Area Completion Project Update

A Presentation to the SRS Citizens Advisory Board

May 20, 2008

Presentation By
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Agenda

- Project Performance
- Project Status
- Remedial Technology Utilization
- FFA Appendix E

Acronyms

CMP	Chemicals, Metals, and Pesticides Pits
CY	Current Year
D&D	Deactivation and Decommissioning
DNAPL	Dense Non Aqueous Phase Liquids
DOE	Department of Energy
EPA	Environmental Protection Agency
ERH	Electrical Resistance Heating
FFA	Federal Facility Agreement
Ft^2	Square Feet
FY	Fiscal Year
M&O	Management and Operations
MWMF	Mixed Waste Management Facility
PCBs	Polychlorinated Biphenyls
RA	Remedial Action
RI/FS	Remedial Investigation / Feasibility Study
ROD	Record of Decision
SCDHEC	South Carolina Department of Health and Environmental Control
SGP	Soils and Groundwater Program
SRS	Savannah River Site
TCE/PCE	Trichloroethylene / Tetrachloroethylene
VOCs	Volatile Organic Compounds

Project Performance

Project Performance

- Consistently met all 2,025 FFA milestones since 1993
  - 59 in FY 08
- Maintaining a strong relationship with regulators
- Have completed 360 of 515 waste units (70%)
  - 22 in FY 08
- Have dispositioned 246 of 985 Performance Metric facilities (25%)
  - 229 industrial, 10 nuclear, 7 radioactive
  - 1 industrial facility in FY 08

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Project Performance

- Area Completion Strategy started FY 05 significantly reducing project cost and schedule
- 14 Groundwater Plumes
  - 12 active remediation systems
- Developing and utilizing efficient, cost-effective technologies
  - Edible Oils for Microbes
  - Electrical Resistance Heating
  - Phytoremediation
  - Silver Injection
  - Hydraulic Fracturing

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Area Completion Strategy

- A systematic approach to completing cleanup work integrating D&D and SGP scope
- Historical process:
  - Did not focus on any single area
  - Evaluated each waste unit individually with much paperwork and higher costs
  - Did not address D&D facilities
- Today's process:
  - Addresses large groupings of waste units and facilities in a geographic area
  - Integrates D&D / SGP cleanup
  - Area End States can be determined
  - Economies of scale in sampling, remediation, and documentation

