

# STATEMENT OF QUALIFICATIONS



**Drummond Carpenter, PLLC** is a service-disabled veteran-owned small business (SDVOSB) specializing in environmental and water resources engineering and applied research. Drummond Carpenter's capabilities include five key service areas:

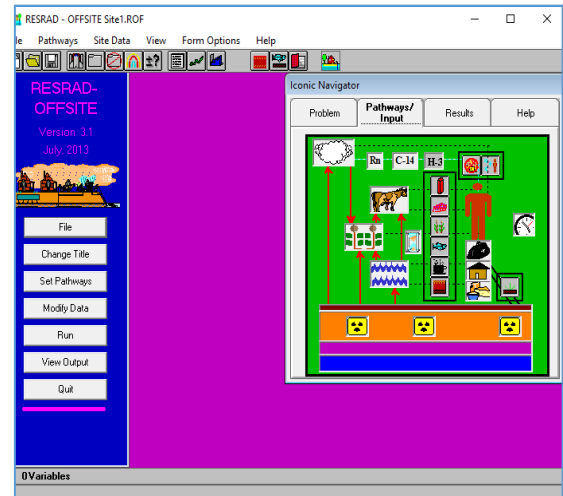
- Environmental Modeling
- Environmental Assessment & Remediation
- Civil Engineering and Water Resources
- Civil Green Infrastructure
- Nuclear

## KEY SERVICE AREAS

### Environmental Modeling

Drummond Carpenter staff are subject matter experts developing, calibrating, validating, and applying various surface water, groundwater, and air quality models. Staff have performed modeling for several federal entities including:

- Orange County, FL
- US DOE (EM and Legacy Management)
- NASA
- Air National Guard (ANG)
- AFCEE/AFCEC/USACE



*RESRAD-OFFSITE MODEL INPUT MENU USED TO CONDUCT PERFORMANCE ASSESSMENTS AND RECOMMEND WASTE ACCEPTANCE CRITERIA FOR LOW-LEVEL RADIOACTIVE ON-SITE WASTE DISPOSAL FACILITIES.*

A strength of Drummond Carpenter is its experience performing unsaturated and groundwater flow and contaminant transport modeling. Projects have been completed across the US dealing with a full suite of contaminants including radionuclides, chlorinated solvents, inorganics, and PCBs. Emerging contaminants such as 1,4-dioxane, NDMA, and PFOS/PFOA have also been simulated. Modeling codes employed include:

- MODFLOW / FEFLOW
- MT3D/RT3D
- HELP
- DUST
- RESRAD family of codes
- VLEACH/UNSAT-H/SESOIL
- SWMM/HEC-RAS/HEC-HMS/ICPR

**Recent Environmental Modeling  
Project Locations**

Orange County, Florida  
Paducah Gaseous Diffusion Plant, Kentucky  
Oak Ridge Reservation, Tennessee  
White Sands Test Facility, New Mexico  
Tuba City, Arizona  
Various Industrial Locations across the US

Drummond Carpenter staff have provided third party review of models and expert witness testimony regarding groundwater and surface water modeling projects. Projects have afforded experience performing deterministic and probabilistic modeling.

**Drummond Carpenter is proud to be a SDVOSB**  
**D-U-N-S number 080129842**  
**Cage Code 7KQK4**  
**NAICS Codes 562910, 541330, 541620, 541990**

