

Exceptional service in the national interest



U.S. DEPARTMENT OF ENERGY MSA

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND NO. 2013-?????

Telemetry and Flight Testing



SANDIA'S CORE MISSION

- Ensure the safety, security, and reliability of the nuclear stockpile.
- Lab Directors at Sandia, LLNL and LANL annually certify to the President of the United States that the stockpile is safe, secure, and reliable.



1. DoD to DoE



2. Safeguards Transporter



3. Pantex Plant



THE ROLE OF TELEMETRY AND JOINT TEST ASSEMBLIES

- As strategic deterrence arose in the early 1960s, measuring weapon performance became key
- Most nuclear weapons programs now use telemetry systems to transmit data from tests to a ground station
- Instrumentation packages on test flights are sponsored jointly by the Department of Energy and the Department of Defense.
- These "joint test assemblies" measure dynamic, explosive, diagnostic, and subcomponent data and transmit the information to ground stations.
- Critical capability test data obtained with telemetry instrumentation is used for the lab directors' annual certification to the White House



4. Disassemble & reassemble weapon

5. Telemetry replaces nuclear explosives

6. Flight Testing



THE NUCLEAR PROCESS

- Lab tests are performed which include: sampling the stockpile, dismantling the weapons, testing the weapons, testing functionality and looking for signs of aging.
- For flight tests, approximately three of each weapon type are removed from the stockpile and tested; the nuclear explosive is replaced with a Joint Test Assembly (JTA) and the entire system is tested in a realistic mission profile.

ACCOMPLISHMENTS

- Delivered a flight telemetry for the W88 ALT 370 system's DASO-26 Flight Test Unit in April 2015
- Sandia's B61-12 Systems Team collaborated with partners across the National Security Enterprise to meet program milestones on time and on budget including two successful flight tests in the summer of 2015.
- Designed, built, tested, and delivered telemetry units and detonation monitor assemblies to support the FTU development flight test series. The telemetry unit is used to monitor and confirm that all primary prearming, arming, fuzing and firing functions were executed successfully.