Savannah River Site

Large Scale Demonstration
&
Deployment Project

Mid Year Review

May 26, 1999

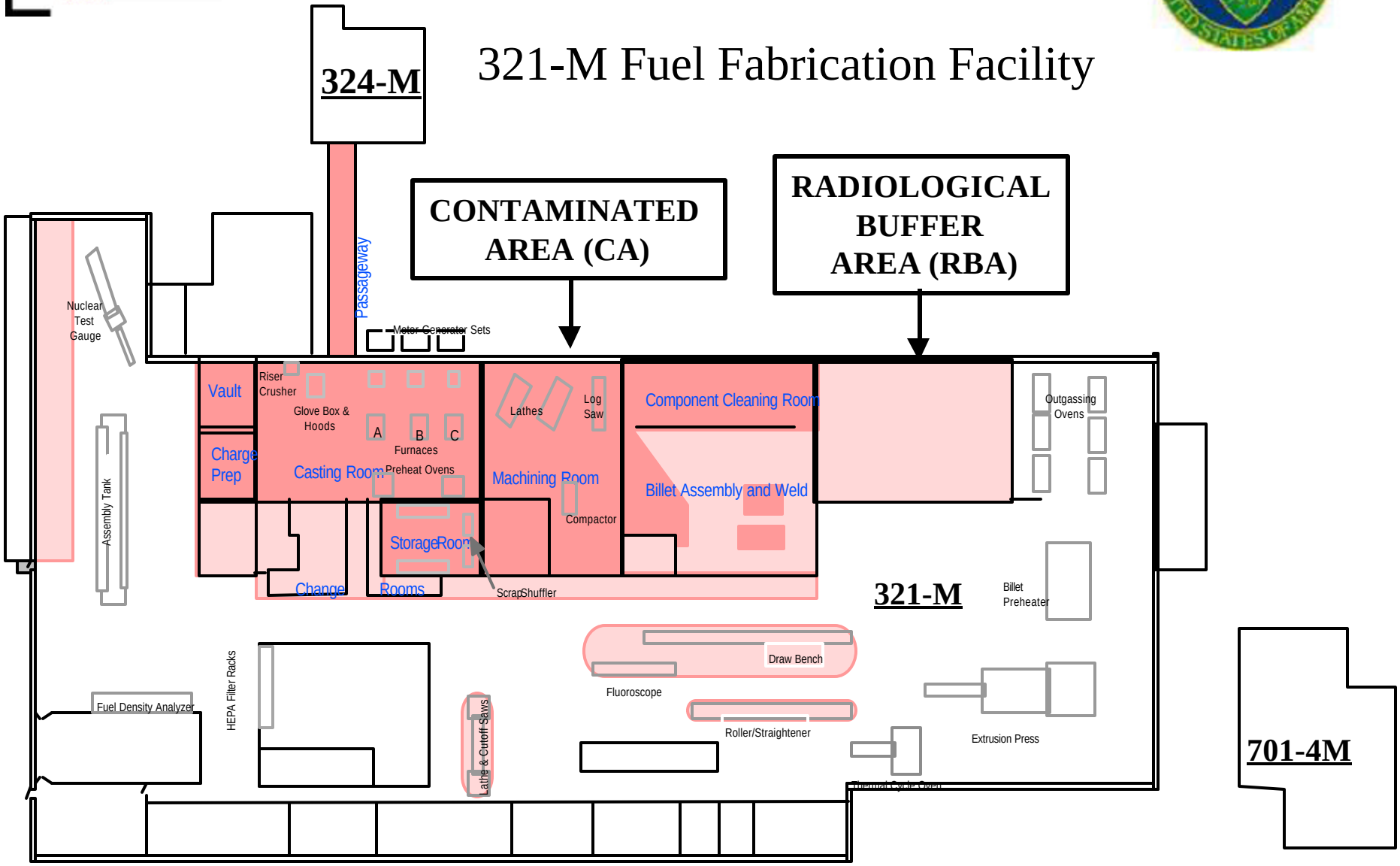
Savannah River Site
Large Scale Demonstration & Deployment Project
Mid Year Review

- John Pierpoint, Project Manger
  - 321-M Deactivation Project
  - Project Goals & Technical Approach
- Cecil May, Principal Investigator
  - Strippable Coatings
  - L-Rad
  - E-Perm
- Jeff Lee, Principal Investigator
  - X-Ray K-Edge
  - Size Reduction
  - Wrap up