### Environmental Assessment and Remediation

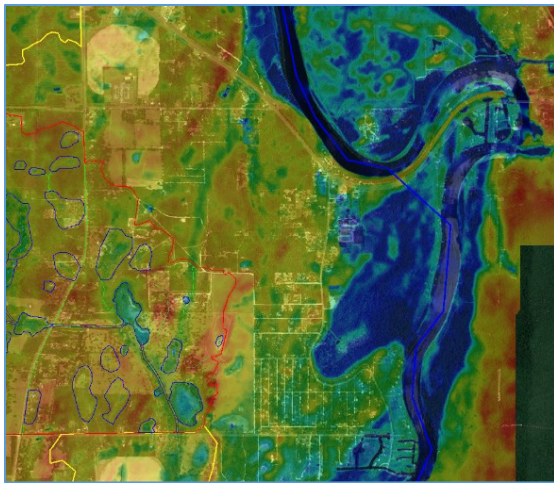
We are experienced in the assessment and remediation of media contaminated with various constituents including metals, chlorinated chemicals, petroleum hydrocarbons, radionuclides, and emerging pollutants. Our experience includes designing and/or implementing optimized groundwater pump and treat, in situ chemical oxidation (ISCO), biostimulation/bioaugmentation, surfactant enhanced aquifer remediation (SEAR), soil vapor extraction, and air sparging.

#### Contaminants Treated by Staff

Suite of Radionuclides including Tc99, U, I129  
Organics including Chlorinated Solvents  
PCBs  
1,4-dioxane and NDMA  
Inorganics including Arsenic & Chromium  
Nutrients

### Civil Engineering and Water Resources

Drummond Carpenter staff have decades of experience dealing with multidisciplinary water resources issues ranging from hydro-modification of instream impoundments to implementing sediment sampling protocols for evaluating ecosystem health. Our clients in the water resources practice area have included various municipal, state, and federal governmental organizations, private industry, and non-



profit organizations. Our expertise includes stormwater civil engineering, evaluating environmental fluid flows, sediment transport and analysis, watershed planning and management, springs protection, water quality improvements, nutrient and hydrologic budgets, and water supply protection. Project outcomes have required us to collect field data using various manual and automated sampling equipment and developing computer models. Several projects have included comprehensive decision-making models that include social, economic, and environmental components with stakeholder engagement strategies that included educational outreach, public forums, and survey

development, administration, and analysis.

### Civil Green Infrastructure

Green Infrastructure (GI) is an increasingly popular method to capture and treat stormwater at the sources while also providing social and economic benefits not associated with grey infrastructure. Drummond Carpenter staff have the expertise and experience necessary to assist communities in planning, designing, implementing, and monitoring green infrastructure. Drummond Carpenter GI clients have included municipal governments, educational institutions, and non-profit organizations. Our expertise includes everything from conceptual site design based on community forums to complex hydrologic modeling of structural green infrastructure techniques.

### Nuclear

As part of large, multi-disciplinary teams we have evaluated radionuclide fate, attenuation, and storage at sites including Oak Ridge, TN and Paducah, KY. Projects have been performed for international clients, the US Department of Energy (DOE), and private clients. Our staff have been continuously involved in DOE projects for over a decade.

## TECHNICAL LEADERS

### Chad Drummond, PE, D.WRE, BCEE

Mr. Drummond is a senior practitioner in environmental engineering. Chad is regarded as a subject matter expert (SME) in groundwater flow and contaminant transport modeling and has successfully applied his expertise to challenging projects across the US, including several innovative environmental remediation designs. He has more than 20 years of experience in environmental remediation, environmental modeling, and radionuclide risk and dose assessments.

Chad's technical background includes contaminant and nutrient fate and transport, groundwater/surface water interaction, wetland rehydration and springs protection, and hydrogeologic and water quality modeling. He has worked on projects for various low-level waste sites and simulated some of the most vexing contaminants including uranium, technetium, iodine, and radon. He also has extensive applied experience designing and implementing remediation technologies to restore the environment. Chad has provided these and other technical services for federal, municipal, private, and water management district clients as well as expert witness support to attorneys.

In addition to his consulting practice, Chad has served as an adjunct professor in civil engineering. He routinely presents his work in peer-reviewed journals and at technical conferences across the United States. Chad is active in several professional societies, including the National Ground Water Association, the American Society of Civil Engineers, and the Society of American Military Engineers. He is the past Editor of ASCE's Environmental and Water Resources Institute publication "EWRI Currents."



