

Keystone Committee keeps White Sands Test Facility aware of safety

By **Cheerie R. Patneau**

White Sands Test Facility's Keystone Committee has established the site's OSHA Voluntary Protection Program committee to raise safety awareness in employees and to help the site prepare for the Star certification.

The Keystone Committee, an employee-based committee chaired by Honeywell Technology Solutions Inc. employee Holger Fischer, has established safety awareness projects, worked on the site's Safety and Total Health Day activities, and compiled the evidence for the site's Star application. The application must address the major elements of the program: Management commitment and meaningful employee involvement in safety and health at the site; worksite analysis for hazards; hazard prevention and control; and employee safety and health training. The site has also conducted its mock-VPP audit, with auditors from other Star sites analyzing WSTF's programs.

Establishing the criteria for Star certification is a tough endeavor for any site, as is demonstrating how safety and health programs reduce injuries and illnesses. NASA WSTF Manager Joseph Fries has adopted a "common sense approach" to address the mock-audit findings. Of the findings, he believes that the most challenging are the worksite analysis for job hazards and ergonomics. He believes that "we have a lot of hard work ahead of us for Star certification, but we are improving." He establishes the criteria for addressing the findings by saying, "I don't want a lot of forms that go in a book. I want more living documents that have meaning for our employees." Of the ergonomic finding, he said, "this presents

more of a challenge, but training in the use of our existing equipment will help us."

Recently, the Keystone Committee attended the National Voluntary Protection Program Participants Association's conference which celebrated "Soaring Beyond the Star" and stressed exceeding previous achievements, and challenged participants

relationship are the envy of other federal agencies." He stressed that we should, "talk with those who've been with the program from the beginning as well as those who've joined recently. You'll discover the myriad benefits of VPP, including what we are most proud of, the dramatic reductions in injuries and illnesses. We hope you will



Noted Notre Dame football player "Rudy" Ruettiger encourages audiences to overcome challenges to attain their goals. Shown here is WSTF Manager Joe Fries and wife Sue with Ruettiger, center.

to set higher goals. While the WSTF Keystone Committee can only appreciate the goals of the conference now, the main speakers were inspiring to the committee members attending the conference.

Guest speaker Charles N. Jeffress, assistant secretary for occupational safety and health, U. S. Department of Labor, said that "trust, cooperation, the generous sharing of resources and expertise that mark our

make the effort and set your sights on the Star. It's a winning formula for everyone."

Daniel "Rudy" Ruettiger, the conference's closing speaker, also set higher goals than his classmates and fellow workers at the power plant in Joliet, Illinois. Rudy challenged himself to pursue his dream of playing football for the "Fighting Irish" of Notre Dame University, "despite a poor academic record, mediocre athletic

skills, and very little encouragement from his family." Ruettiger overcame his challenges, as catalogued in the movie *Rudy* which premiered at the White House.

Ruettiger has subsequently given himself new challenges: working with children. He has established Rudy's Kids, a foundation to help children achieve character, commitment, and courage. Ruettiger didn't listen to discouragement; he soared beyond it.

Lee Anne Jillings, executive director of the National VPPPA, said that the feedback she received from the 1,750 attendees to the conference was very "positive, with the most benefit in networking." Jillings felt that Ruettiger's presentation was "great! Motivating!" The conference also carried 1 to 3.5 continuing education credits. Jillings said that the next annual VPPPA conference will be held in New Orleans August 27-30, 2001.

Members of the WSTF Keystone Committee are: Victor Meza, John Bernal, Robert Cort, James Wing, Donald Hall, Marc Dunford, Jose Lopez, Ed Havenor, Jill Rollings, Cheerie Patneau, K. C. Schlotterbeck, Holger Fischer, Richard Vonwolff, Danny Aranda, John Kelley, Eric Crespin, Case Van Dyke, Raul Estrada, and Jesse Wells.

The Keystone Committee has found throughout its year of commitment to the health and safety of WSTF's employees that the site is rising to the challenge of achieving its Star. Additionally, the Keystone Committee has attained recognition for its work in safety and health. Each charter member has received a NASA Certificate of Exemplary Performance. The committee continues to set safety awareness goals, work with the mock-audit team, and ready the site for the February 2001 OSHA Star application. ■

New wireless technology may pull the plug on weight gain

A simple challenge over dinner may have led to one of the most effective remedies for weight gain and added costs for instrumentation aboard the International Space Station, upgraded shuttle and NASA's future vehicles.

