

SRNS Update

Stuart MacVean

President & CEO, Savannah River Nuclear Solutions

Governors Nuclear Advisory Council

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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 wastefoms



Savannah River National Laboratory

putting science to work



Support Services

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

6,600
Employees
"Making the
World Safer"

World-class
safety culture
●
Strong community
support

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)
- G Area Oil Seepage Basin remediation (backfill to natural grade with clean soil and place vegetative cover over basin area)

Results

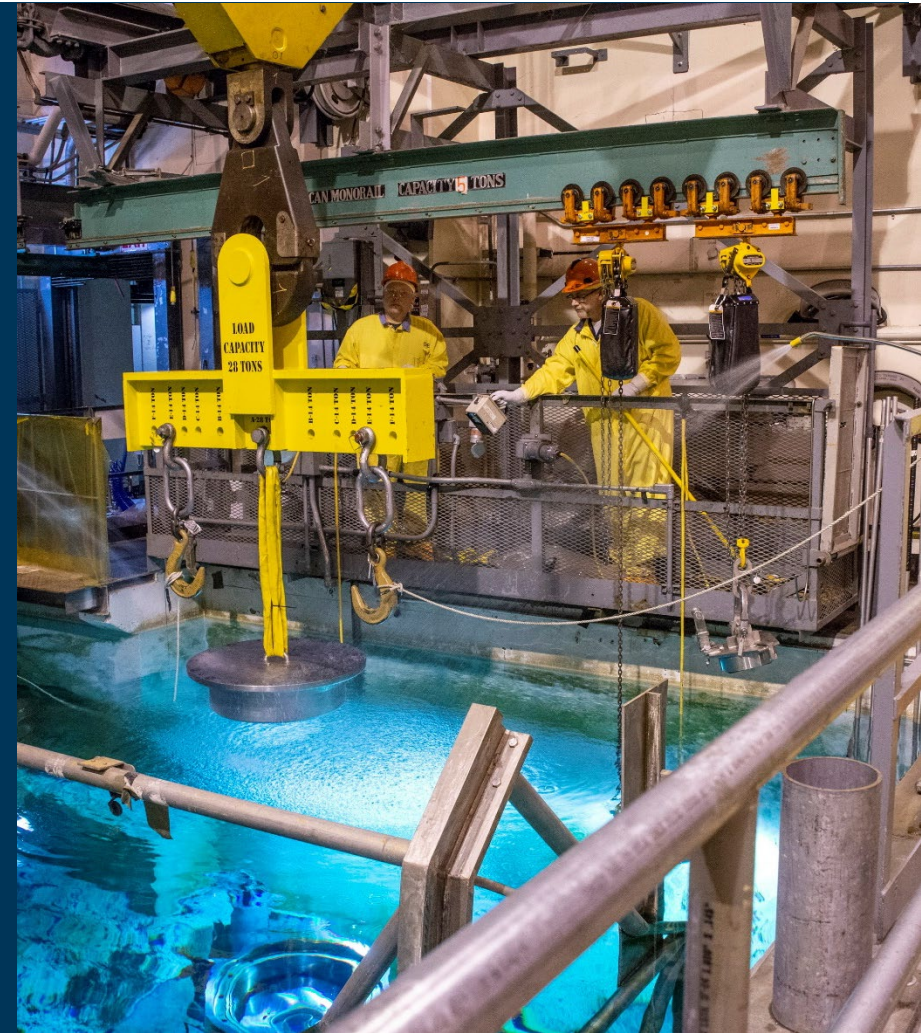
- Achieved D Ash CD-4 - \$9M below budget, 14 mo. Early
- Terminated active remediation of M Area groundwater (500,000 pounds of solvents removed); \$1M savings
- Achieved 63 FFA Milestones in FY19
- Since 1993, achieved 3,843 CERCLA milestones and RCRA Permit commitments on or ahead of schedule.

