

Y12 NATIONAL SECURITY COMPLEX
PROTECTING AMERICA'S FUTURE

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Oak Ridge Reservation Facilities

Y-12 National Security Complex

National Nuclear Security Administration

Managed by B&W Technical Services Y-12



Oak Ridge National Laboratory

Department of Energy—ORO

Managed by UT-Battelle



East Tennessee Technology Park

Department of Energy—ORO

Managed by Bechtel Jacobs Company

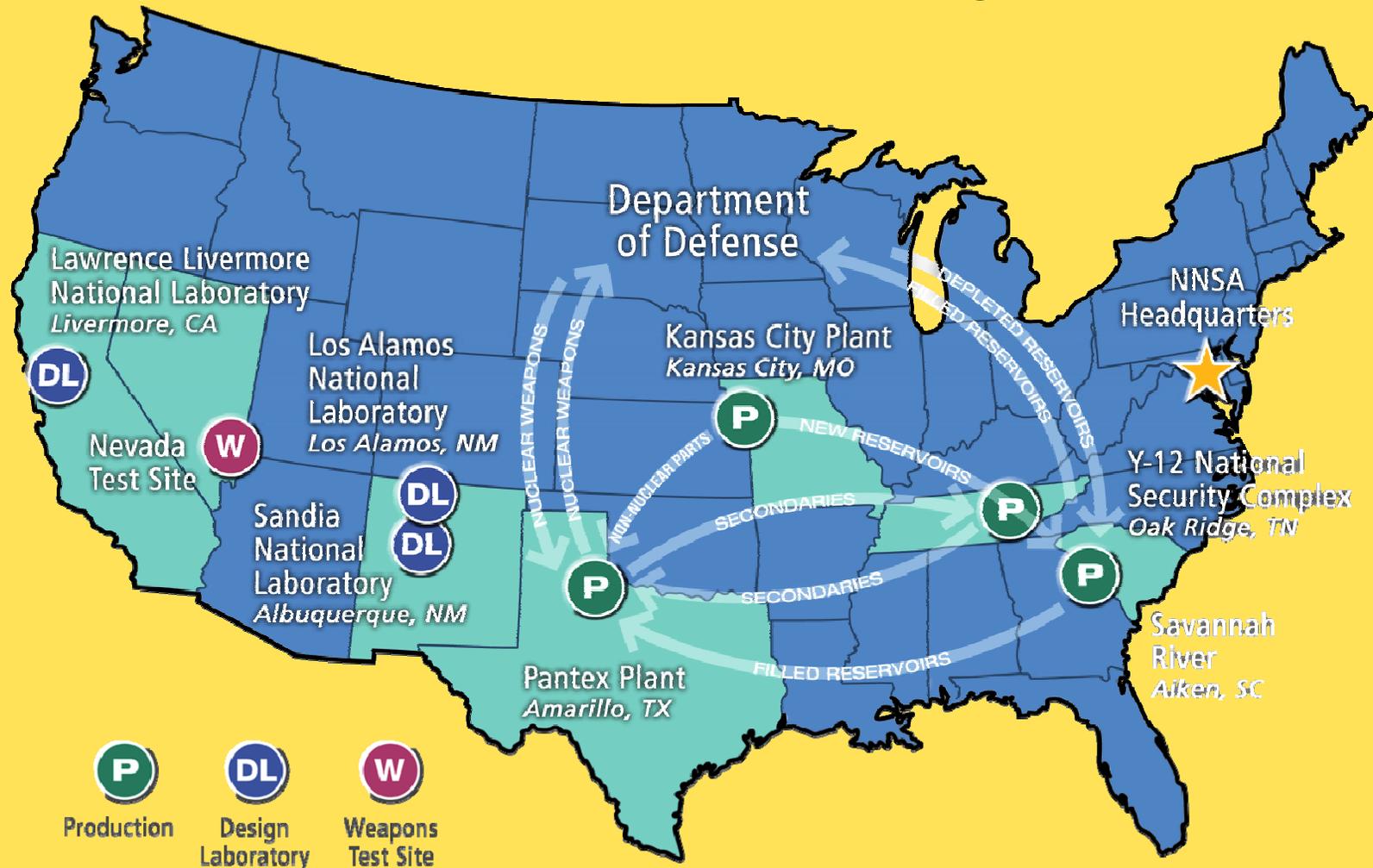
NNSA Organization

- Administrator reports directly to Energy Secretary
- Y-12 Site Manager reports directly to NNSA HQ
- YSO staff performs contract management, assessment & evaluation of B&W Y-12 and Wackenhut



