RYAN CLEARY
CONSULTING SCIENTIST

CREDENTIALS

- B.A. Physics, Hamilton College, 2001
- M.S. Meteorology, The Pennsylvania State University, 2003

PROFESSIONAL EXPERIENCE

- 2020 – Present: ALL4 LLC, Raleigh, NC – Consulting Scientist
- 2017 – 2020: Wood, Durham, NC – Senior Scientist
- 2016 – 2017: Jacobs, Research Triangle Park, NC – Engineering Associate
- 2004 – 2015: Computer Sciences Corporation, Research Triangle Park, NC – Engineering Supervisor

TECHNICAL EXPERTISE

- ✓ Air quality modeling analyses for state, industrial, commercial, and government clients
- ✓ Air emissions inventory development for photochemical and dispersion modeling
- ✓ Model development, evaluation, and analysis
- ✓ Permit review and contractual support to state regulatory agencies
- ✓ Technical and contract support to U.S. EPA regulatory and air modeling research groups
- ✓ Risk management plan development and modeling
- ✓ Air dispersion analyses for accidental release, emerging contaminants, toxicological, and health risk assessment studies
- ✓ Project and Program management

PROFESSIONAL OVERVIEW

Ryan Cleary has over 20 years of experience providing emissions development, air quality modeling, project management, and permitting services. His focus is providing consulting services and air quality modeling evaluations to industrial, commercial, and federal clients.

Mr. Cleary has provided ambient air quality analyses for various permitting applications, supporting clients in the energy generation, data center, pulp and paper, military, transportation, oil and gas, waste, and mining industries. He has performed compliance demonstrations in support of New Source Review projects and air toxics programs in multiple states. In addition to conducting modeling analyses, Mr. Cleary has supported the development of Risk Management Plans, conducted investigative research, and provided technical review services for state agencies.

Mr. Cleary's air quality experience includes 20 years of modeling support to the United States Environmental Protection Agency (U.S. EPA), including AERMOD dispersion modeling and code development, model evaluation, and analysis; SMOKE emissions simulations development and inventory preparation for CMAQ and CAMx photochemical modeling; and has served as the lead for multiple federal contracts, providing contract management services and technical direction supporting US EPA research and regulatory initiatives.

*AIR QUALITY **PERMITTING EXPERIENCE***

Prevention of Significant Deterioration (PSD) Air Quality Modeling, Energy, NC, Modeler: *Performed PSD air quality dispersion modeling and additional impacts analyses in support of New Source Review permit application.*

Air Toxics Modeling, Energy, NC, Modeler: *Developed source characterization methodologies, emissions calculations, and performed toxic air pollutants dispersion modeling analyses for coal ash basin excavation construction permitting projects at multiple Title V facilities.*

Notice of Violation, National Security, ME, Modeler: *Performed ambient air quality analysis as partial fulfillment of a proposal to address a state Notice of Violation for a Title V military installation. Reviewed permit information, failure to comply notification, facility schematics, and aerial imagery to characterize the facility and demonstrate compliance with state and NAAQS thresholds.*

New Source Review and Exposure and Risk Assessment, Data Centers, OR, Modeler: *Performed New Source Review modeling using Monte Carlo randomization and Toxic Air Contaminant Health Risk Assessment (HRA) modeling for construction permit application.*

Air Toxics Modeling, Agriculture, RI, Modeler: *Performed Rhode Island Regulations Part 22 air toxics modeling evaluation for a synthetic minor source specializing in advanced greenhouse facilities and vegetable produce production.*

Minor New Source Review Permitting, Waste Treatment, TX, Modeler: *Prepared modeling analysis and Texas Commission on Environmental Quality (TCEQ) electronic modeling evaluation workbook (EMEW) materials for wastewater treatment plant and water pumping station minor New Source Review (NSR) permit applications.*

Environmental Evaluation, Hazardous Waste Treatment, NV, Modeler: *Completed an environmental evaluation in support of a Class I Air Quality Operating Permit application for construction of a hospital, medical, and infections waste incinerator (HMIWI) facility.*

