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SRNS Update

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Savannah River NUCLEAR SOLUTIONS℠

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5,500 Employees *"Making the world safer."*

FLUOR®

Huntington Ingalls Industries

Hard Stuff Done Right™

Honeywell

Savannah River Site
Aiken, S.C.

310 *square-mile site*
11,500 *employees*
$3 billion *budget*
$2.6 billion *annual regional economic impact*
$400 million *annual local procurements*

21CC00011

$1.7 billion SRNS Budget

MISSION AREAS

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

M&O Support Services

SRNS Customers

Our Missions

FY22–27

EM 45%

NNSA 55%

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

Nonproliferation support

Foreign fuel receipts

Surplus Pu Disposition

Pu Modernization

SRPPF Project

Other NNSA capital line items

21CC00008

NNSA FY21/22 Accomplishments

- Delivered SRPPF CD-1 and Life Cycle Cost Estimate
- Established knowledge transfer program with LANL for SRPPF; 15 participants placed in FY21; total of 20 by end of FY22
- Exceeded FY21 goal for Pu diluted to be removed from SC; constructed pad for material storage and characterization; developed designs and procured equipment for one new and one expanded entry control facility
- Completed a major upgrade to the existing K Area Interim Surveillance Glovebox and ramped up to four shift operations
- Completed government property disposition for MOX Termination Project early with 9.7M of 10.8M units reallocated for use
- Completed project to dramatically increase Tritium processing and achieved record number of extractions (7) in 12-month period
- Delivered B61-12 First Production Unit, kicking off the three-year Increased Production Period for the B61-12 campaign. (Of note, in January we loaded the most Tritium by gram in any month since August 2011.)

National Nuclear Security Administration

NNSA Capital Projects

Tritium Finishing Facility

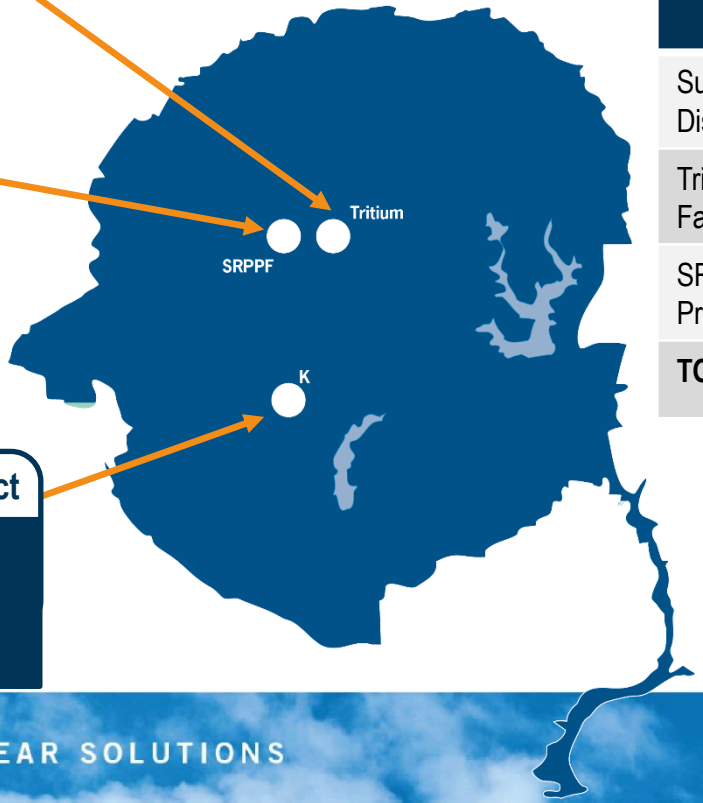
- Replaces Cold-War era H Area Old Manufacturing facility

Proposed SR Plutonium Processing Facility

- Sister facility to UPF for plutonium
- Utilizes existing LANL (PF-4) flowsheet and equipment
- Optimized facility focused on one mission

