October 25, 2018
Newberry Hall, Aiken, S.C.
Savannah River Site
2018 Community Leaders Forum

Mike Budney
Manager
U.S. Department of Energy – Savannah River Operations Office
SRS Workforce Structure Today

SRS Contractor/Department Interdependencies

SRS Total Workforce
(incl. Permanent, Support Service, Craft, Limited Service)
≈ 11,671
(as of 9/30/18)
SRS Key Major Prime Contracts Today

- **Savannah River Nuclear Solutions (Management & Operating)**
  - Awarded FY08; Contract value = $4B; plus options up to $5.4B
  - Extended through 7/31/19
  - August 2018: Draft Request for Proposals (RFP) issued
  - October 2018: Actions on Draft RFP postponed pending Departmental decision on joint NNSA/EM Study • Decision expected in early calendar year 2019

- **Savannah River Remediation (Liquid Waste)**
  - Awarded FY09; Contract value = $3.3B; plus 2-year option worth $726M
  - Extended through 3/31/19 • Awaiting award of new Liquid Waste (LW) contract

- **Parsons (Salt Waste Processing Facility)**
  - Awarded FY02; Contract value = $2.2B to design and build SWPF and operate for one year
  - Expires 9/30/20 • Future integration into new SRS LW contract

- **Centerra (Paramilitary Security Services)**
  - Awarded FY09; Contract value = $989M over 10 years
  - Expires 10/7/19 • Awaiting release of Draft RFP
### SRS EM Budget Profile FY14 – FY19

<table>
<thead>
<tr>
<th>Savannah River Funding ($K)</th>
<th>FY2014 Enacted</th>
<th>FY2015 Enacted</th>
<th>FY2016 Enacted (Re-racked)</th>
<th>FY2017 Enacted (Re-racked)</th>
<th>FY2018 Enacted (Re-racked)</th>
<th>FY2019 Enacted (Re-racked)</th>
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<tbody>
<tr>
<td>SR-0011C NM Stabilization &amp; Disposition</td>
<td>272,000</td>
<td>249,507</td>
<td>254,655</td>
<td>278,444</td>
<td>323,482</td>
<td>332,947</td>
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<td>SR-0012 Spent Nuclear Fuel</td>
<td>44,684</td>
<td>42,266</td>
<td>41,407</td>
<td>41,407</td>
<td>0</td>
<td>0</td>
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<tr>
<td>SR-0013 Solid Waste</td>
<td>60,369</td>
<td>44,544</td>
<td>51,546</td>
<td>59,085</td>
<td>43,386</td>
<td>41,425</td>
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<tr>
<td>SR-0030 Soil and Water</td>
<td>55,438</td>
<td>61,659</td>
<td>66,044</td>
<td>70,044</td>
<td>81,199</td>
<td>73,612</td>
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<tr>
<td>SR-0041 Surveillance/Maint &amp; Deactivation</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>20,699</td>
<td>28,390</td>
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<td>SR-0042 Infrastructure/Land Mgmt</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>14,194</td>
<td>13,086</td>
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<td>SR Security System Replacement</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>10,000</td>
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<td>EOC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>500</td>
<td>1,259</td>
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<tr>
<td><strong>Risk Management Operations Subtotal</strong></td>
<td>432,491</td>
<td>397,976</td>
<td>413,652</td>
<td>448,980</td>
<td>483,460</td>
<td>500,719</td>
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<tr>
<td>SR-0014C Liquid Tank Waste</td>
<td>565,533</td>
<td>547,318</td>
<td>554,878</td>
<td>600,123</td>
<td>637,105</td>
<td>696,869</td>
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<td>SWPF Salt Waste Processing Facility</td>
<td>125,000</td>
<td>135,000</td>
<td>194,000</td>
<td>160,000</td>
<td>150,000</td>
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<td>SDU #6 Saltstone Disposal Unit 6</td>
<td>0</td>
<td>30,000</td>
<td>34,642</td>
<td>7,577</td>
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<td>SDU #7 Saltstone Disposal Unit 7</td>
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<td>30,000</td>
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<td>SDU #8/9 Saltstone Disposal Units 8/9</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>500</td>
<td>7,577</td>
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<tr>
<td><strong>Liquid Waste Program Subtotal</strong></td>
<td>690,533</td>
<td>712,318</td>
<td>783,520</td>
<td>773,200</td>
<td>817,605</td>
<td>875,689</td>
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<td>SR-020 Safeguards and Security</td>
<td>121,196</td>
<td>138,235</td>
<td>128,145</td>
<td>136,000</td>
<td>159,124</td>
<td>163,357</td>
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<td>SR-100 Community/Regulatory Support</td>
<td>11,210</td>
<td>11,013</td>
<td>11,249</td>
<td>11,249</td>
<td>11,249</td>
<td>11,249</td>
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<tr>
<td><strong>Total SRS EM Budget</strong></td>
<td>1,255,430</td>
<td>1,259,542</td>
<td>1,336,566</td>
<td>1,369,429</td>
<td>1,471,438</td>
<td>1,551,014</td>
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<tr>
<td><strong>Growth</strong></td>
<td>4,112</td>
<td>77,024</td>
<td>32,863</td>
<td>102,009</td>
<td>79,576</td>
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</tbody>
</table>

