

# Savannah River Nuclear Solutions

**Stuart MacVean**  
SRNS President & CEO

*Governor's Nuclear Advisory Council*

*April 25, 2019*

# SRNS: Our four mission areas supply solutions around the world

6,000 employees "Making the World Safer"



## Environmental Stewardship

for soil, water and facilities



## Supplying Tritium

for 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

World-class  
safety culture

Strong community  
support

# Recent Accomplishments

## Uranium Mission

- First time processing 3 uranium streams in H Canyon
- Spent fuel receipts increased this year

## Plutonium Mission

- K Area posture from surveillance to operations
- Accelerated down-blend and repackage scope
- Delivered acceleration strategy for HB Line

## Tritium Programs

- 100% national mission delivery
- Significant program growth

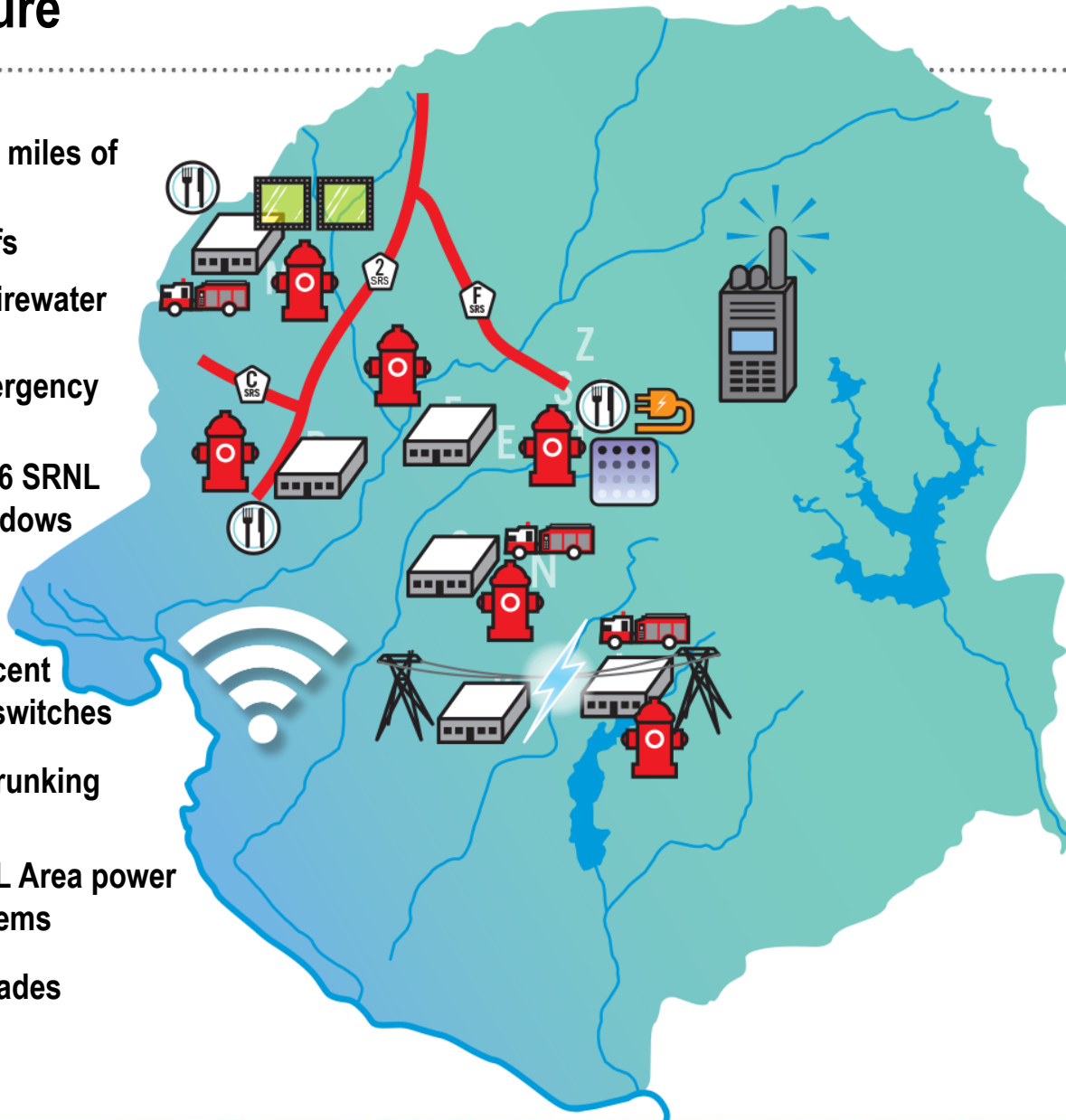
## Project Execution

- 57 projects valued at \$244M; final costs for all project forecasted to be \$12M under budget
- Completed D Ash Basin remediation – 14 months ahead of schedule and \$9 million under budget



