

Savannah River Nuclear Solutions *Leaning Forward*

Stuart MacVean
President and CEO

CNTA Up & Atom Breakfast
August 28, 2019

SRNS: Our four mission areas supply solutions around the world



Environmental Stewardship

for soil, water and facilities



Nuclear Materials for National Security

nuclear weapons deterrent



Securing Nuclear Materials

to prevent unwanted proliferation



Transforming Nuclear Materials

into assets and stable wasteforms



Savannah River National Laboratory

putting science to work



Support Services

Emergency Services • Water • Electrical
Cyber/IT • Roads • Construction • Maintenance



Environmental Stewardship

Completed

- Ash removal at Dunbarton Bay
- C Area groundwater bioremediation (organics treatment w/ emulsified oil/microbes)
- F Area groundwater remediation (I-129 treatment w/ silver chloride)
- A & M Areas groundwater remediation (organics treatment w/ chemical oxidants)

Started

- H Area groundwater remediation (organics treatment with Base injection)
- P Area Groundwater Reactive Barrier (organics treatment w/ 760 tons of iron)

Results

- Achieved D Ash CD-4 - \$9M below budget, 14 mo. Early
- Terminated active remediation of M Area groundwater (500,000 pounds of solvents removed); \$1M savings
- Achieved 60 FFA Milestones in FY19
- Since 1993, achieved 3,843 CERCLA milestones and RCRA Permit commitments on or ahead of schedule.



EM Operations

- **Completed NRU/NRX mission – Spent fuel returns from Canada**
6 months early
- **Met all processing deliverables in H Canyon**
- **High hazard deactivation**
safely executed on or ahead of schedule
 - HB Line
 - 235F
 - F/H Lab
- **K Area posture change**
from surveillance to operations



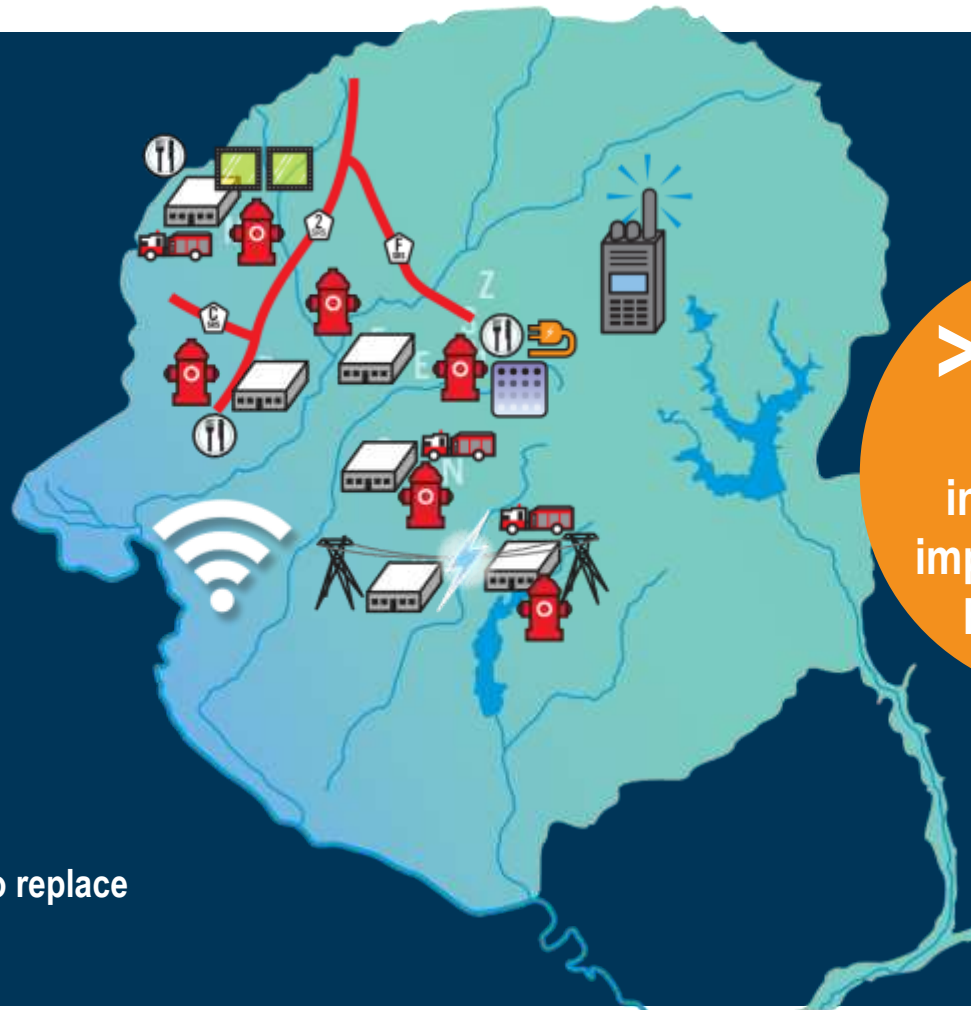
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- SRNL to deliver \$300M in scope in FY19 for the first time
- Increased flight times of UAVs using a hydrogen-supplied fuel cell over batteries
- Mark 18A mock-up facility established to train for Pu-244 recovery
- Recognized as world leader in tritium science and technology
- Response team to quickly recover nuclear materials
- Nuclear materials and high level waste processing innovation
- ~12% of LDRD Program funding allocated for discovery science