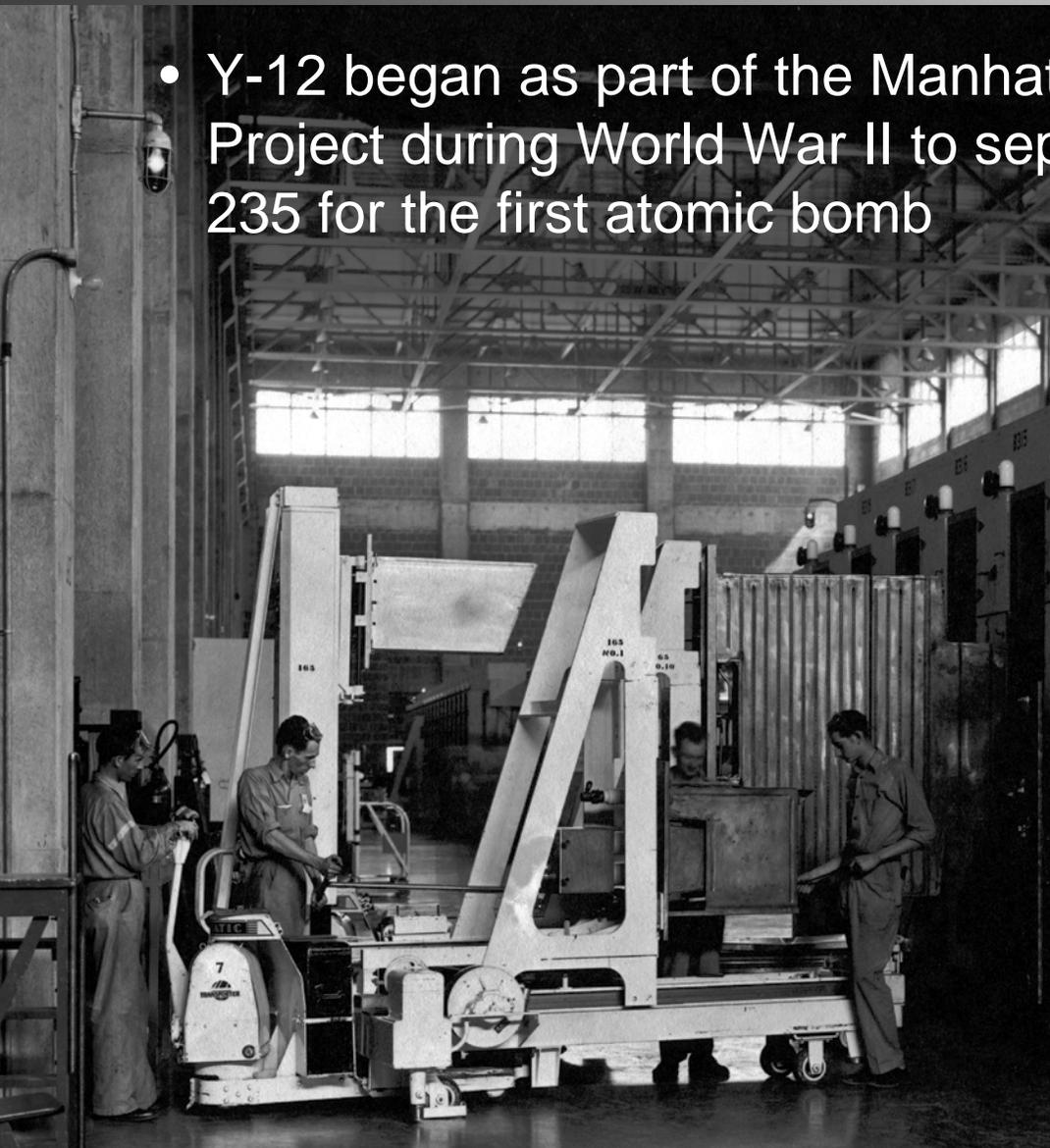
Nuclear Weapons Complex

Four production facilities and three design labs



Who Are We?

