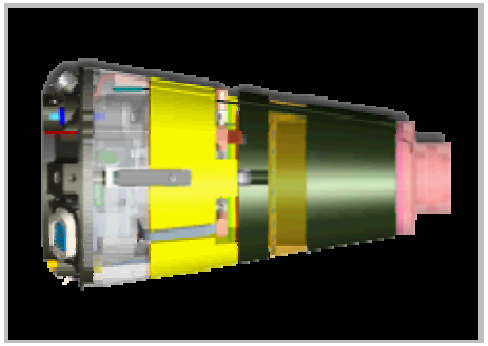
SAND2014-1810P

Exceptional service in the national interest

Sandia National Laboratories



SAEAC

Center 400
Surety Assessment, Engineering & Analysis

JF Nagel, Acting Director 400
Darren Hoke, Acting Sr. Manager 410
Marcey Hoover, Sr. Manager 420
Tommy Woodall, Sr. Manager 430

U.S. DEPARTMENT OF ENERGY

National Nuclear Security Administration

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. 2014-xxxx

EXECUTIVE SUPPORT DIVISION

Kim Sawyer
Deputy Lab Director and EVP for Mission Support - Org. 3

- 30 — **Corporate Ombuds** Jennifer Stinebaugh
- 700 — **Mission Support and Corporate Governance** Pat Smith
- 800 — **Independent Audit, Ethics & Business Conduct** Jennifer Plummer

Paul Hommert
Laboratory Director - Org. 1

- 100 — **Principal Staff Director** David Williams
- 110 — **Chief of Staff** Joselyne Gallegos
- 160 — **Government Relations** Karl Braithwaite

Exec. Mgmt. Procedures

Services

Emeritus

Personnel Loans

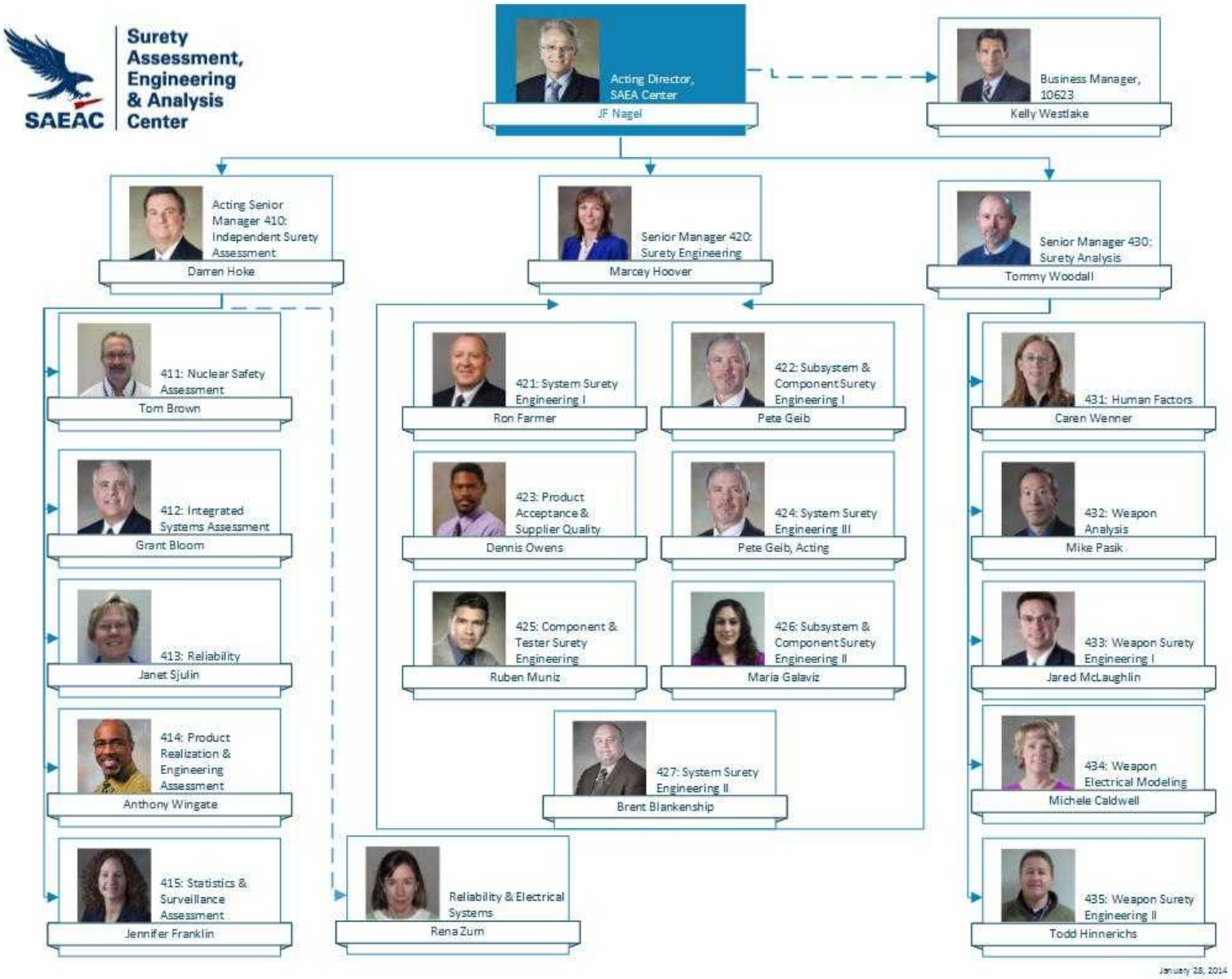
Jerry McDowell
Deputy Lab Director and EVP for National Security Programs - Org. 2