- Demolished 10 miscellaneous structures in FY19, 4 planned for FY20



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



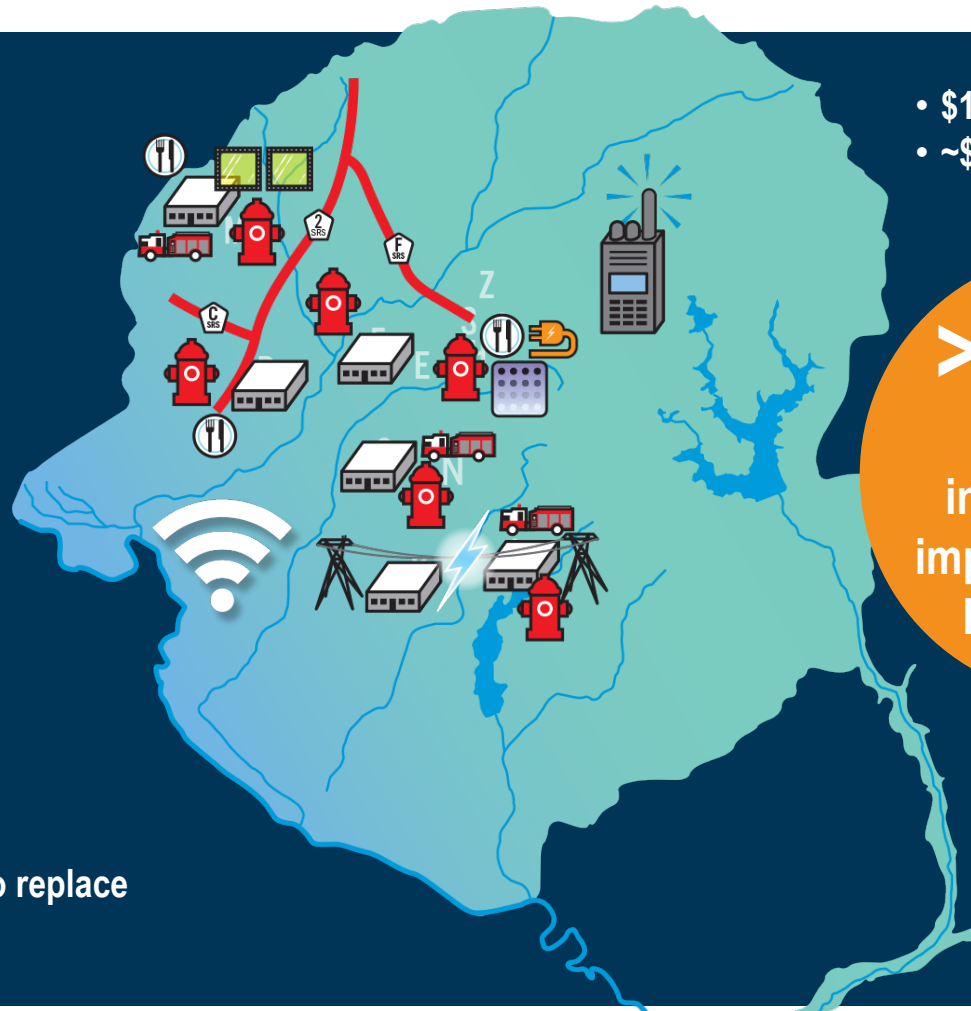
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- SRNL approached delivery of \$300M in scope in FY19 for the first time
- Increased flight times of UAVs using a hydrogen-supplied fuel cell over batteries
- Mark 18A mock-up facility established to train for Pu-244 recovery
- Recognized as world 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

