



**Exponent<sup>®</sup>**  
Engineering & Scientific Consulting

**Jessica M. Morris, Ph.D., PMP, CFEI**

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## Professional Profile

Dr. Morris has almost a decade of experience specializing in the analysis of atmospheric dispersions, fires, and explosions in an industrial setting with an emphasis on flammable and toxic materials. Her expertise stems from her chemical engineering background with extensive experience with hazardous chemicals, equipment modification and fabrication, programming, data analysis, modeling, and experimental research.

### Consequence and Risk Assessment

Dr. Morris leverages her knowledge of atmospheric dispersion and expertise with software tools Phast, Safeti, and ALOHA to consult on issues associated with the release of hazardous material. With her modeling experience, Dr. Morris has applied her knowledge and expertise to assist clients with regulatory permit applications for LNG import/export terminals, Facility Siting Studies, Building Siting Evaluations in support of API 752 and API RP 753, EPA Risk Management Plan (RMP) evaluations, Quantitative Risk Assessments (QRAs), and other consequence and risk assessments.

### Process Safety Management (PSM)

Dr. Morris has consulted with clients on matters related to Process Safety Management (PSM), including the OSHA PSM standard (29 CFR 1910.119) and the Canadian PSM standard (CSA-Z767-17). Dr. Morris specializes in Process Hazard Analysis (PHA), Operating Procedures, Management of Change (MOC), Emergency response planning, and other elements of PSM. She has assisted in Piping and Instrumentation Drawing (P&ID) and Process Flow Diagram (PFD) review, Hazard and Operability Analysis (HAZOP) studies, Safety Integrity Level (SIL) reviews, and other forms of Risk Assessment for industry. She has empowered clients to develop MOC programs and standardize operating procedures for their facilities. Dr. Morris has led the development and management Standardized Operating Procedures (SOP) and MOC programs for multi-million-dollar projects resulting in increased repeatability and quality of data.

### Process Safety Leader

Dr. Morris is active in the chemical process safety community as a technical contributor as well as conference leader. Dr. Morris has been presented and/or published work at the AIChE Global Congress on Process Safety (GCPS), AIChE Midwest Regional Conference (MRC), Mary K O'Connor Process Safety Center International Symposium, and the Chemical and Biological Defense Science & Technology (CBD S&T) Conference. She has chaired 10+ technical sessions regarding process safety, fires/explosions, and loss prevention at multiple conferences. She served as the chair of 10th Process Safety Management Mentoring (PSMM) Forum at the 17th AIChE Global Congress of Process Safety (GCPS). She also served as the chair of the 15th AIChE Midwest Regional Conference (MRC). She is an

active reviewer of manuscripts for the Process Safety Progress Journal and is a committee member of the Loss Prevention Symposia (LPS) and Process Safety Management Mentoring (PSMM) committees.

### **Prior to Exponent, Inc.**

Prior to joining Exponent, Dr. Morris completed her Ph.D. in Chemical Engineering at the University of Arkansas at the Chemical Hazards Research Center. Her work focused on the experimentation and modelling of the effects of along-wind dispersion of finite duration contaminant releases in the atmosphere. Her work provided original validation data and improved DNV GL PHAST models, with respect to along-wind dispersion. Dr. Morris also has experience with Matlab, Mathcad, Visual Basics, Fortran, Rhino, ALOHA, Phast, Safeti, Unisim, Aspen, Hysys, Comsol, and Engauge.

In addition to her background in hazardous chemicals, she continues to develop her hands-on skillsets with experience in welding, equipment fabrication, equipment specifications and modification, metal and wood shop experience, laser setup, industrial gasses, safety standards, automation of machines, and more.

While at the University of Arkansas, Dr. Morris was able to develop and teach an original graduate course on technical communication both for academia and industry. She also served as an advisor for Tau Beta Pi – the national engineering honor society. With her passion for safety, she pioneered an Engineering Safety club for both undergrad and graduate students in engineering. In addition to her graduate work, Dr. Morris was the Chief Technology Officer for a technical startup company in the field of medical devices utilizing fluid flow.

