Savannah River Site Informational Briefing

July 6, 2005

Meeting Conduct

- Safety
- Amenities
- Agenda
- Reminders
  - Please turn off/mute electronics
  - No recording devices
  - Presentations will be posted to the website
  - Web questions
  - Access to sensitive information

Attendees

- 70+ companies and organizations
- 220 representatives
- Local elected officials
- Local community leaders
- Congressional staff
- Media representatives

Welcome

Informational Briefing

DOE Savannah River Site Operations

Patty Bubar, EM-HQ

Team Leader

Acquisition Integrated Project Team

Purpose

- Improve communication between DOE and Industry regarding contract work at SRS
- Provide a framework of general procurement and site information for follow-on participation in pre-solicitation exchanges
- Stimulate other input via website on RFI
- Provide introduction of RFI process to accomplish two way communication opportunities between DOE and Industry prior to release of acquisition documents.

Contract Philosophy and Principles

Charles E. Anderson, EM-2

Principal Deputy Assistant Secretary for Environmental Management

Contract Philosophy

- Expectations
  - Strong Safety Record
  - Environmental Compliance
  - Respect for the Taxpayer
- Analyze the work to identify uncertainty and establish best work packaging
- Scope of work (definition) must be clear and appropriate for type of contract utilized
- Obtain industry input regarding best work packaging and innovative industry practices prior to RFP release

Contract Philosophy

- Optimize small business participation and encourage new participation by large businesses
- Establish improved government estimates, baseline schedules and funding profiles
- Establish realistic acquisition process/schedule and be accountable
- Need industry Senior Executive Participation and Commitments

SRS Vision and Missions

Jeffrey Allison, Manager
Savannah River Operations Office

SRS Vision

- National asset with enduring national security missions contained within a core operations area.
- Unencumbered by Cold War legacy materials storage, excess facilities, waste, and environmental cleanup. The mission of EM is to complete the environmental cleanup and leave the site.
- Home of the Savannah River National Laboratory (SRNL).
- Property boundaries unchanged and under Federal control in perpetuity.

SRS Missions

- Resolving the environmental legacy
  - Disposition nuclear materials and waste
  - Decommission and/or demolish excess facilities, buildings, and structures
  - Soil and groundwater remediation
- Meeting national security and nonproliferation challenges
  - Nuclear weapons stockpile maintenance, including tritium production
  - Blend down highly enriched uranium for use as fuel
  - Disassemble nuclear weapons components
  - Convert plutonium to mixed oxide for fuel

SRS Missions

- Investing in America's energy future
  - Develop hydrogen technology
- Advancing scientific understanding
  - Savannah River National Laboratory
- Enabling infrastructure
  - Safeguards and security including property and information protection and emergency management
  - Natural and cultural resources management
  - Maintenance/repair and recapitalization of DOE investment to achieve all missions

Scope of Work Review

Patty Bubar, EM-HQ

Team Leader

Acquisition Integrated Project Team

Integrated Project Team

Team Leader	Patty Bubar
Technical Lead	Jim Folk
Members	Rick Endler, Infrastructure
	George Klipa, Nuclear Materials Stabilization & Spent Nuclear Fuel
	Larry Ling, Liquid Waste/Solid Waste
	Karey McAlhany, D&D
	Jim DeMass, Soil and Groundwater
	Bruce Wilson, NNSA Defense Programs
	Sterling Franks, NNSA Defense Nuclear Non-Proliferation
	Patrick Jackson, SR National Laboratory

Presentations

- No question and answer period
- DOE has provided (and will continue to provide) responses on the website to relevant posted questions

Lifecycle Planning
Introduction of Program Presentations

Jim Folk
Technical Lead
Acquisition Integrated Project Team

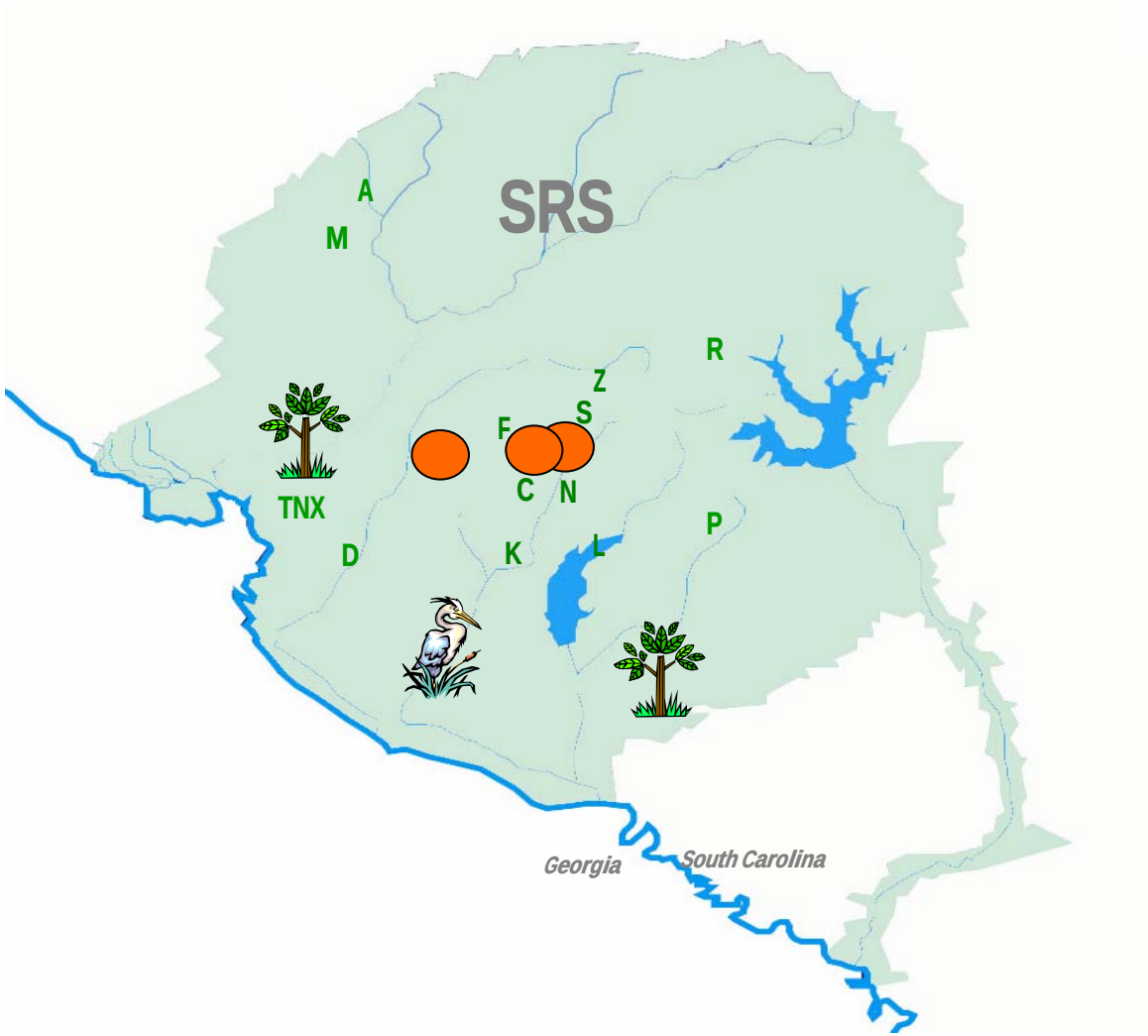
Planning Information

- Site Utilization and Management Plan (SUMP)
  - A lifecycle plan which documents the strategic goals and objectives for a DOE site considering the multiple programs which may be present at the site. Used to ensure that each major acquisition is consistent with these site strategic goals.
- SRS Environmental Management Program Performance Management Plan (PMP)
  - A detailed life-cycle strategy document for the EM program through FY 2025

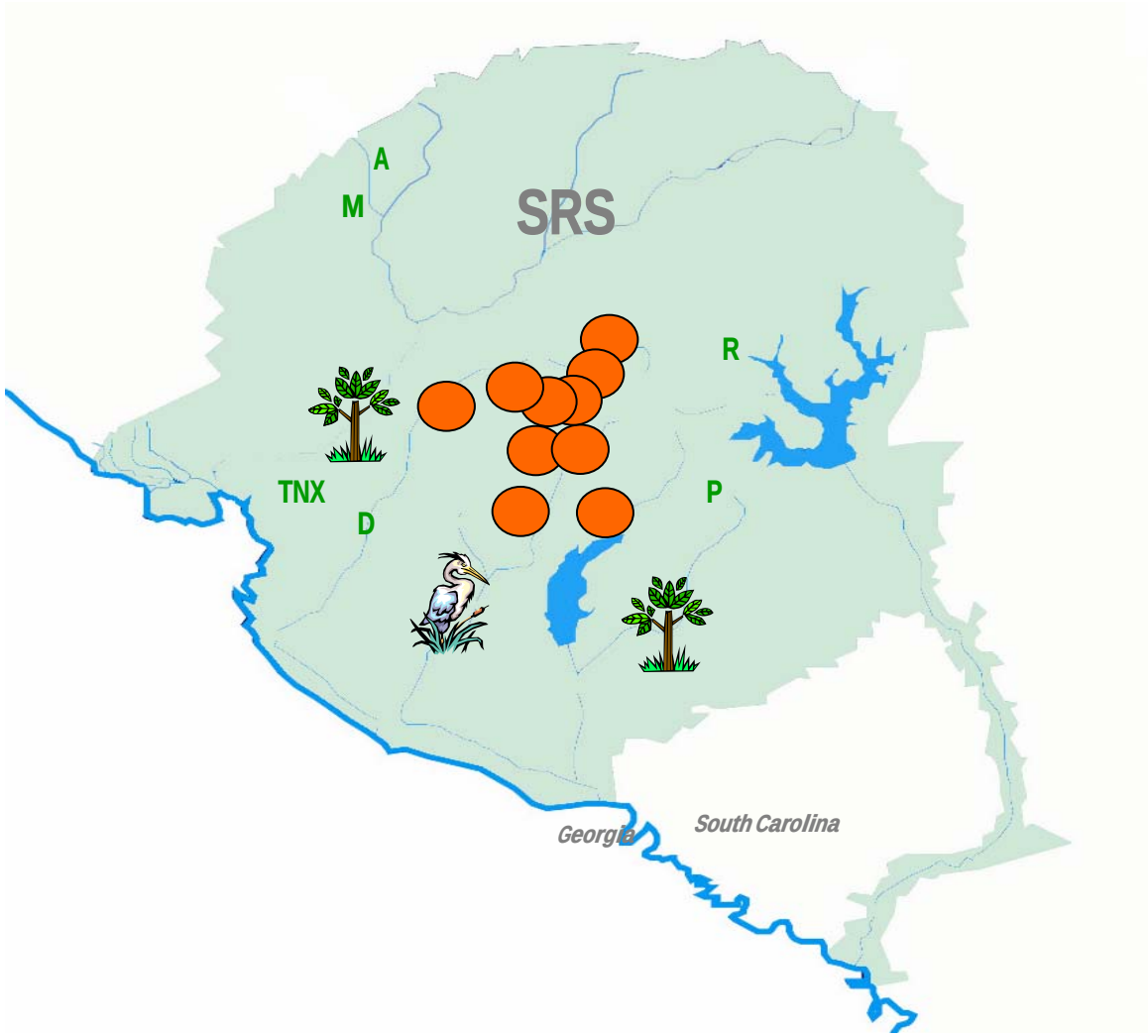
Planning Information

- SRS End State Vision
  - A detailed review of the current conditions at SRS and the planned end states with the intention to support informed decision making regarding responsible site cleanup
- SRS Ten-Year Site Plan
  - An integrated site plan for all SRS missions, primarily the EM, NNSA-DP, and NNSA-NN programs, which addresses direct and indirect funded facilities and infrastructure activities
- NNSA-SRSO, Ten Year Comprehensive Site Plan, FY 2005
  - A detailed ten year plan for the Defense Programs activities at SRS

SRS in 2025



SRS Today



Presentation Format

- Mission Summary (lifecycle)
- Site Summary (2006)
- Key Work Projects/Accomplishments for the period 12/1/06 to 9/30/11
- Key Program Challenges
  - Regulatory
  - Programmatic
  - Technical

Scope Presentations

- Information presented today represents the best current planning and expectations for the next contract period
- It does not represent the only acceptable answer or approach
- Each of the programs has unique challenges and risks that you are encouraged to consider and address

Reminder

- No recording devices of any kind will be allowed during the scope presentations
- Certain information is not suitable for release
- Thank you for your cooperation

Program Presentations

• Site Infrastructure, G&A, ESS	Rick Endler
• Nuclear Materials	George Klipa
• Spent Nuclear Fuel	
• Liquid Waste	Larry Ling
• Solid Waste	
• Deactivation and Decommissioning	Karey McAlhany
• Soil and Groundwater	Jim DeMass
• NNSA – DP, Tritium Operations	Bruce Wilson
• NNSA – NN, Nuclear Nonproliferation	Sterling Franks
• Savannah River National Lab	Patrick Jackson

Site Infrastructure

Presented
By
Rick Endler

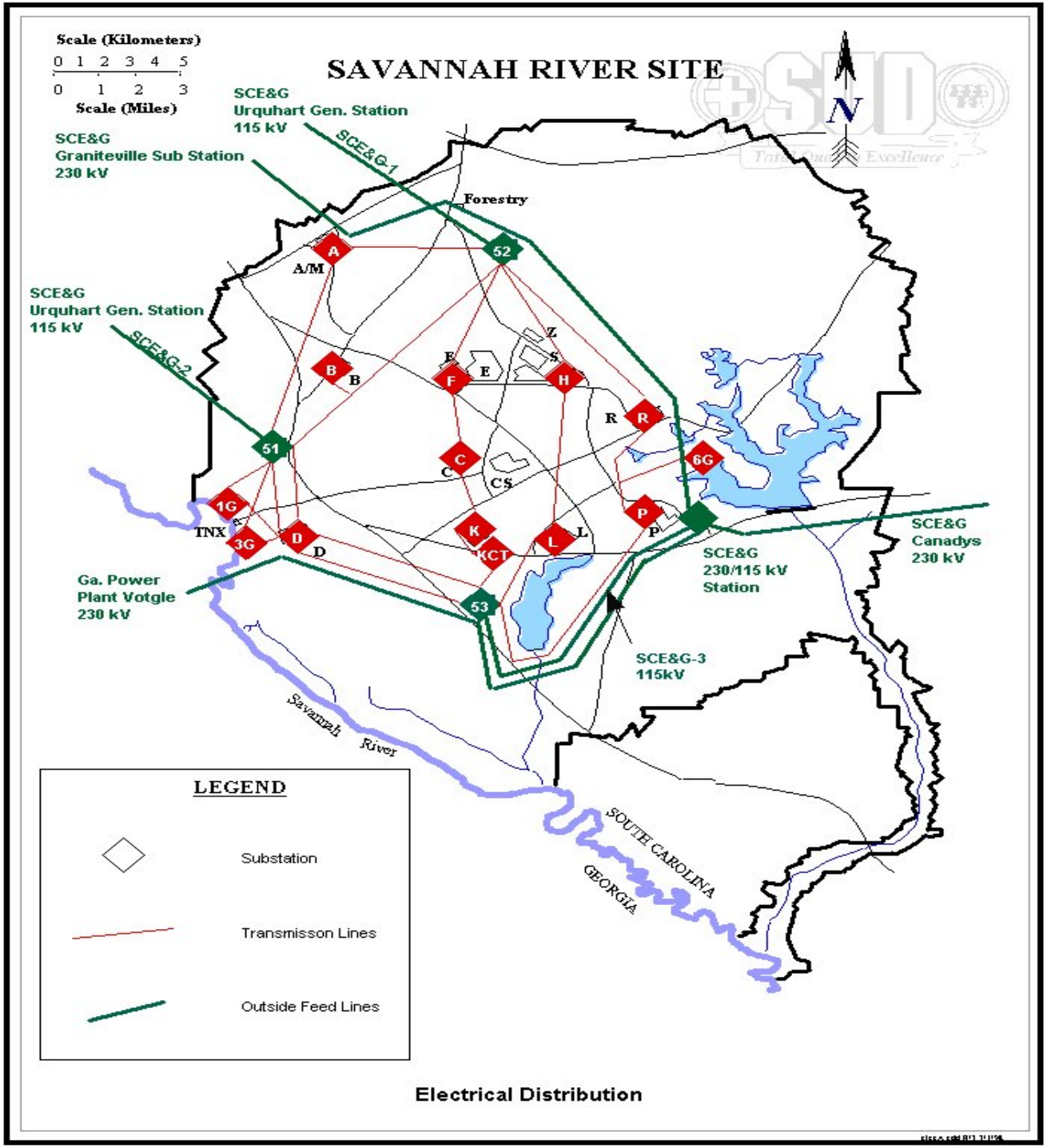
Mission Summary

- Infrastructure
  - Provide maintenance/repair and recapitalization of DOE investment to achieve current and future missions.
  - Provide general and administrative services in support of current and future missions.