**$2.1B = TOTAL SRS FY19 Appropriations (EM = $1.551B; NNSA = $626M)**
Progress to be Proud Of

- Recognized **safety leaders across SRS Team**
- Ahead-of-schedule and cost-effective **Environmental Remediation (D Ash Basin)**
- **Installation of Tank Closure Cesium Removal (TCCR)** demonstration project to remove cesium from high-level waste and accelerate **SRS tank closures**
- **Integration of SWPF** into SRS Liquid Waste Program
- **Strengthened Nuclear Materials Management in H Canyon, K and L Areas (Uranium, Plutonium and Spent Fuel Disposition missions)**
- **Growth of Savannah River National Laboratory** business portfolio to advance national programs and priorities
- Increased focus and success on **building next generation nuclear workforce**
SRS Focus Looking Ahead

- Treatment and disposition of legacy liquid waste
- Ability to maintain unique nuclear materials processing capabilities in need of substantial maintenance and upgrades
- Common SRS infrastructure needs
  - Over 1/3 of SRS common infrastructure > 45-60 years old
  - Competing with programmatic missions for funding
- Continued growth of SRNL capabilities/partnerships to ensure long-term viability
- Rising pension liability that may impact future work scope
- Hiring/training of next gen workforce before retirement of experienced staff
- SRS Team working together for good of Site and SRS Community
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Stuart MacVean

President & CEO
Savannah River Nuclear Solutions
Missions

5,500 employees “Making the World Safer”

- Environmental Stewardship
- Supplying Tritium
- Securing Nuclear Materials
- Transforming Nuclear Materials

Savannah River National Laboratory

M&O Support Services
Recent Accomplishments

Uranium Mission
- First time processing three uranium streams in H Canyon
- Target Residue Material project 46% complete
- Spent fuel receipts on target; increasing in FY19

Plutonium Mission
- Accelerated down-blend and repackage scope
- Delivered acceleration strategy for HB Line

Tritium Programs
- 100% national mission delivery; two tritium extractions
- Increased production plan for FY19
- 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
Infrastructure

- Refurbished ~30 miles of paved roads
- Replaced 19 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

WIN-WIN Opportunities:

- Innovative, more efficient technologies
- Small-business subcontracting
- New/sustained local jobs
Workforce: Prepare the Pipeline

Provide funding, forge partnerships, create opportunities

- **40,000** students + teachers reached through STEM-related Education Outreach 2016-2018
- **100%** internship increase from 2014, with ~174 students in summer 2018; 28% hired since 2014
- **$5.3 million** total funding provided by SRNS to higher education institutions since 2008

In 2015, SRNS established a Nuclear Operations Program at Aiken Technical College. This certificate program serves as a foundation for future employees who wish to work in nuclear facilities.