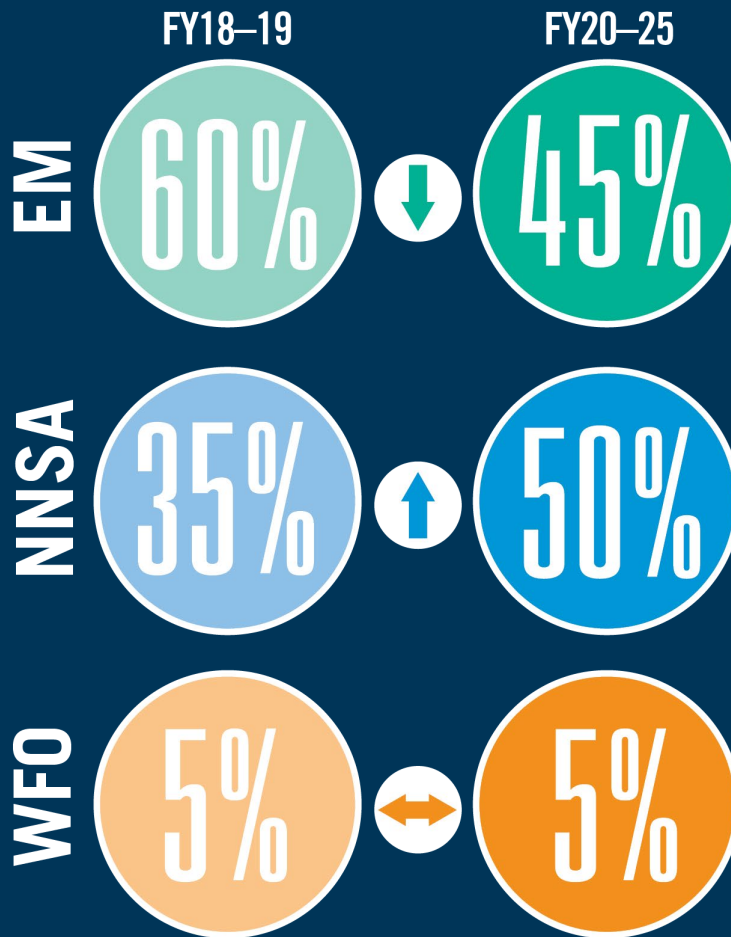


- \$100M annual investment
- ~\$180M in flight

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

Changing SRNS Customer Landscape

Our Missions



Environmental Management

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
Proposed Pit Production Mission
Surplus Plutonium Disposition Acceleration
Tritium Finishing Facility

Work for Others

Other federal agencies
Other DOE sites
Private industry
Other minor entities

SRS support for nation's nuclear deterrent continues, while adding other missions in nuclear material stabilization, waste treatment, environmental cleanup, etc.

Permanent Tritium Facilities operational K-Reactor building converted for handling and interim storage of excess nuclear materials Tritium Extraction Facility starts operation

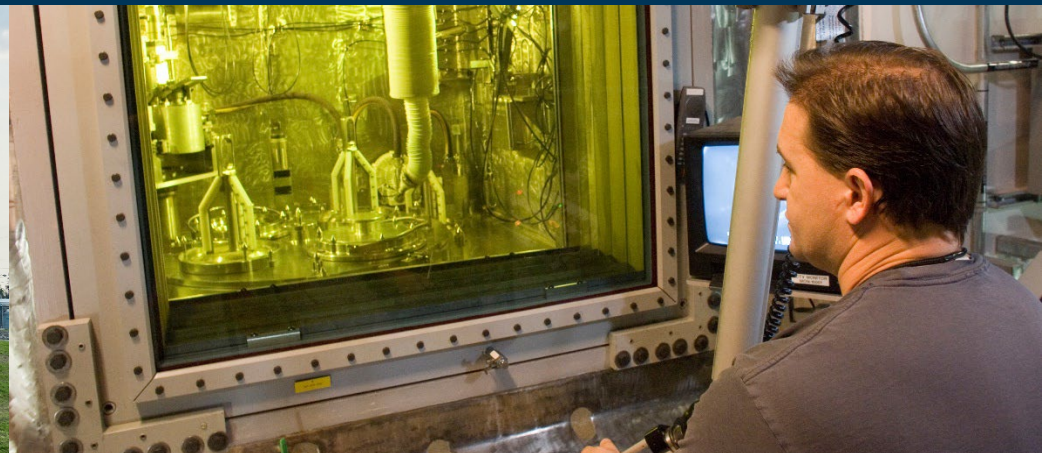
1950 **1955** **1997** **2000** **2000** **2007** **2019**

SRS created to supply nuclear materials for the nation's nuclear deterrent

Nonproliferation Program established

NNSA established as semi-autonomous agency within DOE

SRS NNSA mission grows



Tritium Operations

Increased Production Period 2020-2024

- Tritium production, extraction and processing capabilities must increase to meet demand
- Requires 6 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 110 in FY19
 - Total headcount: ~700
 - **Performance improvement**
 - Maintenance and product quality
 - Improved efficiency and response capability



