#15

City of Seattle
Notice of Appointment

Name: Dr. Tara Henriksen		☒ **Executive Appointment** ☐ **Reappointment** ☐ **Legislative Appointment** ☐ **Agency Appointment** ☐ **PDA Council** ☐ **PDA Constituency**
Residential Neighborhood: Lynnwood	**Zip Code:** 98036	**Contact Phone No.:** 425-775-5550
Appointed to: Fire Code Advisory Board, Chemical Engineer Position		**Date of Appointment:** August 30, 2012
Authority (Ord., Res.): Ord. No. 119799		**Term of Office:** **From:** Confirmation **To:** August 31, 2015

Background:

Dr. Tara Henriksen holds a doctorate in chemical engineering. Dr. Henriksen currently works as a senior chemical engineer investigating the causes of fires, explosions and accidents in industrial and residential sectors. She has direct knowledge of many relevant areas regulated by the Seattle Fire Code, including combustible liquids, fuel dispensing facilities, and flammable finishes. She is a certified fire and explosion investigator who evaluates and analyzes chemical processes, heat transfer, and fire dynamics to investigate and prevent industrial fires and accidents. Dr. Henriksen brings a successful track record working on technical boards. She currently serves as a principal voting member of National Fire Protection Association (NFPA) 52, the technical committee for the Vehicular Alternative Fuel Systems Code. She is also a senior member of the American Institute of Chemical Engineers.

Authorizing Signature:	**Name and Title of Officer Making Appointment:** Michael McGinn, Mayor

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CITY OF SEATTLE
2012 SEP -4 PM 3:46
CITY CLERK

Tara Henriksen, Ph.D., CFEI
Senior Chemical Engineer

CASE FORENSICS

SUMMARY

Dr. Tara Henriksen is a Senior Chemical Engineer who specializes in the evaluation of engineering and safety issues related to hazardous materials accidents and chemical technology, specifically those associated with large chemical plant process failures. She holds a Ph.D. in Chemical Engineering from the University of Utah.

Dr. Henriksen is also a Certified Fire and Explosion Investigator who uses her knowledge of fire dynamics, heat transfer, fluid mechanics, chemistry, and chemical engineering in conducting fire origin and cause investigations and explosion analyses. Her investigations involve the evaluation and analysis of chemical processes and industrial equipment, dust explosions, vapor cloud explosion and accidental chemical releases. She applies her knowledge of chemical engineering to investigate and prevent accidents. Her research expertise also included the optimization of chemical process operations, process hazard analysis (PHA), layer of protection analysis (LOPA) and risk assessment. Dr. Henriksen also investigates issues of design defect and patent infringement.

Dr. Henriksen's doctoral research encompassed the study of hydrocarbon pool fires, inverse diffusion flames, premixed flames, and laminar diffusion flames. She specialized in the application of laser diagnostics in the analysis of combustion reactions, refractive index, and the evaluation of the puffing frequency of pool fires. Dr. Henriksen has experience designing and conducting small and medium scale fire tests and evaluating combustion processes using flow visualization and design software.

EDUCATION AND REGISTRATION

Doctor of Philosophy, Chemical Engineering, University of Utah, 2007
Bachelor of Science, Mathematics, University of Utah, 2003
Associate of Science, Chemistry, University of Utah, 2003
EIT Certification, State of Illinois, No. 061.033904
Certified Fire and Explosion Investigator, NAFI, No. 14035-7798
Hazardous Waste Operations and Emergency Response (HAZWOPER) Certification, IESMC
CPR and AED Certifications, American Heart Association
Emergency Response Certification, Fire Investigation 1A, IESMC
DOT HM-126F Hazardous Materials Certification, DOT
Fundamentals of Process Safety Certification, ASME
Licensed Unarmed Private Investigator, State of Nevada, No. R-055591
Explosion Dynamics, CFItrainer.net, 2012
Process Safety for the Biofuels Industry, CCPS, 2011
Mary Kay O'Connor Process Safety Center International Symposium, Texas Engineering Experiment Station, 2010
The International Symposium on Fire Investigation Science and Technology, University of Maryland, 2010
Preparation for the Marine Fire Scene, CFITrainer.net, 2010