Infrastructure Investment

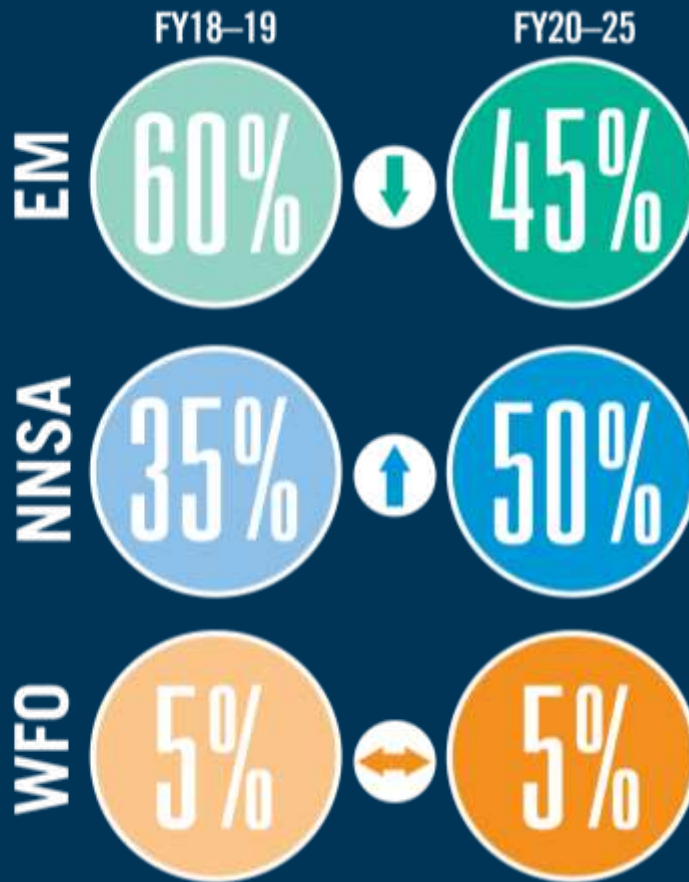
- Refurbished ~40 miles of paved roads
- Replaced 22 roofs
- Refurbished 29 firewater systems
- Replaced all emergency vehicles
- Replaced 13 of 16 SRNL shielded cell windows
- Replaced radio systems
- Replaced major power distribution systems
- Habitability upgrades
- Installed dissolver in H Canyon – preparing to replace electrolytic dissolver



>\$350M
spent on
infrastructure
improvements in
FY16 - FY19

Changing Customer Landscape

Our Missions



Environmental Management

(8% EM work paid by NNSA, Canada)

- Management, stabilization and disposition of nuclear materials
- Management and disposition of solid, liquid and transuranic wastes
- Spent fuel management
- Environmental remediation and cleanup

National Nuclear Security Administration

- Tritium operations and extraction
- Helium-3 recovery
- Nonproliferation support
- Uranium blending and shipping
- Foreign fuel receipts



ADDS

- MOX Transition
- Pit Production Mission
- Surplus Plutonium Disposition Acceleration
- Tritium Finishing Facility

Work for Others

- Other federal agencies
- Other DOE sites
- Private industry
- Other minor entities

Tritium Operations

Increased Production Period 2020-2024

- Tritium production, extraction and processing capabilities must increase to meet demand
- Requires 7 extractions per year by 2023
- Reservoir loading and testing complexity will increase; more complicated surveillance
- Work in progress in three key areas
 - **Plant preparation**
 - \$74M Projects Execution Plan
 - Tritium Finishing Facility
 - **Focused hiring**
 - 134 hired in FY18 and 62 in FY19
 - Total headcount: 668
 - **Performance improvement**
 - Maintenance and product quality
 - Improved efficiency and response capability



Surplus Plutonium Disposition Program



Photo: Preparing to package a can of downblended plutonium for shipment out of South Carolina.