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Engineers, 00615

Board Certified  
Environmental  
Engineer (Hazardous  
Waste), American  
Academy of  
Environmental  
Engineers and  
Scientists,  
12-10032

OSHA 40-Hr  
HAZWPER &  
Refresher Training

**Donald D. Carpenter, Ph.D., PE, LEED AP**

Dr. Carpenter is an accredited green design professional and practicing civil engineer whose expertise includes green infrastructure (GI), stormwater best management practices (BMPs), sustainability, hydrologic modeling and design, sediment transport, and field data collection for performance monitoring.

He is proficient calibrating and applying numerous hydrologic and hydraulics models including HEC-RAS, HEC-HMS, SWMM, RECARGA, PondPack, StormCAD, and Culvert Master. Since 2001, Dr. Carpenter has been a professor of civil engineering at Lawrence Technological University teaching water resources courses including Hydraulic Engineering, Hydrology, Stormwater Management, Design, River Engineering & Restoration, and Ethics. He developed a series of faculty development workshops on entrepreneurial engineering and innovative teaching which he has delivered to hundreds of attendees on three continents.

Dr. Carpenter also serves as Director of the Great Lakes Stormwater Management Institute and actively conducts research on stormwater BMPs and advises communities on how to implement green infrastructure. Dr. Carpenter routinely provides professional lectures and short courses on innovative stormwater treatment design and their role in LID implementation.

Finally, Dr. Carpenter is an active committee leader for the ASCE Environmental and Water Resources Institute and a member of the Southeast Michigan Council of Government Clean Water Partners, MDEQ Green Infrastructure Committee, and Rouge River Advisory Council.



Professional Engineer,  
Florida, 77517

Professional Engineer,  
Michigan, 6201056764

Leadership in Energy  
and Environmental  
Design Accredited  
Professional (LEED AP),  
Green Building  
Certification Institute

NCI Charrette  
Facilitation Certified,  
National Charrette  
Institute

Has provided national  
leadership for  
numerous professional  
societies



### Lee Mullon, PE, CFM, D.WRE

Lee Mullon is a Principal Engineer in Orlando, Florida with over 17 years of professional engineering consulting experience in civil, environmental, and water resources engineering. His career is highlighted by his work related to the environment, civil infrastructure, and their mutual interaction. Mr. Mullon has provided professional engineering services to over 15 municipalities and state agencies in Florida and California, providing solutions to address flooding, water quality impairment, total maximum daily load (TMDL) regulatory challenges and compliance, natural systems degradation, water availability, and climate change vulnerability.

Mr. Mullon is a subject matter expert in stormwater management and infrastructure. He has direct professional experience designing, funding, permitting, constructing, and monitoring both conventional and innovative stormwater best management practices (BMPs), including intelligent stormwater infrastructure, and optimization of source control practices such as street sweeping and BMP maintenance to reduce nutrient loading. His proficiency in stormwater management is evidenced by his work serving as expert consultant in multiple litigation matters related to environmental resources permitting, stormwater modeling, pollution control, and BMP design.

In addition to his consulting practice, Lee has served as an adjunct professor for the Water Resources Design Class (CWR 4812C) at the University of Central Florida (UCF) in Orlando, Florida. As an adjunct professor, he instructed undergraduate senior students on the fundamentals of stormwater management, civil engineering, environmental engineering, and land development practices related to water resources design, including the instruction of ArcGIS, AutoCAD Civil 3D, BMPTRAINS, and ICPR modeling software.



Professional Engineer,  
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Certified Floodplain  
Manager # US-15-  
08381, Association of  
State Floodplain  
Managers

Diplomate, Water  
Resources Engineer  
#00754, American  
Association of Water  
Resources Engineers

Certified Erosion and  
Sediment Control  
Inspector #22225,  
Florida Department of  
Environmental  
Protection

Adjunct Professor,  
Water Resources  
Design (CWR4812C),  
University of Central  
Florida

Has provided  
leadership for  
numerous professional  
societies in Florida