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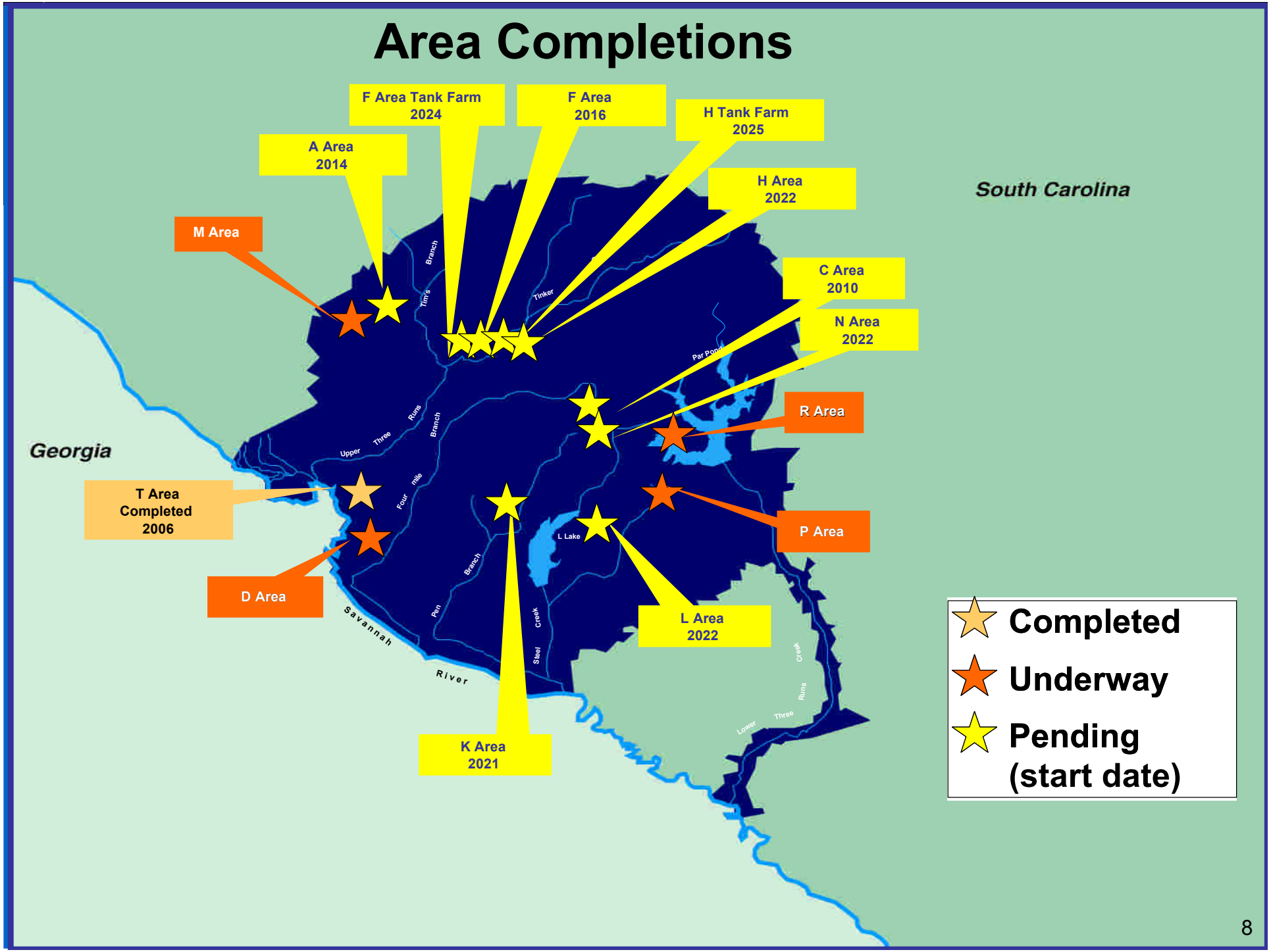