Site Summary (2006)

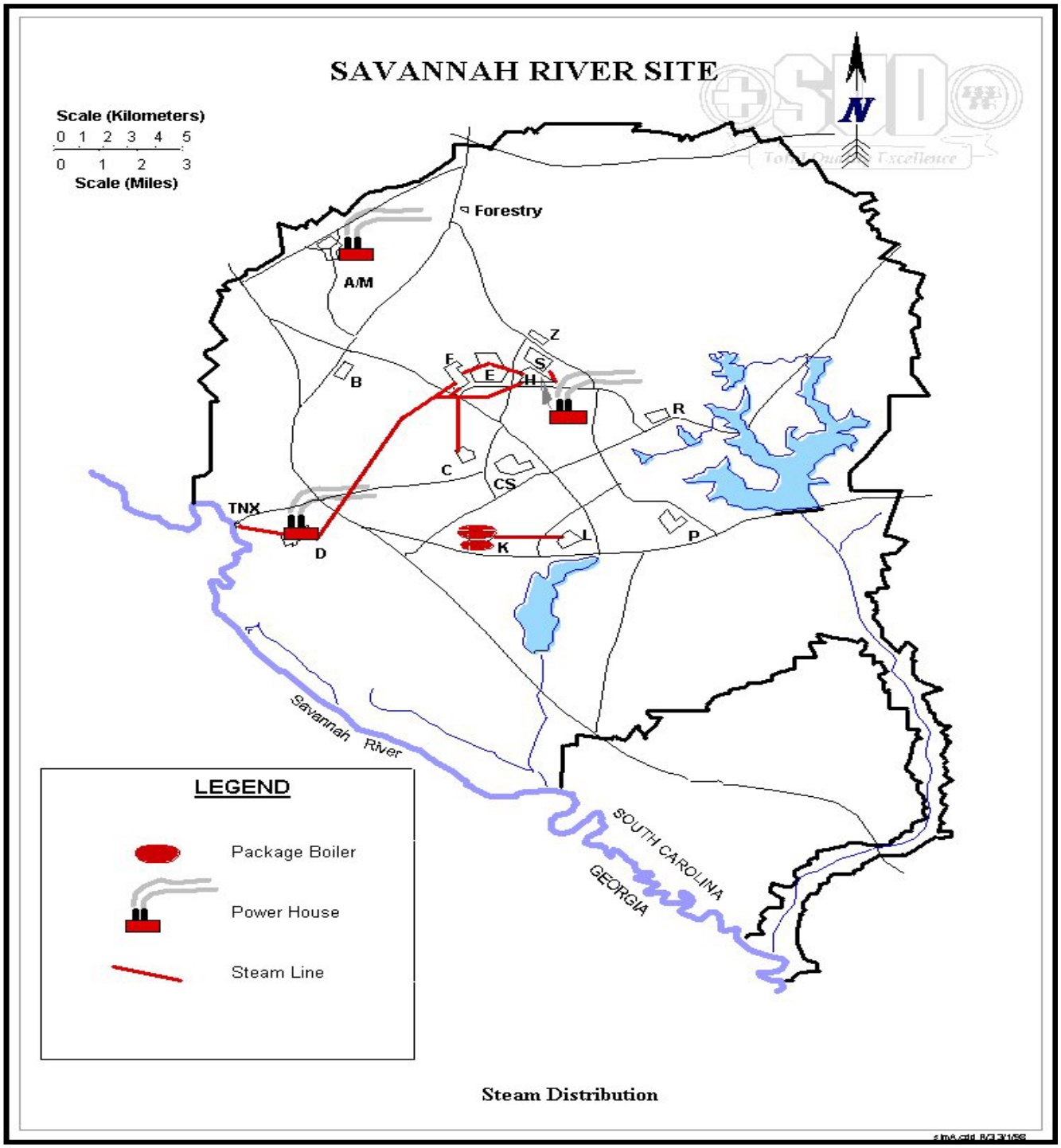
- Infrastructure
  - Physical infrastructure
    - Utilities
      - Electric Power
        - » Peak demand ~52,000 kW
      - Steam
        - » Daily flow of 165,000 pph (120,000 pph from SCE&G)
      - Water
        - » 16 wells with design capacity of ~7MGD
        - » ~60 miles of distribution piping.

D Area Powerhouse



Electrical Distribution

A Area Steam Plant



Steam Distribution

Site Summary (2006)

- Infrastructure
  - Physical infrastructure
    - Infrastructure Maintenance
      - Roads and Bridges
        - » 133 miles primary roads, 17 bridges, culverts.
        - » ~1200 miles secondary roads (maintained by USFS)
      - Communications Systems and Support Services
        - » ~3,400 VHF and UHF radios
        - » Site paging system
      - Administrative Buildings
        - » ~250 buildings and ~8,000 office spaces

Site Summary (2006)

- Infrastructure (cont)
  - Physical infrastructure
    - Transportation
      - Railroad
        - » 2 locomotives, 14 rail cars, 63 miles of track
      - Fleet Management (~950 GSA leased, ~80 DOE owned)
    - Support Functions
      - Fire System Support
        - » ~600 fire systems (Halon, sprinkler systems, fire control panels, fire protection loops)
      - Portable Equipment Support (Cranes, generators, compressors, dozers, etc.)
        - » ~1800 pieces of equipment.

Railroad Classification Yard

Site Summary (2006)

- Infrastructure (cont)
  - Physical infrastructure
    - Support Services
      - Information Technology
        - » Computing (mainframe, applications development, desktop services, email, Internet)
        - » Communications (phone service, data network, closed circuit video)
      - Regulatory & Bioassay Laboratory
        - » Processes 56K analytical determinations/year.
        - » Over 40K personnel samples, and 100k dosimeters evaluated per year.

B Area Regulatory Monitoring and Bioassay Laboratory

Site Summary (2006)

- Infrastructure
  - Physical infrastructure capacity meets current needs.
  - Overall condition of physical infrastructure elements is considered to be “adequate to good”.

Site Summary (2006)

- Infrastructure (cont)
  - General and Administrative Services
    - Procurement, Human Resources, General Counsel, Financial Services, Public Affairs, Internal Audit, Other Services.

- Total Infrastructure represents:
  - ~2,000 personnel
  - ~$300 million per year

Key Work Projects/Accomplishments (2007-2011)

- Infrastructure
  - Provide cost effective infrastructure services in support of the Site's existing and future missions.
  - Maintain the infrastructure in an "adequate to good" condition.

Key Work Projects/Accomplishments (2007-2011)

- Infrastructure (cont)
  - Planning Considerations
    - D&D activities will reduce requirements for building maintenance activities and related functions.
    - Site population decline will reduce impact/demand on road/bridge maintenance, domestic and sanitary wastewater systems, and other utilities.

Key Work Projects/Accomplishments (2007-2011)

- Infrastructure (cont)
  - Planning Considerations (cont)
    - New mission impacts
    - No expectation of change in the overall size or current boundaries of the site.

Key Program Challenges

- Maintaining infrastructure capabilities.
  - Consolidation of functions/facilities
  - Innovation

- Ability to craft an infrastructure acquisition strategy that complements a variety of contract types.

Nuclear Material Stabilization Projects

Presented
By
George Klipa

Mission Summary

- Nuclear Material Programs
  - Safe storage, stabilization, and disposition of plutonium, uranium, and other heavy isotopes

- Spent Nuclear Fuel (SNF) and Heavy Water Programs
  - Receipt, safe storage, stabilization, and disposition of SNF
  - Safe storage of Heavy Water

Site Summary F-Area (2006)

F-Canyon Complex

Central Laboratory

Site Summary F-Area (2006)

Mock-Up Shop

Metallurgical Building

Site Summary H-Area (2006)

HB-Line

H-Canyon Complex

Low Enriched Uranium Shipping Trailer

Site Summary K-Area (2006)

K-Area Material Storage

Site Summary L-Area (2006)

Key Work Projects/Accomplishments (2007-2011)

Nuclear Materials

- F Area:
  - Maintain Mock-up Shop and the Central Laboratory operational
  - Maintain the deactivated F-Canyon Complex in safe storage until decommissioning
  - Disposition the remaining Depleted Uranium Oxide from the Savannah River Site (SRS).

Key Work Projects/Accomplishments (2007-2011)

Nuclear Materials

- H Area:
  - maintain the H-Canyon Complex in a Congressionally mandated “high state of readiness” to complete stabilization and/or disposition of DOE legacy nuclear materials and/or spent nuclear fuel

Key Work Projects/Accomplishments (2007-2011)

Nuclear Materials

- K-Area:
  - Operate to provide safe and secure storage of Special Nuclear Material (SNM)
  - Begin the proposed Plutonium Vitrification Project by Fiscal Year (FY) 2007
  - Complete construction of the Container Surveillance and Storage Capability (CSSC) Project by FY 2009

Key Work Projects/Accomplishments (2007-2011)

Spent Nuclear Fuel and Heavy Water

- L-Area:
  - Operate to receive, store, and ship SNF, including receipt of approximately 4,500 items of both foreign and domestic SNF through 2019
  - Continue to prepare SNF for disposition
  - Expect to begin the proposed Treatment and Storage Capability (TSC) effort by FY 2008 and begin operating the proposed TSC by the end of FY 2012

Key Work Projects/Accomplishments (2007-2011)

Spent Nuclear Fuel and Heavy Water

- Receiving Basin for Off-site Fuels (RBOF)
  - Disposition all items stored on the RBOF cask pad and clean/decontaminate remaining pad.
- Heavy Water
  - Disposition heavy water through beneficial use alternatives.
  - At a minimum, de-inventory K-Reactor Building of heavy water (~50k gallons in two tanks and ~3000 drums in -40') prior to construction of the proposed Plutonium Vitrification Project in FY 2007

Key Program Challenges

H Area:

- Processes to disposition Environmental Management (EM) owned plutonium and/or SNF may not be available in FY 2012, resulting in extended H-Canyon Complex operation

K Area:

- The new plutonium disposition capability may not be available by FY 2012.

L Area:

- The proposed Treatment and Storage Capability (TSC) may not be available by 2012.

Liquid Waste Disposition

Presented

By

Lawrence T. Ling

Mission Summary

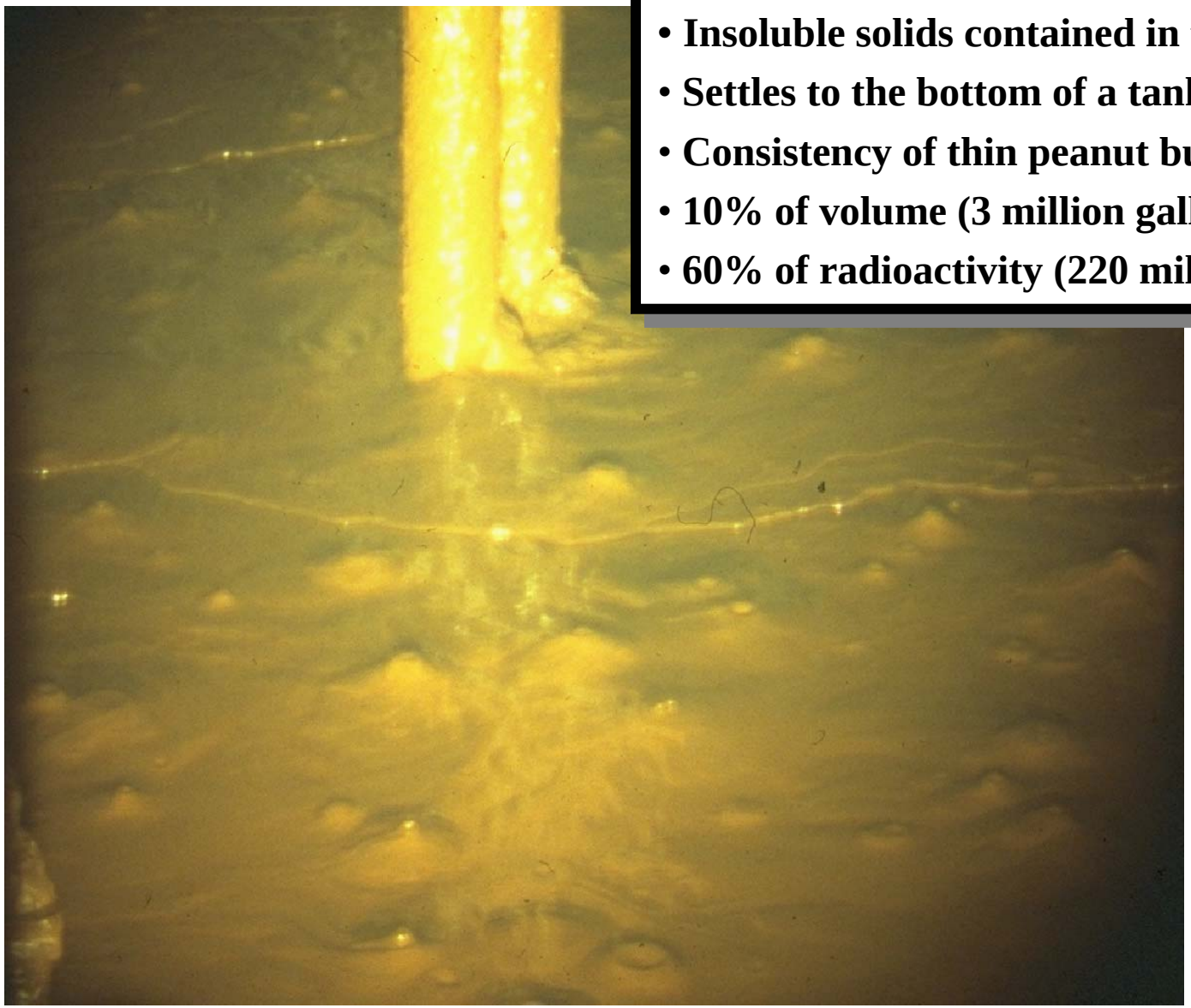
- The treatment and permanent disposal of 36 million gallons of liquid radioactive waste stored at the SRS as well as radioactive waste from planned nuclear materials stabilization activities

- The operational closure of the remaining 49 underground storage tanks by FY 2020 and the deactivation of the major associated facilities and equipment

- This mission is critical to the success of the environmental cleanup initiative