Proposed SRPPF

Progress

- Organizations established for proposed SRPPF and MOX Termination.
 - SRPPF staff at 125 FTEs +75 on the subcontract supporting the BOP design
 - MOX Termination SRNS & Contractor staff at 145 FTEs
 - Design Engineering – Aiken, Los Alamos, Greenville, Denver
- Submitted cost and strategy for Critical Decision (CD)-1
- Began conceptual design of proposed SRPPF
 - Process equipment, gloveboxes, utility systems, support buildings
- MOX property being repurposed for UPF, PPF, SPD and other NNSA missions

“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



Surplus Plutonium Disposition Program

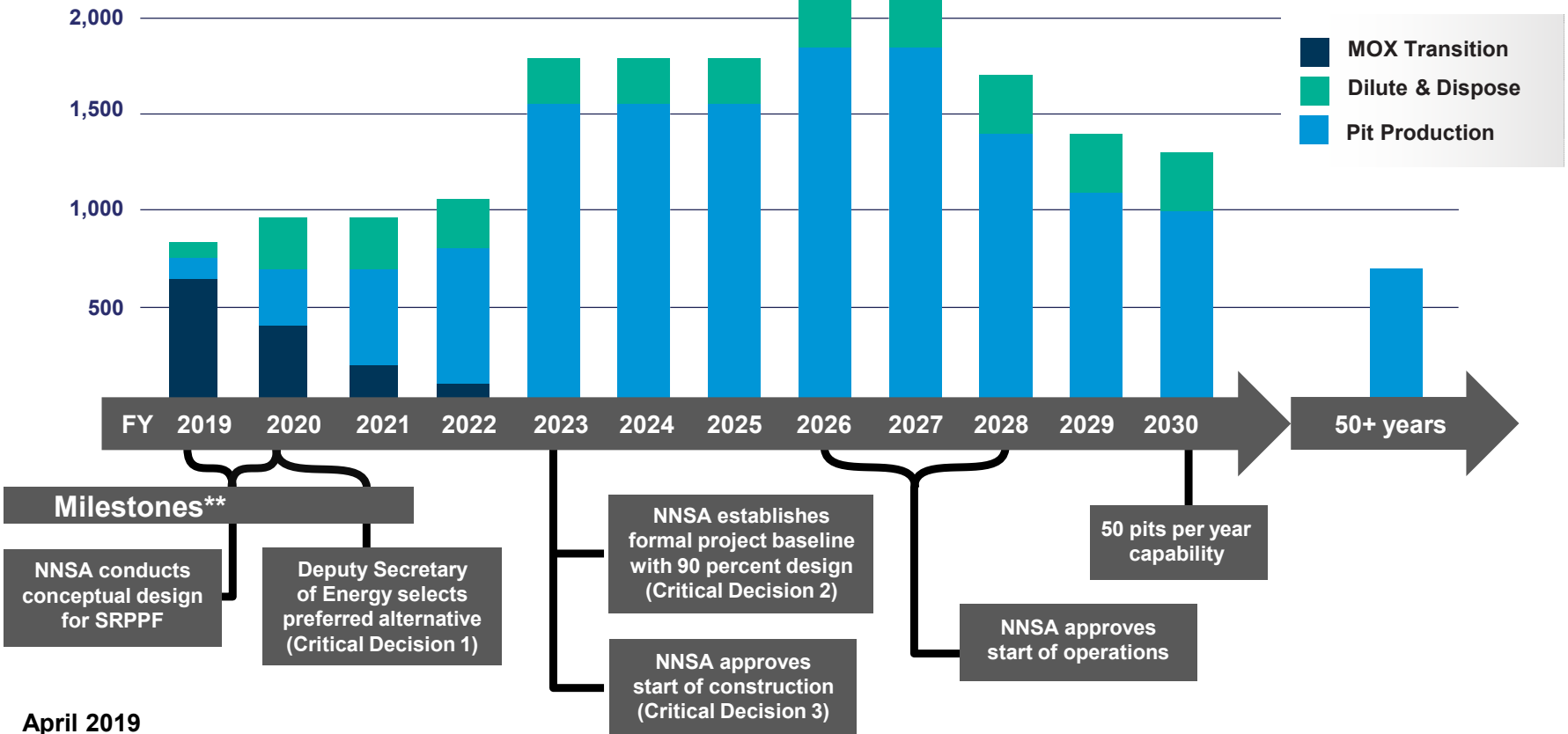


Photo: Preparing to package a can of downblended plutonium for shipment out of South Carolina.