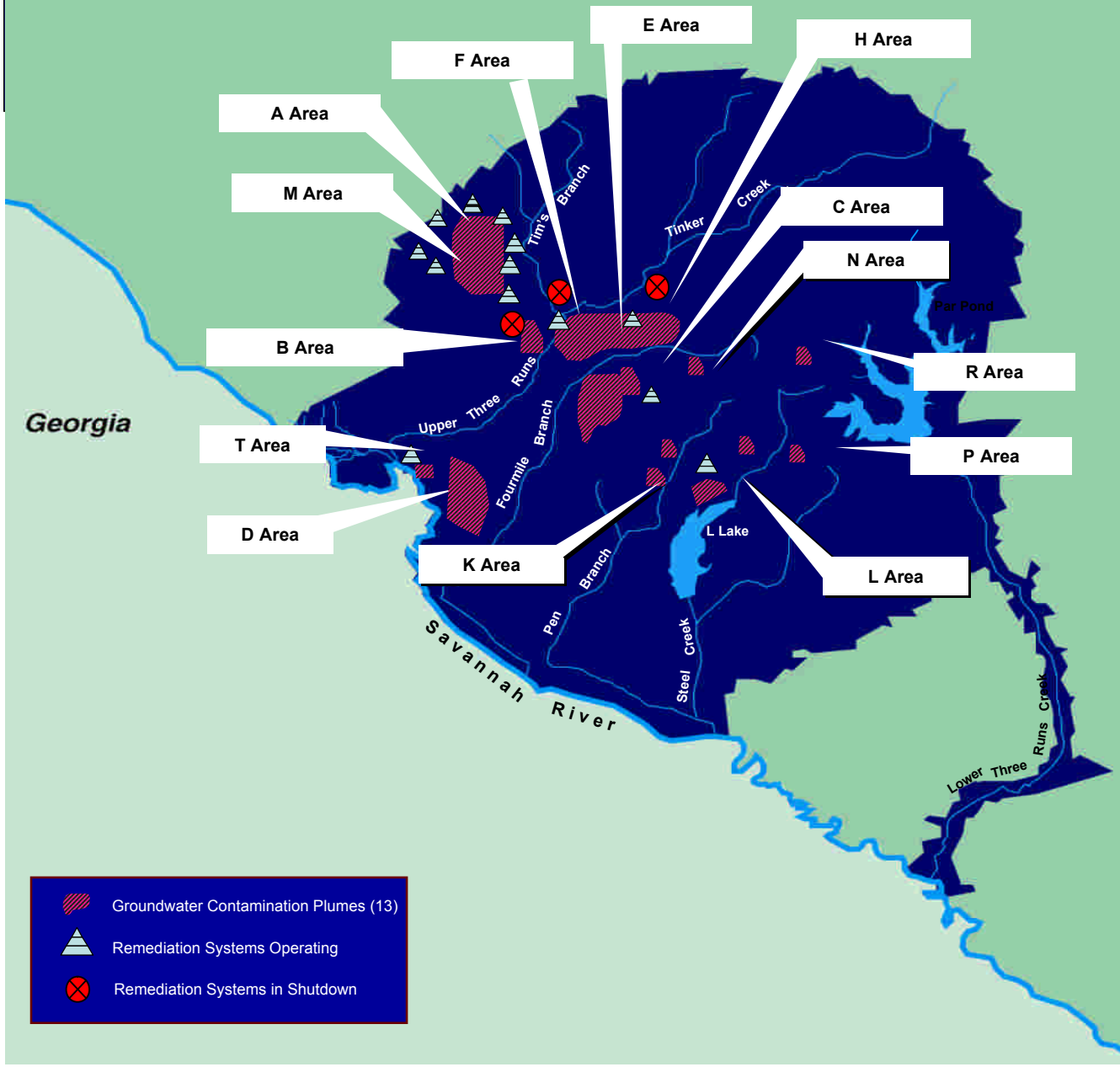
Area Completions