TANK UNDER CONSTRUCTION

SLUDGE STORED IN A WASTE TANK

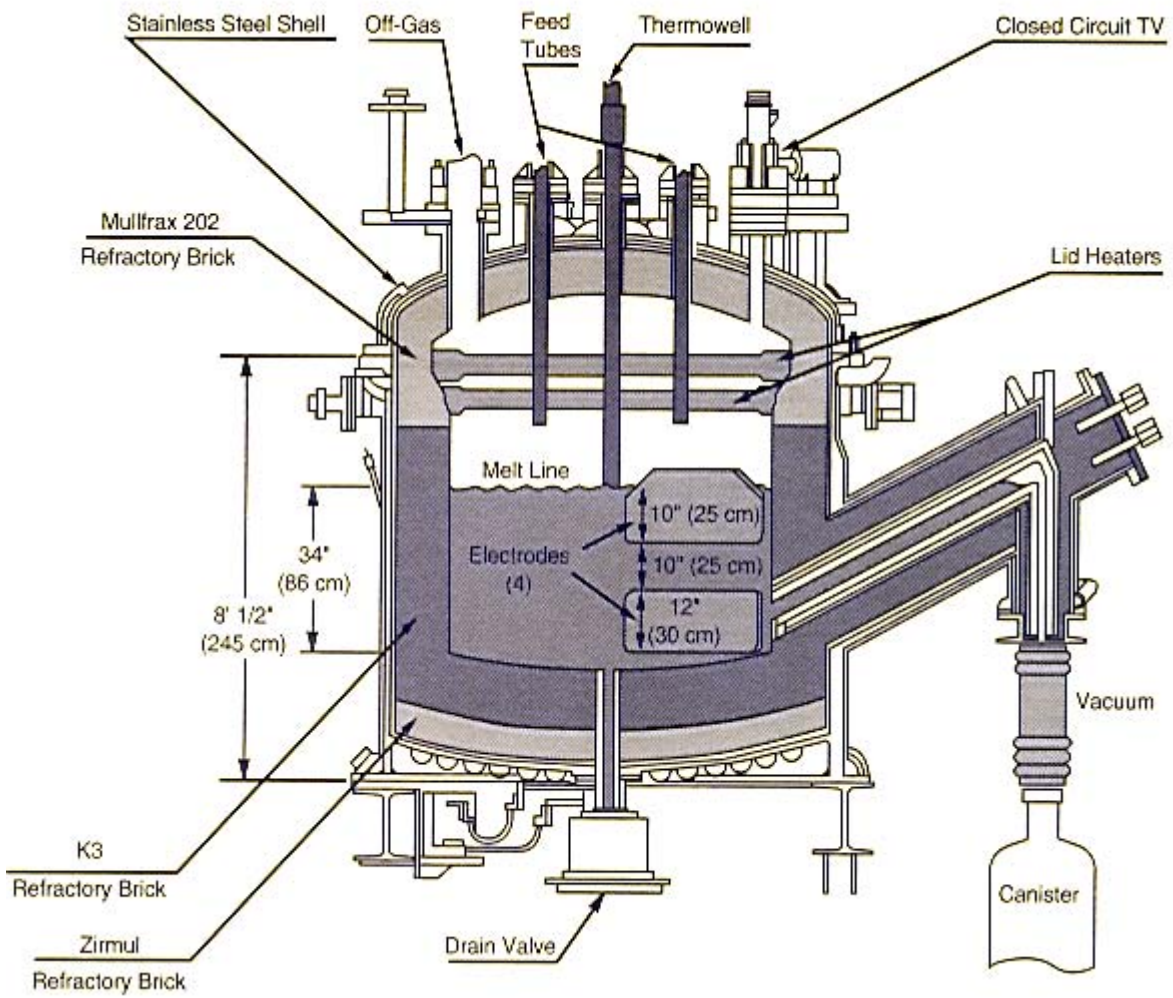


- **Insoluble solids contained in the waste**
- **Settles to the bottom of a tank**
- **Consistency of thin peanut butter**
- **10% of volume (3 million gallons)**
- **60% of radioactivity (220 million curies)**

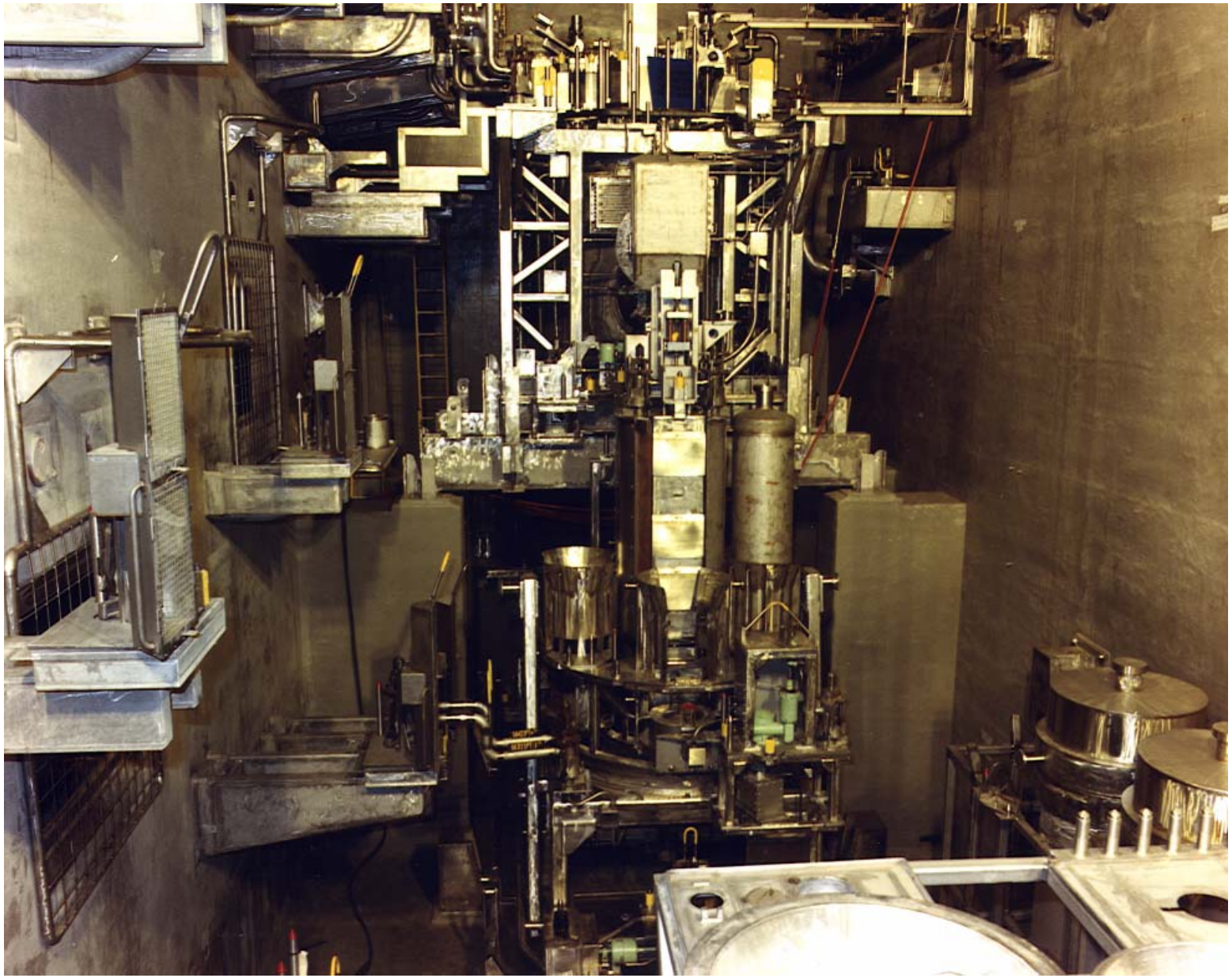
SALT STORED IN A WASTE TANK

- **Liquid portion of the waste**
- **Contains dissolved salts**
- **Stored in three forms**
  - Decanted Liquid **…**
    -Supernate
  - After Evaporation **…**
    -Concentrated Supernate
    -Salt Cake (crystallized out of solution)
- **90% of volume (33 million gallons)**
- **40% of radioactivity (200 million curies)**
- **Primarily Cesium-137**

MELTER


Stainless Steel Shell
Off-Gas
Feed Tubes
Thermowell
Closed Circuit TV
Mullfrax 202
Refractory Brick
Lid Heaters
Melt Line
10" (25 cm)
Electrodes (4)
10" (25 cm)
12" (30 cm)
34" (86 cm)
8' 1/2" (245 cm)
Vacuum
K3
Refractory Brick
Zirmul
Refractory Brick
Drain Valve
Canister

MELT CELL



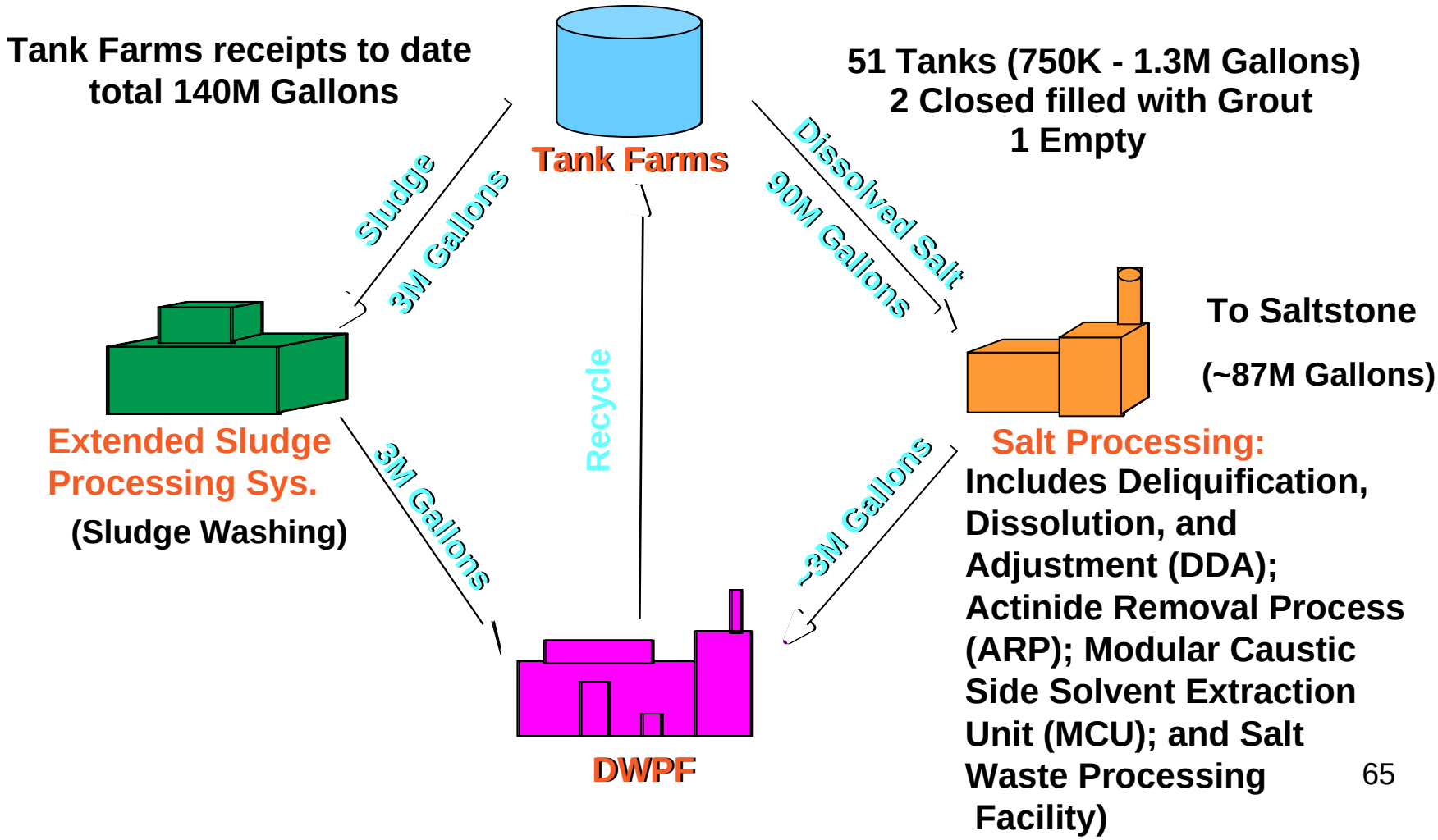
GLASS WASTE STORAGE BUILDING

- Earthquake-resistant storage vault provides safe interim storage
- Has approximately 2300 storage locations
- There are approximately 1,900 canisters currently in storage

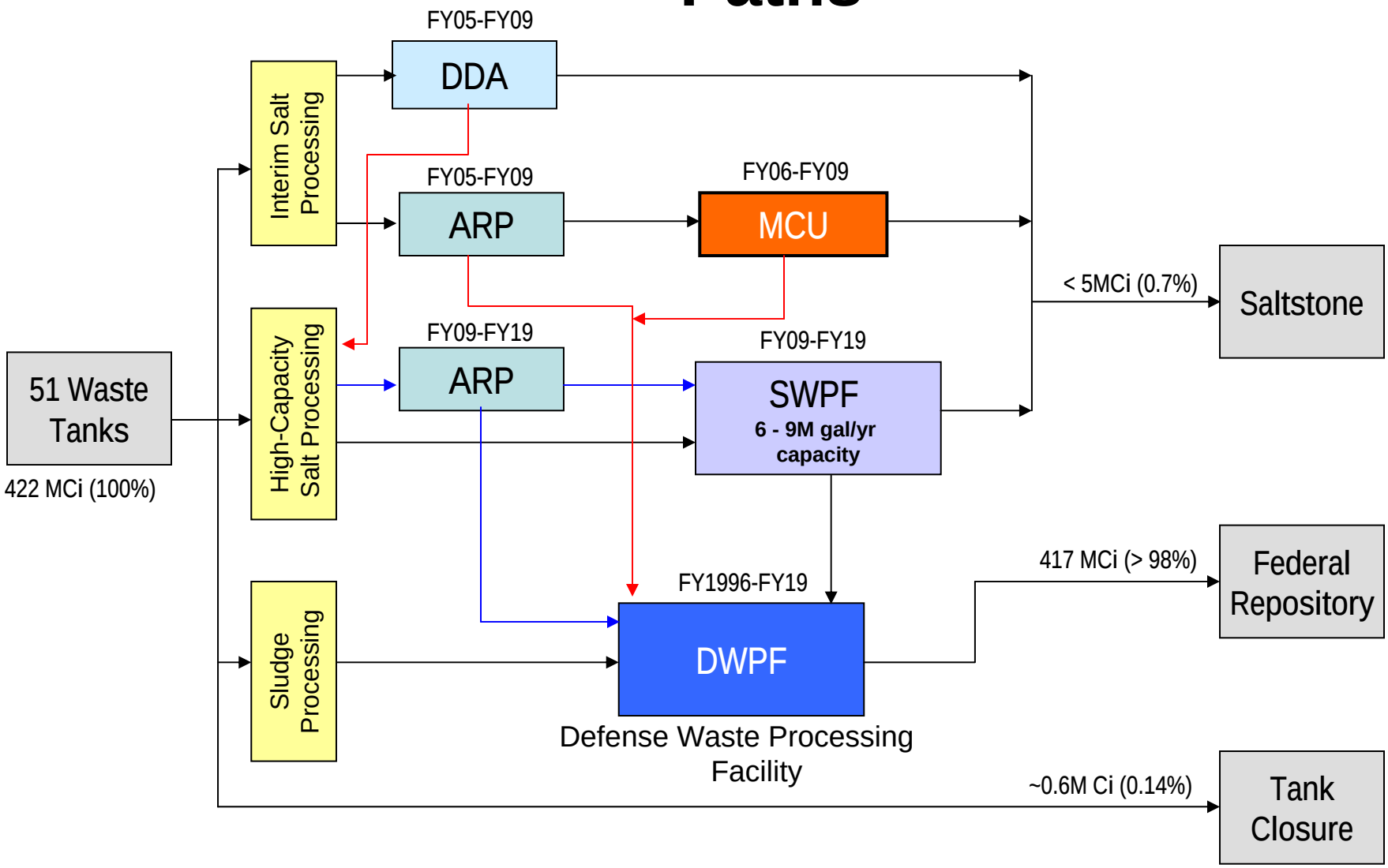
SHIELDED CANISTER TRANSPORTER

SRS LIQUID RADIOACTIVE WASTE PROCESS FLOW

~ 36 Million Gallons
(33M Gallons of Concentrated Salt & Salt Cake and 3M Gallons of Sludge)



SRS Tank Waste Disposition Paths



DDA: Deliquification, Dissolution, & Adjustment

ARP: Actinide Removal Process

MCU: Modular Cesium Removal Unit

SWPF: Salt Waste Processing Facility

Site Summary (2006)

- The Defense Waste Processing Facility (DWPF) will be operating and would have produced 2,172 of approximately 5,060 radioactive waste canisters
- 2 of the 51 liquid waste storage tanks have been deactivated and operationally closed (1997)
- A second Glass Waste Storage Building will be operating
- The Evaporator systems will be operating
- Effluent Treatment Project (ETP) continues to support operations

Site Summary (2006)

