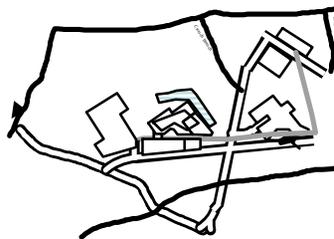
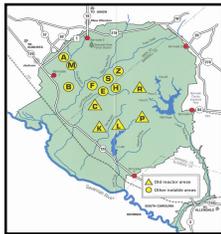




Presentation to EPA Concerning the Off-Site Rule



**Helen Belencan, DOE-SR
Howard Pope, DOE-SR
Sonny Goldston, WSRC
Brenda Hays, DOE-SR**

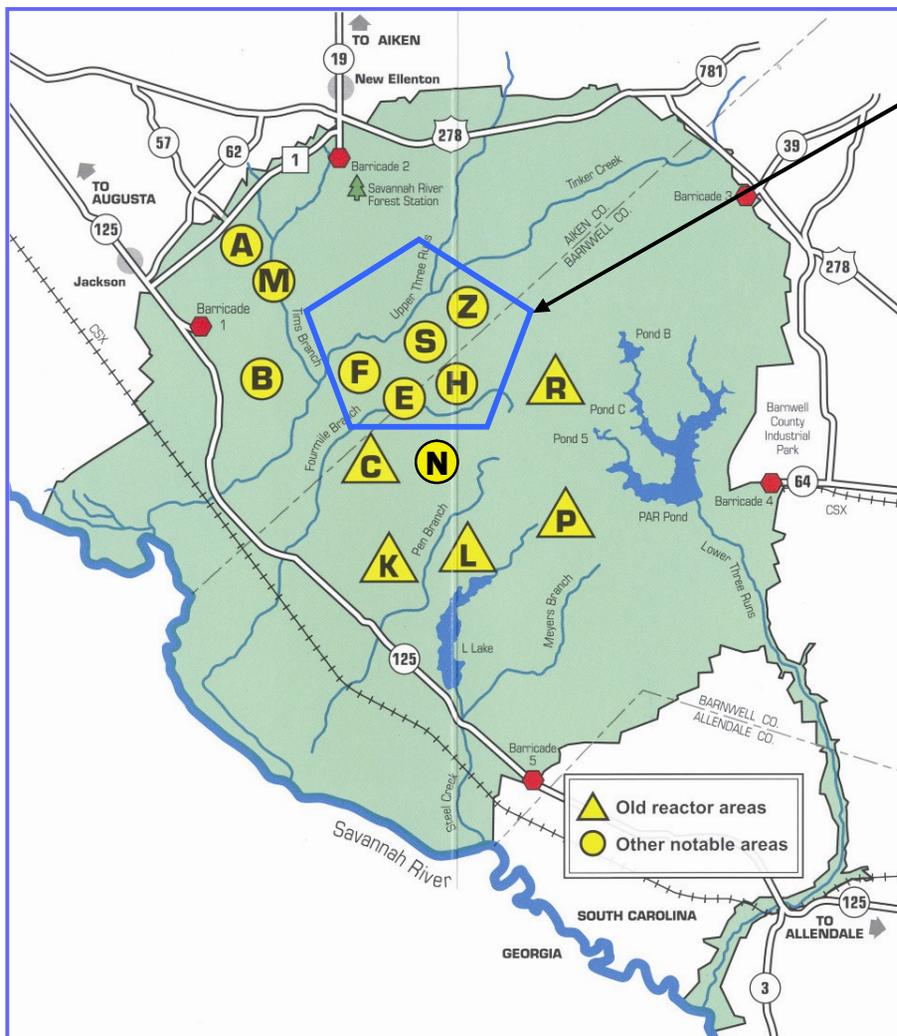
March 22, 2007

Establish the basis for *acceptability* of all CERCLA Off-Site Rule Units impacted by EPA's February 16, 2007 "Notice of Unacceptability" letter

Approach

- **Present information to clarify the current status of the affected units, including impacts if their off-site acceptability is not restored**
- **Present information specifically regarding the E-Area Slit Trenches to establish the following:**
 - **The facility operation is permitted under a Federal program that does not pose a threat to human health and the environment**
 - **There has not been a release beyond the facility boundary**
 - **If a release has occurred**
 - **It is not environmentally significant**
 - **It is controlled by an agreement**