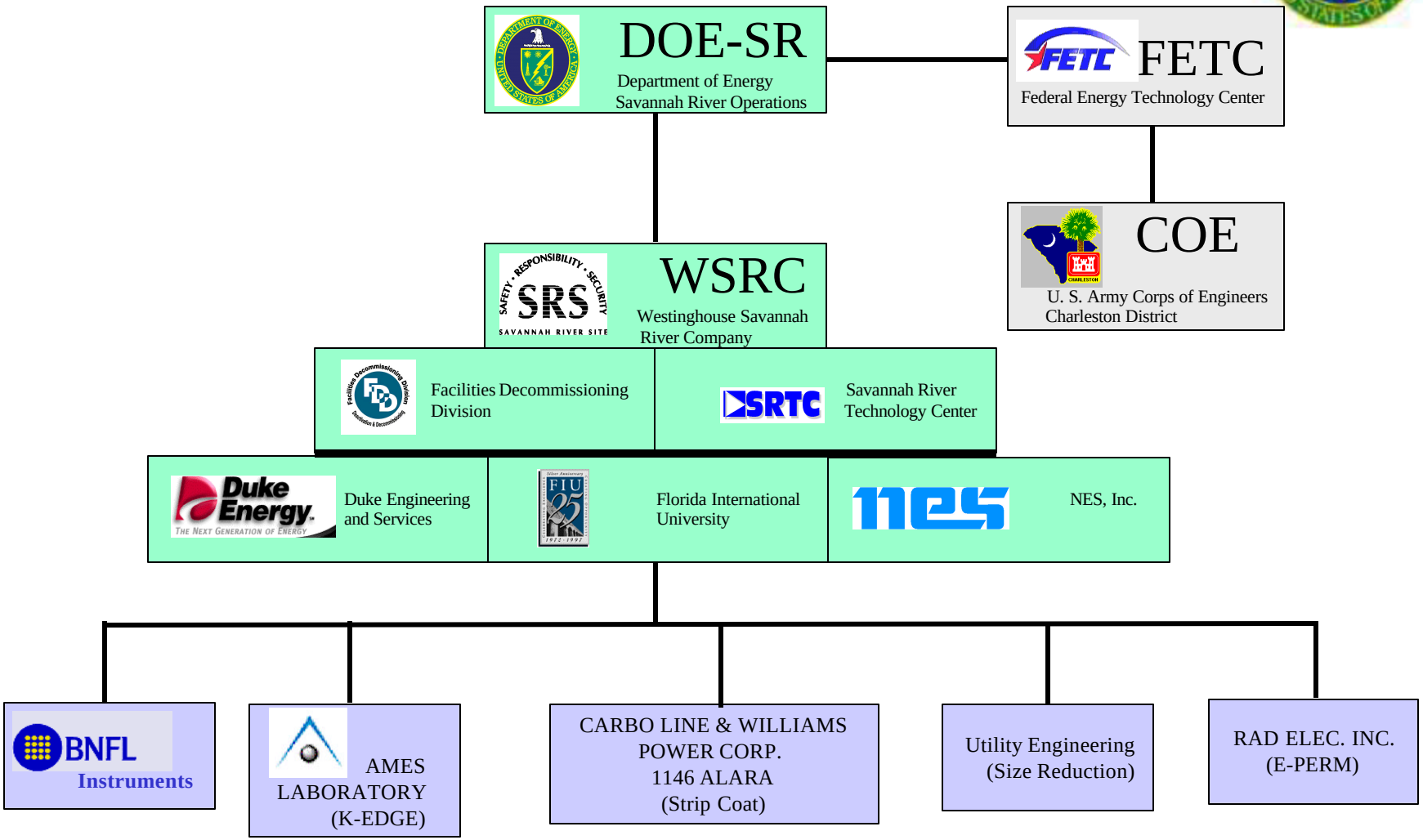
- Background of 321-M
  - Nuclear Fuel Fabrication Facility, made fuel elements consisting of highly enriched uranium (HEU) for SRS production reactors.
  - Built in 1956, shut down in 1995
  - 60,000 sq. ft. facility of which 9,000sq. Ft. is contaminated with alpha contamination
  - Goal of deactivation project is to place the facility into a long-term, low-cost safe storage condition.
    - Reduce radiological buffer areas
    - Remove most of the HEU
    - Stabilize remaining HEU
    - Reduce S&M costs
    - Reclassify Facility
    - No MC & A requirements