- Design of Salt Waste Processing Facility (SWPF) underway
- Deliquification, Dissolution, and Adjustment (DDA) process operational
- Actinide Removal Process (ARP) operational
- Modular Caustic Side Solvent Extraction Unit (MCU) operational
- Saltstone receiving at 100,000 gallons per week at up to 0.2 Ci/gal feed
- Saltstone Vault #2 constructed and turned over for operations

Key Work Projects/Accomplishments (12/1/06 TO 9/30/11)

- Operate Defense Waste Processing Facility (DWPF) and produce an average of 250 canisters per year through 2008
- Operate DWPF and produce an average of 230 canisters per year starting in 2009
- Operate Actinide Removal Process (ARP) and Modular Cesium Removal Unit (MCU) until the Salt Waste Processing Facility (SWPF) is operational
- Operationally close 11 liquid radioactive waste storage tanks and one evaporator

Key Work Projects/Accomplishments (12/1/06 TO 9/30/11)

- Operate the Saltstone facility to receive and process 175,000 gallons per week
- Operate and perform required management and surveillance activities in F and H-Area Tank Farms; the Defense Waste Processing Facility (DWPF); the Effluent Treatment Project (ETP) facility; the Saltstone Processing Facility; the Deliquification, Dissolution, and Adjustment (DDA) facility; the Modular Cesium Removal Unit (MCU) facility; and the Salt Waste Processing Facility (SWPF)

Key Program Challenges

- Success of the salt processing strategy is based upon Salt Waste Processing Facility (SWPF) becoming operational in FY09
- Unforeseen equipment failures, such as a major tank leak or transfer line or evaporator failure could have a significant impact to the system
- Delays in the decision on a Federal Repository would impact the shipping schedule
- Delays in the implementation of the 3116 Waste Determination and review by the Nuclear Regulatory Commission could delay tank closure and salt treatment activities

Solid Waste Stabilization & Disposition

Presented

By

Lawrence T. Ling

Mission Summary

- All low-level, hazardous, mixed, and transuranic (TRU) wastes will be disposed of in compliance with applicable regulations and requirements

- All newly generated wastes resulting from the EM cleanup project will be disposed of as the waste is generated to prevent a legacy waste problem

Mission Summary

- By 2025, all of the solid waste facilities will be deactivated with the exception of portions of the Solid Waste Disposal Facility (SWDF) in E-Area

- Once deactivated, facilities will be maintained in a minimal surveillance and maintenance condition until transfer for decommissioning

Low Activity Waste Vaults (LAWV)

- Operations began in 1994
- Utilized for radionuclides that require additional separation from the environment and for waste packages less than 200mr
- 145’ wide X 643’ long X 27’ high
- Capacity of 1.7 million ft3 or 47.6K m3
- ~ 14% of the total waste disposed goes to the LAWV

Intermediate Level Vaults

- Began operations in 1994
- Contains both Tritium and non-Tritium vaults and packages >200 mr
- Tritium vault 57’ long x 28’ deep x 48’ wide
  - **Capacity 56K ft3 or 1568 m3**
- Non-Tritium vault 189” long x 29’deep x 48’ wide
  - **Capacity 200K ft3 or 5600 m3**
- ~2% of the total waste disposed of goes to the ILVs

Engineered Trench #1and #2

- Began first phase of operation in 2/01
- Utilized for very low contaminated LLW
- Basically the same footprint as the LAWV – 150’x 20’x 650’
- Extended the life of the LAWV by approximately 14 years
- ~29% of the total waste disposed of goes to the ET

Slit Trench

- Began operations in March 1995
- 5 individual trenches = 1 Slit Trench
- Basically same footprint as the LAWV
  - Each trench is 20’ x 20’ x 650’
- Utilized for slightly higher contaminated material than ET, soil, & rubble
- ~51% of the total waste disposed of goes to the STs

Components in Grout (CIG)

- Began operations in 2001
- Utilized for contaminated equipment and components
- 1 foot of concrete is poured below, above and around the component
- ~ 2% of the total waste disposed of goes to CIG

Naval Reactor Pads (NRP)

- Utilized for the receipt and disposal of Naval Reactor Components from offsite sources
- ~1% of the total waste received goes to the NRP

Site Summary (2006)

- All legacy low-level waste and hazardous waste has been disposed
- All legacy mixed low-level waste (MLLW), except legacy solvent (PUREX) and approximately 50 cubic meters of other miscellaneous MLLW, has been treated and disposed
- Approximately 5,000 transuranic (TRU) waste drums and 5,500 cubic meters of large container TRU waste (1200-1500 containers) will be in the legacy TRU waste program
- Newly generated waste will be disposed of as it is generated

Key Work Projects/Accomplishments (12/01/06-9/30/11)

- Ship all legacy transuranic (TRU) drummed waste by 9/2008
- Ship all legacy TRU container waste by 9/2010
- Complete Resource Conservation and Recovery Act (RCRA) closure for TRU Pads 1, 2, and 7-13
- Close N-Area RCRA permitted hazardous/mixed low-level waste facilities and centralize operations in E-Area
- Develop and execute a Site Treatment Plan exit strategy

Key Work Projects/Accomplishments (12/01/06-9/30/11)

- Maintain steady-state operations on Waste Isolation Pilot Project (WIPP) certification of newly generated waste
- All newly generated transuranic (TRU) waste is characterized and shipped to WIPP within 12 months of generation.
- Newly generated waste will be disposed of as it is generated

Key Program Challenges

- Treatment and/or disposal options for waste with no identified path for disposal
- Identify a disposal facility for greater than Class A treated mixed waste
- Timely delivery of government furnished services and items (GFSI) for transuranic (TRU) transport containers, characterization equipment, and characterization resources

Deactivation and Decommissioning

Presented

By

Karey McAlhany

Mission Summary

- After 40 years of producing nuclear materials for defense and non-defense uses, the SRS has shifted its strategic direction and resources from nuclear materials production to cleanup
- The vision for SRS is that operations will be concentrated toward the center of the site to form a central core area with continuing non-EM missions
- Included as part of the EM cleanup project is the D&D of 1,013 major facilities

Sample of Simple D&D Project

Before D&D

After D&D

D&D Facilities

Site Summary (2006)

- All D&D efforts in T and M Areas will be complete
- Current contract lists 252 of the 1013 facilities for D&D over the EM lifecycle.

Key Work Projects/Accomplishments (2007-2011)
P Reactor

Key Work Projects/Accomplishments (2007-2011) Metallurgical Building

Key Program Challenges

- Negotiate “in-situ” state of reactor and canyon facilities with regulators that achieves safe, cost effective, permanent disposition
- Unexpected conditions found during D&D

July 6, 2005

SOIL & GROUNDWATER PROJECT (SGP)

Presented
By

James DeMass
Department of Energy, Savannah River
Soil & Groundwater Project

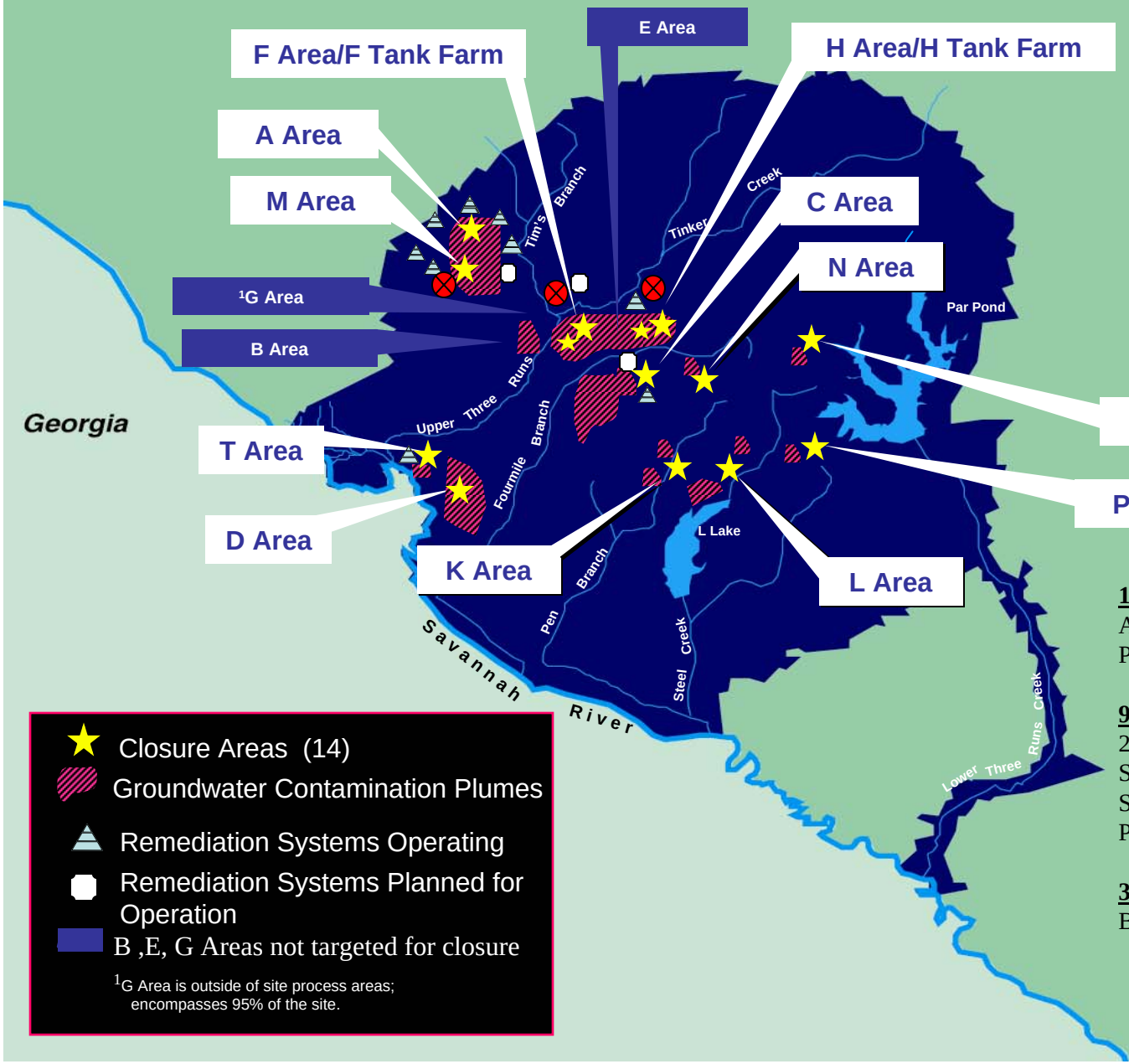
Mission Summary

- MISSION
  - Remediate waste sites, groundwater, and surface waters to reduce risk to human health and the environment

- LIFE CYCLE SCOPE
  - 515 identified waste units (317 are complete and 48 are in remediation)

- TO-GO SCOPE includes:
  - Waste Units within site facility areas
  - Groundwater units at the facility areas
  - 6 Integrator Operable Units (Site Streams and associated Floodplain connecting to the Savannah River and the Savannah River Floodplain)
  - Other miscellaneous waste units outside facility areas

Soils and Groundwater Project Areas



Closure Areas (14)

Groundwater Contamination Plumes

Remediation Systems Operating

Remediation Systems Planned for Operation

B ,E, G Areas not targeted for closure

[1]G Area is outside of site process areas; encompasses 95% of the site.

13 Groundwater Contamination Plumes

A/M, F/H, NRDF, TNX, MWMF
P,L(2),K (2),C,R and D Areas

9 Systems Operating

2 Air Strippers (M-1 & A-2), AMRP, Southern Sector Recirc Wells (3-M Vadose), TNX Air Stripper (T-1), CBRP, MCB & ABRP, Phytoremediation (MWMF)

3 Systems Planned in FY05

Base Injection, DUS, ERH

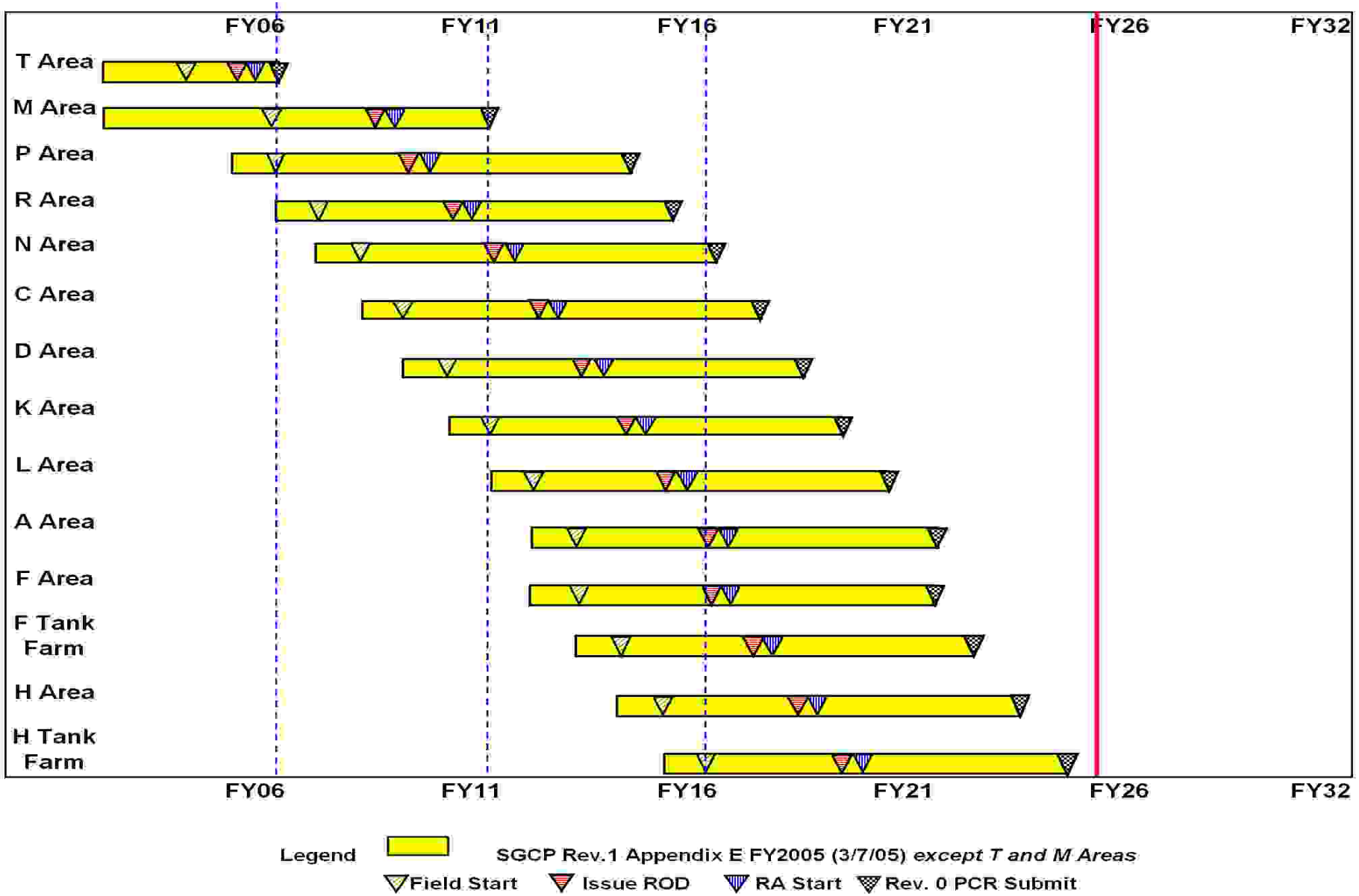
MAJOR DRIVERS

- SRS Federal Facility Agreement
  - Tri-Party cleanup agreement between DOE, EPA, and South Carolina Department of Health & Environmental Control (SCDHEC)
    - Recently re-negotiated to establish milestones consistent with Area Closure concept
    - Proposed FFA modifications sent to Regulators
      - » Define Area Completion
      - » Define D&D Process
      - » Add new Appendix K for D&D integration

- Resource Conservation Recovery Act Permit (DOE, SCDHEC)

