

James Dyer

Experienced Chemical Process Engineer | Environmental Engineer | Environmental Soil Scientist

Wilmington, DE - Email me on Indeed: [indeed.com/r/James-Dyer/97624b87a1f5876a](https://www.indeed.com/r/James-Dyer/97624b87a1f5876a)

I am an innovative leader in applying chemical and environmental engineering principles, know-how, and simulation tools to solve challenging technical problems of significant concern to manufacturing, R&D, SHE, and capital project engineers. I have 30 years of combined experience in plant process engineering, environmental and chemical engineering consulting, process and product development, and project engineering. My StrengthsFinder Top 5 are Learner, Achiever, Discipline, Analytical, and Responsibility.

With a unique multidisciplinary educational background, my diversified skill set comprises air emissions control, water and wastewater treatment, reaction kinetics and thermodynamics, environmental fate and transport, soil, sediment, and groundwater remediation, process modeling, pollution prevention, economic evaluations, and statistical analysis.

I am especially strong in advancing and implementing new technology, initiating and driving projects to completion, mentoring, communicating results, and working in a diverse, multidisciplinary team environment.

I have been recognized for my accomplishments throughout my academic and industrial careers, including Engineering and SHE Excellence Awards for pollution prevention, a DuPont Innovation Award, University of Delaware's Wolf Prize for the most outstanding dissertation in the Physical & Life Sciences, invitation to the National Academy of Engineering's Frontiers of Engineering Symposium, and being named an associate with the DuPont Fellows Forum.

I am author of a book on pollution prevention and 3 chapters on VOC control and geochemical modeling. I have published 23 peer-reviewed journal articles as well as 70 environmental technology pamphlets and 20 major engineering reports inside DuPont. In addition, I have given more than 40 invited talks and professional society presentations in several fields.

I am a certified six sigma Green Belt and licensed Professional Engineer in Delaware.

WORK EXPERIENCE

Principal Chemical Process Engineer

DuPont Company - Wilmington, DE - 1997 to Present

I have consulted with more than 20 businesses on over 200 different process engineering technology issues involving fouling, scaling, and precipitation of inorganics in reactors, crystallizers, heat exchangers, distillation columns, scrubbers, strippers, wastewater treatment systems, and landfill leachate systems.

I developed over two dozen novel screening models using TK Solver™ to evaluate the feasibility of Class I underground injection wells for safely neutralizing acidic, aqueous waste at 3 global locations. In addition, I co-authored a 1000-page technology manual that preserves 40 years of DuPont intellectual capital in deepwell injection, and built and confirmed reactive transport models using The Geochemist's Workbench® to assess environmental impact.

I led a multidisciplinary team that developed a conceptual site model for mercury contamination within the South River, Virginia watershed. In addition, I assembled a panel of mercury experts to identify innovative remedial options and partnered with Oak Ridge National Lab, Texas Tech, U. Delaware, and U. Waterloo on \$1 million in research projects to advance the state of the science in the characterization, cycling, and remediation of mercury in aquatic and terrestrial ecosystems.

I championed technology renewal projects that have advanced DuPont's capabilities in modeling metal fate and transport in wastewater, groundwater, and sediment (\$600k) and in industrial biotechnology processes (\$100k).

I facilitated third-party reviews for 3 capital projects totaling over \$120 million in new capital investment to assess risks associated with new technology and to identify mitigation strategies.

I authored 2 book chapters on geochemical modeling, 10 peer-reviewed journal articles, 29 invited talks and professional society presentations, and 13 major engineering reports.

I supervised and mentored 7 summer interns and co-op students.

Senior Environmental Engineer

DuPont Company - Wilmington, DE - 1989 to 1997

I pioneered a novel methodology for identifying and implementing pollution prevention and end-of-pipe treatment technologies and practices that reduced corporate TRI reportable waste emissions to air, water, and land by up to 90%.

I partnered with DuPont process engineers at more than 25 manufacturing sites globally to implement cost-effective source control and treatment technologies that met or exceeded regulatory requirements and decreased emissions to air and water at only one-fourth of the anticipated \$100 million capital investment.

I authored a landmark book entitled "Pollution Prevention: Methodology, Technologies, and Practices" as well as a book chapter on VOC emissions control, 13 peer-reviewed journal articles, 20 invited talks and professional society presentations, 70 corporate environmental technology briefing papers, and 7 major DuPont engineering accession reports.

I taught courses on pollution prevention and air emissions control at more than 15 DuPont manufacturing sites, the University of Delaware, and AIChE topical workshops.

Chemical Process Engineer, DuPont Engineering Field Program

DuPont Company - Wilmington, DE - 1985 to 1989

I led the development of conceptual design packages, chemical process flow sheets, and venture guidance appraisals for three major capital projects in the polymer products business with a combined capital investment of more than \$150 million.

I installed and operated a \$2 million R&D flammable solvent coater at the Towanda, PA site to enable formulation of new and existing photopolymer films away from methylene chloride.

I supervised a team of 5 R&D technicians responsible for scaling up and introducing to market new photopolymer film formulations for making printed circuit boards.

I designed, installed, and piloted a milling and particle elutriation process for industrial diamonds.

EDUCATION

Ph.D. in Environmental Soil Chemistry

University of Delaware - Newark, DE
2003

Master of Civil Engineering in Environmental Engineering

University of Delaware - Newark, DE
1997

B.S. in Chemical Engineering

Drexel University - Philadelphia, PA
1985

SKILLS

Process Engineering, Project Engineering, Geochemical Modeling, Environmental Fate and Transport, Remediation Technology, Environmental Consulting, Groundwater, Waste Minimization, Pollution Prevention, Environmental Treatment, Air Emissions Control, Geochemistry, Water Chemistry, Kinetic Modeling, Thermodynamics, Reaction Engineering

LINKS

<http://www.linkedin.com/in/jamesdyerpe/>