Title V Operating Permit Renewal, Iron and Steel Foundries, NY, Modeler: *Reviewed and updated facility air toxics emissions inventory, prepared meteorological data, and performed a Part 212 Analysis in support of a Title V Operating Permit renewal application for an industrial valve manufacturer.*

Air Permitting Evaluation, National Security, NM, Modeler: *Provided meteorological review, emissions development, data analysis, and air dispersion modeling of lead munition emissions to evaluate impact of source modification at Title V military installation.*

Volunteer Risk Reduction Plan, Industry, CA, Modeler: *Conducted technical review of emissions factors and performed air dispersion modeling to support development of a Volunteer Risk Reduction Plan (VRRP) for the South Coast Air Quality Management District (SCAQMD).*

OTHER TYPES OF **EXPERIENCE**

Air Quality Modeling and Simulation Analysis Contract Support, Federal Government, NC, Task Order Manager: *Delivered corporate offerings and provided client-facing project management under multi-year, U.S. EPA Office of Air Quality and Planning and Standards (OAQPS) model simulation contract.*

AERMOD Model Development, Federal Government, NC, Senior Scientist: *Participated in the code development, testing, and analysis of the U.S. EPA AERMOD air quality dispersion model. Developed evaluation test suite, scripts, and model code incorporated in AERMOD versions 18081 and 19191.*

Polyfluoroalkyl Substances (PFAS) Air Deposition Analysis, State Government, VT, Senior Scientist: *Reviewed historical permit documentation to develop emissions factors and dispersion model parameters to evaluate perfluorooctanoic acid (PFOA) emissions and deposition impacts on groundwater from an industrial facility.*

Risk Management Plan, Environmental Safety Client, TN, Consultant: *Prepared Risk Management Plan and offsite consequence analysis to determine off-site impacts from worst-case and alternative chloride dioxide release scenarios in fulfillment of federal accidental release prevention requirements.*

Ambient Air Study and Permit Review, State Government, AZ, Project Manager: *Conducted review of air emissions data, ISCST3 and AERMOD dispersion modeling, and related technical documents of a permitted hazardous waste treatment, storage, and disposal facility (TSDF). Reviewed permit documents, modeling files, and statistical analyses provided in support of ambient air quality analysis demonstrations.*

Near-Road Mobile Source Model Evaluation, Federal Government, NC, Senior Scientist: *Analyzed U.S. EPA Las Vegas and Detroit field study monitor data to evaluate near-road mobile source characterization techniques and developed improved emissions factors for inclusion in dispersion model analyses.*

Forensic Evaluation, State Government, AZ, Senior Scientist: *Conducted forensic review, source characterization determination, and air deposition analysis to evaluate toxicological impacts of a real-life accidental release event.*

Photochemical Model Emissions Support, Federal Government, NC, Scientist: *Developed and conducted interannual emissions simulations supporting photochemical modeling in Total Maximum Daily Load studies for the Chesapeake Bay.*

TRAINING **WORKSHOPS**

North Carolina Air Toxics Training, Domtar Paper Company, LLC, Presenter: _Client training to provide overview of North Carolina toxic air pollutant modeling requirements under 15A NCAC 2D .1104_

PUBLICATIONS**/ PRESENTATIONS**

- "_The Incorporation of the US National Emission Inventory into Version 2 of the Hemispheric Transport of Air Pollutants Inventory_", Air Pollution Modeling and its Application XXIII, 28 March 2014.
- "_Evaluation of Emissions and Transport Modeling based on a Model to Monitor Comparison of Ambient Data Collected during a Las Vegas Near-Road Field Study_", Community Modeling and Analysis System, 16th Annual CMAS Conference, October 2017.
- "_Roadway Dispersion Modeling using AERMOD and R-LINE: an Investigation into Length, Width, and Dispersion Model Methodology for the Las Vegas Near-Road Field Study_", Community Modeling and Analysis System, 17th Annual CMAS Conference, October 2018.
- "_Numerical Plume Rise and Low Wind Conditions in Air Dispersion Modeling_", Air & Waste Management Association, Guideline on Air Quality Models Conference, September 2022.
- "_Incorporation of Monte Carlo Statistical Simulation Techniques in an Air Dispersion Modeling Analysis_", EM Magazine, February 2023.