



# CNY SAFETY



American Society of Safety Engineers  
Central New York Chapter

## EXPLORING THE ELEMENTS OF RISK Part IV: Additional Factors in Determining the Probability of Harm - and the ANSI B11.TR3 Risk model By Bob Andres, CSP

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As we mentioned in the first part of this series, there are two *basic* elements of risk: Hazard Severity and the Probability of Occurrence of a Hazardous Event (Probability) the latter playing an equally important role in determining the degree of risk or harm posed by a given hazard. This final article in the series discusses the remaining factors of probability, and shows how one standard, ANSI B11.TR3, uses the two elements to determine an objective risk level approximation.

Lets start with a quick review:

### Probability of occurrence of harm

ANSI B11.TR3 states: probability of occurrence of harm is estimated by taking into account the frequency, duration and extent of exposure, training and awareness, and the presentation of the hazard. The following is an example of probability levels:

- Very likely near certain to occur
- Likely may occur
- Unlikely not likely to occur

- Remote so unlikely as to be near zero

When estimating probability, the highest credible level of probability is to be selected.

The following factors are considered important in estimating the probability of occurrence of harm:

- exposure to a hazard
- personnel who perform tasks
- machine/task history workplace environment human factors
- reliability of safety functions
- possibility to defeat or circumvent protective measures
- ability to maintain protective measures

**In earlier articles, we addressed many of the factors that are used to subjectively determine probability. Here are the remaining factors:**

### Machine/task history

Machine/task history taken into account in the risk estimation may include but is not limited to:

- reliability and other statistical data;
- history of harm;
- history of 'near misses;'
- risk comparison.

The absence of an accident history, a small number of accidents or low severity of accidents should not be taken as an automatic presumption of a low risk.

### Workplace environment

The workplace environment factors taken into account in the risk estimation may include but are not limited to:

- housekeeping;
- workplace layout;
- walking/working surfaces, ladders, stairs, platforms, catwalks;
- lighting;
- noise;
- ventilation;

### Inside this issue:

<i>Exploring the Elements of Risk</i>	1
<i>NAOSH Week, May 1-7</i>	2
<i>Judy Smith Recognized as 04-05 Chapter SPY</i>	3
<i>Jack Dobson Elected New ASSE President</i>	3
<i>May Chapter Meeting Details</i>	4

## EXPLORING THE ELEMENTS OF RISK

- temperature, humidity.

### Other Human factors

Human factors, other than motivation mentioned in an earlier article, may include but are not limited to:

- errors resulting from omitting steps, adding steps or performing steps out of sequence;
- application of ergonomic principles in the design of the machines and their effects in reducing risk (interaction of persons with machines see ANSI B11.TR 1);
- interaction between persons;
- awareness of hazards and their risks;
- the effects of accumulated exposure (e.g., repetitive operation, noise, chemical exposure);
- reduced vision, increased noise;
- characteristics of personnel who perform tasks (e.g., skill, experience, training).

### Reliability of safety functions

Reliability of safety functions of the machine taken into account in the risk esti-

mation may include but are not limited to the mechanical, electrical, electronic, hydraulic and pneumatic control systems integral to the machine at the time of the analysis.

### Possibility to defeat or circumvent protective measures

Risk estimation should take into account the possibility and the incentive to defeat or circumvent protective measures. The possibility to defeat a protective measure depends on both the type of protective measure and its design details.

Incentives to defeat or circumvent a protective measure may include:

- the protective measure is difficult to use;
- personnel other than the operator are exposed to the hazard;
- the protective measure is not recognized by personnel or is not accepted as suitable for its function.

The use of programmable systems introduces an additional possibility of defeat or circumvention where provisions for access to them are not properly supervised. This is particularly important when remote access for diagnostic or process correction

purposes is required.

### Ability to maintain protective measures

The ability to maintain protective measures taken into account in the risk estimation should be evaluated as to whether or not the protective measures can be maintained in the condition necessary to provide the required level of risk reduction.

In ANSI B11.TR3, risk for a given task/hazard combination is determined based on the information developed from the analysis and evaluation of hazard severity and probability of the occurrence of a hazardous event (and resultant harm), using a table closely resembling that used in MIL-STD 882D.

An example: a serious severity of harm and a likely probability of occurrence of that harm yields a high level of risk.

For more information on risk determination, see ANSI B11.TR3 and ASSEPDC Proceedings.

**This series was contributed by Chapter Member Bob Andres, CSP, CMfgE, DABFE**  
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## SAFETY & HEALTH LEADERS JOIN ASSE IN SUPPORT OF MAY 1-7 NORTH AMERICAN OCCUPATIONAL SAFETY AND HEALTH WEEK

Major safety, health and environmental (SH&E) organizations representing thousands of safety and health professionals have joined with the American Society of Safety Engineers (ASSE) and the Canadian Society of Safety Engineering (CSSE) to support efforts to increase public awareness of workplace safety during the May 1-7, 2005 North American Occupational Safety and Health Week (NAOSH).

The Academy of Certified Hazardous Materials Managers (ACHMM), the American Association of Occupational Health Nurses, Inc., (AAOHN), the American Industrial Hygiene Association (AIHA), and the American National Standards Institute (ANSI), also members of the "Safety and Health Intersociety Forum," will work to raise awareness of workplace safety risks and solutions during the annual NAOSH Week.