### **Extra-Curricular Activities**

In her free time, Dr. Morris serves as a Guardian ad Litem (GAL) and Court Appointed Special Advocate (CASA) where she represents foster children in court in Kane County, in Illinois. She is a licensed foster parent for teenage youth in care through the Department of Child and Family Services (DCFS) in Illinois. Dr. Morris has an honorable discharge from the U.S. Air Force Reserves.

### **Academic Credentials & Professional Honors**

Ph.D., Chemical Engineering, University of Arkansas, 2018

B.S., Chemical Engineering, University of Minnesota, Duluth, 2014

### **Licenses and Certifications**

40-Hour Hazardous Waste Operation and Emergency Response Certification (HAZWOPER)

67-Hour Principles of Fire Investigation Multi-Program Certification

Certified Fire and Explosion Investigator (CFEI)

Phast Advanced Modeling

Project Management Professional (PMP)

### **Professional Affiliations**

AIChE – Process Safety Management Mentoring (PSMM) – Committee Member

AIChE - Loss Prevention Symposia (LPS) – Committee Member

American Institute of Chemical Engineers (AIChE) – Member and Young Professional

Society of Women in Engineering (SWE) – Member

Tau Beta Pi, Engineering Honor Society (TBP) – Member

Omega Chi Epsilon, Chemical Engineering Honor Society (OCE) – Member

### **Professional Leadership Positions**

2023 Conference Chair for the 15th AIChE Midwest Regional Conference (MRC)

2023 Session Chair - Process Safety Session at the 15th AIChE Midwest Regional Conference (MRC)

2023 Session Co-Chair - Tutorials in Process Safety: Loss Prevention Symposium (LPS) for the Process Safety Management Mentoring (PSMM) Forum at the 19th Global Congress on Process Safety (GCPS)

2023 Session Chair - Fires, Explosion, and Chemical Reactivity II for the Loss Prevention Symposium at the 19th Global Congress on Process Safety (GCPS)

2022 Conference Vice-Chair for the 14th AIChE Midwest Regional Conference (MRC)

2022 Session Co-Chair - Tutorials in Process Safety I & II: Loss Prevention Symposium for the Process Safety Management Mentoring (PSMM) Forum at the 18th Global Congress on Process Safety (GCPS)

2021 Symposia Chair for the 10th Process Safety Management Mentoring (PSMM) Forum at the 17th AIChE Global Congress of Process Safety (GCPS)

2021 Session Chair - Process Safety and Occupational Health Sessions I & II at the 13th AIChE Midwest Regional Conference (MRC)

2021 Session Chair - Fires, Explosion, and Chemical Reactivity I & II for the Loss Prevention Symposium at the 17th Global Congress on Process Safety (GCPS)

2020 Symposia Vice-Chair for the 9th Process Safety Management Mentoring (PSMM) Forum at the 16th Global Congress of Process Safety (GCPS)

2019 Session Co-Chair - Tutorials in Process Safety I & II: Loss Prevention Symposium for the Process Safety Management Mentoring (PSMM) Forum at the 15th Global Congress of Process Safety (GCPS)

### **Publications**

Morris, J.M. and Spicer, T.O. (2022). Parameterization of Along-Wind Dispersion based on Ensemble Behavior of Passive, Time-Limited, Area Source Releases in a Wind Tunnel Study. 2022 Mark Kay O'Connor Safety and Risk Conference, College Station, TX.

Morris, J.M., (2022) Vapor Cloud Explosions in Complex Geometries – Application of the BST Model. 18th Global Congress on Process Safety, San Antonio, TX.

Morris, J.M., Morrison, D.R. Hart, R.J., Zanganeh, N. (2021) What is the Safest Hazard Assessment Approach for Distances to Storage Tanks? 17th Global Congress on Process Safety, Virtual.

Morris, J.M., Morrison, D.R. Hart, R.J., Wikramanayake, E.D., Song, S. (2021) Minimizing Risk of Unit Trains of Hazmat. 17th Global Congress on Process Safety, Virtual.

Morris, J.M., Hart, R.J., Morrison, D.R. (2020) Vapor Dispersion: How Safe is your Safety Factor? 16th

Global Congress on Process Safety, Houston, TX.

Morris, J.M. and Spicer, T.O. (2019) Improved Modeling of Continuous Gas Releases of Finite Duration. 15th Global Congress on Process Safety, New Orleans, LA.