Location of SRS Facilities with Off Site Rule Approval



General Separations Area

- E, F, H, S and Z-Areas

E-Area

- Mixed Waste Treatment and Storage
- Low Level Waste Facility
- Low Activity Waste Vault
- Slit Trenches
- TRU Pads

H-Area

- Effluent Treatment Facility

M-Area

- M-1 Stripper

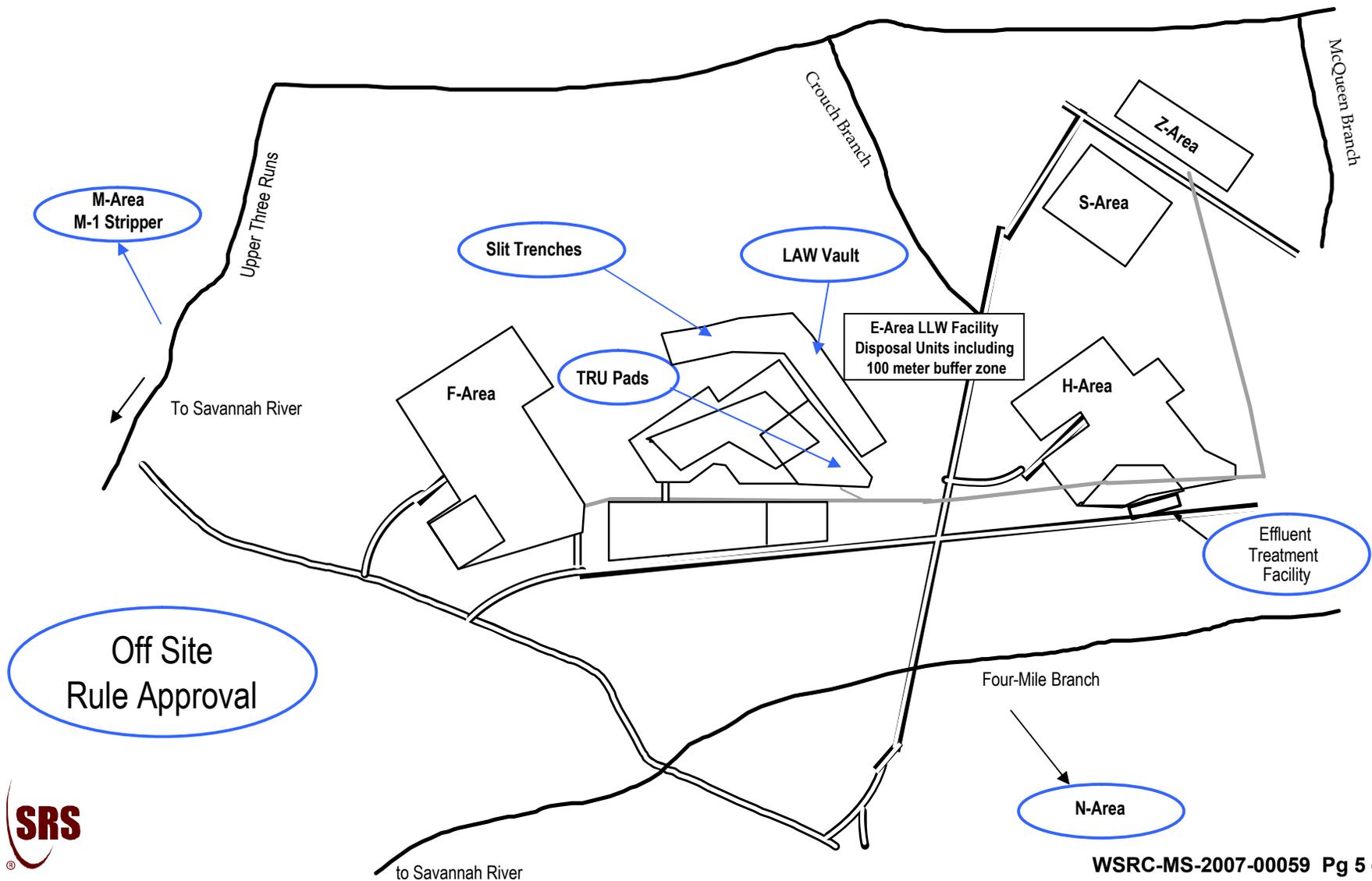
N-Area

- Hazardous and Mixed Waste Treatment and Storage

Units no longer needed

- Reactor seepage basins (K, P, R)
- 741-1N PCB Storage Building

Location of SRS Facilities with Off Site Rule Approval



Rationale for Restoration of Off-Site Rule Approval

- **M-1 Air Stripper**
 - RCRA permit: **SCDHEC Inspection 7/25-7/28/06 No Deficiencies**
 - Clean Water Act and Industrial Wastewater Permit: **SCDHEC NPDES Inspection 10/2-10/12/06 Satisfactory**
 - Clean Air Act permit: **SCDHEC Inspection 6/19/06 No Deficiencies**
 - 610-gpm air stripper that is part of the M-Area Hazardous Waste Management Facility (HWMF) and Metallurgical Laboratory HWMF groundwater corrective action for solvent contaminated groundwater.
 - This unit is several miles from E-Area and has no relationship to the alleged release.

- **Impacts**
 - CERCLA groundwater actions generate water that is treated at the M-1 Air Stripper and would have to shut down.
 - Cost: \$16K/year

Rationale for Restoration of Offsite Rule Approval

- **F&H Effluent Treatment Facility (ETF)**
 - Clean Water Act and Industrial Wastewater Permit: **SCDHEC NPDES Inspection 10/2-10/12/06 Satisfactory**
 - Wastewater treatment facility that treats low level radioactive Wastewater from SRS sources. ETF removes chemical and radioactive contaminants from water prior to discharge.
 - This unit is several miles from E-Area and has no relationship to the alleged release.

- **Impacts**
 - CERCLA groundwater actions generate water that is treated at the ETF and would have to shut down.
 - Cost: \$40K/year



Rationale for Restoration of Offsite Rule Approval

▪ E-Area TRU Pads

– Pads 3-6, 7-13, 14-19

- RCRA permit: **SCDHEC Inspection 7/25-7/28/06 No Deficiencies**
- Transuranic (TRU) waste storage pads located in the 643-7E Burial Ground. Pads provide storage for mixed waste, including mixed TRU and mixed low level waste. The containers include carbon steel drums, galvanized steel drums, drums in concrete culverts, boxes and casks