FY05 Federal Facility Agreement- FFA Appendix E

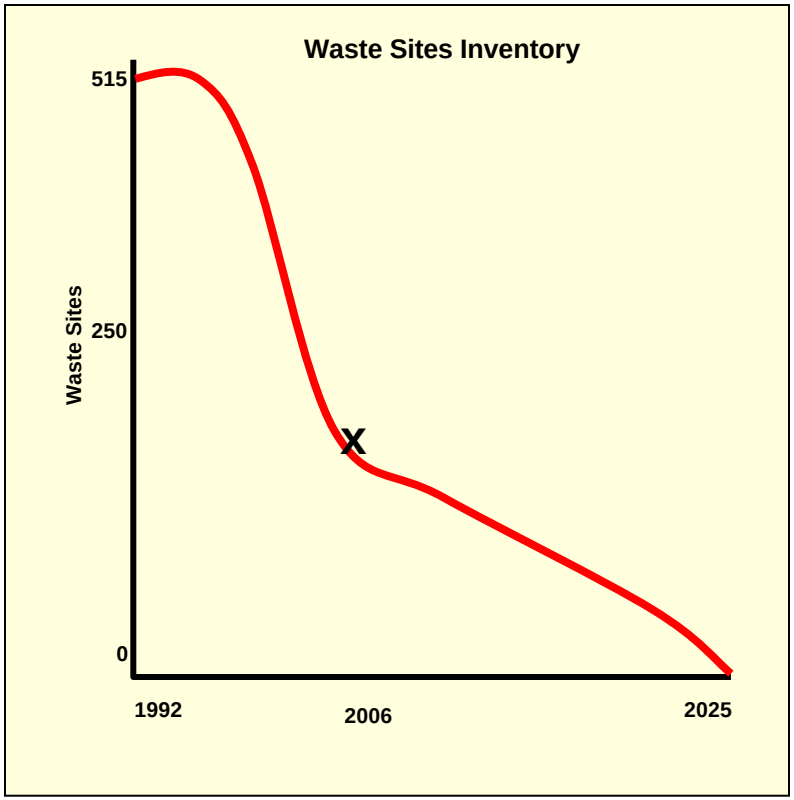
Area Completion Schedule

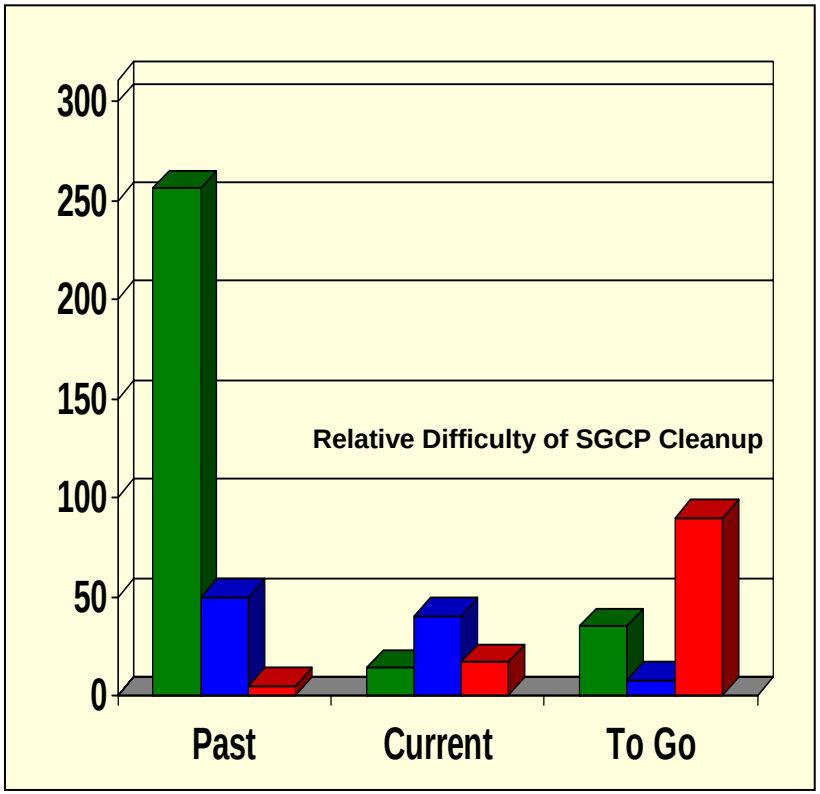


Area Completion Process

- Fully integrates D&D with SGP scope to achieve a comprehensive Record of Decision and area strategy with one end state
  - Addresses D&D residuals under Area Completion at a more logical time
- Addresses larger groupings of waste units and D&D facilities within an Area
  - Integrates impacts with other sources, such as deactivated facilities
- Allows for efficiencies in coordinated sampling and remediation activities
- Sets up whole area for potential deletions from the National Priorities List

SGP Summary (2006)





Lowest Difficulty | Moderate Difficulty | Highest Difficulty

Remote: Lowest difficulty (typically remote areas away from current or past operating areas; includes Burning Rubble Pits, Site Evaluations, etc.)

Area Perimeters: Moderate difficulty (typically at the perimeter of current or past operating areas; includes groundwater seepage basins, etc.)

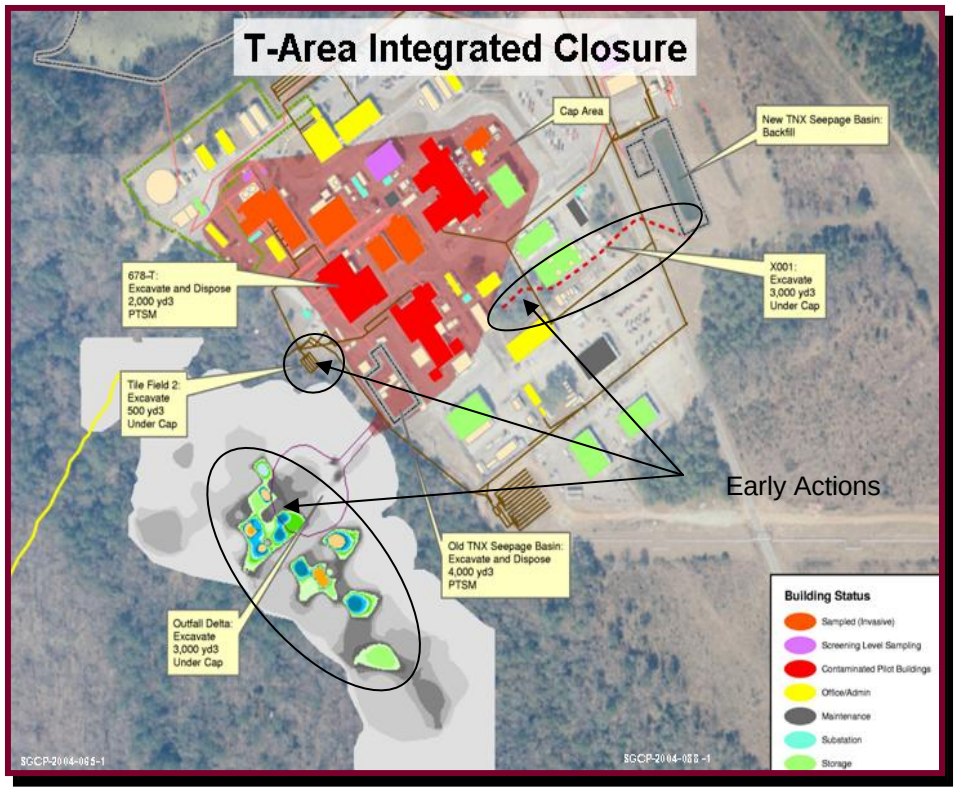
Operating Areas: Highest difficulty (typically within current or past operating area boundaries; (includes reactor buildings, process sewer lines, slabs, building drain, etc.)

Key Work Projects/Accomplishments (2007-2011)

- M-Area Completion Achieved
- Remedial Action (RA) Start for P-Area Completion
- Remedial Action (RA) Start for R-Area Completion
- Complete remediation on 45 waste units
  - D-Area Expanded Operable Unit Project, the General Separations Consolidation Unit Project, CMP Pits Project and R-Reactor Seepage Basin Project
- Achieve RCRA Permit 2B goal at the seep lines down gradient of the F&H Seepage Basins
- Complete remediation on the A-014 Outfall
- Meet all regulatory requirements and compliance activities for all waste units in assessment, remediation, operations and post closure monitoring

SGP Key Work Projects

T-Area Completion



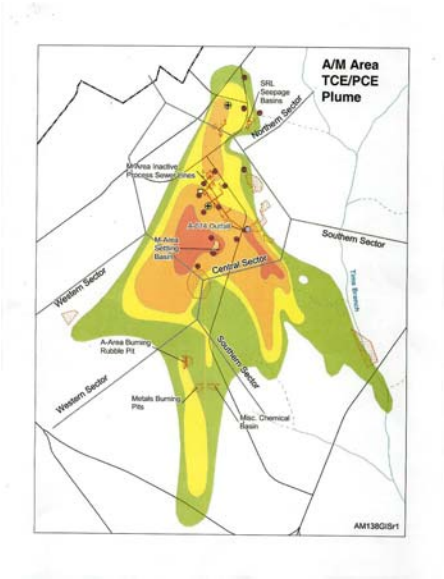
- **Current Status**
  - T Area turned over to SGP for closure
  - Outfall Delta soil removal is 85% complete
  - Old TNX Seepage Basin work underway
- **Remaining Actions**
  - Complete cleanup of waste units and manage slabs resulting from D&D activities
  - Construct an engineered cap (10 acres) over the TNX Burying Ground and contaminated slabs
- **Results**
  - Schedule has been compressed by approximately 48 months
  - T-Area closure by the end of 2006

FIRST SRS AREA TO BE COMPLETED

SGP Key Work Projects

M-Area Completion

- **Current Status**
  - DUS construction completed, steam operations to begin by August 2005
  - Three major Operable Units (OU) underway in M-Area
- **Remaining Actions (Post 2006)**
  - Complete Dynamic Underground Stripping (DUS) steam operations in FY 2008 and project operations in FY 2011
  - Start and complete construction on remedial actions on remaining Operable Units in M-Area

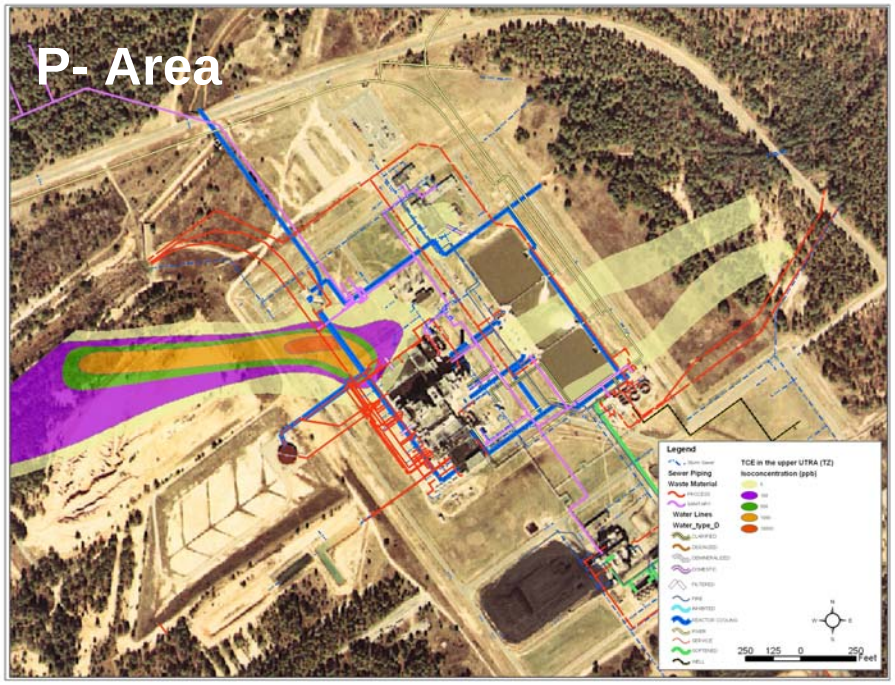


- **Results**
  - Significantly accelerates cleanup of the M-Area solvent sources and cleanup operations by decades
  - M-Area closed by FY 2012

2nd SRS INDUSTRIAL AREA CLOSURE

SGP Key Work Projects

P-Area Completion

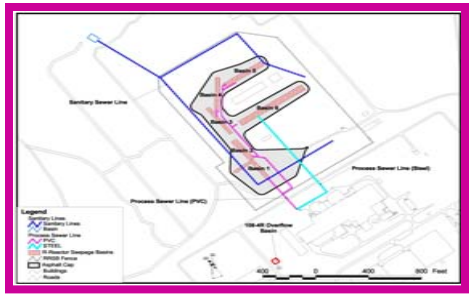


- **Current Status**
  - Scoping meeting with Regulators in Oct 05
  - Regulatory Milestones
    - Field Start (Sept 2006)
    - Remedial Action Complete (Nov 2014)
- **Remaining Actions (Post 2006)**
  - Potential work may include grouting, excavation, and disposal of PTSM (pipelines and soil), capping of selected waste units (i.e. ash basin), excavation and disposal of soils associated with spills
- **Results**
  - Cost-effective remediation of a reactor area

FIRST SRS REACTOR AREA TO BE COMPLETED

SGP Key Work Projects

R-Area Completion



- **Remaining Actions (Post 2006)**

  R-Reactor Seepage Basin

  - Expand asphalt cover
  - Install concrete intruder barrier
  - Monitor groundwater

- **Current Status**
  - Scoping meeting with Regulators in Oct 05
  - Regulatory Milestones
    - Field Start (Sept 2007)
    - Record of Decision (Oct 2010)
    - Remedial Action Complete (Nov 2015)

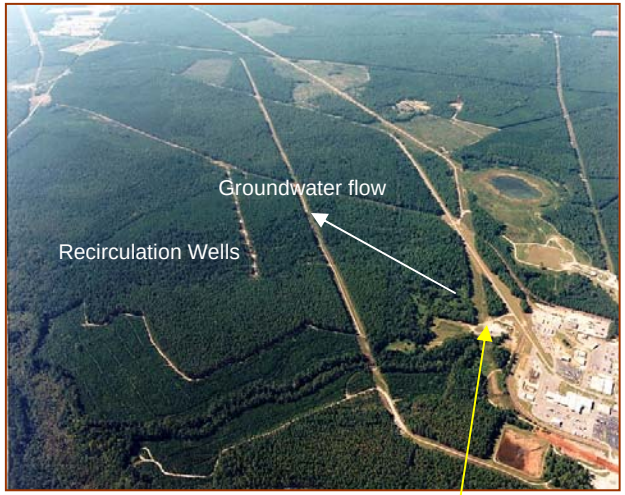
- **Remaining Actions (Post 2006)**
  - Potential work may include grouting, excavation, and disposal of PTSM (pipelines and soil), capping of selected waste units (i.e. ash basin), excavation and disposal of soils associated with spills

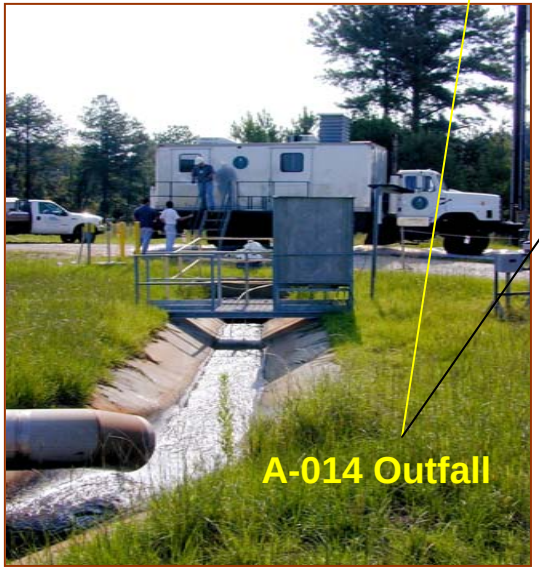
- **Results**
  - Cost-effective remediation of 2nd reactor area
  - Completion of a another high risk waste unit in 2008