- Y-12 began as part of the Manhattan Project during World War II to separate U-235 for the first atomic bomb



Y-12 Demographics

- \$1.4B FY08 Budget
- More than 7,000 people work at Y-12 each day:
 - ~ 4,500 B&W Y-12 employees
 - ~ 80 NNSA employees
 - ~ 530 Wackenhut Services
 - ~ 2,500 subcontractors
- Highly educated workforce
 - ~ 1,240 (BS), 540 (MS), 80 (PhD)
- 811 acre site
- 550 production and laboratory facilities
- Leading NNSA NWC transformation
- Rapidly expanding WMD nonproliferation and homeland security missions
- Many “untapped” federal assets



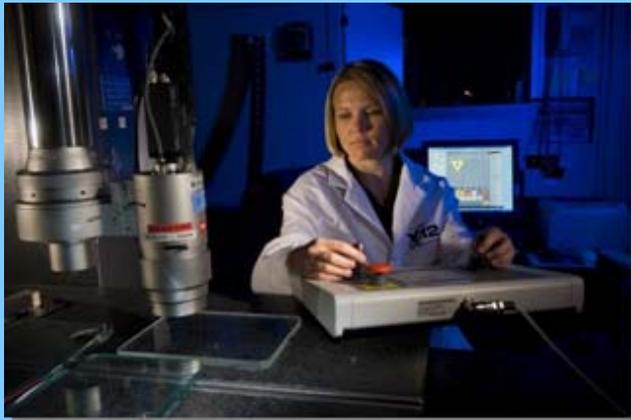
Y-12 Missions

- Sustain a U.S. Nuclear Deterrent
- Reduce the Threat of Weapons of Mass Destruction
- Supply Material to Naval Reactors
- Provide Solutions to Other National Security Challenges



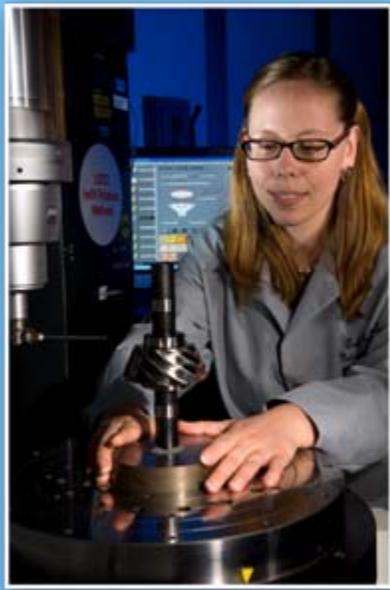
Y-12's Vision

Internationally recognized as the Uranium Center of Excellence, the Y-12 National Security Complex consistently provides responsive, innovative and cost-effective national security solutions to meet the needs of the United States and its allies

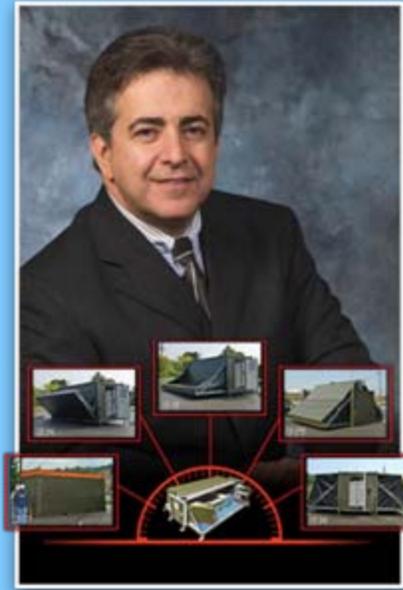


Transformation

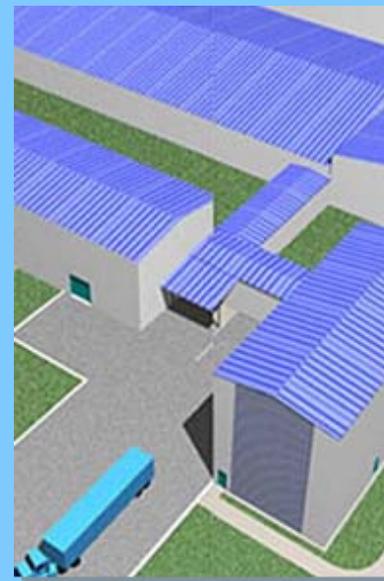
- Building new facilities and tearing down old facilities
- Evolving into a more business-oriented entity
- Expanding collaboration and cooperative ventures
- Pursuing missions in nonproliferation, homeland security, specialty manufacturing, and related national security areas



CAPABILITIES



EXPERTISE



FACILITIES

A large, dark gray, stylized logo for Y12 is positioned in the background. The logo consists of the letters 'Y12' in a bold, sans-serif font. The 'Y' is particularly large and has a thick, dark gray outline that loops around the '1' and '2'. The '1' and '2' are also large and have a similar thick outline. The entire logo is set against a black background.