Surplus Pu Disposition Project

- Expand capacity for plutonium downblending
- New 3-glovebox line in K Area



All financial values in $M	Total Spend FY21	Projected Total Spend FY22 *
Surplus Plutonium Disposition	81	135
Tritium Finishing Facility	28	30
SR Plutonium Processing Facility	232	375-450
TOTALS	**341**	**540-615**

* Dependent on appropriations funding and final number

Surplus Pu Disposition

Expand SRS downblending capability

- Three new gloveboxes
- Support systems including security and safety systems, electrical, piping, active confinement ventilation, fire protection systems, etc.
- HEPA/Electrical Building and ventilation stacks

Dilute and Dispose Operations

- Blend Pu oxide with adulterant
- Store and characterize
- Package and ship to WIPP in New Mexico for disposal

SPD Capital Project Timeline

FY20

- ✓ SPD CD-1 approved
- ✓ CD-3A Phase 1 (early site preparation) approved

FY21

- ✓ Acceleration study identifies opportunities
- ✓ Long lead procurements
- ✓ Area isolated with exterior access
- ✓ Early Site Preparation (CD-3A Phase 1)

FY22

- 60 percent design complete
- Additional Site Preparation (CD-3A Phase 3), along with associated field work, approval forecast FY22

FY23

- Final Design complete
- Construction begins

FY28

- SPD project complete
- Dilute operations transition

Tritium Finishing Facility (TFF) Project

- **Received CD-1 approval in December 2019**
  - Demolition of three warehouses
  - New construction for Bldg 1, Bldg 2 and replacement warehouse
- **Site prep subproject design complete**
- **Design at 30 percent for process buildings**
- **Expected to come on-line FY31**

Replaces 1950s vintage H-Area Old Manufacturing (HAOM) facility - oldest and largest Tritium process facility

- Assembly, final inspection, and packaging processes

Major Mission Areas: Pit Production

SRPPF Project

- **Execute a line item project for the new SRPPF**
- **Repurposes unfinished facility**
  - Dismantlement and removal of unneeded components
  - Internal facility modifications
  - Process equipment and infrastructure systems installation
- **CD-2 scheduled for completion FY2024**
  (Design currently at 30 percent complete)

Plutonium Modernization

- **Standing Up Enduring Production Organization**
  (~100 today / 1,800 in 2028)
- **Nationally, deliver 80 pits per year**
  - 50 ppy produced at SRS (using SRPPF)
  - 30 ppy produced at LANL
- **High-Fidelity Training & Operations Center to expedite preparation for production**
- **Subproject delivery dependent on timing and funding of FY 22/23 budgets**

SRPPF Advantages

- **Repurposing a seismically-qualified structure**
  - 400,000 square feet of Hazard Category-2 space
  - Interior walls of reinforced concrete for personnel shielding and durability for 50-year facility design life
- **Supporting facilities, including office, assembly, and fabrication space**
- **Existing SRS services and infrastructure**
- **SRS world-class safety and security culture**
- **SRS experience, including**
  - Plutonium processing
  - Meeting Department of Defense schedules and requirements
  - 24/7 operations
- **SRNS' experienced project and operations team and disciplined Conduct of Operations**

Delivering on EM Commitments

- 17 domestic fuel receipts in L Area in both FY20-21; plus 13 foreign reactor fuel receipts and16 domestic fuel receipts receipts expected in FY22
- Accelerating spent fuel dissolution; from 5 in FY20 to 14 in FY22; to peak at 18 in FY26
- Completion of material storage characterization building in K Area allows direct plutonium removal from South Carolina
- Continued preparation for the Fast Critical Assembly spent fuel dissolution campaign in H Canyon; electrolytic dissolver installation complete
- 235-F Deactivation
- F/H Lab Layup/Deactivation; multi year program saving $20M annually
- Accelerated deactivation and decommissioning of D Area
- Collect/analyze more than 10,000 environmental and groundwater samples per year
- Deploying 10 innovative groundwater remediation technologies
- Agreement reached with federal environmental regulators on final cleanup of 25-mile long stream; first ever Record of Decision outlining final closure for a large parcel of streams