Groundwater Plumes



14 Groundwater Contamination Plumes
A/M, B, C, D, E, F, G, H, K, L, N, P, R, T Areas

12 Active Remediation Systems
2 Airstrippers, 2 Recirculation, Dynamic Underground Stripping, 4 Soil Vapor Extraction Units (A/M Areas)
Base Injection (F&H Waste Management Facility)
Electrical Resistance Heating (Chemical, Metals, & Pesticides Pits)
Phytoremediation (Mixed Waste Management Facility)

8 Enhanced Systems
Baroballs (A/M, Miscellaneous Chemical Basin, P Burning Rubble Pit)
Microblowers (A and C Burning Rubble Pits)
Barrier walls (F&H Waste Management Facility)
T Area Edible Oil Treatment

6 Passive Systems
Monitored Natural Attenuation (Chemical, Metals, & Pesticides Pits; D Oil Seepage Basin; R Reactor Seepage Basin; K and L Burning Rubble Pits, Sanitary Landfill)

3 Systems In Shutdown
Biosparge (Sanitary Landfill)
Groundwater Waste Treatment Units (F&H)

11 Systems Pending

Groundwater Contamination Plumes (13)
Remediation Systems Operating
Remediation Systems in Shutdown

Dispositioned 246 Performance Metric Facilities

thru March 2008

A Area
35 facilities

B Area
4 facilities

C Area
11 facilities

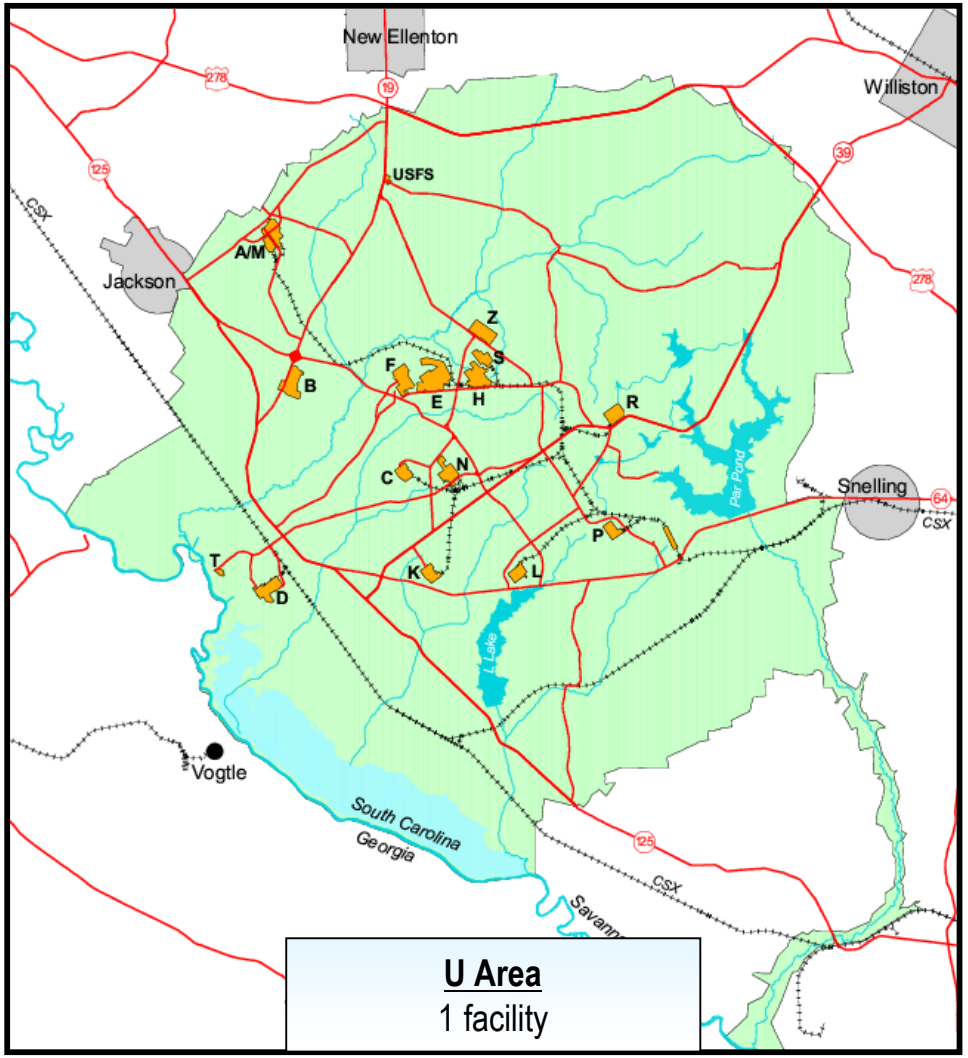
D Area
23 facilities

E Area
3 facilities

F Area
48 facilities

G Area (General)
5 facilities

H Area
3 facilities



U Area
1 facility

K Area
11 facilities

L Area
11 facilities

M Area
24 facilities

N Area
9 facilities

P Area
21 facilities

R Area
8 facilities

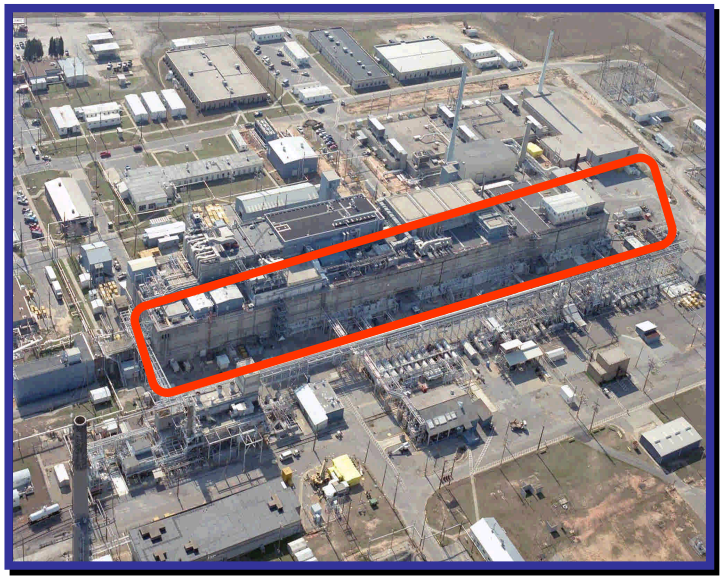
S Area
2 facilities

T Area
27 facilities

Project Status

F Canyon Outside Facilities Dispositioning

- Started 2004; Scheduled for 2008 completion
- Outside facilities: Chemical Storage Area; Water Handling Area; Acid Recovery Unit; Recycle Sump; General Purpose Evaporator; GP Tank Storage Area; 800-series Underground Tank Storage Cells; Segregated Solvent Area; 360 linear feet of Over Head Pipe Bridge with associated piping
- During deactivation the following was accomplished:
  - More than five miles of process piping removed
  - 50 large chemical and waste tanks removed / disposed
  - Hazardous, Low Level, Mixed, and Transuranic Wastes removed
  - Concrete caps being placed over rad contaminated tanks



