

## JSC/EC5 U.S. Spacesuit Knowledge Capture (KC) Series Synopsis

All KC events will be approved for public using NASA Form 1676.

*This synopsis provides information about the Knowledge Capture event below.*

**Topic:** Real-Time EVA Troubleshooting

**Date:** February 16, 2012      **Time:** 3:30-5:00 pm      **Location:** JSC/B5S/R3204

**DAA 1676 Form #: 36102**

A PDF of the presentation is also attached to the DAA 1676 and this is a link to all lecture material and video: [\\139.169.94.174\data\EA\EC\\_SHR\Knowledge-Capture\FY12 Knowledge Capture\20120216 Parazynski EVA Troubleshoot\For 1676 Review and Public Release](\\139.169.94.174\data\EA\EC_SHR\Knowledge-Capture\FY12 Knowledge Capture\20120216 Parazynski EVA Troubleshoot\For 1676 Review and Public Release)

\*A copy of the video will be provided to NASA Center for Aerospace Information (CASI) via the Agency's Large File Transfer (LFT), or by DVD using the USPS when the DAA 1676 review is complete.

### **Assessment of Export Control Applicability:**

This Knowledge Capture event has been reviewed by the EC5 Spacesuit Knowledge Capture Manager in collaboration with the author and is assessed to not contain any technical content that is export controlled. It is requested to be publicly released to the JSC Engineering Academy, as well as to CASI for distribution through NTRS or NA&SD (public or non-public) and with video through DVD request or YouTube viewing with download of any presentation material.

\*Scott Parazynski's personal contact information has been removed in the final PDF of the original PowerPoint presentation. This PDF is also attached to this 1676 and will be used for distribution.

[US Spacesuit KC - Parazynski Real Time EVA Troubleshooting 2012-02-16.pdf](#)

**Presenter:** Scott Parazynski, M.D.

**Synopsis:** Dr. Parazynski focused on the Shuttle Transportation System (STS)-120 Solar Array Repair Extravehicular Activity (EVA) with personal anecdotes and then spoke about what it takes to have a successful EVA during the event, what types of problems can occur during an EVA, particularly with the spacesuit and the safety of the crew, and how to resolve these quickly, safely, and efficiently. He also described the participants and the types of decisions and actions each had to take to ensure success. He described "Team 4," in Houston and on-orbit, as well as anecdotes from his STS-86 and STS-100 missions. Parazynski provided a retrospective on the EVA tools and procedures NASA used in the aftermath of Columbia for shuttle Thermal Protection System (TPS) inspection and repair. He described his role as the lead astronaut during this effort, and covered all the Neutral Buoyancy Laboratory (NBL), KC-135, precision air-bearing floor (PABF), vacuum chamber, and 1-G testing performed to develop the tools and techniques that were flown. Parazynski discussed how the EVA community worked together to resolve a huge safety issue, and how his work in the spacesuit was critical to overcoming a design limitation of the Space Shuttle.

**Biography:** Dr. Scott Parazynski is a physician and a physiologist with expertise in human adaptation to stressful environments, having been graduated from Stanford University and Stanford Medical School. He went on to train at Harvard University and in Denver in preparation for a career in emergency medicine and trauma. In 1992 he was selected to join NASA's Astronaut Corps and eventually flew five Space Shuttle missions and conducted seven spacewalks (EVAs). In October 2007, Parazynski led the EVA team on STS-120, a highly complex space station assembly flight, during which he performed four EVAs. The fourth and final EVA is regarded by many as one of the most challenging and dangerous ever performed. In his 17 years as an astronaut, he also served in numerous senior leadership roles, including EVA branch chief and the lead astronaut for Space Shuttle Thermal Protection System Inspection & Repair (in the aftermath of the Space Shuttle Columbia tragedy). He has the distinction of being the only person to both fly in space and stand on top of the planet, the summit of 29,035-foot Mount Everest. He served as chief technology officer and chief medical officer at The Methodist Hospital Research Institute in Houston, Texas.

**EC5 Spacesuit Knowledge Capture POCs:**

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