For more information visit [www.asse.org](http://www.asse.org)



## Judy Smith, CSP Recognized as 2004-2005 CNY ASSE Safety Professional Of The Year

Judy Smith, CSP, construction safety specialist for St Paul Travelers Insurance, was named this year's local Safety Professional of the Year at the April 14th CNY ASSE Professional Development Conference in Syracuse.

The Chapter Safety Professional of the Year Award originated in 1984, and is presented annually to an active chapter member who has shown and demonstrated their commitment, dedication, and professionalism to their fellow chapter members. Award recipients are recognized by peers for their unselfish giving of time and energy to advance their profession.

Judy has been an active member of our Chapter for nearly 12 years now. In the last handful of years Judy has taken several Chapter officer roles, and her excellent leadership and communication skills have represented our Chapter well. Judy is serving as our current Chapter President, and has coordinated some essential tasks like monthly meeting and conference planning, new member welcome programs, and Chapter member service awards, and new member recruitment. She has clearly gone beyond the typical call of duty.

Judy is a proven professional, a smart, resourceful, energetic person, and a pleasure to work with. She's taken on a lot of responsibilities with our Chapter, and has earned this recognition. We are proud to recognize Judy Smith as this year's Central New York Chapter Safety Professional of the Year.



## MAY CHAPTER MEMBER 5-YR ANNIVERSARIES

Chapter members **Scott Anderson** and **Tom Rezsnyak** will be celebrating their 15th year of ASSE membership in May 2005. Please extend your congratulations to these outstanding chapter members. Each has contributed towards strengthening the safety and health profession through their continued involvement with ASSE. Members celebrating a membership anniversary in May are treated to dinner on the Chapter at our May, September or October meetings, and may be eligible for an additional gift.

## WISCONSIN RESIDENT ELECTED NEW ASSE PRESIDENT

**DES PLAINES, IL (April 15, 2005)** — As a result of the American Society of Safety Engineers (ASSE) membership elections Jack H. Dobson Jr., CSP, manager of occupational safety and health for Simplicity Manufacturing, Inc., of Port Washington, WI, will serve as the 2005-06 ASSE President. Elected by ASSE members in the spring annual election for a seat on the ASSE Board of Directors were Senior Vice President Michael W. Thompson, CSP, of Houston, TX; Vice President Council on Professional Affairs Thomas W. Lawrence, Jr., CSP, P.E., of St. Louis, MO; Vice President Council on Professional Development Richard A. Pollock, CSP, Minneapolis, MN; Vice President for Region I Terrie Norris, CSP, ARM, CPSI, of Calabasas, CA; Vice President for Region III Richard R. Bourlon, P.E., CSP, ALCM, of Dallas, TX; Vice President for Region V C. Christopher Patton, CSP, OHST of St. Louis, MO; and, Vice President for Region VII Michael W. Hayslip, Esq., P.E., CSP, of Dayton, OH.

More than 17 percent of the ASSE membership voted in this year's election for six positions that begin July 1, officials stated today.

Dobson will succeed ASSE President Gene Barfield, CSP, of Lafayette, LA, director of professional safety, health and environmental services for Acadian Integrated Solutions, LLC, June 30. He began his 36-year professional safety and health career with the U.S. Air Force, before moving on to the Navy and Treasury departments and as an OSHA training institute safety instructor. Dobson has a B.S. in Business Administration from Roosevelt University, and an M.A. from Webster University. An active ASSE member, Dobson has served in many elected capacities including the ANSI standard committees on confined spaces and fall protection.

Serving as ASSE president-elect will be Donald S. Jones Sr., P.E., CSP, MBA, of Plaquemine, LA. He is the regulatory expertise

leader, safety manager and global expert partner in Dow Chemical Company's Global EHS Regulatory Affairs Center. In 2003 Jones received ASSE's top national award, the Edward Monsanto Queeny Safety Professional of the Year (SPY) honor. Jones has a B.S. in Civil Engineering from Louisiana State University and an MBA from Texas A&M University. He is also an adjunct safety and health faculty member at Southeastern Louisiana University.

ASSE's eight regions provide administrative coordination for 150 chapters. Members of the four odd-numbered regions elected two newcomers and two incumbents.

The new officers will be sworn in June 12 at the ASSE Professional Development Conference and Exposition in New Orleans. For more ASSE information and a list of states in each region, check the ASSE membership page at [www.asse.org](http://www.asse.org).

**American Society of Safety Engineers  
Central New York Chapter**

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## May Chapter Meeting Details

Chapter members & friends are invited to join us for our May Chapter Meeting.

**When:** Thursday, May 19th 5:30pm

**What:** May CNY ASSE Chapter meeting. Tour of Cornell University's Duffield Hall, Center for Nanofabrication. Presentation, dinner and facility tour. \$15 covers dinner expenses

Duffield Hall is one of the country's most sophisticated research and teaching facilities for nanoscale science and engineering. It supports research and instruction in electronic and photonic devices, micro-electromechanical devices, advanced materials processing, and biotechnology devices. <http://www.duffield.cornell.edu/>

**Where:** Cornell University, Ithaca, NY. Attendees should meet at the Hoy Road entrance of the Cornell parking garage promptly at 5:30.

Directions to Cornell University can be found on our ASSE Chapter website, <http://cny.asse.org/>.

**RSVP:** Required by Monday, May 16th. Jeanette Kinsella  
[jkrisk@twcny.rr.com](mailto:jkrisk@twcny.rr.com)

Don't miss your chance to tour this impressive new facility!



Duffield Hall, Cornell University, Ithaca