- 20 — **Office of Counterintelligence** Sandra Mied
- 90 — **FIE Operations** John Larson
- 200 — **NW Planning, Ops & Integration** Larry Walker
- 400 — **Surety Assessment & Engineering** Rick Fellerhoff
- 500 — **Nuclear Enterprise Assurance** Art Hale

Division Support

- Div. Business Mgr. — Mike Maurer
- Executive Ops. — Isaac Romero
- Division HRBP — Don Shoemaker
- ES&H/SS — Bess Campbell-Domme

Surety Assessment, Engineering, & Analysis Management



Surety –

"the condition of being sure"

1. Something beyond doubt; a certainty
2. Not hesitating or wavering; firm: sure convictions.
3. Certain not to miss or err; steady: a sure hand on the throttle.
4. Worthy of being trusted or depended on; reliable.
5. Free from harm or danger; safe.

The nature of a National Lab is that we take on the hard problems, often entailing much risk and high consequence of failure.....

Center 400 is an entity that Sandia has relied upon for over four decades "to be sure" that risks associated with *Quality, Reliability, Safety, Use Control, and Surveillance* have been addressed to the greatest extent possible, and the performance of our products can be trusted without doubt

Pride in Our Heritage:

Independent Surety Assessment

Sandia National Laboratories

1949 Sandia Established

Palomares, Thule Accidents

Damascus Accident

Report to EVP

1950 | 1960 | 1970 | 1980 | 1990 | 2000 | 2010

1945 Z Division (Los Alamos)

Testing for Quality

1954 Independent Quality Assurance

1968 Nuclear Safety Assessment

Reliability Assessment

1992 Use Control Assessment

2000 Surveillance Assessment

Nuclear Safety Assessment

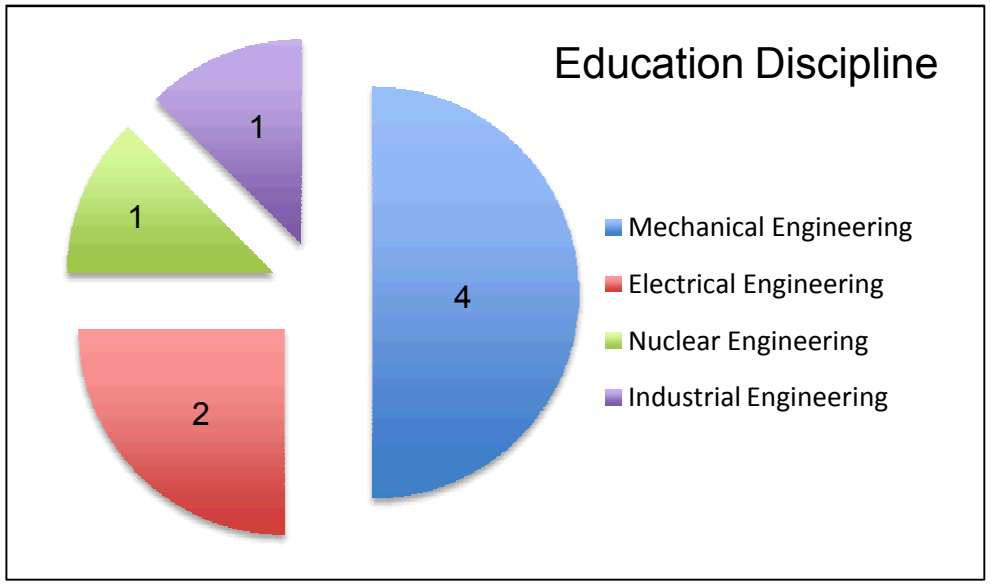
Mission

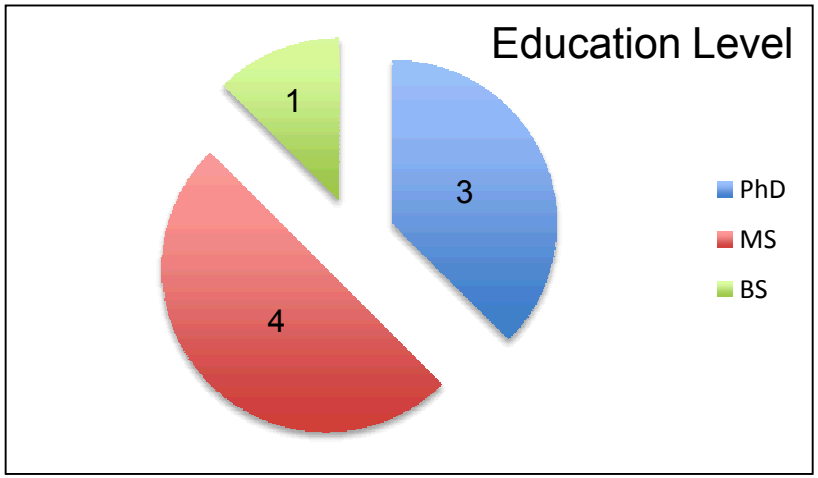
- The Nuclear Safety Assessment Department conducts independent and unbiased technical assessments of US nuclear weapon safety and the safety of related nuclear explosive operations

Structure

- Support of weapon-specific assessments through participation in Weapon Assessment Teams (WAT) as WAT leads or as Lead Safety Engineers (LSE)
- Support of NNSA Nuclear Explosive Safety Study Group (NESSG) and Nuclear Weapon Safety Study Group (NWSSG) studies as certified members
- 8 Engineers, 1 Engineering Technician, 1 Classified Administrative Specialist, and 1 Manager

