



Innovation @ WSTF 2011

Flight and Critical Hardware Personnel Meet Urgent Deadline to Refurbish ISS Respiratory Support Pack



wstf0906e06361

The Respiratory Support Pack (RSP) is an emergency medical breathing assistance unit used on the International Space Station (ISS). The RSP is used when an ISS astronaut requires more oxygen or, in the case of a medical situation, assistance with breathing. The RSP has a 2-yr shelf life and is routinely refurbished by the White Sands Test Facility's (WSTF) Flight and Critical Hardware Design and Depot Processing group.

WSTF's primary focus in support of RSP work had been assisting NASA Johnson Space Center's (JSC) engineering personnel to extend the shelf life of RSP serial number (S/N) 1004, which was in orbit with S/N 1002 (whose shelf life had already expired). The plan was to ship RSP S/N 1002 to WSTF to refurbish and return to ISS on the launch-on-need space shuttle mission (STS-135).

However, WSTF was notified on March 23, 2011 that RSP S/N 1004 was inadvertently transferred to Space Shuttle Discovery (OV-103) from STS-133 instead of S/N 1002. Consequently, JSC requested an extremely accelerated refurbishment of RSP S/N 1004. WSTF innovatively developed an abbreviated plan to refurbish and ship the unit by April 12, 2011.

In preparation for the refurbishment and acceptance testing, all required documents were generated, appropriate portions of deactivated pressure vessel systems were reactivated, all necessary instrumentation calibrated, and a qualified RSP repair technician recalled to the site. While all of this was underway, an emergency purchase order was processed to have the RT-200 (a piece of equipment used for functional testing elements of the RSP) calibrated and returned to WSTF in time to support processing activities. RSP S/N 1004 was received at WSTF on March 25. Personnel worked overtime to complete required operations and RSP S/N 1004 shipped to KSC on April 7th, five days ahead of the April 12th deadline.

Outstanding support was provided by all involved in the accelerated refurbishment process including the WSTF business office procurement personnel, Component Services (cleaning of RSP parts), the Calibration Laboratory (calibration of components needed for acceptance test data collection), and FOSC Warehouse Shipping & Receiving.

Hardware Processing