- 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



Projected Jobs*



* Based on past capital asset projects
 ** Subject to Congressional appropriations

Changing Workforce Landscape

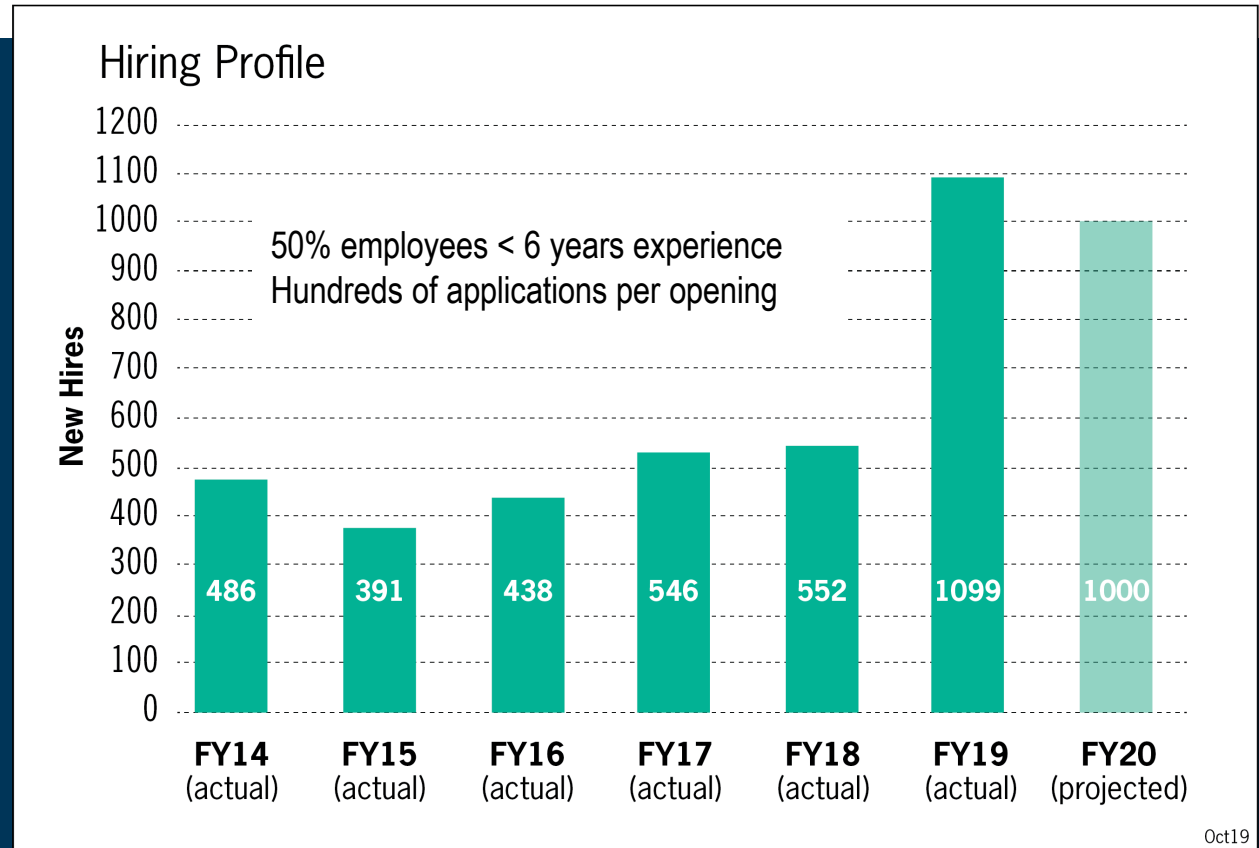
3,512
new full-service employees

FY14-present

80%