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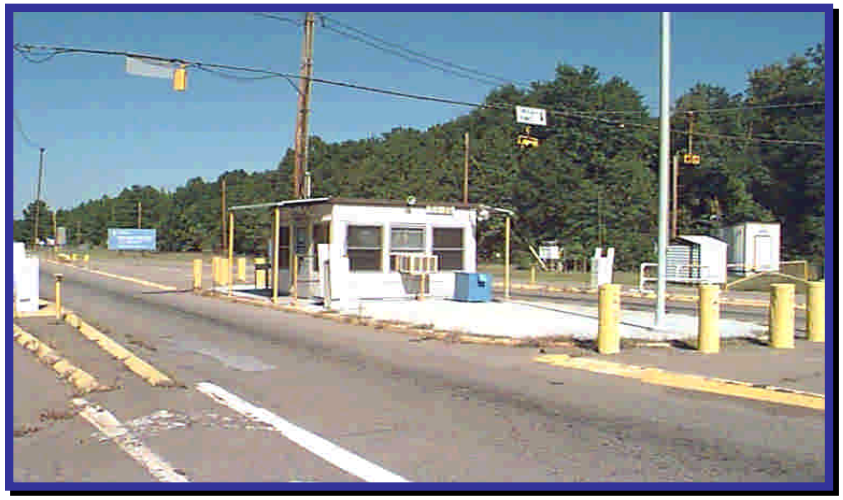
Allendale Barricade Dispositioning



- Removal of safety concern on public Highway 125
- Started January 2007; Completed October 2007

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M Area Completion

2nd Area Completion

- Started 2003; Scheduled for 2011 completion
- D&D completed in 2006
  - Removed 24 M-Area Performance Metric facilities
- Early cleanup actions implemented to remove radioactive and VOC contamination in soil by 2008
- Proposed Plan will be available for public comment in May 2008

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P Area Completion

3rd Area completion (1st Reactor to be Dispositioned)

- Started 2005; scheduled for 2014 completion
- 21 of 25 Performance Metric facilities decommissioned
- D&D activities to support Area Completion:
  - Installed temporary power, lighting and communications
  - Established Electrical and Mechanical Cold and Dark
  - Implemented Habitability Plan
  - Characterized reactor vessel and facility
  - Removed moderator from the process water system and prepared reactor decommissioning alternatives study
  - Performing deactivation activities (removal of asbestos, lead, PCBs, mold)

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P Area Completion

- **End State Proposal / Early Actions**
  - In situ decommissioning of P Reactor which means that a significant portion of the reactor building will remain in place
  - In May / June 2008, the Early Action Proposed Plan will be issued for a 45-day public review and comment
  - Issue Early Action ROD FY 09
- **Public Involvement Activities in response to CAB recommendation #248:**
  - October 16th, 2007 - Aiken, SC
  - February 28th, 2008 - Aiken, SC
  - May 19th, 2008 - Savannah, GA

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R Area Completion

4th Area completion (2nd Reactor to be Dispositioned)

- Started 2007; Scheduled for 2015 Completion
- 8 of 12 Performance Metric facilities decommissioned
- D&D activities to support Area Completion:
  - Removed water from disassembly basin
  - Installing Temporary Power, lighting, and communications
  - Establishing Mechanical Cold and Dark
  - Characterized Reactor Vessel and Reactor facility
- Work Plan being revised to include reactor building and reactor vessel

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Remediation Technology Utilization