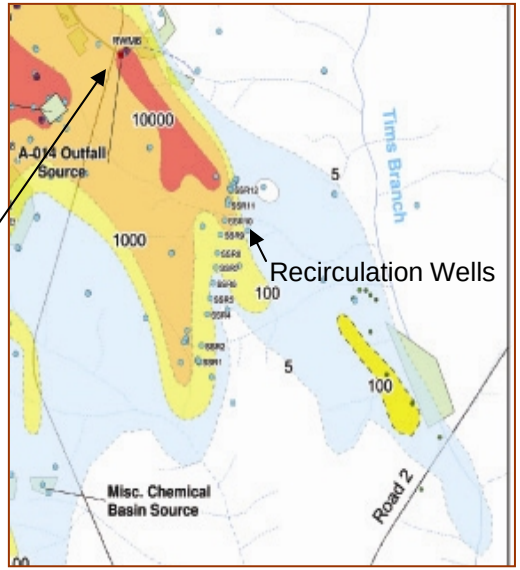
IMPLEMENTING COST-EFFECTIVE REMEDIES

SGP Key Work Projects

A-014 Outfall Remediation





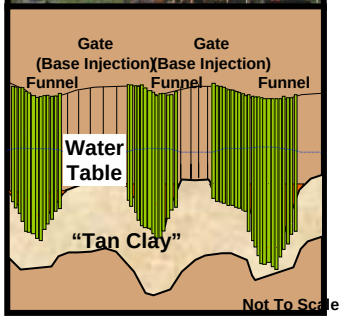


- **Current Status**
  - **Limited SVE operation on-going**
  - **Negotiating Monitored Natural Attenuation for the corrective action for plume**
- **Remaining Actions (Post 2006)**
  - **Complete construction on RCRA corrective action for solvent source at the A-014 Outfall by 2011**
- **Results**
  - **Addresses another major solvent source of the A/M-Area plume**
  - **Reduces long term remediation costs by discontinuing groundwater pump and treat systems and avoid installing additional systems**

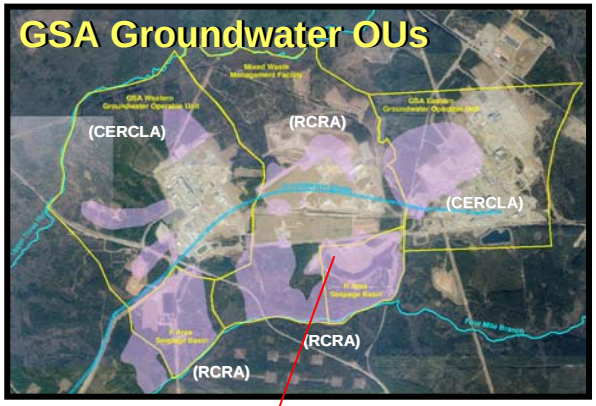
RISK REDUCTION

SGP Key Work Projects

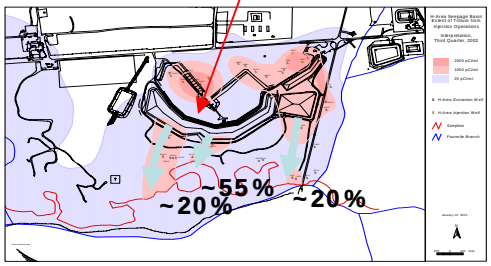
F/H-Area Groundwater



- **Current Status**
  - F-barrier wall completed 9/13/04 and H-barrier wall installation completed 12/17/04 (4500 ft. underground barrier walls to slow down tritiated water and immobilize other contaminants)
  - Base injection scheduled for completion by end of November 2005



H-Area SB Extent of Tritium from Injection Operations

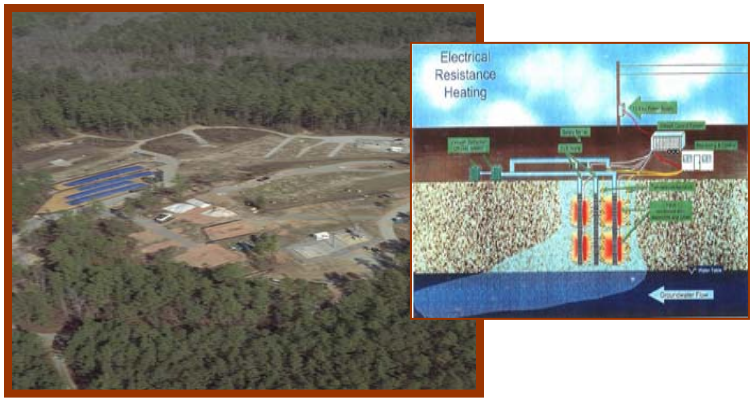


- **Remaining Actions (Post 2006)**
  - Develop remediation to address:
    - Creek contamination by 2007
    - Soil contamination at seep line by 2010
- **Results**
  - Replaced two expensive groundwater pump-and-treat units previously costing $1M/month to operate
  - Meets RCRA permit conditions

IMPLEMENTING COST-EFFECTIVE REMEDIES

SGP Key Work Projects

CMP Pits Projects

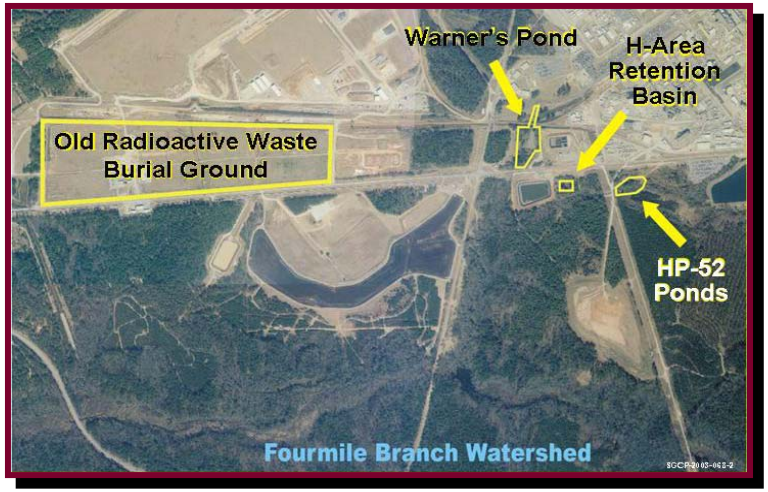


- **Remaining Actions (Post 2006)**
  - Final action for source in vadose is ERH/SVE

D-Area Expanded Operable Unit

- **Remaining Actions (Post 2006)**
  - DEXOU - consolidation of Dead & Stressed Vegetation Area and portions of the Rubble Pit into the ash basin and install cover system

General Separations Area Consolidation Unit



- **Remaining Actions (Post 2006)**
  - GSACU - Complete installation of a geosynthetic closure cap over the 76-acre ORWBG

Key Program Challenges

- Scope growth in existing Soil and Groundwater Projects
- Changes in the Area Completion process
- Slab and foundation end states have been characterized in a manner compatible with area closure to minimize potential for further evaluation and cleanup
- Sewer lines
- Integration with D&D and other Program Areas

July 6, 2005

NNSA - Defense Programs

Bruce Wilson

Savannah River Site Office

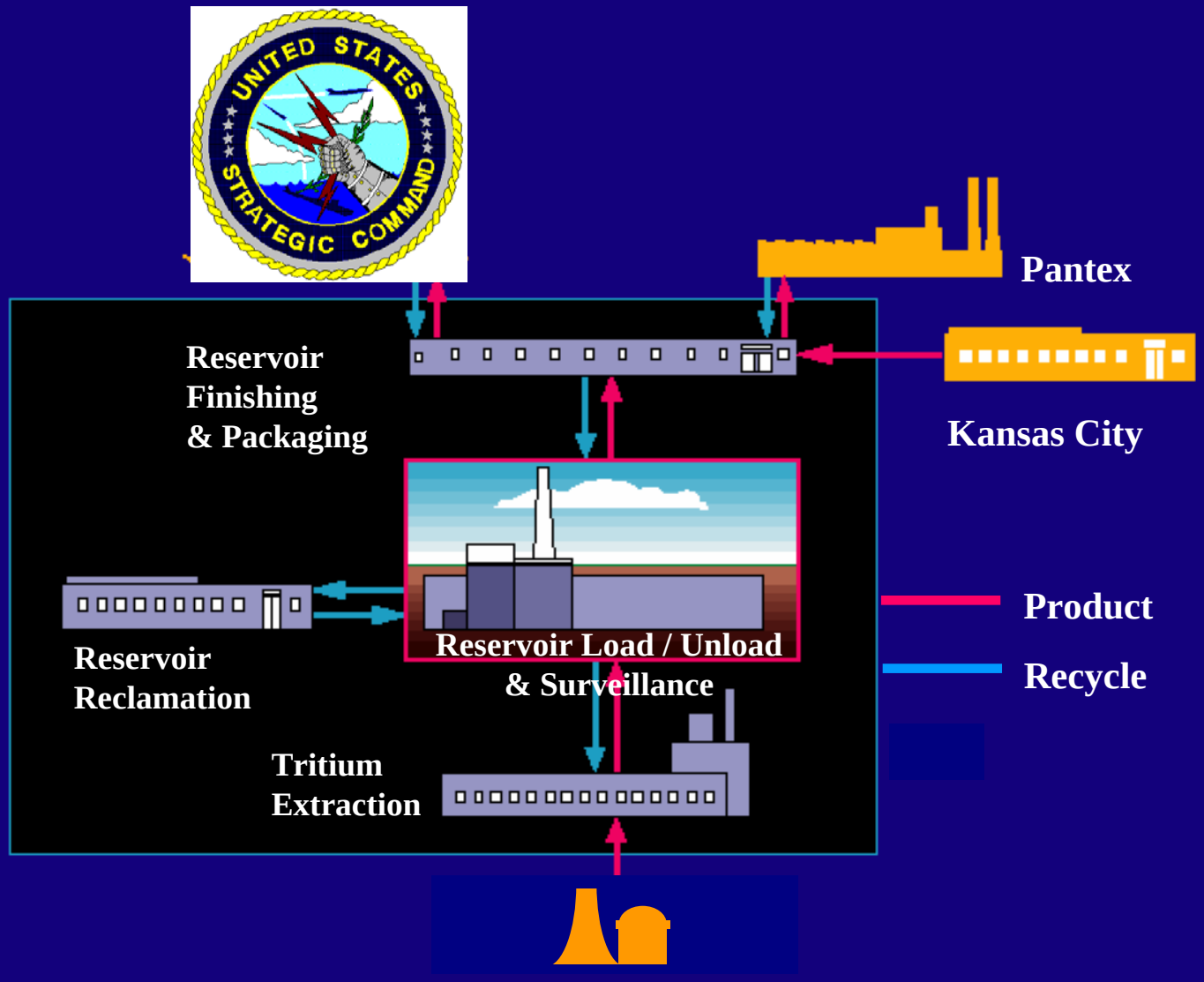
Defense Programs

- Facilities
- Missions
- Interfaces
- Capabilities
- Staffing
- Challenges

Defense Programs Missions

- **<u>Limited Life Component Exchange</u> - recycle of tritium; loading & unloading of gas-filled reservoirs; reclamation of reservoirs; packaging & shipping**
- **<u>Surveillance</u> - function testing, life storage, and materials testing of reservoirs**
- **<u>Tritium Production</u> - operation of Tritium Extraction Facility (FY07)**

Major DP Interfaces



Limited Life Component Exchange

- **<u>Tritium Recycle Capabilities</u>:**
  - **Gas purification**
  - **Gas enrichment**
- **<u>Reservoir Loading / Unloading Capabilities</u>:**
  - **Inert atmosphere gloveboxes**
  - **High pressure loading**
  - **Mass Spectrometers**
  - **Pinch-welders**
  - **Gauging, weighing, inspection**
  - **Calorimeters**
  - **Leak Detectors**
  - **Laser unloading**

Limited Life Component Exchange
(continued)

- **<u>Reclamation Capabilities</u>:**
  - **Once-through airflow hoods**
  - **Milling machines**
  - **Stem welding**
  - **Proof-testing**
  - **Gauging, weighing, inspection**
- **<u>Packaging & Shipping Capabilities</u>:**
  - **Container design, testing & certification**
  - **Container recertification**

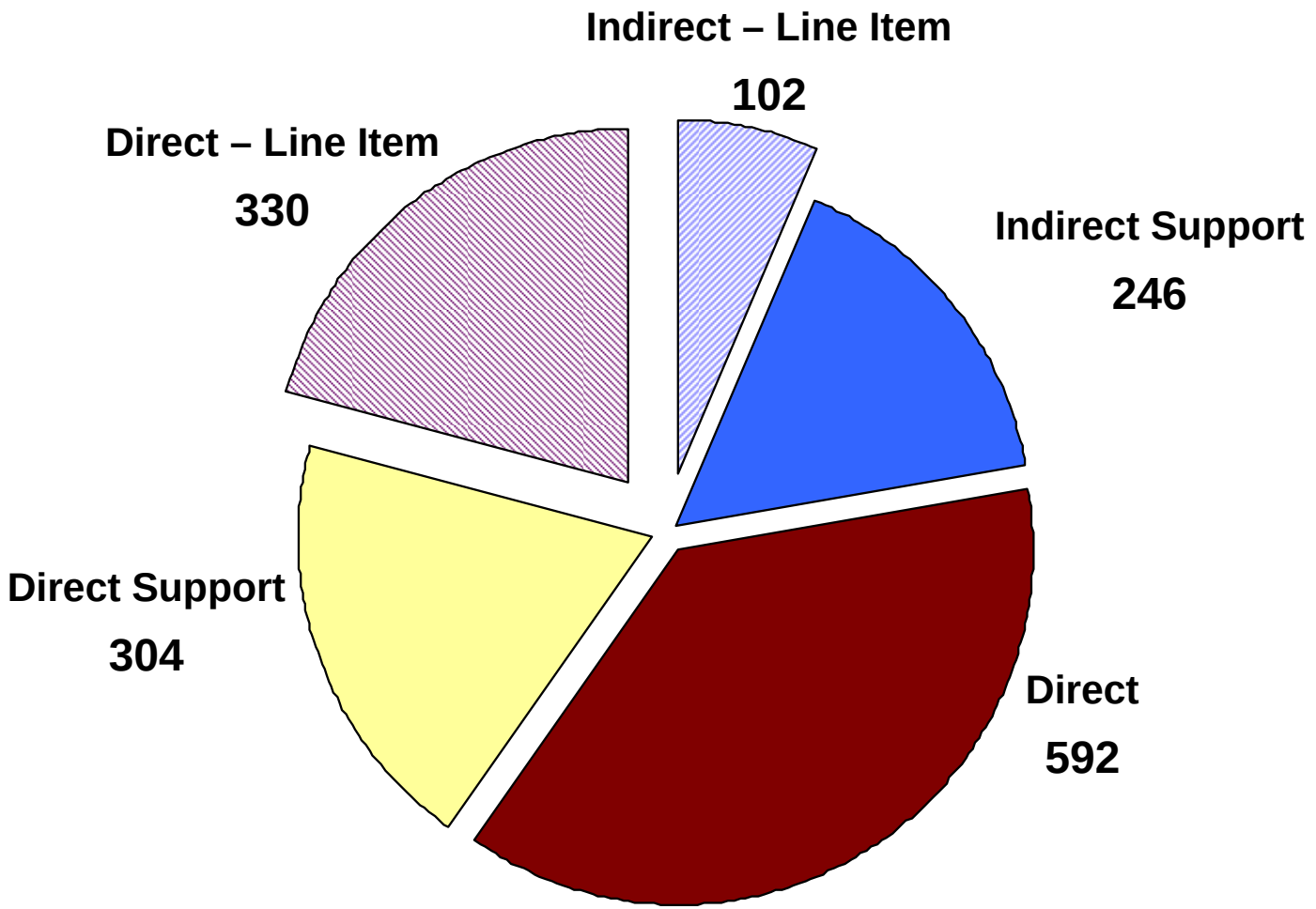
Surveillance

- **<u>Function Testing Capabilities</u>:**
  - **Environmental Conditioning**
  - **Bell-Jar enclosures within gloveboxes**
  - **High-speed data acquisition**
- **<u>Life Storage Capabilities</u>:**
  - **Environmental chambers & ovens**
- **<u>Materials Testing Capabilities</u>:**
  - **Hydro-bursting**
  - **Metallography**
  - **Microscopy**
  - **Analytical**