# Infrastructure

- Refurbished ~40 miles of paved roads
- Replaced 22 roofs
- Refurbished 15 firewater systems
- Replaced all emergency vehicles
- Replaced 13 of 16 SRNL shielded cell windows
- Reduced future cyber risks by replacing 60 percent of SRS network switches
- Replaced radio trunking systems
- Replaced K and L Area power distribution systems
- Habitability upgrades

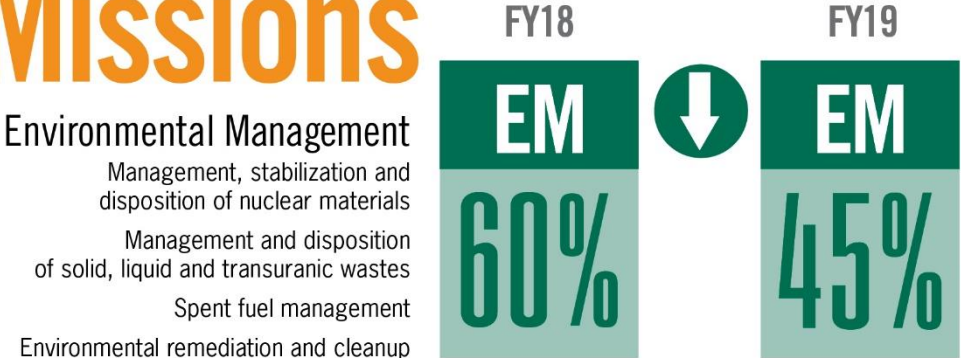


- Refurbished generators
- Installed dissolver in H Canyon

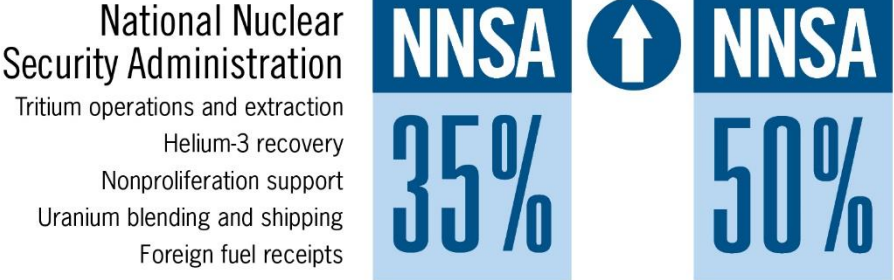
**\$241.3M spent on infrastructure improvements in FY16 - FY18**

**\$115M infrastructure improvements planned in FY19**

## Our Missions



(8% EM work paid by NNSA, Canada)

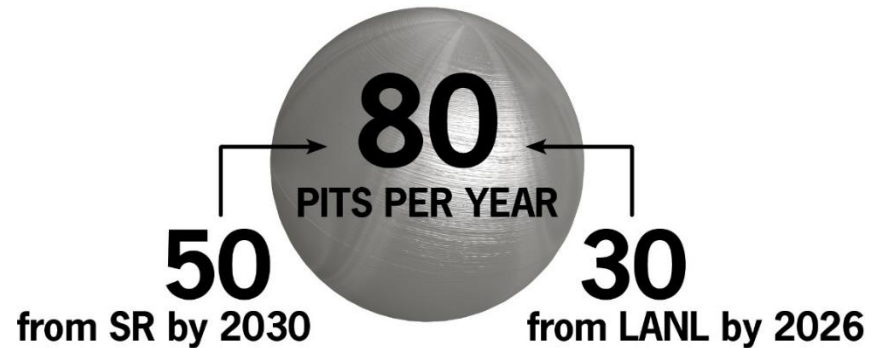


- ADDS**
- MOX Transition
  - Pit Production Mission
  - Surplus Plutonium Disposition Acceleration
  - Tritium Finishing Facility



# Pit production mission: Enduring capability

**Reliable delivery  
of no fewer than 80 pits  
per year**



**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**



*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 MOX Complex for Pu Pit Production

- 500,000-square-foot hardened production facility
- 11 support facilities on ~110 acres
- >200 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

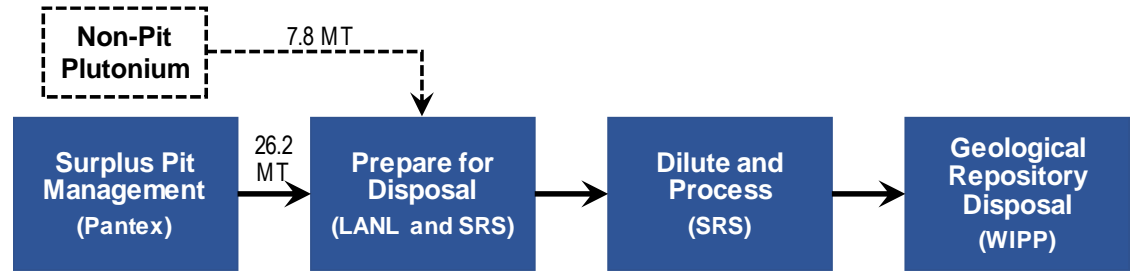
Savannah River has experience in repurposing on-site facilities and onboarding/training personnel for mission transition