Savannah River Site
Large Scale Demonstration & Deployment Project
Mid Year Review

321-M Fuel Fabrication Facility



321-M Large Scale Demonstration & Deployment Project
Integrating Contractor Team Organization



Companies Selected for Technology Demonstrations

Savannah River Site
Large Scale Demonstration & Deployment Project
Mid Year Review

Goals

- Meet or exceed requirements as set forth in the Technical Task Plan (TTP #: SR-08-DD-21)
- Complete the LSDDP within the project's schedule and budget
- Safely integrate the five demonstrations/deployments into the 321-M Deactivation Project.

TTP Milestones

- Commence procurement process by 8/2/98, **COMPLETED**
- Begin a technology demonstration by 11/15/98, **COMPLETED**
- Complete five (5) field demonstrations by 9/30/99 (**3 COMPLETED TO DATE**), on schedule to complete remaining 2
- Issue all ITSR's by 12/31/99, **ON SCHEDULE**

TIMELINE FOR EACH TECHNOLOGY

PHASE 1 - Technology Identification, Assessment, and Selection.

PHASE 2 - Procurement and Other Steps to Start Demonstrations.

PHASE 3 - Technology Demonstrations; Collect Data on Baseline Versus Innovative technologies.

PHASE 4 - Preparation of Innovative Technology Summary Reports (ITSRs) and Final Project Report.