Tritium Production

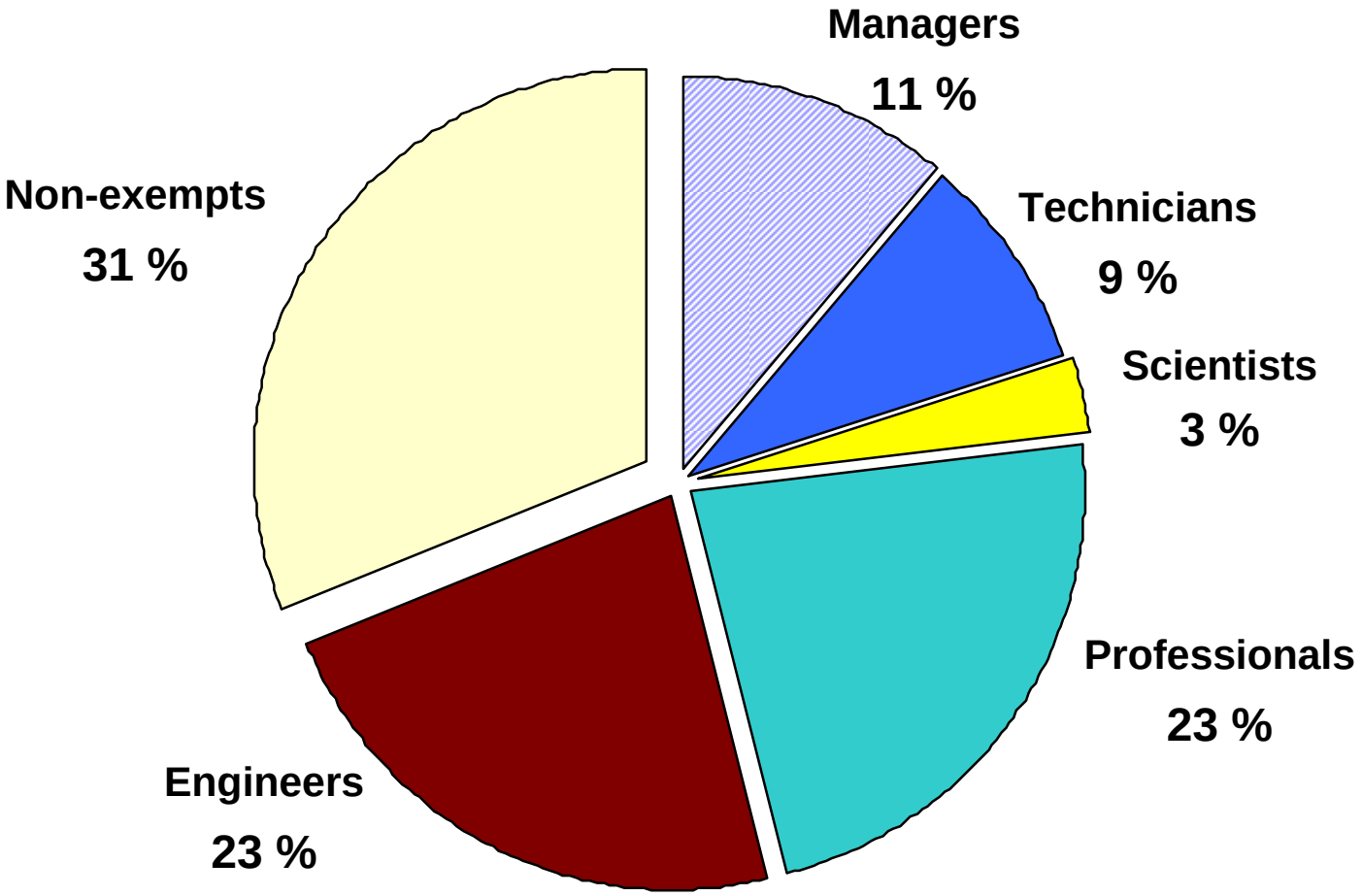
- **<u>Irradiation Capabilities (*not at SRS*)</u>:**
  - **Utilizes Tennessee Valley Authority reactor(s)**
  - **Targets now being irradiated at Watts Bar**
  - **Shipping via Legal-Weight Truck Cask**
- **<u>Extraction Capabilities</u>:**
  - **Cask handling**
  - **Target rod preparation**
  - **High temperature furnaces**
  - **Inert atmosphere gloveboxes & modules**
  - **Water cracking**
  - **Gas purification**

Contractor Staffing – FY05 Headcount



Average Headcount for FY05 = 1,574 FTEs

Contractor Staffing – FY05 Skills Mix



Direct & Direct Support to Defense Programs

Defense Program Challenges

- Tritium Extraction Facility Startup & Operations
- Safely operating a major nuclear facility
- Meet commitments within constrained budgets
- Production versus Closure
- Responsive Infrastructure
- Maintain critical skills

Nuclear Nonproliferation Projects

Sterling Franks, Director

Fissile Materials Disposition Office

Fissile Materials Disposition

Background

- **End of cold war brings arms reduction**
  - **Excess fissile materials accumulate in U.S. and Russia**
  - **Potential for theft by terrorists and rogue nations declared to be a "clear and present danger" by NSF**
- **U.S. commits to eliminate surplus fissile materials**
  - **Approximately 200 metric tons of fissile materials declared excess to defense needs**
  - **Material will never again be used to build a nuclear weapon**

Berlin Wall comes down -- 1989
End of Cold War

Nuclear Nonproliferation Program Goals

Objectives are national security and nonproliferation

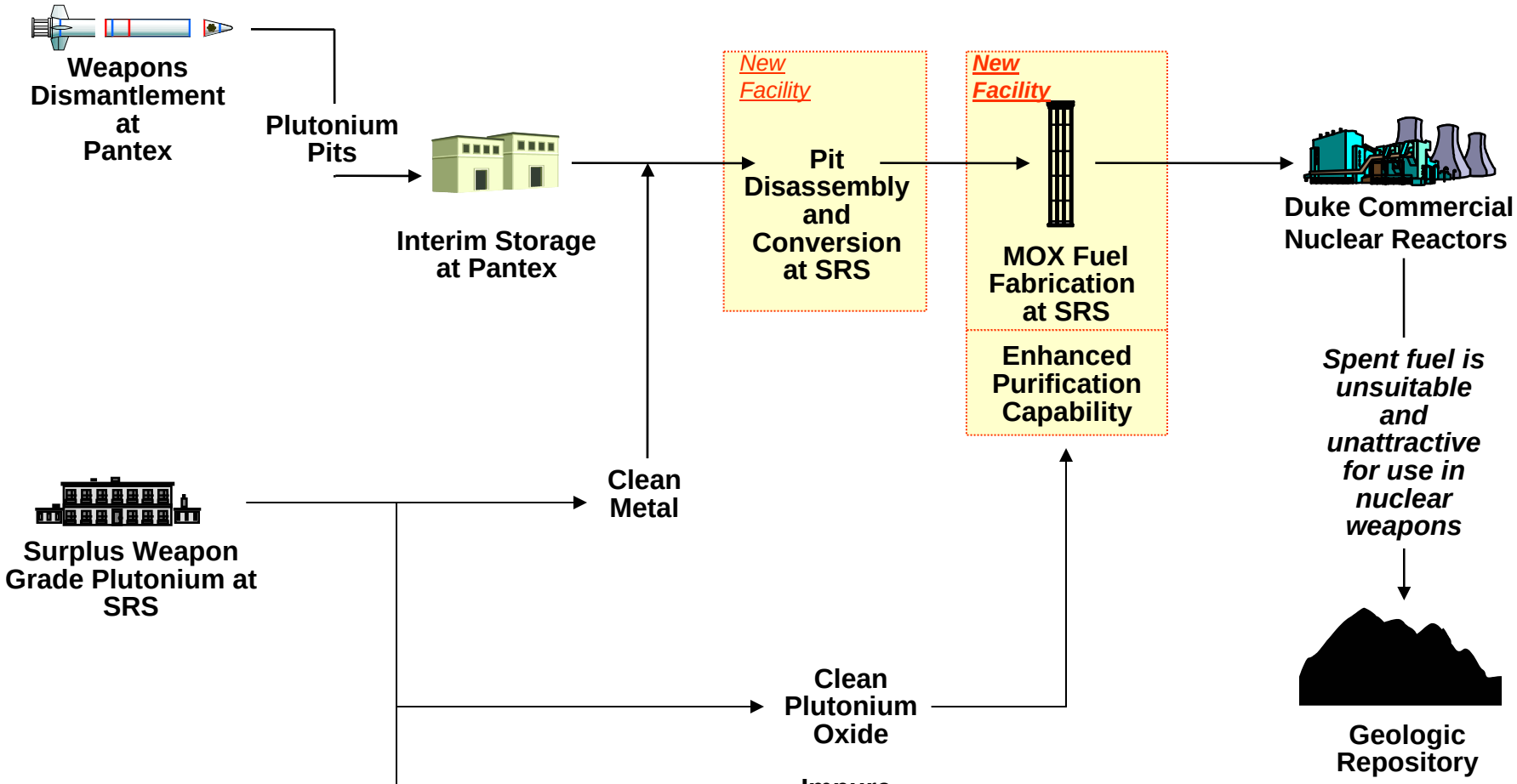
- **Dispose of surplus U.S. highly enriched uranium**
- **Dispose of 34 metric tons of surplus weapon-grade U.S. plutonium**
- **Work with Russia to dispose of 34 metric tons of surplus weapon-grade Russian plutonium**
- **Detect, prevent and reverse the proliferation of weapons of mass destruction, worldwide**

National Nuclear Security Administration

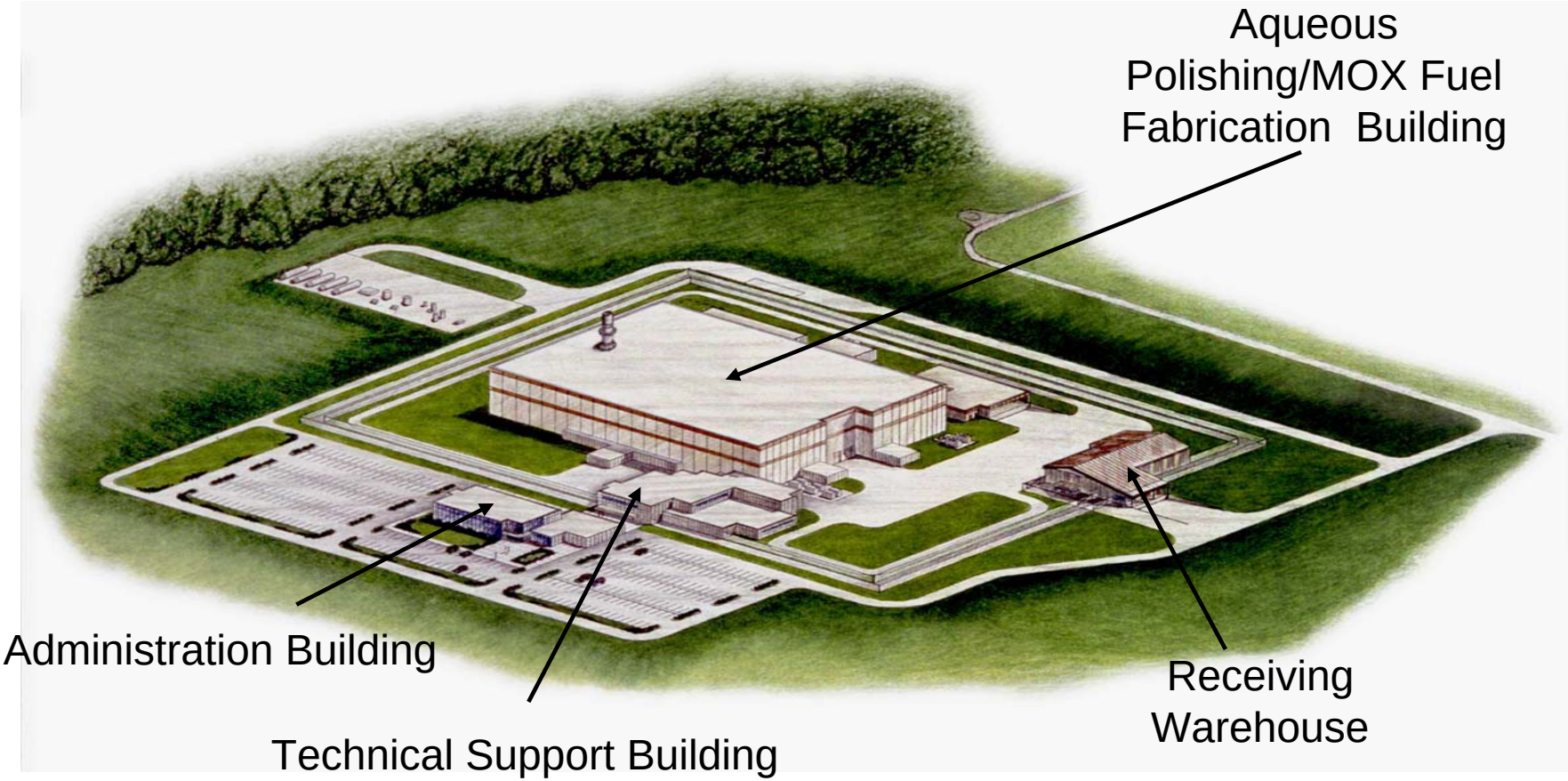
NNSA-NN Programs

- MOX Fuel Fabrication Facility
- Pit Disassembly and Conversion Facility
- Common Technologies
- International Programs
- HEU Blend Down
- Foreign Research Reactor Spent Fuel

Plutonium Disposition Strategy



MOX Fuel Fabrication Facility (MFFF)



Pit Disassembly and Conversion Facility (PDCF)

Pit Disassembly & Conversion Facility Project

Provides the capability to disassemble nuclear weapon pits and convert plutonium metal to an unclassified oxide form suitable for disposition (MOX feedstock)

Major Components:

- **Pit Disassembly and Conversion Facility (PDCF)**
- **PDCF Technical Training Module**
- **Surplus Pit Packaging**

Pit Disassembly and Conversion Facility (PDCF)

Key Program Challenges

- Facility design currently not finalized
- MOX project undergoing re-baselining
- Waste stream management is planned for a dedicated waste solidification building, but other options for using existing SRS site capabilities are being evaluated
- Progress contingent on parallel program in Russia
- MFFF reliant upon PDCF for feed material

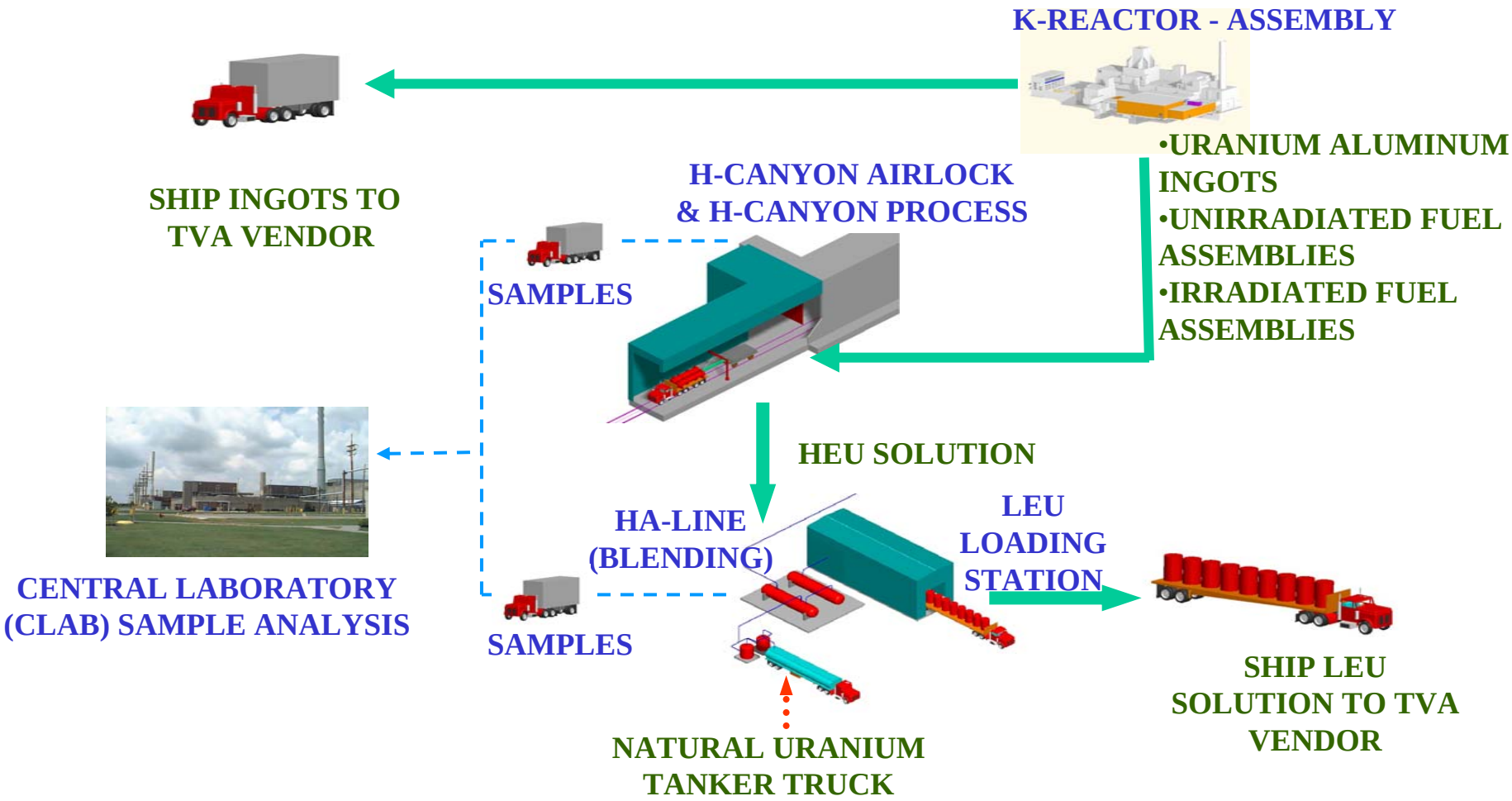
Highly Enriched Uranium (HEU) Blend Down