Solutions to National Security Challenges

Over 15 Years in Nonproliferation

- Global Threat Reduction
- Research Reactor Conversion
- International Safeguards
- Global Initiatives for Proliferation Prevention
- U.S. Highly Enriched Uranium Disposition
- HEU Transparency
- Material Protection, Control, and Accountability
- Nonproliferation Research & Development



Global Threat Reduction

- Y-12 responds to special nuclear threats worldwide
- Production of uranium fuels for reactor conversions
- Removal and disposition of vulnerable HEU



Removal of Surplus HEU from Europe



Uranium-Molybdenum Foils



Removed Libyan Centrifuges

International & Homeland Security

- Russian HEU Transparency
- International Safeguards
- International Material Control & Accounting
- Detection and Security Technologies
- Operational Testing & Evaluation
- Vulnerability and Risk Assessments
- Radiological & Nuclear Field Training



Optical Scanner Testing



HEU monitor at oxidation glovebox



Nuc/Rad Training



Radiation Portal Testing

Nuclear & Radiological Field Training Center

Relevant quantities of nuclear and radiological materials in a realistic, scenario-driven environment

- Material search and identify
- Material packaging and recovery
- Site characterization
- New equipment testing
- Consequence management
- Decontamination



U.S. Army 20th Support
Command training

HEU Disposition

Y-12 supports HEU down blending programs eliminating enough weapons-grade uranium to light every home in the U.S. for a full year

*10 percent of U.S. electricity comes from energy produced from down-blended **former** weapons material*



HEU Disposition Program

Y-12 is NNSA's Lead Lab for U.S. HEU Material Disposition

- HEU from all DOE sites supporting SNM consolidation
- More than 118 tons of HEU dispositioned through 11/08
- USEC 50 MT Project completed in 9/05
- TVA BLEU Project
- Disposition of Y-12 IAEA material
- Reliable fuel supply



Loading the SNAP Reactor

TVA drums for Shipping



Emptying K-25 traps



Disposition of Super Kukla rings

The background features a large, dark grey, stylized logo for Y12. The letters 'Y', '1', and '2' are prominent, with the '1' being a vertical bar. A thick, dark grey line loops around the 'Y' and '1' in a figure-eight pattern. The '2' is a large, rounded shape with a horizontal base.

Supplying Fuel for Reactors

Research Reactors

- Y-12 supplies more than 80% of the world's research reactors, enabling them to test new automotive, aircraft and industrial materials and to create medical isotopes



Naval Reactor Supply

- **Y-12 is the only HEU material supplier for naval reactor fuel**
- **160 MTU set aside**



Fissile Transportation Packages

*NNSA's Center of Excellence for
fissile material transportation
packaging*

- Development, testing, licensing and procurement
- Latest packages include:
 - ES-3100
 - ES-4100
 - MD-2



ES-3100 Package



The background features a large, dark grey, stylized logo for Y12. The letters 'Y', '1', and '2' are prominent, with the '1' and '2' having a circular, orbital-like shape around them. The text 'Manufacturing and Technical Solutions' is centered over this logo in a white, bold, sans-serif font.

Manufacturing and Technical Solutions

Specialty Manufacturing & Technical Services

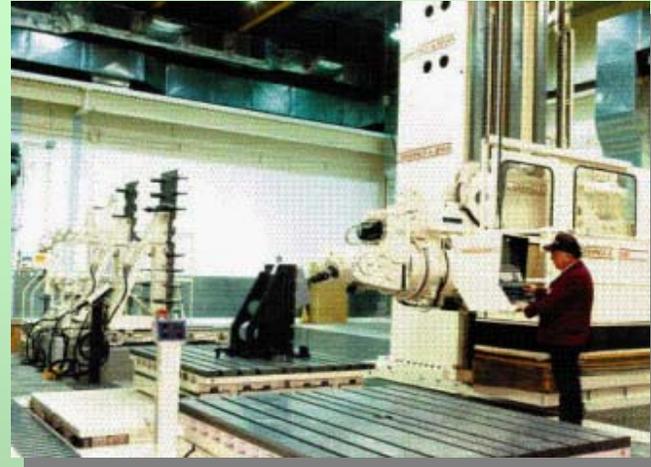
- National Prototype Center
- Advanced prototyping and specialty manufacturing
- Machining requiring high precision and accuracy
- Classified manufacturing in a highly secure, “need to know” environment
- Machining of materials having unique properties
- Solution-oriented manufacturing processes using a multidisciplinary approach
- Technical services to industry