hired from local area

47
average age of employees

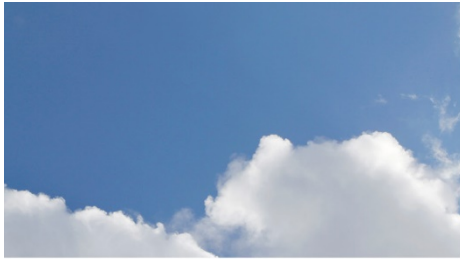
down from 54 in 2008



New Missions and Hiring Impacts

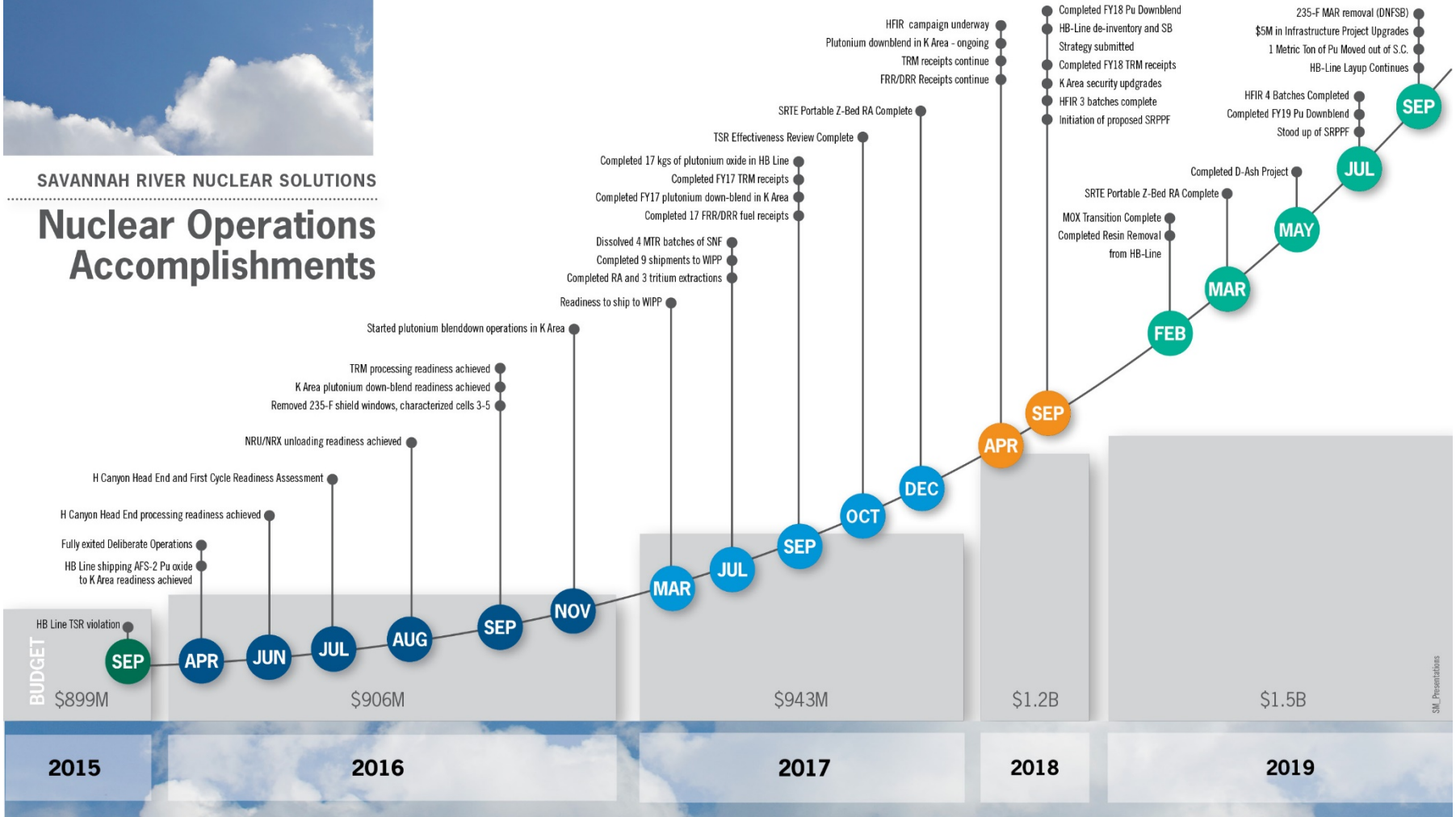


Agile and Responsive
Onboarding • Training • Offices and Parking • Knowledge Transfer