- Repackaged and shipped one metric ton of plutonium from South Carolina to meet a court order by January 2020.
- Transition from MOX Fuel approach to Dilute and Dispose approach
- Modifying existing glovebox to increase throughput/shifting to 24/7 operations
- In design phase for a new \$500M 3-glovebox line in K Area



Proposed Pit Production Mission Enduring Capability



Lawrence Livermore
National Laboratory
is Design Agency



Los Alamos National Laboratory
is the nation's Plutonium Center
of Excellence for R&D

Two facilities provide DoD more
confidence that production
requirements can be met

Leverage NNSA investment
in MOX facility and resources

Maximize transfer of
LANL technical
and process knowledge

SRS brings
production mindset



*Reliable delivery
of no fewer than*



*The 2018 Nuclear Posture Review emphasizes
the need for “an effective, responsive, and
resilient nuclear weapons infrastructure” that
can “adapt flexibly to shifting requirements”*

Repurposing the 226-F Complex

for Proposed Pu Pit Production

- 500,000-square-foot hardened production facility
- 11 support facilities on ~110 acres
- >100 Construction storage and support structures
- Site infrastructure includes electrical; domestic and fire protection water; sanitary/sewage systems in all occupied buildings
- 225,000 sq.ft. of office space available

Savannah River has experience in repurposing on-site facilities and onboarding/training personnel for mission transition



Proposed SRPPF

Progress

- Organizations established for proposed SRPPF and 226-F Transition.
 - SRPPF staff at 125 FTEs +75 on the subcontract supporting the BOP design
 - 226-F Transition SRNS & Contractor staff at 145 FTEs
- Submitted document outlining cost and strategy for Critical Decision (CD)-1
- Began conceptual design of proposed SRPPF
- Began planning for proposed Training Development Center
- Supported NEPA process, including public meeting
- Routine video teleconferences and knowledge transfer activities with Los Alamos National Laboratory
- Hosted high-level visitors touring facility, including
 - NNSA Administrator
 - Nuclear Weapons Council – STRATCOM Commander, Under Secretary of Defense for Acquisition and Sustainment Ellen Lord

“I am confident that the recommended alternative of repurposing the Mixed Oxide Fuel Fabrication Facility at SRS while maintaining Los Alamos as the Nation's Plutonium Center of Excellence for Research and Development is the best path forward”

- Under Secretary of Defense for Acquisition and Sustainment and NWC Chair Ellen Lord