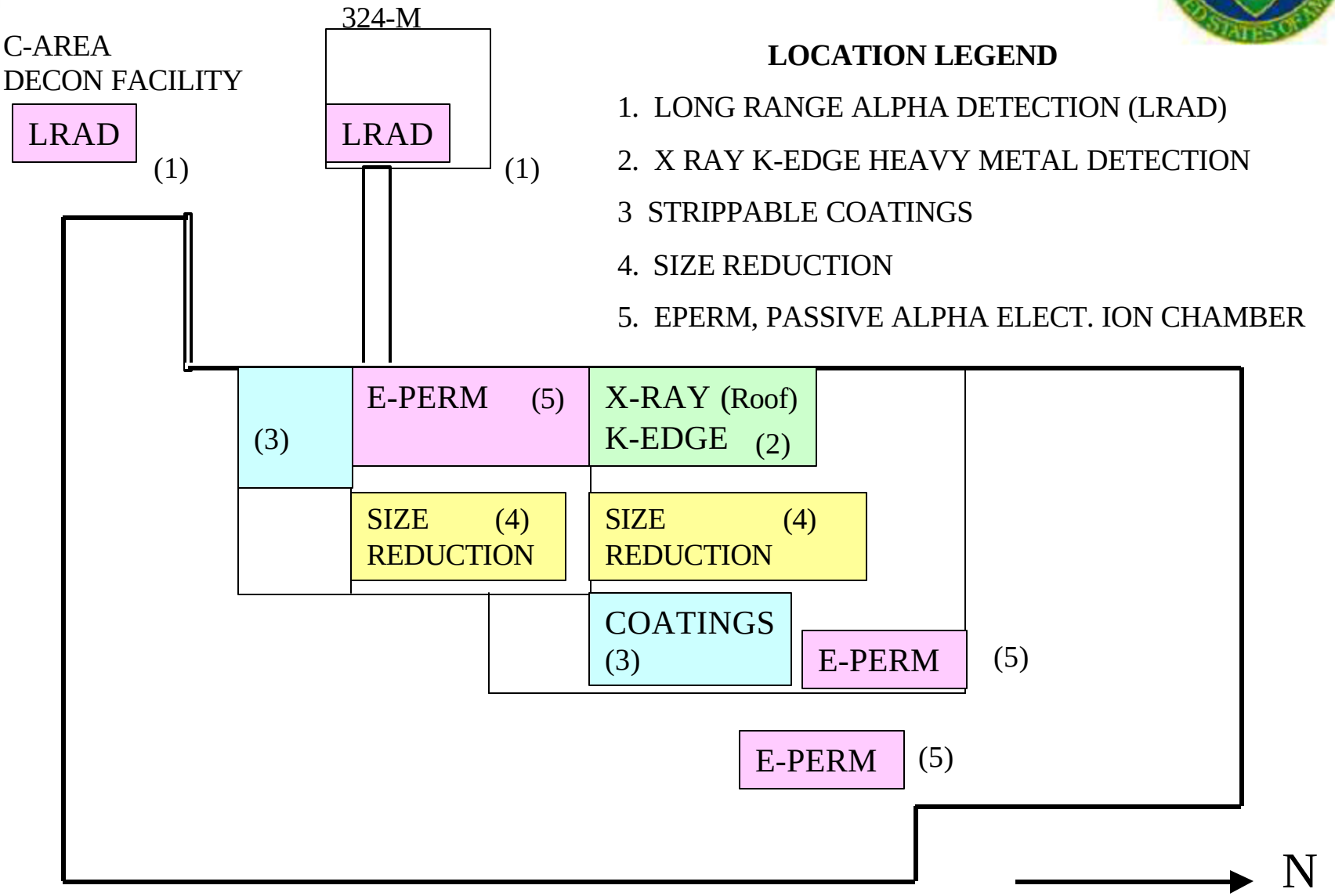
Scope

1) **LRAD -** Long Range Alpha Detection using an electronic monitor called IonSens. Tested hundreds of small shipping tubes, hand tools and aluminum slugs, against the conventional probe smear technique.
2) **Strippable Coating -** Tested six coatings and selected one for large scale testing. Demonstrated one strippable coating against the Kelly Vac (steam cleaner w/vacuum shrouded head) for the baseline.
3) **X-Ray K-Edge -** Took 132 of readings on exhaust duct known to have HEU holdup. Compared X-Ray K-Edge readings to data collected using a sodium iodine hand held detector.

Scope

4) **EPERM -** Alpha Electret ionization chamber will be used to perform grid radiation surveys to verify contamination levels and validate the effectiveness of RBA roll back efforts.
5) **Size Reduction -** Deployment of a tool platform that takes the weight of the tool (shear) off the operator. Compare this to heavy hand-held cutting equipment (ie. Porta-band saw, hand held shears) and the use of scaffold for items above normal reach.

Savannah River Site
Large Scale Demonstration & Deployment Project
Mid Year Review