U.S. DEPARTMENT OF ENERGY

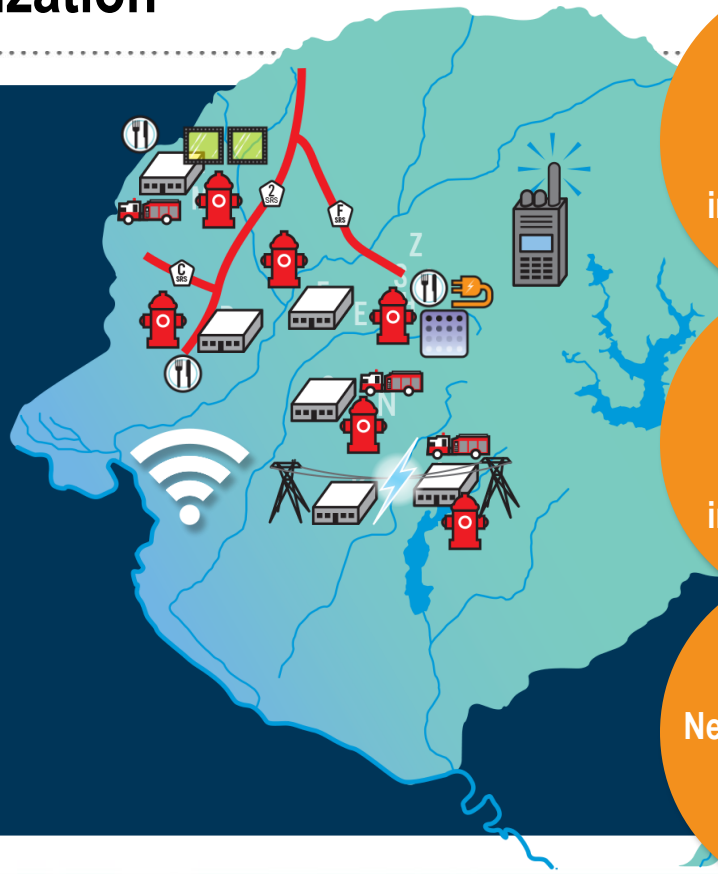
Workforce for the Future

- **Apprenticeship initiative for SRS and CSRA**
  - **13** Current SRNS Apprenticeships (**134** participants)
    Software Engineer, Process Software Engineer, Maintenance Mechanic, Systems Engineer, Facility/Production Operator, Records Management Clerk, Radiation Protection Inspector, Process Control Technologist, Fire Protection Engineer, Telecommunications Engineer, Supply Chain Mgmt, Network Operations Engineer, Cybersecurity Engineer
  - Future SRNS Apprenticeships in process
    E&I Maintenance Mechanics; Computer Systems Support; QA Inspector; Environmental Compliance; Industrial Process Engineer
- **19 active MOU partners in education**
  - Now including all eight SC Historically Black Colleges & Universities
- **Robust internship program**
- **Targeting WORC grant recipients**
  - Scholarships funded by DOE/NNSA
- **Focused succession planning and mentoring programs**

Site Infrastructure Recapitalization

Examples

- Road refurbishments
  (Rd C - 2 miles, Rd 4 - 2.91 miles, Rd E - 2.58 miles)
- Roof replacements
- Habitability upgrades [HVAC, Fire Alarm Systems, Interior/Exterior Improvements]
- Replace 681-3G River Water Switchgear
- Replacement of underground metallic piping systems
- S&S/ Emergency Services Items: PA System, NG911, K/L PIDAS
- IT: Continued Network Infrastructure Upgrades
- SRNL: IGPP, Roofs, DSA mods, Chillers, PLCs



>$450M
spent on infrastructure improvements in FY16 – FY20

$120M
spent on infrastructure improvements in FY21

$200M
Needed annually for infrastructure improvements