

WX - 9 GUN WORKING GROUP

Brian Bartram, Mark Byers, Steve Di Marino, Jim Esparza, Lee Gibson, Rick Gustavsen, Ben Hollowell, Ruben Manzanares, Chuck Owens, Adam Pacheco, Tim Pierce, Ramon Saavedra Tim Tucker, Sam Vincent and Larry Vaughan



Mission Statement

Support world class experimental effort focused on physics at extreme conditions

Provide high quality data, analysis and model development to:

- Directed stockpile (NNSA Programs) 65 %
- Joint Munitions Program
- Department of Defense (WFO, ONR, etc.)
- Department of Homeland Security
- AWE, CEA
- External companies (TT)

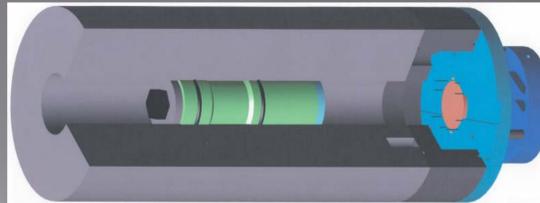
Ensure personnel safety is paramount

Ensure constant readiness of equipment and facilities

Develop high efficiency proactive maintenance program (living document)

Work towards improvement of gun technology

Promote technical knowledge transfer.



Motivation (room for improvement)

- Off normal events at LANL
 - 40mm catch tank, large bore powder gun, Residual pressure in 2-stage AR, Hydraulic pumps, gun control system
- Off normal events elsewhere (lessons learned)
 - SNL, LLNL, NTS, . . .
- Technical knowledge transfer
 - Key personnel at 2 stage gun facilities
- Inventory
 - Prevent unanticipated shutdowns and delays
- Documentation
 - Engineering diagrams/ drawings, equipment manuals, operating procedures, software documentation
- Need for material and design pedigree
 - W-14

Investing in our future

Collaborations

Sandia's gun facility
LLNL

JASPER facility at the Nevada Test Site
John Glenn NASA facility in Cleveland
NASA White Sands

AEDC (Arnold Air Force Base), Jack Daniels Distillery?

Internal Peer reviews of IWD and Procedure for all WX-9 Guns
External peer review with LLNL including walk down at TA39-69

Cross Training at Chamber 9 (expand training to B69)

Interior Ballistics course (Carmel CA)

Major maintenance on the ARLGG

Major TA39-56 Gas Gun rebuild and upgrade

Catch System (fire mitigation)

Control, Interlock and Pressure System

Participating in Aero-ballistic Range Association meetings

Addition of new members. Paul Contreras, Art Herrera and

Richard Salazar from MST-16

Chamber 9 upgrades

Floor support structure

Control system

Observed Benefits

- Developed the capability to measure Piston velocity on the 2-Stage Powder Gun.
- Enhanced maintenance scheduling and planning.
- Improved operating procedure for the 2-Stage Powder Gun.
- Team members have increased knowledge of our gun systems.
- Elimination of many safety hazards.
- Assessment of gun performance via several gun codes
 - Four codes are being used to assess/ understand gun operation

- Better working relationship between technicians and staff members
- Increased communication between technicians
 - Improved documentation (formalized engineering documentation)
 - Material specifications
 - Testing history
 - Component pedigree
- Increased efficiency
- Increased awareness and less complacency
- Developed the capability to measure breech pressure on the 2-Stage Powder Gun