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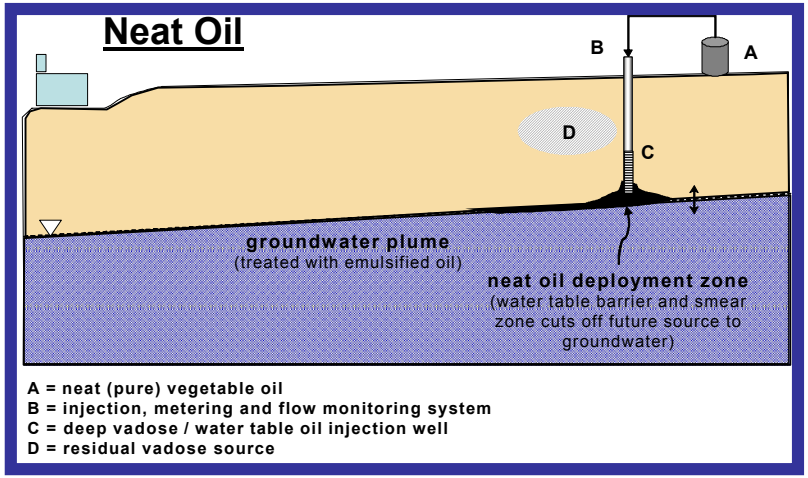
Edible Oils for Microbes

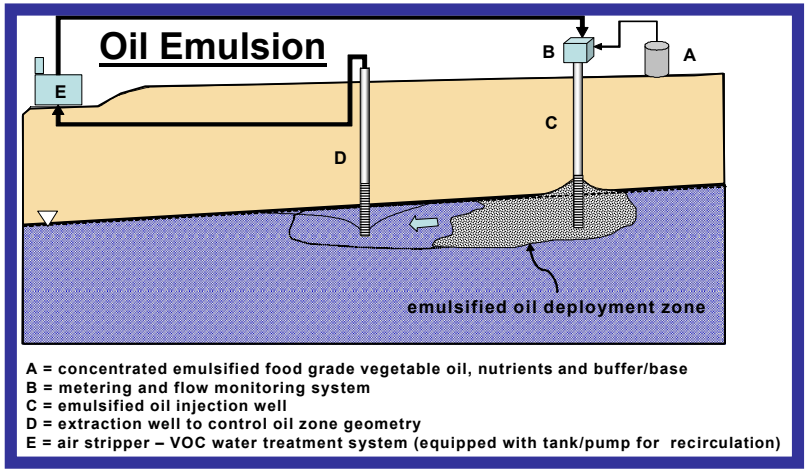
Background

- T Area has a small persistent TCE/PCE plume which is managed with Pump and Treat (airstripper) since 1996
  - Approximately $1M/year M&O costs
  - At a point of diminishing returns

New Strategy

- Use Edible Oil injection techniques to sequester and biologically destroy the VOCs
  - Inject Neat Edible Oil to sequester VOCs (vadose zone source)
  - Inject Edible Oil emulsion (food source) to promote microbial activity and reducing conditions in groundwater (reductive dechlorination)
  - Anticipate results in less than six months
  - Discontinue use of airstripper





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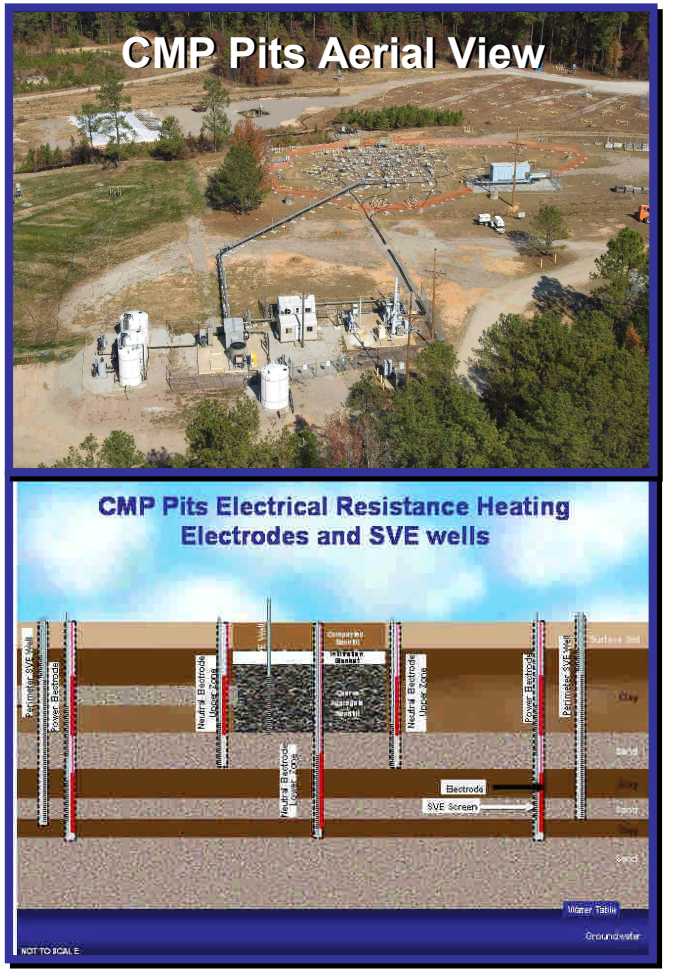
Chemicals, Metals, & Pesticides (CMP) Pits Electrical Resistance Heating