After completing a "Fly-by-Wireless" exploratory review last year, a small group went out for dinner for the usual small talk, but George Studor, NASA flight project engineer, turned the conversation into a challenge to his dinner-mates.

"Why can't we have hundreds, even thousands of stick-on sensors transmitting and compensating for interference, kind of like the cell-phones do?" That's how Sandia National Labs and Invocon, Inc. of Conroe, Texas, came together to propose the Micro-miniature Surface Acoustic Wave (SAW)-based Wireless Instrumentation System (Micro-SWIS) project with Studor and recently received a three-year Cross-Enterprise NASA Research Announcement.

Micro-SWIS is a next generation of extremely low-power stand-alone sensor devices that can save hundreds, even thousands of pounds of wire-related weight and cost for instrumentation on station, shuttle and upgraded shuttle, and much more on future vehicles.

Each sensor wire run requires weight, engineering and logistics not only for the wire, but more significantly, for every part of the vehicle the wire passes through. The space shuttle stripped 7,000 lbs. off its avionics weight years ago when it was decided to go to digital fly-by-wire. Now Studor and his team hope that experience with add-on instrumentation payoffs on existing vehicles will lead to designing in wireless networks into the vehicle core systems/instrumentation from the start - saving even more.

Wireless instrumentation reduces on-orbit crew time and cost for retrofitting ISS or shuttle with additional wiring for measuring the parameters to validate the engineering models, the actual structural/system health, and monitoring real-time conditions such as temperature, pressure, acoustic noise, and crew health.

On STS-97/ISS 4A, the Wireless Instrumentation Systems (WIS) and Micro-WIS systems are providing real-time temperature monitoring during assembly operations of the Z1 and P6 segments, temperature recordings of various orbiter structural compartments in preparation for future modifications, acceleration and strain in the Node, and even a wireless command/data link to the Floating Potential Probe. Other wireless systems are multiplying: the Wireless Video System for the EVA crewmember and the wireless Local Area Network (LAN) for the on-board laptops.

Both the WIS and the Micro-WIS projects have grown out of successful Phase 2 and 3 Small Business Innovative Research programs. Measuring as small as 1" x 1" x 1/2" and weighing only 2 ounces, Micro-WIS units can be placed almost anywhere on the space

shuttles or other space hardware to measure acceleration, strain, pressure or temperature and store or transmit the data.

"We wouldn't be where we are without a lot of support and guys like John Saiz, also of JSC's Structures and Thermal Division who handles the wireless temperature measurements

and has been a great project leader for both development and on-orbit tests," said Studor. "Our goal is to help the JSC Engineering structures and thermal team get the data when and where they need it. We were challenged

with how can we get more units out there for the structural and thermal tests. To replace existing systems we will need hundreds of sensors like accelerometers and strain gauges, operating on very low power, and all time-synchronized. We cannot afford to let today's wireless limitations keep us from attacking the problem positively with all the great minds available out there."

Micro-miniature wireless instrumentation units, such as the prototype shown here by George Studor, may help engineers reduce weight on space vehicles.

NASA JSC Photos
2000e27974 and
2000e24976 by Bill Stafford



Albuquerque's lead for cooperative ventures with NASA, responded to the news with enthusiasm and commitment.

"In fact," says Blewer, "since we submitted the proposal with NASA last year, we have had several other projects start that are developing related technologies."

Karl Kiefer, Invocon's president, has not been waiting either, dedicating a significant portion of its in-house R&D. "We kept our research going even when we felt the proposal had been rejected because we know this is where instrumentation technology has got to go."

According to Studor, these applications are merely the tip of the iceberg on what programmable SAW-based wireless transmitters are capable of. In fact, he believes the SAW technology itself will result in a whole new family of very low power sensors. He cites not only the possibilities in the space industry, but in a wide range of markets from aircraft and military, to automotive and home monitoring and controls.

"Figuring out all the various ways this technology could be used is still a fascinating challenge, but right now this gives us a chance to replace many of the wires used for instrumentation, data and commanding." said Studor. "We can't use wireless for everything we want at this point. That would be cost prohibitive and too risky, but this new NRA does give NASA a chance to optimize the mix of wireless and other new technologies in what we are starting to call 'fly-by-wireless.'" ■