SRNS participates in the SRS Community Reuse Organization (CRO) regional nuclear workforce development initiative. The CRO has administered $4.8 million in grants to local institutions.

- Aiken Technical College
- Augusta Technical College
- Claflin University (HBCU)
- Clemson University
- Florida Int’l University
- Midlands Technical College
- Orangeburg-Calhoun Technical College
- South Carolina State University (HBCU)
- University of South Carolina
- University of South Carolina-Aiken
- University of South Carolina-Salkehatchie
Workforce Sustainment

- **2,413** new full-service employees (FY14-present; Approximately 500 per year over the next three years)
- **80%** hired from local area (during past five years)
- **24%** decrease in attrition (of non-retirement eligible employees seeking other employment)
- **48** average age of employees (down from 54 in 2008)
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Dr. Vahid Majidi

Director
Savannah River National Laboratory
Top Ten for 2018

1. Established metal-based 3-D printing
2. Opened new classified meeting space
3. Continued mobile rapid response capabilities for denuclearization
4. Collaboration Innovation (COIN) process
5. Analysis/calculations supporting restart of DWPF and Tank Farm evaporators
6. Lead lab for Office of Legacy Management (LM)
7. Demo of underwater unmanned hydrogen powered vehicle prototype for the Navy
8. Licensed hydrogen energy storage system for solar applications
9. Packaging and transportation system for MK-18A fuel assemblies to support recovery of rare isotopes
10. On Line Monitoring System for H Canyon
Top Ten for 2019

1. New mass spectrometry methods for rapid analysis of nonproliferation signatures
2. SRS test bed for intelligence community
3. Disposition roadmap for 22,000+ nuclear material items
4. Advance electrolytic dissolution in H Canyon
5. Identify remaining technology needs for closure of additional sites
6. Strategies for small sites to transition to LM
7. Demonstrate hydrogen powered drone
8. Conceptual design for large scale test facility for electrical grid components
9. Consolidate analytical laboratory services from F Area labs
10. Develop a robotic crawler to complete video inspection of the H Canyon Tunnel
Long-Term Programs

- **German Fuel**
  - Joint project with German Government
  - Recovery and/or disposition of graphite-based fuel
  - New opportunity for H Canyon

- **Plutonium Pit Manufacturing**
  - Chemical Flow Sheets
  - Processing Expertise
  - Metallurgy / Materials

- **Cyber**
  - Ft. Gordon Partnership
  - Internet of Things
  - Electrical Grid
  - Cyber Training

- **Artificial / Augmented Intelligence**
  - Chemical process decision enhancement
  - Big data analysis
  - Environmental modeling
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Tom Foster

President and Project Manager
Savannah River Remediation
Excellence in Project Management: Salt Waste Processing Facility Integration

Saltstone facilities
Defense Waste Processing Facility
511-S
Tank 49
Tank 50
Tank 49
Excellence in Project Management: Salt Waste Processing Facility Integration

Welding Map

Note: Core welds are identified in the windows. Jacket Welds are identified on the main illustration.

Green Filled Areas complete
Excellence in Project Management: Salt Waste Processing Facility Integration
Excellence in Project Management: Tank Closure Cesium Removal
Excellence in Project Management: Saltstone Disposal Units
Savannah River Remediation Hiring Profile

- **615** Full-service employees hired in past 3 years
- **9%** Veterans on roll at SRR; hiring more
- **155** New hires expected during the next year or so
- **48** Average age of SRR employees; going down
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Frank Sheppard, Jr.

Parsons Senior Vice President and Project Manager
Salt Waste Processing Facility
SWPF Earns Three National Safety Awards

- National Safety Council (NSC) 2018 Industry Leader Award
- NSC Occupational Excellence Achievement Award 2018
- DOE’s Voluntary Protection Program (VPP) Star of Excellence
SWPF Mission

• Parsons is the contractor for the Salt Waste Processing Facility (SWPF) project *[design, construction, testing & commissioning, and operate for one year]*.