- ERH is a soil treatment technology used to remediate solvent contamination in subsurface soils
- CMP is second deployment of ERH technology at SRS
- Electrodes inserted into the subsurface heat the soil to transform liquid solvents into gas phase
- The contaminants are subsequently removed using soil vapor extraction
- Full-scale ERH operations began March 2008
  - Estimate removal to be approximately 5,000 pounds
  - Redeployed mobile equipment utilized in 2007 at C Reactor



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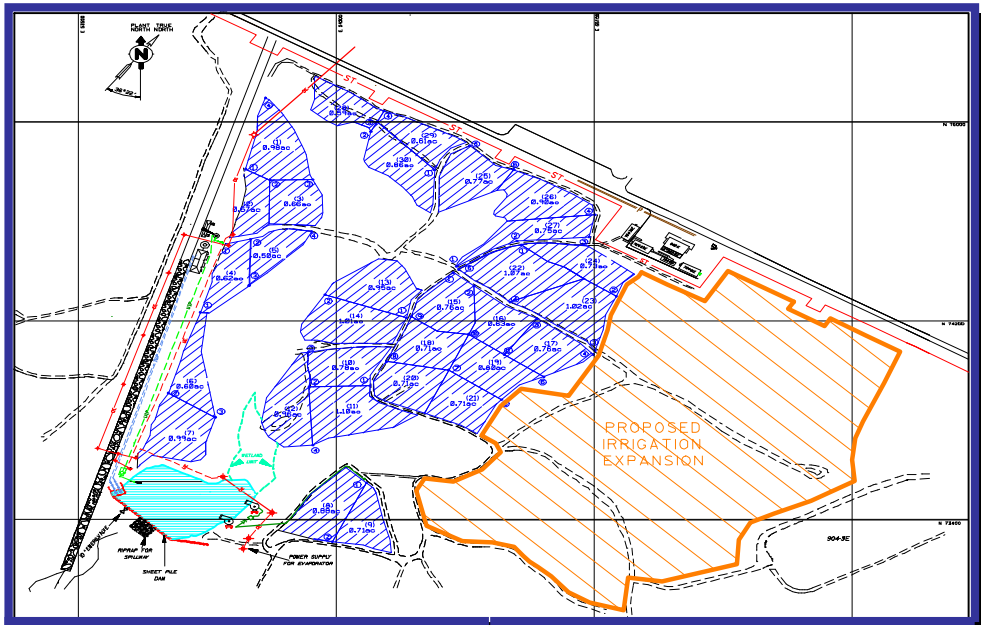
MWMF Phytoremediation Upgrades




MWMF - New Supply Pumps


MWMF - Inside Control Room

- MWMF Phytoremediation – captures tritium contaminated groundwater in 2.7 million gallon pond and irrigates on 22 acres of pine trees for transpiration
- About 70% annual tritium reduction (from 1,500 - 2,000 curies to 450 curies) to Fourmile Branch
- SRS has expanded and upgraded system
  - Added 22 acres of pine trees (need 50 more acres)
  - Increased capacity of irrigation supply and distribution system by two times