Nuclear Safety Assessment Staff





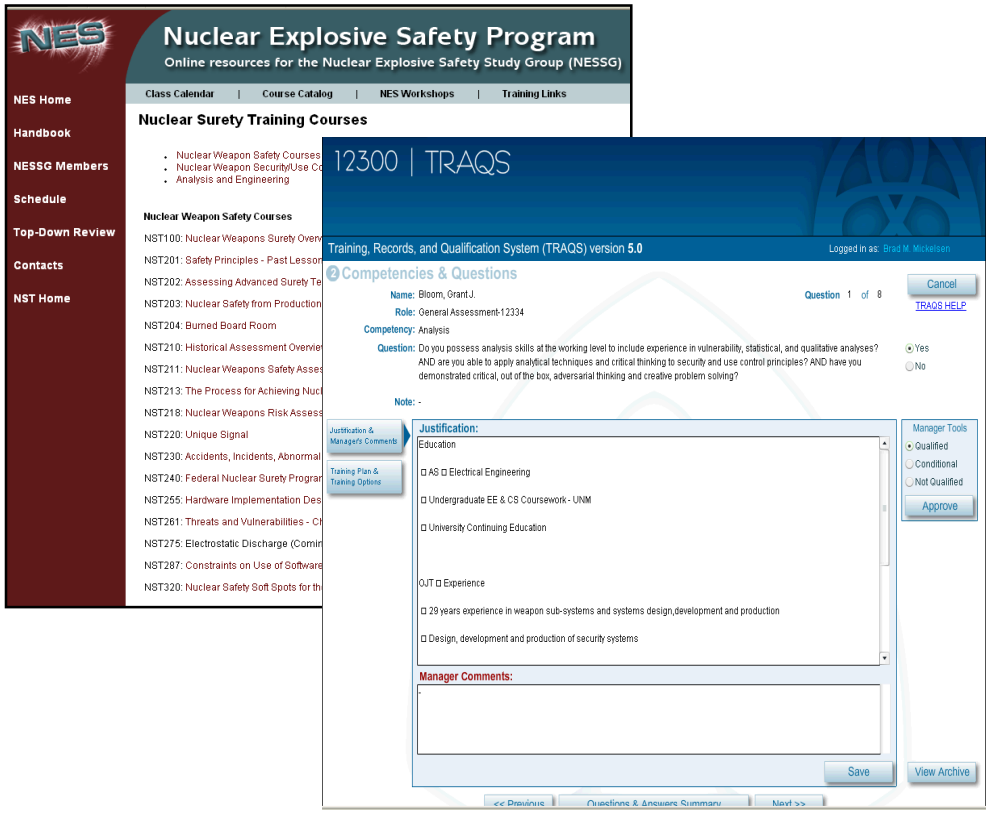
Weapon Complex Expertise

Systems & Components	
Materials	SS-21
Explosives	DOE Orders
Production	Mechanism Design
One-Point Safety	Unique Signal Design Methodology

Staff Expertise / Qualification

Certified assessors must annually demonstrate a surety discipline- specific set of competencies through training and qualification plans recorded and approved by management

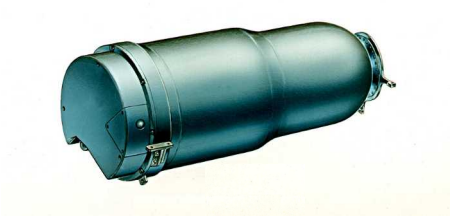
- 21 Nuclear Safety Competencies
  - Independent surety assessment
  - History of nuclear weapons and safety
  - Nuclear safety fundamentals
  - Basic engineering
  - Nuclear explosive fundamentals
  - Nuclear Explosive Package Safety Issues
  - Insult Fundamentals
  - Other weapon subsystems
  - Testers and controllers
  - Modern Safety Features, Issues
  - Potential new safety features, Issues
  - Use control systems
  - Document review
  - SNL test Experience and capabilities
  - Other test experience
  - Safety analysis and other techniques
  - Nuclear weapons establishment
  - Requirements definitions
  - Facility and transportation safety
  - Weapon Response development
  - Sandia's information systems

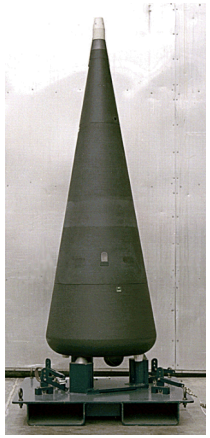


Nuclear Safety Assessment

Day-to-Day Activities

- Evaluation of the enduring stockpile
- Life Extension Programs
- Alterations / Modifications
- Engineering Authorizations
- DoD Unsatisfactory Reports