Changing Workforce Landscape

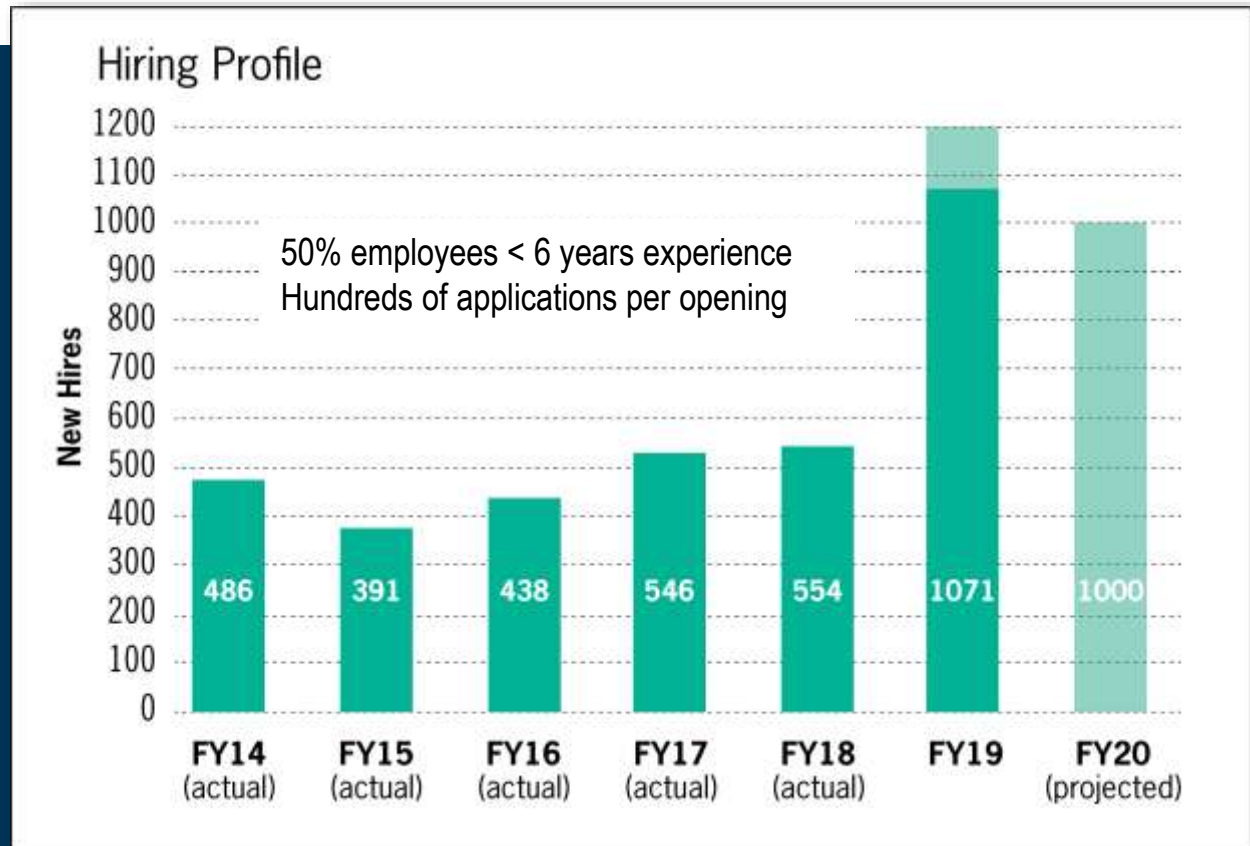
3,399
new full-service
employees

FY14-present

80%
hired from
local area

47
average age of
employees

down from
54 in 2008



New Missions and Hiring Impacts

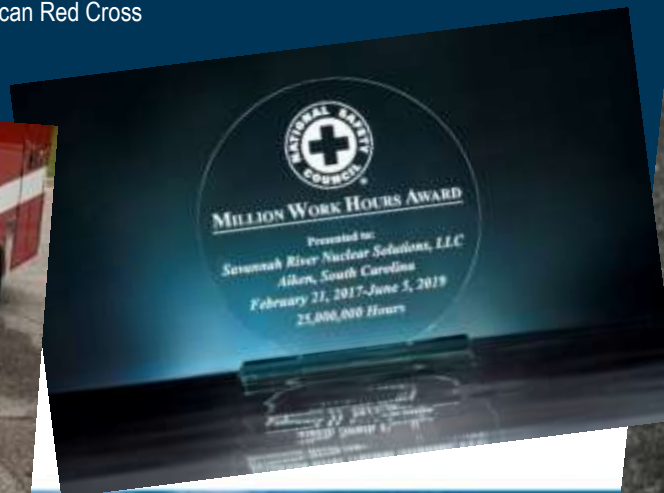


Agile and Responsive
Onboarding • Offices and Parking • Knowledge Transfer

FY2019 Awards

SRNS's commitment to safety and project execution excellence, employee engagement and continuous improvement, led to SRNS being recognized and awarded for distinction in several different departments, by numerous entities in FY19

- 25 Million Safe Work Hours Award
- NSC Occupational Excellence Achievement Award
- NSC Industry Leader Award
- Safety and Health Magazine as a 2018 "Rising Star of Safety"
- Fifth DOE Legacy of Stars Award
- 2018 Palmetto Shining Star Award
- The Voluntary Protection Program Outreach
- Safety and Health Achievement Award
- Commendable Lost Workday Cast Rate
- 0.00 Days Away Restricted or Transferred – Days Away Rate during 2018
- South Carolina Manufacturers Plant Safety Award
- Project Management Institute Project of Excellence
- NA-50 Award of Excellence
- Smart Business Recycling Award
- 2019 Department of Energy Sustainability Award
- Recognized as "Heroes" by the Augusta Chapter of the American Red Cross
- Secretary of Energy Achievement Award
- S.C. Chamber's 2018 Manufacturing Employee of the Year
- Defense Programs Awards of Excellence
- 2019 Communicator Award of Distinction
- Nine nominations for the 2019 Ideas America Conference
- 2018 Excellence in Workplace Diversity Award
- 1st Place Eddy Award
- Best in Class 401(k) Plans
- Corporation of the Year
- Spirit of Alliance Awards
- DOE Office of Small Disadvantaged Business
 - Mentor of the Year
 - Lab Director of the Year
 - Field Manager's Council Procurement Director of the Year
 - Field Manager's Council Small Business Program Manager of the Year
 - Director's Award





SRNS: We make the world safer.