– Pads 23-24 (not RCRA permitted)

- TRU waste only, no mixed waste storage planned
- The TRU Pads are not involved in LLW disposal and have no relationship to the alleged release

▪ Impacts

- Loss of flexibility to store and repackage current inventory of TRU CERCLA wastes from other sites prior to shipment to WIPP.
- Loss of ability to support ongoing and future SRS D&D projects which will generate CERCLA TRU and CERCLA mixed TRU.
 - Would require 90 day shipment of any newly generated CERCLA TRU waste; inconsistent with shipping schedule
- Cost: Near Term ~\$200K, Life Cycle TBD



Rationale for Restoration of Offsite Rule Approval

- **Storage Buildings 643-29E, 643-43E, 645-N, 645-2N, 645-4N, Storage Pads 1,2,3**
 - RCRA permit: **SCDHEC Inspection 7/25-7/28/06 No Deficiencies**
 - The Storage Buildings are curbed, concrete pads with metal building enclosures containing HW/MW for treatment and storage. Designed to prevent release of any liquids and pads are sloped to drain into large sumps. Wastes are stored in approved containers, generally 55 gallon drums, large steel boxes and concrete casks if necessary.
 - The Storage Pads are open paved storage areas covered by a roof. The wastes are containerized with no free liquids
 - These units are storage facilities not related to the alleged release.

- **Impacts**
 - Loss of ability to support ongoing and future SRS D&D projects which will generate CERCLA hazardous and CERCLA mixed low level waste.
 - Cost: Included in TRU Pad estimate

Rationale for Restoration of Offsite Rule Approval

- **E-Area Vaults and Slit Trenches**

- Atomic Energy Act of 1954 as amended, DOE Oversight, **No Deficiencies**
- These units are part of the E-Area Low Level Waste Facility authorized under the Atomic Energy Act. The approved Performance Assessment for the E-Area LLWF establishes a compliance point at the facility boundary that is protective of human health and the environment. The design of the facility and waste acceptance criteria ensure that it operates in compliance with its PA. DOE-HQ monitors its performance and status. As such this facility is permitted under a Federal program.