Post flashover Fires, CFITrainer.net, 2009

Understanding Fire through the Candle Experiments, CFITrainer.net, 2009
Managing Complex Fire Scene Investigations, CFITrainer.net, 2009
Vacant and Abandoned Buildings: Hazards and Solutions, CFITrainer.net, 2009
A Ventilation-Focused Approach to the Impact of Building Structures and Systems on Fire Development, CFITrainer.net, 2009
Investigating Fatal Fires, CFITrainer.net, 2009
Critical Thinking Solves Cases, CFITrainer.net, 2009
Insurance and the Fire Investigation, CFITrainer.net, 2009
Introduction to Evidence, CFITrainer.net, 2009
Effective Investigation and Testimony, CFITrainer.net, 2009

PROFESSIONAL EXPERIENCE

CASE Forensics Corporation, 2010 to Present

Senior Engineer. Evaluates e ngineering and safety issues related to hazardous chemical accidents and chemical technology. Conducts fire origin and cause and explosion analysis using knowledge of fire dynamics, heat transfer, fluid mechanics, chemistry, and chemical engineering. Applies knowledge of chemical engineering to investigate and prevent accidents. Specializes in the evaluation of engineering and safety issues related to hazardous chemicals accidents and chemical technology. Conducts investigations that involve the evaluation and failure analysis of chemical processes and industrial equipment, dust explosions, vapor cloud explosion and accidental chemical releases, as well as design defect and patent infringement.

AICHE, 2009 to Present

National Safety Coordinator for the annual CHEM-E-car competition series, which is sponsored by the American Institute of Chemical Engineers. The competition involves innovative chemically-powered cars designed by student teams from colleges and universities across the United States. Dr. Henriksen is responsible for enforcing the safety standards of the program, drafting and reviewing job safety analysis (JSA) templates for entrants, testing student's core engineering competency, evaluating the hazards inherent in design, and updating competition safety standards as appropriate.

Exponent FAA, 2007 to 2010

Engineering Consultant. Applied knowledge of chemical engineering principles to chemical processing, forensics and product liability cases. Specialized in origin and cause evaluation as it applied to the chemical processing industry. Analyzed engineering and safety issues related to hazardous chemical accidents and chemical technology against industry standards. Conducted investigations involving the evaluation and failure analysis of chemical processes and industrial equipment, dust explosions, and chemical releases. Research expertise included the optimization of chemical process operations, process hazard analysis (PHA), layer of protection analysis (LOPA) and risk assessment. Served as a project manager on several origin and cause investigations, where she managed schedule, cost, personnel, and quality of deliverables.

University of Utah, 2004 to 2007

Graduate Research Assistant. Researched the study of hydrocarbon pool fires, inverse diffusion flames, premixed flames, and laminar diffusion flames. Specialized in the application of laser diagnostics in the analysis of combustion reactions, refractive index, and the evaluation of the puffing frequency of pool fires. Utilized laser-induced incandescence to study soot concentration, and laser induced fluorescence to study the location of the reaction zone relative to soot sheets in turbulent pool fires. Experienced with designing and conducting small and medium scale fire tests and evaluating combustion processes using flow visualization and design software.

National Science Foundation, 2001 to 2003

Research Analyst. Forged a collaboration between the Cystic Fibrosis Foundation and the University of Utah Math Department to model complex systems, analyze system dynamics and survival probabilities for patients with CF. Tested the accuracy of the single year assessment of the health of patients with CF by validating 5 dependent variables.

TEACHING EXPERIENCE

***ChFE 3353 Fluid Mechanics, University of Utah*, Fall 2006**

Teaching Assistant. This class comprised an introduction of fluid statics; application of conservation of mass, energy, and momentum to basic fluid mechanics problems; introduction to compressible flow, potential flow, boundary layer and dimensional analysis.

***ChFE 6353 Fluid Mechanics, University of Utah*, Fall 2005**

Teaching Assistant. This course provided an introduction to tensor analysis and derivation of governing partial differential equations. Solution of problems in Newtonian, laminar, incompressible flow are taught. Advanced experience on problems of potential flow, turbulence, non-Newtonian flow, and compressible flow.

***Engineering Matters, Youth Education*, Summer 2005, Summer 2006**

Professor. The goal of this course was to learn about engineering as a career. Students were taught basic engineering principles; electricity, electrolysis, forces of gravity and drag, energy, chemical properties, and safety. They were educated about the various career paths in engineering, and were exposed to civil, mechanical, electrical, chemical and environmental engineering subjects, activities and demonstrations.

PUBLICATIONS

- Way, P., Henriksen, T., "An Assessment of the Ability of Light Bulbs to Ignite Various Types of Cardboard," Fire and Materials, 12th International Conference, January 2011.
- Lewis, K., Biggerstaff, N., Henriksen, T., "Case Study: Safety device failure results in tanker BLEVE," Mary Kay O'Connor Process Safety Center International Symposium, p. 560, October 2010.