# Surplus Plutonium Disposition Program

- Transition from MOX Fuel approach to Dilute and Dispose approach
- Modifying glovebox to increase throughput
- Increased staffing
- Currently operating 2 shifts; will extend to 4 shifts by 2022
- In design phase for a new \$500M 3-glovebox line in K Area

## Dilute and Dispose Approach to Surplus Pu Disposition





# 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 3 key areas
  - Plant Preparation
    - \$74M Projects Execution Plan
    - Tritium Finishing Facility
  - Focused Hiring
    - 134 hired in FY18 and 47 in FY19
    - Total headcount - 668
  - Performance improvement
    - Maintenance and product quality
    - Improved efficiency and response capability



General John E Hyten, Commander of U.S. Strategic Command at SRTE

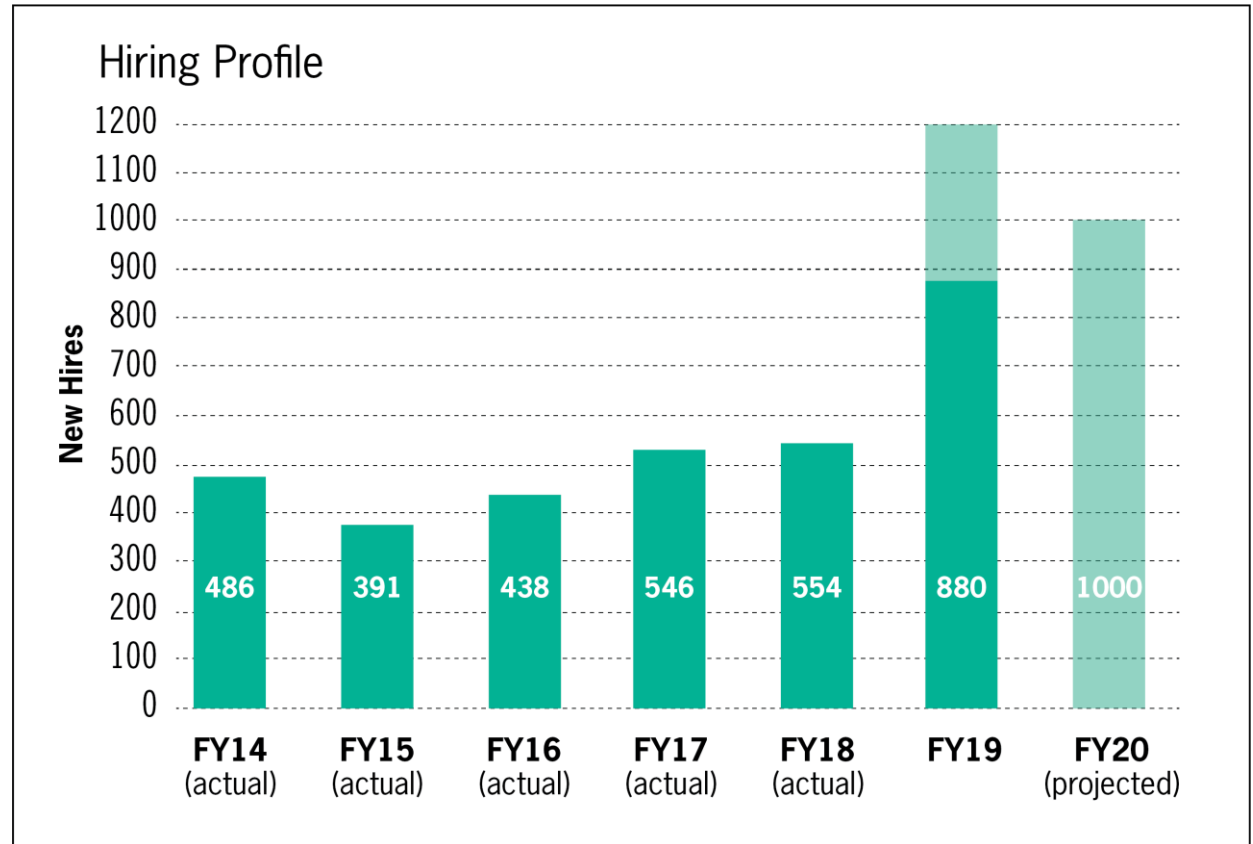
# SRNS Hiring at a Glance

**3,037**  
new full-service  
employees

FY14-present

**47**  
average age of  
employees

down from  
54 in 2008



# SRNS

**Savannah River Nuclear Solutions**  
**We make the world safer.**

