



The International System Safety Society

*Tennessee Valley Chapter*  
ALABAMA - MISSISSIPPI - TENNESSEE

<http://www.iss-s-tvc.org/>

## February-April 2017 Newsletter

### Tennessee Valley Chapter Officers 2016-17

**President:** David West, 256-971-6494

**Vice President:** Melissa Waters, 256-955-6830

**Treasurer:** Ronnie Sams, 256-842-1005

**Secretary:** Jason Rupert, 256-313-8650

**Immediate Past President:** Christopher Trumble, 256-842-3247

**Special Events Coordinator:** Open

**Webmaster:** Don Swallow, 256-842-8641

### President's Corner

**System safety engineering future** –The future for System Safety Engineering looks very exciting and I predict the need for competent system safety engineers will increase significantly in the near-term. The complexity of, and interaction of systems through the internet of things (IOT) has created tremendous conveniences to people but as a consequence, created previously unrealized risks. Hacking into systems exposed users to potential loss of personal information, electronically managed finances and theft of equipment. Electromagnetic interference, electromagnetic pulse, and software coding errors could result in significant downtimes for critical infrastructure or cause catastrophic fatal accidents. Industries and government agencies can leverage the skills of the system safety engineering community to mitigate these potentially tragic scenarios from ever seeing the light of day. The best part is the system safety engineer can accomplish this affordably and without the end user even knowing they were there. Everything modern society relies upon such as smart buildings, the power grid, aircraft, space vehicles, communications networks, railways and ships can gain resilience from system safety engineers and do so without harming humans, animals, property, or the environment. Yes, the future has great potential if it leverages the power of system safety engineering!

**Awards** - During the January meeting, chapter president Dave West presented APT Research and PPT Solutions with certificates of appreciation for hosting monthly meetings of the ISSS-TVC. The chapter is truly blessed and grateful for their continued support of our Society.

## ISSS TVC Jun 2016 Newsletter (con't)

February – Marge Jones was presented with an ISSS-TVC certificate of appreciation by President Dave West for her presentation at the monthly meeting of “Tips on Reviewing FTA”.

March - SAIC was presented with a certificate of appreciation for hosting the March Chapter meeting and for providing the lunch. Their support of the ISSS-TVC is greatly appreciated.

Dr. Michael Baran & Melissa Waters were presented with certificates of appreciation for their presentations at the Chapter meeting.

**Meetings** – Dave West chaired the 145<sup>th</sup> meeting of the G-48 System Safety Committee on the 25<sup>th</sup> of January in Orlando, Florida. The G-48 Committee develops technical and program criteria, procedures, and methodology for the application of system safety engineering at all phases of the life cycle of a system or equipment. It documents and disseminates standard analytical techniques for enhancing system safety and conducting industry surveys for the purpose of improving techniques for testing, collecting, and distributing historical operational system safety data. The meeting was very successful with those attending agreeing to identify emerging areas of significance to the system safety profession and drafting related best practices documents in near future. The next meeting is scheduled for 4 May 2017 and will be hosted by APT Research in Huntsville, AL.

### News

**Jan 18<sup>th</sup>** we were fortunate to have Greg Turgeon (PPT solutions) provide a presentation regarding Software Safety. The manufacturing industry has embraced software and uses it for almost everything that is critical to safety to mitigate risks, control cost and ensure speed. Greg's presentation was informative and very well received. Those who want additional details should contact Greg Turgeon at PPT Solutions.

Mr. John Frost was in attendance and informed those present of the 2016 Annual Report of NASA's Aerospace Safety Advisory Panel. A copy of the report is available for download at: [https://oiiir.hq.nasa.gov/asap/documents/2016\\_ASAP\\_Annual\\_Report.pdf](https://oiiir.hq.nasa.gov/asap/documents/2016_ASAP_Annual_Report.pdf)

The meeting was well attended by a number of ISSS members and guests.

**Feb 15<sup>th</sup>** – Marge Jones provided a presentation entitled, “Tips on Reviewing FTA”. Marge's explanation of the Fault Tree Analysis and tips for handling this important task was worthy of being considered a short course in how it should be done. The material was very well received by all in attendance. PPT Solutions hosted the meeting and generously supplied pizza and refreshments. Our thanks to PPT for their continued support.

## ISSS TVC Jun 2016 Newsletter (con't)

**Mar 15<sup>th</sup>** Dr. Michael Baran, SAIC, & Melissa Waters, A-P-T Research shared their experiences and perspectives regarding, “Including Safety in System Design” and “The Requirements Tracing Process.” Many ISSS members and visitors attended, and the question and answer period gave the presenters an opportunity to provide additional clarity to a complex topic. Those in attendance took away a deeper understanding of the topic area as well as a delicious lunch donated by SAIC, our gracious host for the meeting. President Dave West reminded attendees to submit their applications for Engineer and Manager of the year awards to the Chapter and to the Society. Dave announced elections for 2017-2018 Chapter Officers will occur in May 2017. Open positions will include Treasurer and Vice President. Jason Rupert will continue as Secretary. Our current Vice President, Melissa Waters, will transition to President. Dave West will transition to Immediate Past President. Don Swallow will continue as Webmaster

**March 27<sup>th</sup>** - Christopher Trumble provided a presentation on System Safety Engineering profession and the International System Safety Society (ISSS) to the University of Alabama Huntsville (UAH) student chapter of the American Institute of Chemical Engineers (AIChE). The AIChE was founded in 1908 as a nonprofit organization, providing leadership to the chemical engineering profession. It represents more than 50,000 members in industry, academia, and government. Students took time out of their studies to attend the evening presentation at the UAH Engineering building. They were very interested in the profession, asking a number of questions and quickly understood the value of System Safety Engineering and how chemical engineers interact with and could use the process to better perform their work.