- Weapon Response Reviews
- Tester Assessments



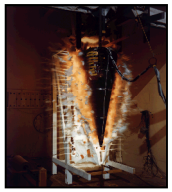


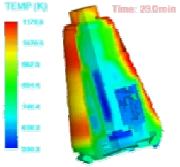
Annual Stockpile Assessment

Assert / Challenge / Conclude

NW Management

Weapon System Teams





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Red Team

Independent Assessment

→

AAR

SotS & Red Team

Annual Assessment Letter

Nuclear Surety Training

Mission:

To preserve nuclear weapons surety knowledge and history that is being lost through personnel retirements. NST provides training to those who design, maintain, operate, and manage NW Programs.

- NST204 Burned Board Room
- NST100 NW Surety Overview
- NST202 Assessing Advanced Surety Technologies
- NST230 Accidents, Incidents, Abnormal Environments
- NST416 Fault Tree Analysis
- NST255 Hardware Implementation Design and Production (Pentagon S)
- NST425 Failure Modes and Effects Analysis
- NST211 NW Safety Assessment
- NST210 Historical Assessment Overview

- NST201 Safety Principles – Past Lessons and Future Challenges
- NST100 NW Surety Overview
- NST401 Probabilistic Safety Analysis

Nuclear Weapon Emergency Response Support

We Provide Expertise in Emergency Response Systems Engineering and Field Support (ARG)

- World-Wide Deployable
  - Weapon Recovery Directors
  - AF&F Engineers
  - Portable Integrated Video System (PIVS) Operators
- Home Team Support
  - Home Team Coordinators
  - Weapon Recovery Safety Evaluation Team (WRSET) members