

Testimony of Eric W. Tappert, PE before the House Professional Licensure Committee, October 8, 2014

Good morning, my name is Eric Tappert, President of the Pennsylvania Society of Professional Engineers. I am licensed as a Professional Engineer in both Pennsylvania and New Jersey and presently teach engineering at Penn State Berks campus as adjunct faculty. The vast majority of my 45 year career as an engineer has been spent in industry, particularly the communications industry and the industrial automation industry. The industrial exemption (the section of the current law that exempts engineers working in industry) has meant that licensure was not required for this work and the vast majority of engineers in these fields are not licensed.

Act 367, the Engineer, Land Surveyor, and Geologist Registration Law, has but one purpose: to protect the public safety, health, and welfare by establishing a set of minimum standards for engineers practicing in the Commonwealth. Since its inception the law has exempted engineers working in industry from meeting those minimal requirements. Unfortunately, industrial activity is not immune to presenting safety issues for the public and employees, yet there are no established minimum standards for the competency of the engineers performing the design, maintenance, and operation of industrial properties. It is left to the corporation owning such properties to decide whether or not their employees are competent and adhering to the code of ethics contained in Act 367.

History is replete with examples of this public trust in corporations being compromised. An example too close to my home is the Concept Sciences Incorporated plant explosion in February 1999. In this incident, just outside of Allentown Pennsylvania, a new company put a chemical processing facility in a light industrial park, across the parking lot from a day care center. While processing their first batch of product the plant exploded. Five persons, including a supervisor at an adjacent business, were killed and damage to surrounding structures up to 100 yards away, including the day care center, occurred. Fortunately the victim count was minimized as the explosion happened at about 8:15 PM.

The incident was investigated by the U.S. Chemical Safety and Hazard Investigation Board and their conclusions included, and I quote:

“CSI’s process safety management systems were insufficient to properly address the hazards inherent in its HA manufacturing process and to determine whether these hazards presented substantial risks.

Inadequate collection and analysis of process safety information contributed to CSI's failure to recognize specific explosion hazards.

Basic process safety and chemical engineering practices—such as process design reviews, hazard analyses, corrective actions, and reviews by appropriate technical experts—were not adequately implemented.

The hazards and complexity of CSI's HA production process required careful and comprehensive application of current engineering codes, guidelines, and good practices. Based on many years of research and experience, these tools are well established and represent the fundamental principles of chemical engineering design. ¹

So the plant exploded, as did a similar plant in Japan 16 months later, due to the lack of proper safety engineering. There were no professional engineers working for Concept Sciences in this facility, the operation was supervised by a person with a chemistry degree.

Established standards, which are part of every professional engineer's tool box, were ignored and the public was put at serious risk. This entire incident could have been avoided if a competent professional engineer had been in responsible charge. The intent of the proposed changes in bill 1447 are to make sure that every industrial operation has competent people in responsible charge, as every industrial operation has the potential to affect the public safety, health and welfare.

Thank you for consideration.

¹ "Case Study: The Explosion at Concept Sciences: Hazards of Hydroxylamine", U. S. Chemical Safety and Hazard Investigation Board, No. 199-13-C-PA, March 2002