Steve graduated in 1994 from Maine Maritime Academy in Castine, Maine with a B.S. in Marine Systems Engineering, a US Coast Guard Third Assistant Engineer's License (Steam and Motor, any horsepower), and an E.I.T. certificate. He was commissioned an officer in the US Navy and served over eleven years on four ships and two major staffs, primarily in the area of engineering operations and maintenance & material management. He was employed by Caterpillar Inc as a mechanical design engineer for in-cylinder components, a Six Sigma Black Belt, and a Marine Product Support & Customer Service Engineer. In 2009, Steve started his Masters at Purdue, in the field of agricultural safety with a primary focus on agricultural confined spaces. In addition to his research work, he assisted Dr. Bill Field and staff from the Agricultural Safety and Health Program conduct grain bin rescue training for first responders. He also supported Dr. Eric Dietz as the Course Manager and Teaching Assistant for the Homeland Security courses, and in the development of two new Emergency Management related courses. He was also active in the Greater Lafayette Area Safety Council and the West-Central Indiana Community Organizations Active in Disaster. He will start in January at Purdue University with the Office of the VP for Research as the Export Control Administrator.

Agricultural & Biological ENGINEERING

Thesis Defense

Speaker: STEVE RIEDEL

Title: ESTIMATION OF THE FREQUENCY, SEVERITY AND PRIMARY CAUSATIVE FACTORS ASSOCIATED WITH INJURIES AND FATALITIES INVOLVING CONFINED SPACES IN AGRICULTURE

Major Professor: Dr. Bill Field, Ed.D.

Date: November 28th, 2011

Time: 2:00 pm

Place: ABE 301

Abstract:

Research was conducted to assemble data on the estimated frequency, severity and primary causative factors associated with injuries and fatalities involving confined spaces in agriculture. Data were collected by reviewing cases from previously conducted research, local and national media (both on-line content and print sources), and published reports.

Based on a review of literature, no prior studies were found that either addressed the overall frequency, severity and causative factors of agricultural confined spaces or defined what clearly constituted an agricultural confined space.

A total of 1255 cases were identified that occurred in the United States between 1964 and 2010 that fit the definition of an agricultural confined space, as defined by the Committee on Agricultural Safety and Health Research and Extension for the North Central Region (NCERA-197). Data was collected on factors related to these agricultural confined spaces, to include the following: type and classification of facility (i.e. commercial grain storage, OSHA-exempt dairy manure storage, etc), agent of injury (i.e. grain bin, above-ground manure tank, feed storage tank, etc), age and gender of victim(s), geographic location of incident, severity of incident.

Grain storage facilities accounted for 71.0% of cases, manure storage structures accounted for 10.5% of cases, agricultural transport vehicles accounted for 9.2% of cases, forage storage structures accounted for 5.7% of cases, and all other cases accounted for 3.6%.

Males accounted for over 96% of all confined spaces-related cases and over 65% of cases resulted in a fatality. Where age was known, the average age of a victim was 38 years old, and youth under the age of 16 accounted for nearly 20% of cases.

Based on the findings and conclusions, recommendations for future education, engineering, and enforcement strategies are provided.