Off-Specification HEU Blend Down Program with TVA

- Off-spec fuel from SRS will be downblended to Low Enriched Uranium for peaceful use as nuclear fuel in TVA reactors
- HEU Blend Down Project construction modifications in H Canyon completed in 2003
- Blend down operations are underway
- Shipments to Tennessee Valley Authority are routine
- Program scheduled for completion in 2007

Shipping downblended LEU to TVA

SRS Off-Spec HEU Blend Down Activities



NNSA-NN International Programs

- Emergent Threats (NA-21/24)
- Global Initiatives for Proliferation Prevention (Nuclear Cities Initiatives) (NA-24)
- Russian Fuel Return Activities (Repatriation of Russian Fuel; Mobile Melt Dilute Project) (NA-21)
- Export Control (domestic and international) (NA-24)
- International Safeguards/Nuclear Noncompliance Verification (NA-24)

NNSA-NN International Programs

- Material Protection Control & Accounting Activities (Site Visits, Technical Support to Project Teams, HEU Downblend Monitoring, Megaports/ Second Line of Defense) (NA-25)
- Warhead Dismantlement and Transparency (Plutonium Production Reactor Agreement, US/UK Monitoring Collaborations) (NA-24)
- Detailees to HQ (Emergent Threats/Russian Fuel Return (NA-21)
- Emergency Management & Cooperation (Elimination of Weapons Grade Plutonium Production, European Cooperation/atmospheric modeling) (NA-23)

Foreign Research Reactor Spent Fuel Program

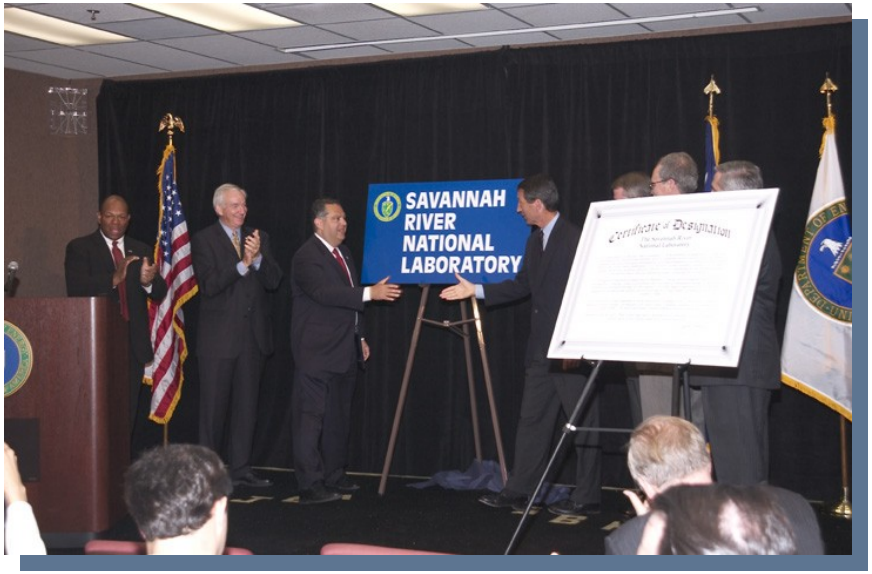
Spent Nuclear Fuel is loaded, shipped from foreign ports into Charleston, inspected, and shipped by land to SRS and Idaho

SAVANNAH RIVER NATIONAL LABORATORY

P. R. Jackson

Mission Summary

- To meet SRS and national science and technology needs
- To build technical capabilities to meet future need and future SRS missions
- To provide the R&D vital to the nation that can also stimulate the region's technology-based economy through partnerships and collaborations with regional universities and governments



Site Summary (2006)

- Total staff - 900
- Research staff – 752, 40% of research staff with advanced degrees
  - Chemists
  - Mechanical Engineers
  - Chemical Engineers
  - Metallurgical Engineers
  - Electrical Engineers
  - Nuclear Engineers
  - Other Engineers
  - Physicists
  - Biological Scientists
  - Math/Computer Scientists
  - Statisticians

Site Summary (2006)

- Upper 700-A Area (Technical Area)
  - 70 laboratories, office and storage facilities
  - 635,000 sq. ft. (includes 118,000 sq. ft. of radiological controlled space)

Site Summary (2006)

- Lower 700-A Area
  - Engineering, electronics and materials fabrication shops, metallographic facilities

Site Summary (2006)

- Savannah River Research Campus (leased from Aiken County)
  - Aiken County Technology Laboratory
  - Center for Hydrogen Research (late 2005)

Center for Hydrogen Research

Key Work Projects/ Accomplishments (2007-2011)

- Primary focus will be to provide laboratory and technical resources to support EM and NNSA to meet the science and technology needs of SRS
- SRNL will develop and implement innovative approaches and adopt practices that foster continuous improvement and efficiency in accomplishing SRS missions
- Only non-EM/NNSA revenue will be used to expand SRNL's non-EM/NNSA customer base

Key Work Projects/ Accomplishments (2007-2011)

- Liquid Radioactive Waste
  - Provide technical expertise to support waste retrieval, heel removal, and tank closure goals
  - Optimize performance for processing future sludge batches and implement melter improvements
- Soil and Groundwater (Area Closures)
  - Provide scientific basis to advance and integrate cost-effective enhanced and natural remedial approaches
  - Develop and implement technical strategies and technologies to achieve SRS permit requirements

Key Work Projects/ Accomplishments (2007-2011)

- D&D
  - Develop protocols for characterization and risk assessment
  - Provide technical assistance to accelerate SRS D&D schedule and reduce cost
- Solid Waste
  - Provide technical expertise to accelerate and lower cost of disposing of low-level waste streams
  - Provide characterization and deploy innovative stabilization technologies

Key Work Projects/ Accomplishments (2007-2011)

- Tritium for Defense Programs
  - Advance technology to support a cost effective infrastructure
  - Develop improved tritium processes
- Nuclear Materials Management, Storage and Disposition
  - Develop and implement programs to advance package development, transportation, storage and surveillance technologies
  - Develop and implement treatment technologies for nuclear materials

Key Work Projects/ Accomplishments (2007-2011)

- Spent Fuels Management, Storage and Disposition
  - Maintain technical expertise for aluminum clad fuels
  - Develop and implement treatment technologies for spent nuclear fuel
- Nuclear Nonproliferation
  - Provide leading-edge technology to detect and deter proliferation of weapons of mass destruction
  - Support NNSA-NN's International Programs

Key Work Projects/ Accomplishments (2007-2011)

- Homeland Security
  - Support training of Coast Guard agents
  - Support Department of Homeland Security export control and border protection activities
- Nuclear Forensics
  - Provide critical support facilities for FBI nuclear forensic analysis
  - Enhance support of FBI nuclear training needs

Key Work Projects/ Accomplishments (2007-2011)

- Defense Technologies
  - Leverage SRNL expertise in sensors, coatings, and hydrogen technology for Department of Defense applications
  - Provide rapid engineering responses to Combat Support Operations personnel to develop and deploy tools for U.S. ground forces

Key Work Projects/ Accomplishments (2007-2011)

- Hydrogen Technology
  - Develop strategic partnerships with industry, academia and other federal laboratories to promote hydrogen and fuel cell development programs
  - Team with industry to develop comprehensive hydrogen capabilities
- Nuclear Energy
  - Support nuclear training and research
  - Support nuclear education in South Carolina

Key Work Projects/ Accomplishments (2007-2011)

- SRNL will be expected to actively seek non-EM and NNSA funded activities to:
  - Foster new academic, industry, government, and international collaborations to produce the investment, programs and expertise to maintain and enhance national laboratory status.
  - Integrate the capabilities of industry and academia into the work of the laboratory
  - Provide support to potential new missions
  - Establish SRNL as a preferred partner for national and regional industry, universities, and other agencies in order to develop technologies to reduce the cost of accomplishing site work

Key Program Challenges

- Achieving financially self-sustaining operations
- Transition to a new Cognizant Secretarial Office that is better aligned with the evolving mission
- Establishment of a Laboratory Directed Research and Development program
- Maintaining key personnel and core competencies
- Obtaining infrastructure and capital equipment funding

Pre-Solicitation Exchange Meetings

Patty Bubar

Team Leader

Acquisition Integrated Project Team

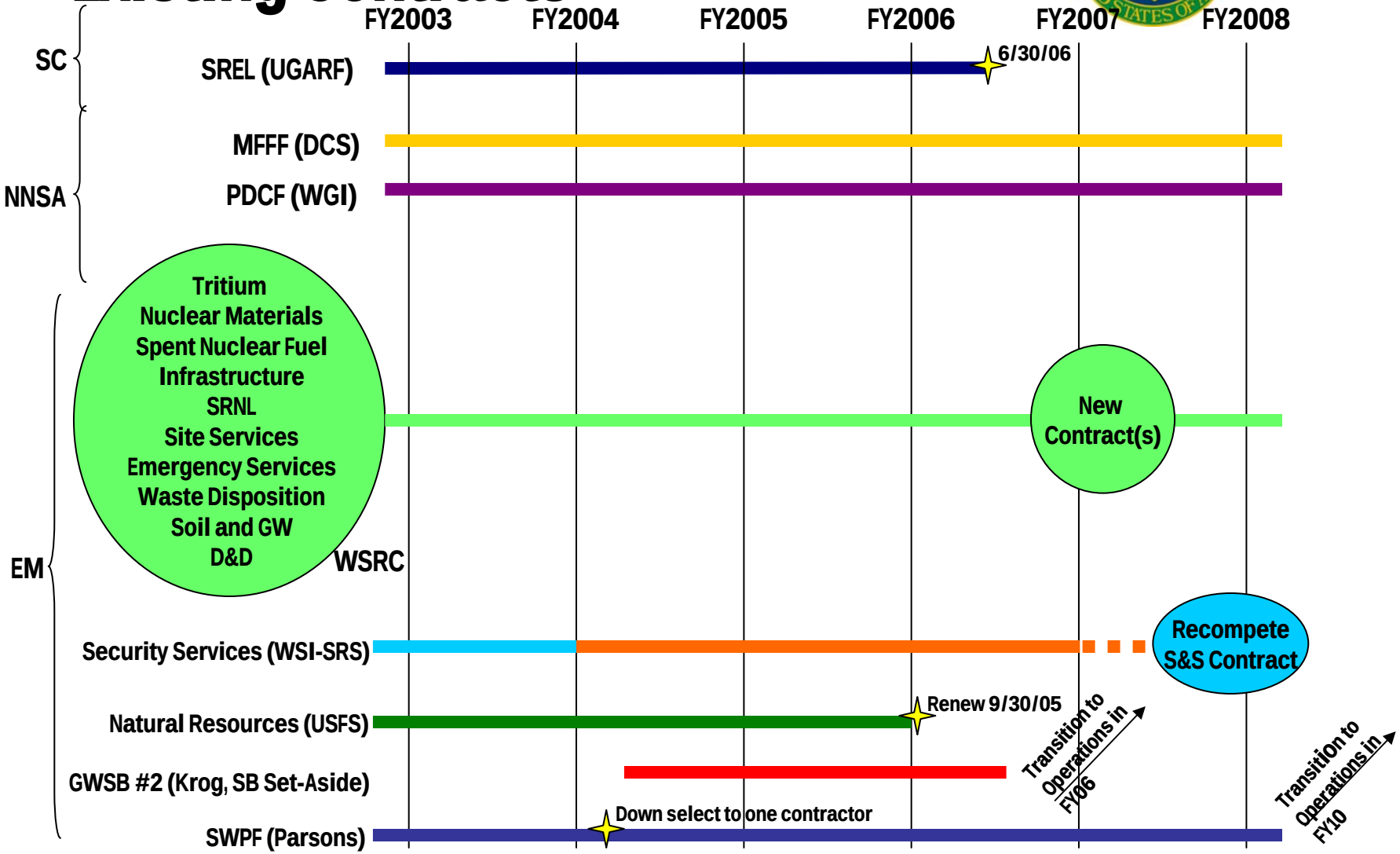
Logistics

- Begin July 18, 2005 in Forrestal Building, Washington DC
- Registration instructions provided in the RFI
- Registration must be complete by July 8
- Specific appointment time will be provided by July 13
- RFI point of contact is Scott Stephenson, 803-952-9298

Website Information

- The packages contained in the Documents Library website contain pre-decisional background information.
- This information is intended as a tool to define the overall context of the acquisition(s) and foster informed exchanges between the Government and industry.
- This information is not a part of a request for proposal(s).
- If there are any contradictions between the information provided and any subsequent request for proposal(s), the information in the request for proposal(s) will have precedence.
- This information shall not be relied on for purposes of preparing a proposal.

Existing Contracts



Acquisition Objectives

- **Proposed work packages and Acquisition Strategy Alternatives**
  - Increased technical and cost efficiencies
  - Potential multiple awards
  - Enhance competition and expand participation by small businesses
  - Must maintain safety and compliance emphasis
  - Must consider impacts to local community and stakeholder concerns
  - Where appropriate, establish Statement(s) of Work with deliverables or end states with minimal expected change

Structured Analysis of Work Packaging

- Risk Analysis
  - Performance risk
  - Technical risk
  - Regulatory risk

Work Packaging

- Work scope maturity and various components of risk are drivers for “packaging” decisions
- Work scope packages can be grouped for analysis of performance risk based on their relative maturity
  - Stand alone work
  - Well defined deliverables/end state
  - Broadly defined programmatic objectives
  - Infrastructure work
- Package work scope into groups that lead to use of most effective type of contract(s)
- Packaging is “notional” at this time

Discussion Questions

- Work Packages
- Performance Risk
- Infrastructure Allocation
- Contract Integration

Discussion Questions

- Cost Containment and Funding Variability
- Incentives
- Competition and Small Business Participation
- Options for Management of the SRNL

One-on-one Focus

- DOE and Industry opportunity to communicate and learn from each other prior to release of acquisition documents
- Two-way discussions during one-on-one meetings
- Refer to Section V of the RFI for specific instructions for pre-solicitation exchange protocol and instructions
- Emphasis is on the work, not acquisition details

Wrap Up

Patty Bubar

Team Leader

Acquisition Integrated Project Team

Next Step

- Thank you for your interest
- Major opportunity to improve communications and expand industry participation at SRS
- New questions/comments should be submitted via the website identified in the RFI. Answers will be posted as soon as possible.
- Need Pre-Solicitation Exchange Registration as stated in RFI
  - Be prepared to discuss topics in RFI.
  - Identify any information that is procurement sensitive.
- We look forward to one on one sessions