• SWPF is the keystone facility for enabling SRS liquid waste cleanup and tank closure.

• *This critical facility will significantly increase processing rates over the existing interim system to more rapidly empty the site’s waste tanks.*

SWPF FAST FACTS

- Miles of Piping: 27
- Tons of Concrete: 91,000
- Tons of Rebar: 5,000
- Design Capacity: 9.4 million gal/year
SWPF Workforce

Workforce ~471

OPS/MAINTENANCE: 169
TESTING: 139
ENGINEERING: 58
PROJECT SUPPORT: 47
CONSTRUCTION: 58

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SWPF Accomplishments / Challenges

- Testing Phase of 60 System Operability Tests (SOTs) and 5 Integrated SOTs (ISOTs) Completed
- Testing and Commissioning 71% Complete
- Integrated Water Runs (IWRs) Next Phase of the Project
  - On track to start by December with bulk chemical introduction in January 2019
- Valve Controller Replacement
  - Due to realized risk of equipment obsolescence
  - Progressing well and targeted for completion before the December 2018 schedule date
  - Taking advantage of this time to get an early start on attaining operator proficiency through the use of the simulator and various drills and field exercises
- Documented Safety Analysis (DSA) Approved by DOE
- Parsons Submitted Formal Cost Proposal to DOE
SWPF Accomplishments / Challenges

- **Next Generation Solvent (NGS)**
  - Throughput enhancements could significantly accelerate salt waste processing resulting in large life cycle cost savings
  - Construction progress very well – scheduled to complete construction by October 2018
  - Testing Phase to be complete by December 2018
  - Working with DOE and Liquid Waste contractor to evaluate options for timing of NGS introduction into SWPF
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D. Mark Bolton
General Manager
Centerra-SRS
Missions

• Contracted to DOE-SR to provide security services at SRS since 1983
  – Company Celebrating 35th Anniversary at the SRS on November 1st
  – Request for Proposal is pending release by DOE
  – FY19 Annual Operating Budget: $108.7M
    • 85% Labor

• Overall Mission: Provide security of our Nation’s nuclear materials and other National security interests while protecting people and property in a safe and cost-effective manner

• Capabilities:
  – Armed, Tactical Protective Force
  – Law Enforcement
  – K-9 Services
  – Security Alarm/Monitoring/Assessment
  – Helicopter Operations
  – Special Response Teams
Accomplishments / Challenges

- Achieved ongoing 350 days and > 1.3 million work hours without a lost work day injury

- Achieved recertification from the Commission on Accreditation for Law Enforcement Agencies as a Public Safety Training Academy
  – Only 5.5% of Law Enforcement Agencies in the U.S. have achieved this accreditation

- Increased attrition over next 3 to 5 years due to upcoming retirements in the Protective Force ranks

- Continue to perform security operations safely = #1 PRIORITY

- Contract re-bid effort

*Nothing We Do In Training Or Operation Is Worth One Single Life Or Serious Injury*
Workforce and Hiring

• Approximately 60% of our workforce are military veterans
• Current average age of Protective Force employees is 47.7 yrs. old

Demographics:

- Aiken County SC: 340
- Barnwell County SC: 40
- Other SC Counties: 81
- Columbia County GA: 111
- Richmond County GA: 90
- Other GA Counties: 16

• Current Total Staffing: 678
  - Approximately 454 Protective Force personnel
  - Contract is self-supporting to include Human Resources, Accounting, Training, Logistics, Planning, Safety & Health, Information Technology, Information Security, Labor Relations and Quality Assurance
  - Anticipate hiring around 60 new Protective Force personnel annually for the next several years to meet anticipated attrition levels

• 2018: Centerra and its employees actively supporting community giving
  > $300K to over 25 charitable organizations in the CSRA
William (Ike) White

Chief of Staff and Associate Principal Deputy Administrator
National Nuclear Security Administration
Discussion

- NNSA Overview
- Tritium Update
- Plutonium Activities
- MOX Path forward
Thank You for Joining Us
and Supporting SRS

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