental Site Assessments (ESA Phase I & II)

## **Project Manager | Freese & Nichols, Inc.**

Austin, Texas 1998 – 2000

- Permitting, condition assessments, design calculations and general civil support for water resources and municipal infrastructure

## **Project Manager | B.A. Liesch Associates, Inc. (a Terrecon Company)**

Minneapolis, Minnesota 1991 – 1998

- Permitting, design, construction, regulatory compliance and operational support for solid waste and resource recovery facilities and Concentrated Animal Feeding Operations (CAFO) facilities
- Environmental Site Assessments (ESA Phase I & II)

## **Associate Project Engineer | Soil Testing Engineers, Inc.**

Lake Charles, Louisiana 1989 – 1991

- Geotechnical and environmental investigations, drilling and laboratory testing, foundation analysis and design computations

## **Research Assistant | McNeese State University**

Lake Charles, Louisiana 1988 – 1989

- Research and development of a prototype device for in-situ hydraulic conductivity (permeability) measurement
- Geotechnical laboratory instructor

## **Engineering Technician | Conoco Production (Gulf of Mexico)**

1981 – 1984

- Offshore production and reservoir engineering support
- Safety systems analysis and design
- Pneumatic instrumentation

### **Work Experience during College**

- Petrochemical, piping draftsman and materials expeditor
- Land surveying, field crew and draftsman

### **Publications and Presentations:**

*(Complete listing available)* Recent presentations and articles on topics related to:

- Combined Heat and Power (CHP) Applications (Wastewater, Oil & Gas)
- Environmental Aspects of Oil and Gas Operations
- Resilience and Sustainability in Infrastructure Design
- Low Impact Development (LID)
- Life Cycle Assessment (LCA)
- Optical Gas Imaging (OGI) with Forward-Looking Infrared (FLIR)
- High-Horsepower Dual Fuel Engines in Oil and Gas Operations

### **Professional and Community Affiliations:**

- Environmental and Water Resources Institute of the American Society of Civil Engineers
  - Executive Committee on Technical Activities, Environmental Council Representative (current)
  - Environmental Council, Past Chair
  - Environmental Council / Environmental Health & Water Quality Committee, Past Chair
  - Interdisciplinary Council / Oil & Gas Technical Committee, Chair (current)
- Society of Petroleum Engineers (SPE), Member
- The Woodlands GrassRoots Environmental Education Network (The Woodlands GREEN), Past Director, Past President