III. PROGRAM/PROJECT SUPPORT

A. Commercial Crew Program (CCP), Multi-Purpose Crew Vehicle (MPCV), Ground Systems Development and Operations (GSDO)

The Commercial Crew Program (CCP) is an innovative partnership to help the aerospace industry in the United States develop space transportation systems that can safely launch astronauts to the International Space Station (ISS) and other low-Earth orbit (LEO) destinations. The CCP partners are currently Boeing, Sierra Nevada Corporation, and SpaceX.

The Orion MPCV (Multi-Purpose Crew Vehicle) is based on the Orion design requirements for traveling beyond LEO. Orion will serve as the exploration vehicle that will carry the crew to space, provide emergency abort capability, sustain the crew during the space travel, and provide safe reentry from deep space return velocities. The spacecraft will launch unmanned on top of a Delta IV launch vehicle currently planned for 2014 from CCAFS. The mission has been designated as Exploration Flight Test-1 (EFT-1).

The Ground Systems Development and Operations (GSDO) program is a KSC program established to develop and use the complex equipment required to safely handle rockets and spacecraft during assembly, transportation, and launch. GSDO will help prepare KSC to process and launch the next generation of rockets and spacecraft in support of NASA's exploration objectives by developing the necessary ground systems, infrastructure, and operational approaches.

NRS has been actively supporting each of these programs throughout the year, and will continue to do so in a timely and professional manner. For more information on these programs, the KSC Range Safety Representative and/or NASA Range Safety Manager will fill you in on their current contributions to those efforts.

B. Tri-Program Tailoring

NRS supported the Range Safety tailoring group effort for NASA's Tri-Programs [Space Launch Services (SLS), GSDO, and Orion programs]. The group consisted of representatives from MSFC, KSC, JSC, USAF 45th Space Wing (45 SW), and various private contractors. These groups met to tailor multiple volumes of Air Force Space Command Manual (AFSPCMAN) 91-710 and NASA Procedural Requirements (NPR) 8715.5A. The following AFSPCMAN volumes were tailored: Volume 1, Range Safety Policies and Procedures; Volume 4, Airborne Flight Safety System Design; and Volume 8, Airborne tracking System Design, Test, and Documentation Requirements. Corresponding requirements from NPR 8715.5A were folded into the applicable volumes to make a joint tailored document. This tailoring effort was done in support of the working groups for the Human Exploration Range Safety Panel (HERSP).

NRS supported the Volume 1 tailoring effort by participating in several telecoms and face-to-face meetings between JSC and KSC to help establish the roles and responsibilities of NASA and the USAF in support of the Tri-Programs. Tailoring efforts are still in work.

NRS support of the Volume 4 tailoring effort took place with the groups' visits to KSC, along with multiple telecoms throughout the year. The 45th SW requested separate presentations from NASA and contractor teams to further explain the teams rational for tailoring requests concerning certain requirements. The items that were being discussed during these sessions

consisted of battery requirements for the SLS core stage, ordnance pyro delay, preflight testing requirement, booster Linear Shape Charge severance margin, core FTS configuration, system independence, stray current monitoring, and 72 hour end-to-end testing. Tailoring efforts are still in work.

Support for Volume 8 tailoring efforts also took place over various face-to-face meetings and telecoms. The tailoring group reviewed and discussed the requirement matrix of Airborne Tracking Systems provided by the 45th SW to determine applicable requirements and thresholds. The group completed the tailoring efforts for Volume 8 in August 2013.