Large-Item Machining and Fabrication



Henri Liné 5-axis Gantry Mill



Giddings & Lewis 8-axis Mill



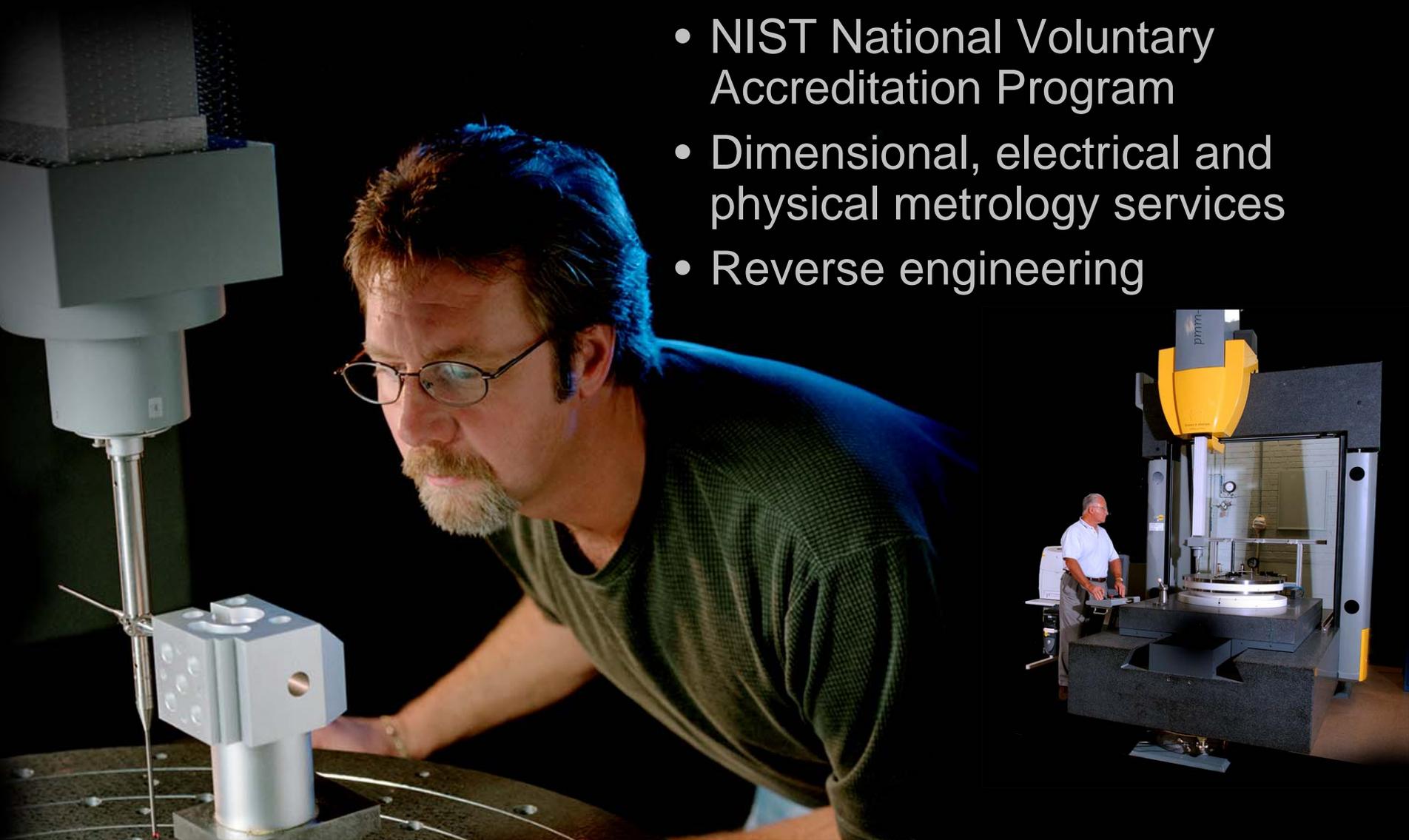
Haas Vertical Machining Center



Dorries Vertical Boring Machine

World-Class Metrology Services

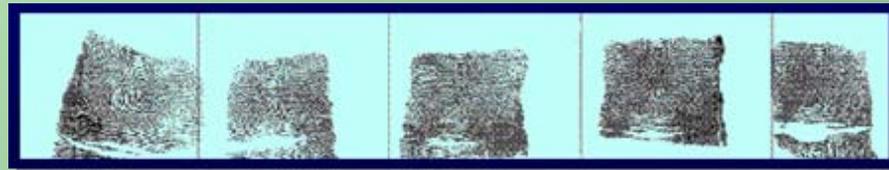
- NIST National Voluntary Accreditation Program
- Dimensional, electrical and physical metrology services
- Reverse engineering



Information Technology

Y-12's cyber security program is the flagship for the Nuclear Weapons Complex.

Work for Others – IT program developed fingerprint identification system and electronic questionnaires



Questions?

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