- **Impacts**

- Loss of ability to support ongoing and future SRS D&D projects which will generate CERCLA low level waste.
- Cost: Near Term ~ \$2.5M, Life Cycle ~\$200M



Low Activity Waste Vaults



- **Operations began in 1994 at a capital cost of \$20M**
- **145' wide X 643' long X 27' high**
 - **12 cells, each holds 1,000 B-25s (1.2m X 1.2m X 1.8m box)**
 - **Capacity of 1.7 million ft³ or 47.6K m³**
- **Robust construction**
 - **Wall/floor is approximately 2 feet thick reinforced concrete**
 - **Vault roof is also a reinforced concrete slab supported on pre-cast concrete beams**
 - **Sump per every 2 cells with sampling and analysis capability**
 - **Vault integrity study shows vault is durable for ~3000 years**

Approach

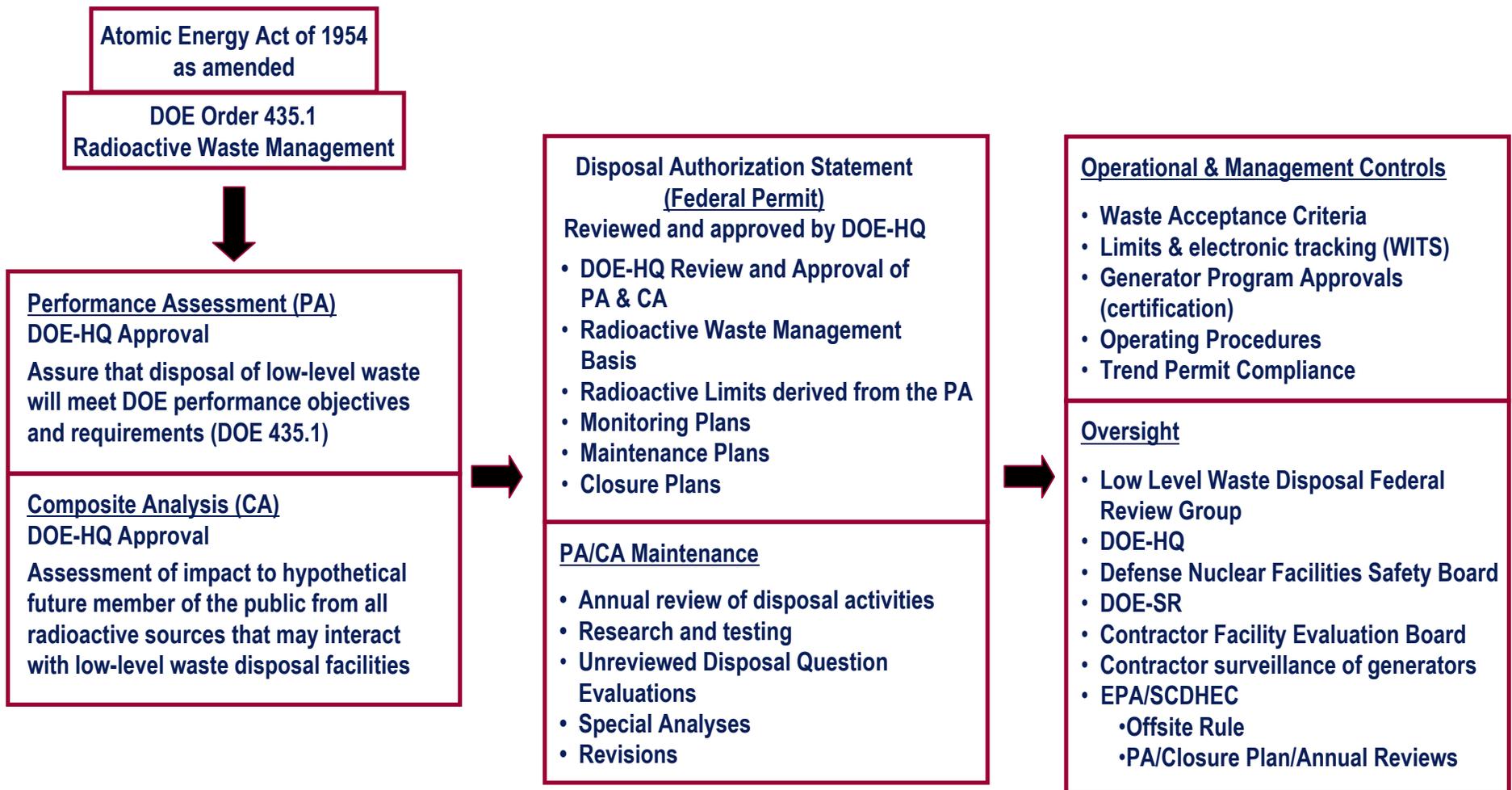
- Present information to clarify the current status of the affected units, including impacts if their off-site acceptability is not restored
- **Present information specifically regarding the E-Area Slit Trenches to establish the following:**
 - **The facility operation is permitted under a Federal program that does not pose a threat to human health and the environment**
 - There has not been a release beyond the facility boundary
 - If a release has occurred
 - It is not environmentally significant
 - It is controlled by an agreement