Hart, R.J., Morris, J.M., Morrison, D.R. (2019) Sensitivity Analysis of Transport Conditions on Liquefied Gas Hazards. 15th Global Congress on Process Safety, New Orleans, LA.

Morris, J.M. and Spicer, T.O. (2018). Improved along-wind dispersion coefficient model from field and wind tunnel data. 14th Global Conference of Process Safety (GCPS), Orlando, FL.

Morris, J.M. and Spicer, T.O. (2017). Improvement of along-wind dispersion coefficient equation through experimental finite duration releases in a wind tunnel. Biannual Meeting for the Chemical and Biological Defense Science and Technology (CBD S&T) Conference, Long Beach, CA.

Morris, J.M. and Spicer, T.O. (2017). Generalization of modeling along-wind dispersion. 13th Global Conference of Process Safety (GCPS), San Antonio, TX.

### **Presentations**

Morris, J.M. and Spicer, T.O. (2022). Ensemble Behavior of Passive, Time-Limited, Area Source Releases in a Wind Tunnel Study. 2022 Chemical and Biological Defense Science & Technology Conference. San Francisco, CA.

Morris, J.M. and Spicer, T.O. (2022). Parameterization of Along-Wind Dispersion based on Ensemble Behavior of Passive, Time-Limited, Area Source Releases in a Wind Tunnel Study. 2022 Mark Kay O'Connor Safety and Risk Conference, College Station, TX.

Morris, J.M. and Spicer, T.O. (2022). Parameterization of Along-Wind Dispersion based on Ensemble Behavior of Passive, Time-Limited, Area Source Releases in a Wind Tunnel Study. 26th Annual George Mason University Conference on Atmospheric Transport and Dispersion Modeling, Fairfax, VA.

Morris, J.M., (2022) Vapor Cloud Explosions in Complex Geometries – Application of the BST Model. 18th Global Congress on Process Safety, San Antonio, TX.

Morris, J.M., Morrison, D.R. Hart, R.J., Zanganeh, N. (2021) What is the Safest Hazard Assessment Approach for Distances to Storage Tanks? 17th Global Congress on Process Safety, Virtual.

Morris, J.M., Morrison, D.R. Hart, R.J., Wikramanayake, E.D., Song, S. (2021) Minimizing Risk of Unit Trains of Hazmat. 17th Global Congress on Process Safety, Virtual.

Morris, J.M. Morrison, D.R. Hart, R.J., (2021) Why Storage Tanks Leak and How to Stay Safe? 2021 AIChE Midwest Regional Conference, Chicago, IL.

Morris, J.M., Hart, R.J., Morrison, D.R. (2020) Vapor Dispersion: How Safe is your Safety Factor? 16th Global Congress on Process Safety, Houston, TX.

Morris, J.M. and Spicer, T.O. (2019) Improved Modeling of Continuous Gas Releases of Finite Duration. 15th Global Congress on Process Safety, New Orleans, LA.

Hart, R.J., Morris, J.M., Morrison, D.R. (2019) Sensitivity Analysis of Transport Conditions on Liquefied Gas Hazards. 15th Global Congress on Process Safety, New Orleans, LA.

Morris, J.M. (2019) Building Siting Evaluations: Who put that there? 2019 AIChE Midwest Regional Conference, Chicago, IL.

Morris, J.M. and Spicer, T.O. (2018). Improved along-wind dispersion coefficient model from field and wind tunnel data. 14th Global Conference of Process Safety (GCPS), Orlando, FL.

Morris, J.M. and Spicer, T.O. (2017). Improvement of along-wind dispersion coefficient equation through experimental finite duration releases in a wind tunnel. Biannual Meeting for the Chemical and Biological Defense Science and Technology (CBD S&T) Conference, Long Beach, CA.

Morris, J.M. and Spicer, T.O. (2017). Generalization of modeling along-wind dispersion. 13th Global Conference of Process Safety (GCPS), San Antonio, TX.

Morris, J.M. (2017). Showcase of Chemical Engineering Research. University of Arkansas, Fayetteville, AR.

Morris, J.M. (2016). Lunch and learn: Effects of Along-wind Dispersion. DNV GL Software office, London, U.K.

### Editorships & Editorial Review Boards

Process Safety Progress, AIChE, Manuscript Reviewer 2023