



## PHILIP CRAWFORD

Technical Manager

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### CREDENTIALS

- ◆ B.S. Chemical Engineering, North Carolina State University, Raleigh, NC, 2008
- ◆ Engineer-in-Training (EIT), North Carolina E.I. A-23755

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### PROFESSIONAL EXPERIENCE

- ◆ **May 2019-Present:** ALL4 LLC, Raleigh, NC – Technical Manager
- ◆ **2017-2019:** AECOM, Morrisville, NC – Air Quality Engineer
- ◆ **2016-2017:** Eastern Research Group Inc., Morrisville, NC – Staff Engineer
- ◆ **2014-2016:** Cree Inc., Durham, NC – Environmental Engineer
- ◆ **2010-2014:** Eastern Research Group Inc., Morrisville, NC – Staff Engineer
- ◆ **2008-2009:** International Paper, Franklin, VA - Process Engineer

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### TECHNICAL EXPERTISE

- ✓ State and Federal air quality and permitting programs including PSD, NSPS, NESHAP, and Title V;
- ✓ New/modified source air permitting;
- ✓ Technical support to industry trade associations representing chemical, refinery, oil and gas, and plastics manufacturing;
- ✓ Multi-media audit and compliance assessment support.;
- ✓ Develop compliance strategies and tools for new applicable requirements such as NESHAP and NSPS including chemical sector rules (e.g., MON, EMACT, etc.);
- ✓ Development and review of MACT floor calculations, emissions inventories, and air pollution control equipment economic feasibility; and,
- ✓ EPCRA TRI Form R Reporting.

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### PROFESSIONAL OVERVIEW

Mr. Philip Crawford graduated from North Carolina State University in June 2008 with a Bachelor of Science in Chemical Engineering and a concentration in Green Chemistry. He started his career as a process engineer in the chemical recovery department of a large pulp and paper mill. Since then, he has gained experience as a contractor for U.S. EPA, an environmental engineer for an electronics manufacturer, and an air quality consultant for private industry. He has provided support for numerous clients in a variety of industries including the forest products, power, pharmaceuticals, public and private universities, plastics, and chemical manufacturing sectors.

Mr. Crawford has assisted clients in North and South Carolina with annual emissions inventories, annual compliance certifications, Toxics Release Inventories (TRI), continuous release reporting, and greenhouse gas (GHG) emissions inventories. In addition to minor, synthetic minor, major and Title V permitting for new and modified sources, Mr. Crawford has also provided wood products clients with multi-media audit and compliance assessment support. He has also led the development of compliance plans and reporting templates for a major U.S. chemical manufacturer.

Mr. Crawford has also assisted various industry trade associations develop advocacy positions in response to U.S. EPA rulemaking in the forest and wood products, chemicals, oil and gas, and plastics manufacturing industries. He prepared maximum achievable control technology (MACT) floor calculations for multiple pollutants and emission points consulting recent EPA rulemakings for strategies to incorporate emissions variability; performed emissions correlation analyses to further industry understanding of processes' impacts to air emissions; and developed technical comments on the proposed Ethylene, Miscellaneous Organic Chemical Manufacturing, Boiler and Industrial Process Heater, Polyvinyl Chloride, and Organic Liquids Distribution National Emissions Standards for Hazardous Air Pollutants (NESHAP) rules.