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Silver Injection

- F / H Seeplines
  - RCRA Permit
  - Iodine 129 concentration elevated
  - Bench scale testing using silver injection with positive results; pilot scale testing underway; well network being installed
  - Regulators approved 5-year milestone extension to 2012 to allow pilot scale testing
  - Could greatly reduce cost from $85M (barrier wall and cap) to $1M operating cost per year

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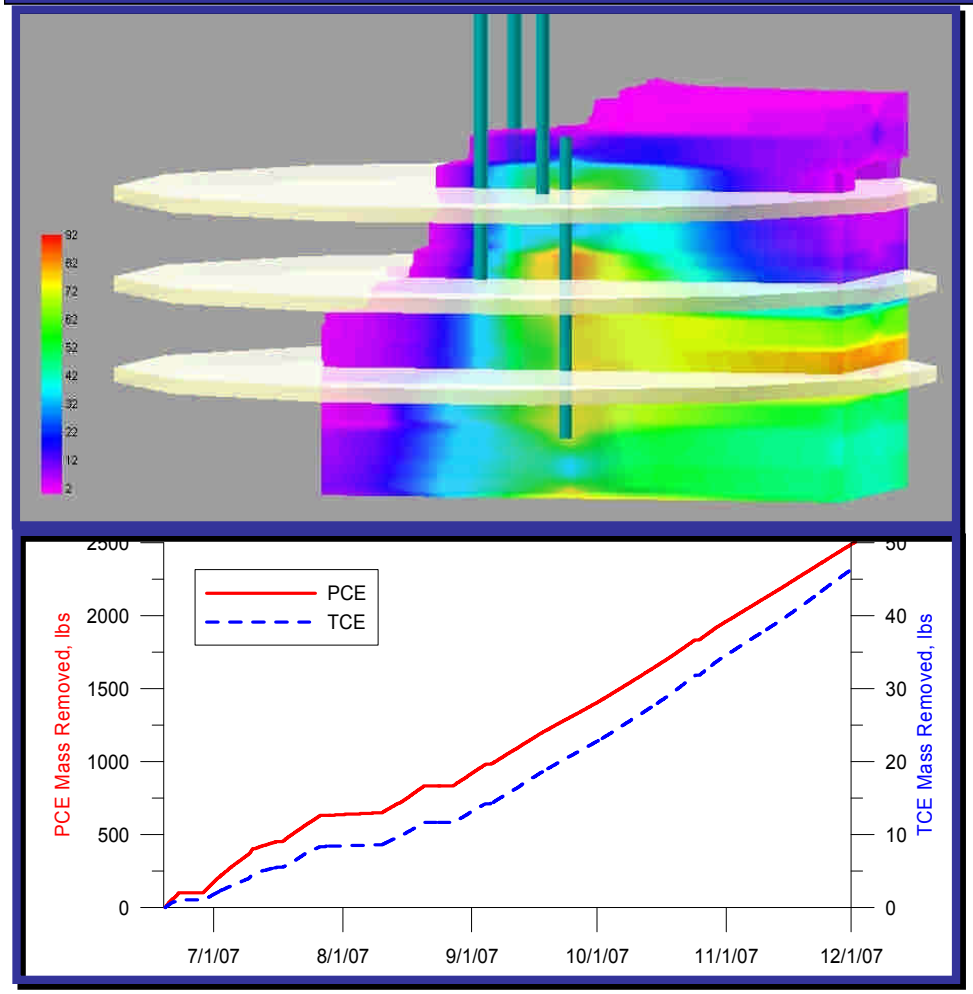
Hydraulic Fracturing to Help DNAPL Treatment



- DNAPL in silts and clays provide long-term source of groundwater contamination
- Hydraulic fracturing opens up these tight soil to allow treatment
- At A-014 Outfall, high vacuum soil vapor extraction is removing 100 pounds per week of PCE and TCE from shallow subsurface

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FFA Appendix E

FFA Appendix E

- Provides a lifecycle list of waste unit outyear cleanup milestones
  - First two outyears are enforceable milestones (comprehensive list)
  - Rest of outyear milestones include Field Starts, RODs, RA Starts
- Updated annually in November and regulator approval required
- SCDHEC and EPA approved FY 08 Appendix E on February 21, 2008

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Summary

- Continue to work with regulators to evolve processes and fieldwork
- Continue deployment of effective, cost-efficient technologies

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Questions and Answers

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