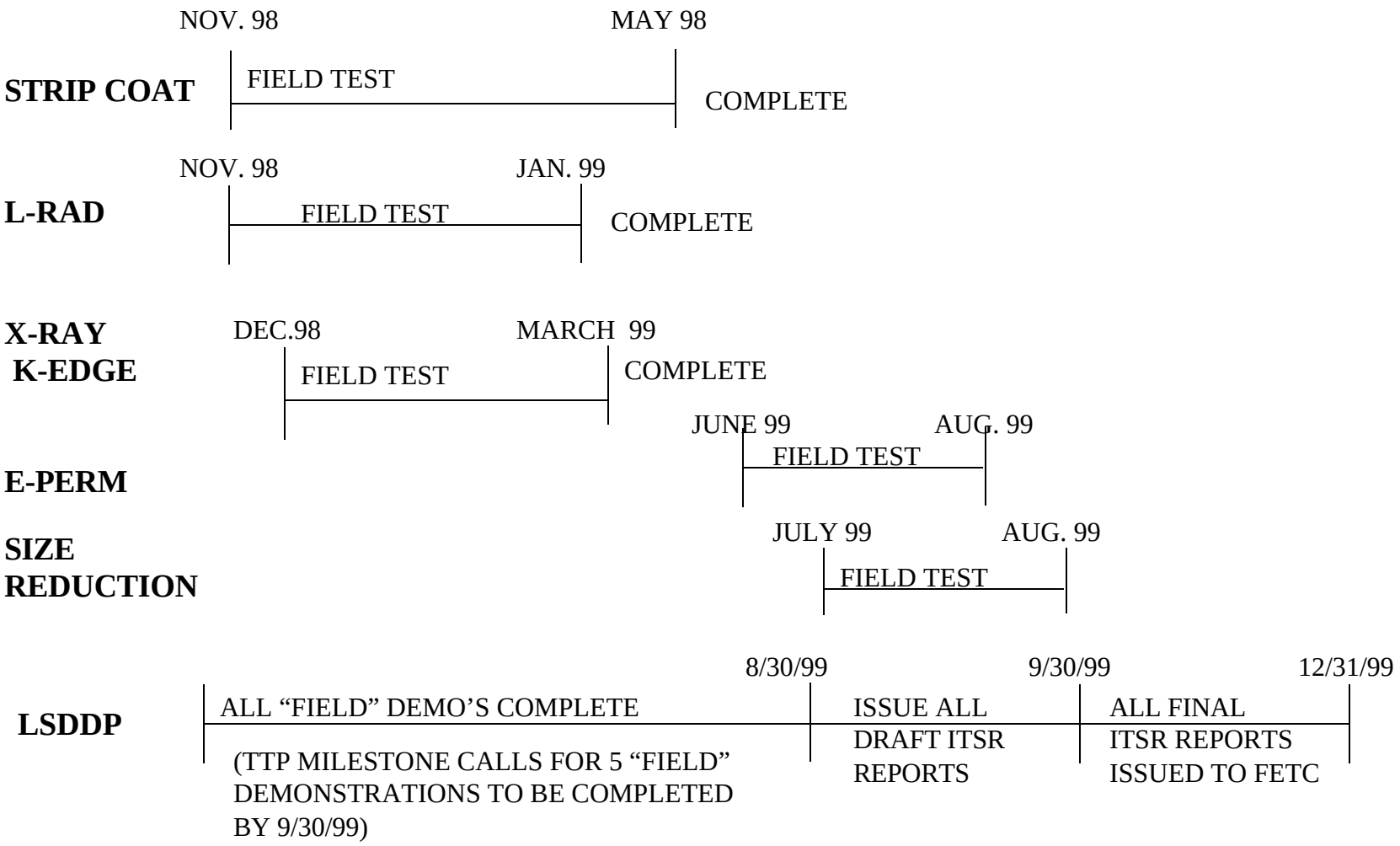


LOCATION LEGEND

1. LONG RANGE ALPHA DETECTION (LRAD)
2. X RAY K-EDGE HEAVY METAL DETECTION
3 STRIPPABLE COATINGS
4. SIZE REDUCTION
5. EPERM, PASSIVE ALPHA ELECT. ION CHAMBER

Savannah River Site
Large Scale Demonstration & Deployment Project
Mid Year Review

SUMMARY SCHEDULE



Savannah River Site
Large Scale Demonstration & Deployment Project
Mid Year Review

	COST THRU MARCH 99	COST TO COMPLETE	TOTAL COST
1) LRAD	$90,834	$9,088	$99,922
2) STRIPPABLE COATING	$45,267	$30,772	$76,039
3) ASBESTOS	$7,282	$0	$7,282
4) K-EDGE	$145,197	$54,035	$199,232
5) E-PERM	$17,192	$38,799	$55,991
6) SIZE REDUCTION	$2,846	$201,132	$203,978
7) TSV	$13,654	$0	$13,654
8) ICT EXPENSE	$67,976	$130,207	$198,183
9) FDD LABOR	$295,745	$39,255	$335,000
10) SRTC D&D FOCUS GP	$10,647	$0	$10,647
11) OTHER COSTS	$37,408	$7,592	$45,000
12) PROJECT SUPPORT	$31,554	$43,518	$75,072
TOTAL	$765,602	$554,398	$1,320,000

	FY98	FY98	FY99	FY99	FY00	TOTAL
FUNDING	$360K	$46K	$966,392	69,000	$60,000	$1,320,000

TECHNOLOGY SELECTION

- 90 technologies were presented to the ICT team for possible selection through the "Screening Process"
- Box Counter, Cutting and A braiding Technology (ZAWCAD), Laser Induced Breakdown Spectroscopy (LIBS), Cool Suit and a Critical Safe Vacuum Cleaner were pursued for a short time (money spent) researching their viability. Charges for these efforts were collected under FDD Engineering.
- Two more technologies were actively being pursue, Asbestos Neutralization and Thermal Spray Vitrification but were discontinued due to budget constraints.

BUDGET

- Original Budget was $1,205,000
- Addition of $46,000 from another TTP (CORPEX) that was cancelled
- Addition of $69,000 from another TTP(Stainless Steel Reuse, 14-DD-51) that was also cancelled
- NEW BUDGET $1,320,000

Communication of Results:

- Documenting technology selection on tech. screening form
- Pre-demonstration fact sheet prepared for each technology
- Post demonstration fact sheets prepared for each technology
- Held media day at SRS for LSDDP (TV and newspaper reporters attended, made TV news & article in paper)
- Present paper at Waste Management Conference in March 99
- WEB page created
- Publication of project in trade journal “Demolition & Environmental Contractor.