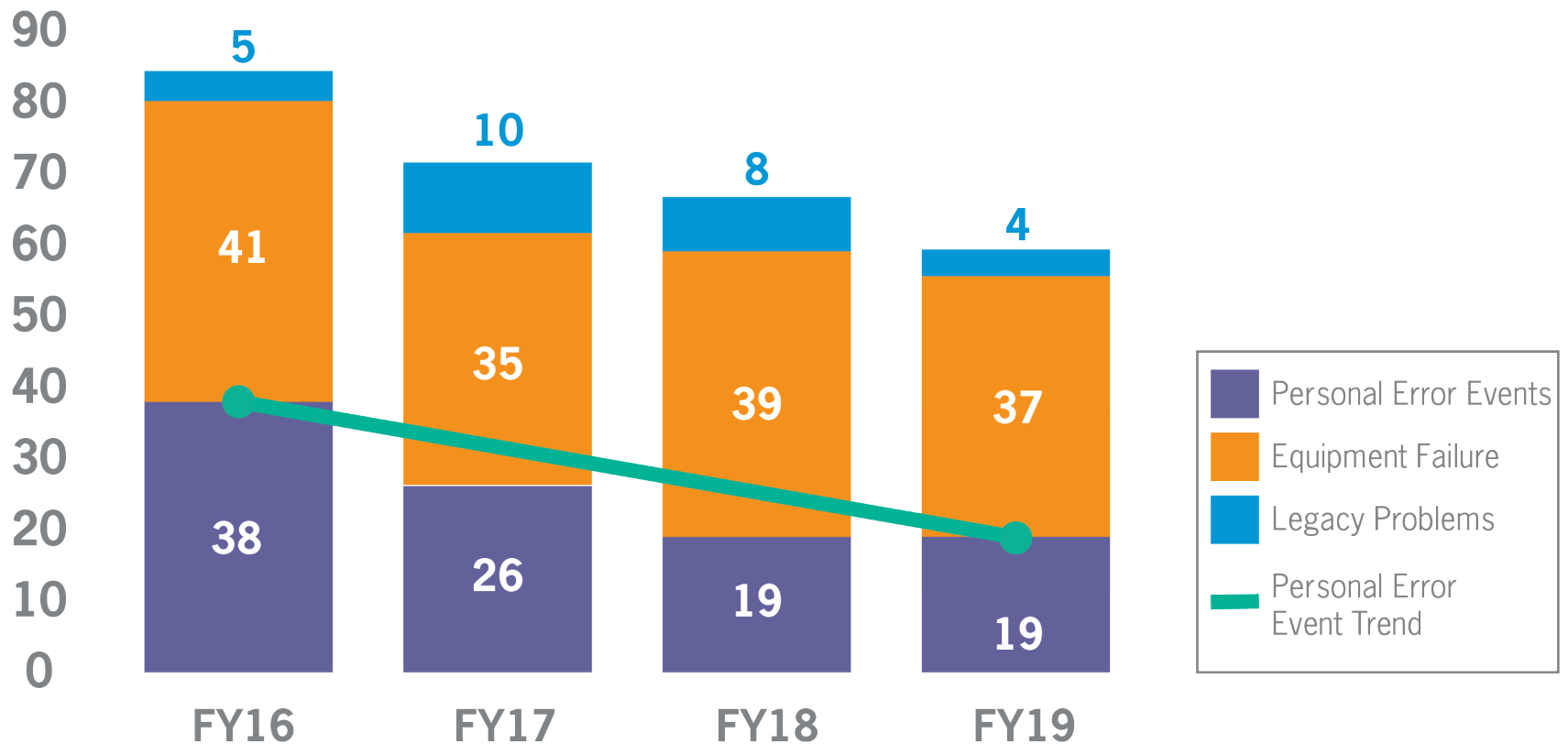
SAVANNAH RIVER NUCLEAR SOLUTIONS

Nuclear Operations Accomplishments



ORPS Reportable Events (FY16-FY19)

- FY19 had lowest number of personnel related ORPS events in over 9 years
- Best 2 years, with 50% of workforce having less than 6 years of experience





SRNS: We make the world safer.