The Chapter of the Year award is currently residing at Quantitech. We have been very fortunate to be able to possess the Chapter of the Year Award and share it with the local businesses who helped us attain the honor. If you haven't seen it yet and want to, you should do so soon because we will be returning it to the ISSS so they can award it to the next winner.

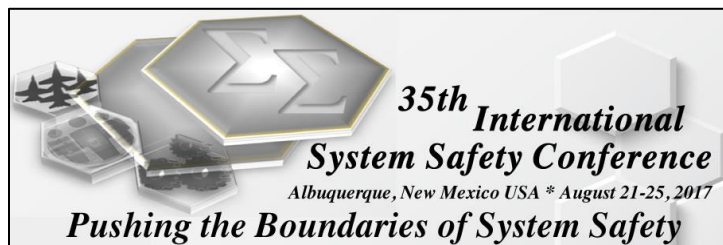
### Upcoming Meetings

**19 April 2017** [APT Research](#) will be hosting the meeting. We are very pleased to have Mr. Chris Waters, AIA, LEED AP, the senior architect of Chapman Sisson Architects. He will be providing a briefing on Safety in Architecture and Design. Often we do not think of a building or structure as a system yet today more than ever facilities are complex systems of electronics, hydraulics, ventilation handling equipment and machinery such as elevators and escalators. Throw in the requirement for human interaction with the building and the system safety challenges are not unlike those experienced by ground, or aerospace vehicles. The membership is encouraged to attend this meeting and determine whether there are safety techniques employed in the architectural field which can be leveraged in your specific area of interest. This is a briefing that is anticipated to be thought-provoking and enlightening.

## ISSS TVC Jun 2016 Newsletter (con't)

**17 May 2017.** We are looking for a host and speaker for this meeting. If you have suggestions please contact the ISSS-TVC Vice President, Melissa Waters (melissa.c.waters2.ctr@mail.mil) she will be happy to hear from you.

### Special Events



The 35th International System Safety Conference (ISSC) is rapidly approaching and should be on everyone's radar. August 21-25 will be here before you know it so you need to start making plans to attend and participate. This year the conference will be held at The Hotel Albuquerque at Old Town Albuquerque, New Mexico. The theme for ISSC 2017 is "Pushing the Boundaries in System Safety". There will be two types of technical papers: peer-reviewed and conference papers. Peer-reviewed papers will be blind reviewed by an external committee comprised of system safety experts. Conference papers are reviewed by the assigned session chair. For further information see <http://issc2017.system-safety.org/>.

### Awards 2017

The 2016-17 year is here and it's time to decide who you are going to nominate for an Award and get them the recognition they have earned. Demonstrate your pride in them and let their family and friends share some of that pride by nominating them for an award. It's your professional obligation and the right thing to do.

Dave West, Jason Rupert and Christopher Trumble reviewed and judged the System Safety Program paperwork submitted by High Schools and Universities worldwide, participating in the 2017 Annual NASA Rover Challenge. Christopher Trumble attended the Annual NASA Rover Challenge on April 1<sup>st</sup> at the Davidson Space Center and represented the chapter by presenting the winning High School Team (Pana Senior High School, Pana IL) and the University team (Middle Tennessee State University (MTSU)) with a certificate and \$100.00 check to each, acknowledging their achievement of being awarded "the Best System Safety Engineering" award from the ISSS-TVC.

### Fun stuff

Next-generation steel and metal alloys are a step closer to reality, thanks to an international research project involving a University of Queensland scientist.

The work could overcome the problem of hydrogen alloy embrittlement that has led to catastrophic failures in major engineering and building projects.

UQ Centre for Microscopy and Microanalysis Director Professor Roger Wepf said the problem had been recognized for almost 140 years.

## ISSS TVC Jun 2016 Newsletter (con't)

"The current generation of these metals can suffer hydrogen embrittlement, where they become brittle and fracture due to the accidental introduction of hydrogen during manufacture and processing," he said.

"A major example of alloy embrittlement occurred in 2013, when bolts in the eastern span of the San Francisco-Oakland bridge failed tests during construction."

Professor Wepf said hydrogen was extremely volatile and diffused quickly.

"Our research collaboration has, for the first time, localised and visualised hydrogen in steels and alloys," he said.

"This is essential for the development of new alloys with greater endurance."

"We have shown that it's possible to localise hydrogen at atomic resolution -- at the scale of a single atom -- or at a nanometre (less than one-billionth of a metre) scale by combining different technologies in a closed and protected workflow.

"These include state-of-the-art cryo electron microscopy freezing techniques, low-temperature sample preparation in a cryo focused ion beam microscope, and inert cryo-transfer.

Source: University of Queensland. "Next-gen steel under the microscope."  
ScienceDaily. ScienceDaily, 16 March 2017.  
[www.sciencedaily.com/releases/2017/03/170316141107.htm](http://www.sciencedaily.com/releases/2017/03/170316141107.htm).

***To the chapter's membership, keep expanding your knowledge and thanks for all that you do!***