- Henriksen T.L., Nathan G.J., Alwahabi Z.T., Qamar N., Ring T.A., Eddings E.G. "Planar Measurements of Soot Volume Fraction and OH in a JP-8 Pool Fire." Combustion and Flame, 156 (7), 1480-1492, 2009.
- Henriksen T.L., Nathan G.J., Ring T.A., Eddings E.G. "Puffing Frequency and Soot Extinction Correlation in JP-8 and Heptane Pool Fires." Combustion Science and Technology, 180 (4) 699-712, 2008.
- Henriksen T.L., Nathan G.J., Alwahabi Z.T., Spinti J., Smith P.J., Eddings E.G. "Soot Volume Fraction from Extinction in JP-8 and Heptane Pool Fires." 4th Australian Conference on Laser Diagnostics in Fluid Mechanics and Combustion, The University of Adelaide, South Australia, December 7-9, 2005.

PRESENTATIONS

- "Applying Engineering Concepts in Forensics," Combustion Graduate Course, Salt Lake City, Utah, 2011.
- "Thermodynamics," CASE Forensics Internal Training, Mountlake Terrace, 2011.
- "Investigating Wildland Fires," CASE Forensics Internal Training, Mountlake Terrace, 2011.
- "The CHEME Car Competition: Furthering Undergraduate Education in Process Safety." AICHE National Meeting, Salt Lake City, Utah, 2010
- "Determination of Soot Refractive Index as a Function of Height in an Inverse Diffusion Flame." 5th US Combustion Meeting, Western States Section of the Combustion Institute, San Diego, CA. 2007.
- "Soot Volume Fraction from Extinction in JP-8 and Heptane Pool Fires." WSS/CI Fall Meeting, Stanford, CA. 2005.

SOCIETIES AND MEMBERSHIPS

American Institute of Chemical Engineers (AICHE)
International Association of Arson Investigators (IAAI)
International Association of Arson Investigators Washington Chapter (IAAI)
National Association of Fire Investigators (NAFI)
National Fire Protection Association (NFPA)
  Committee Member, Hydrogen Technology 2010
  Committee Member, Vehicular Alternative Fuel Systems 2010 - present

FIRE CODE ADVISORY BOARD

August 2012

Fifteen members: Ord. 117717, all appointments subject to City Council confirmation. **3 year terms - no term limits.**

- 15 Appointed by Mayor

D*	G	Position No.	Name	Appointed	Term Ends	Term #	Position	Appointed By
	M	1	James R. Fair	3/30/2012	3/30/2015	2	Architects	Mayor
	F	**2**	**Tara Henriksen**	**8/30/2012**	**8/31/2015**	**1**	**Chemical Engineers**	**Mayor**
	F	3	Rae Anne Rushing PE	3/30/2012	3/30/2015	2	Mechanical Engineers	Mayor
	M	4	Todd Sparrow	3/30/2012	3/30/2015	1	BOMA	Mayor
	M	5	Jeffrey Watt	3/30/2012	3/30/2015	1	Fire Insurance Industry	Mayor
	M	6	Allen Rainsberger	3/30/2012	3/20/2015	2	Marine Industry	Mayor
D	F	7	Melda Hickman	10/30/09	10/30/12	1	Port of Seattle	Mayor
	M	8	Gary E. Anderson	10/30/09	10/30/12	2	Manufacturing/ Warehouse	Mayor
	M	9	David Moore	3/30/2012	3/30/2015	1	Research/Labs	Mayor
	M	10	James Moren	10/30/09	10/30/12	1	Fire Protection Industry	Mayor
	M	11	Lucas Grothkopp	3/30/2012	3/30/2015	2	Public	Mayor
	Note 1	12	Anne Donegan	3/30/2012	3/30/2015	2	Public	Mayor
		13	Vacant				Labor	Mayor
		14	Vacant				Petroleum Industry	Mayor
		15	Vacant				Retail	Mayor

***Diversity[1]**

	Men	Women	Vacant	Minority	(1) Asian-American	(2) African-American	(3) Hispanic Latin@	(4) Native-American	(5) Other**	(6) Caucasian
Mayor										
Council										
Other Bodies	8	3	3	1		1				10
Total										

***Other includes diversity in any of the following: race, gender and/or ability*

1. *Respondent prefers not to self-identify. Diversity table totals include information for 11 respondents.*