Slit Trenches



- **Began operations in 1995 and EPA approved for CERCLA waste in 1996; PA provided, design is the same as today**
- **5 individual trenches = 1 Slit Trench Disposal Unit**
- **Each trench is 20' x 20' x 650', ~18,000 m³ capacity (top 1.2m backfill)**
- **A Slit trench is a unit in the E-Area LLWF. The disposal unit includes the soil underneath the trench, the soil around the trench and the 100 meter buffer zone.**
- **14 vadose zone monitoring wells / slit trench each of which has ~5 sampling points (~70 sampling points total)**

Technical and Regulatory Basis for DOE Authorization of Low-Level Waste Disposal



LLW Disposal: DOE-SR Approval, Control and Oversight of the Federally Permitted Contractor Operation

- **DOE Approval, Evaluation and Trending**
 - Performance Assessment
 - Special Analyses
 - Monitoring Plan
 - Closure Plan
 - Annual Review
 - Maintenance Plan
 - Waste Acceptance Criteria
 - Unreviewed Disposal Questions
 - Radionuclide limits
 - Safety Analysis Report limits
 - Waste Form Requirements

- **Two DOE Facility Representatives**
 - Continuous field review of operations and controls

- **DOE Evaluation/Trending of LLW Program performance**
 - Operations within PA Envelope
 - Waste Generator Certification Program
 - Monthly program evaluations



Operational Control

- **Waste Acceptance Criteria (WAC)**
 - Radionuclide PA limits, Safety Analysis Report (SAR) limits, waste form and packaging requirements that generators must meet
- **Generator Program Certification Approval**
 - Program and procedures approval
 - Generator Certification Official (GCO) training and certification
 - Program surveillance (independent and self assessments)
- **Waste Information Tracking System (WITS)**
 - Radionuclide inventory limits from the PA are managed through computerized WITS
 - WITS compares package contents with WAC container limits, and total disposal unit inventory to ensure compliance with PA derived limits using the sum-of-fractions technique
- **UDQ (Unreviewed Disposal Question)**
 - Evaluates changes in disposal system against PA envelope
 - Approval by senior contractor representatives
 - May result in Special Analysis
- **Continuous Improvement**
 - Solid Waste Management Committee
 - Lessons Learned
 - Site wide and complex wide



Performance Assessment Monitoring

- **Vadose Zone Monitoring (Operational FY99)**
 - **Verification of model parameters**
 - **Early warning system to ensure compliance or take appropriate corrective action**
 - **Ensures Drinking Water Standard Maximum Contaminant Levels (MCLs) are met at 100 meter point of compliance**
 - **Monitor semi-annually in accordance with Federal Permit**
 - **Remain in compliance with Federal Permit**

Migration of Tritium from Trench is Controlled

- **Performance Assessment (PA) provides disposal limits**
 - **Limit: 2 curies tritium/slit trench**
 - **Measuring less than background**
- **In compliance with Disposal Authorization Statement (Federal permit)**
- **Waste receipts are controlled to ensure limits are not exceeded**
- **Therefore, migration is controlled to ensure that EPA Safe Drinking Water Act MCLs are not exceeded**

Disposal of LLW in Unlined Trenches is Consistent with National and International Practices

- **Nuclear Regulatory Commission does not require liners for trench disposal per 10CFR61**
 - **Four commercial LLW disposal facilities use unlined trenches**
 - **American Ecology, Washington State**
 - **Energy Solutions, Utah**
 - **ChemNuclear, SC**
 - **Waste Control Specialists, Texas**
 - **NRC concerned about potential bathtub effect**
 - **NUREG 1573**
 - **NRC has no plans to alter 10CFR61 requirements allowing unlined trench disposal**
- **IAEA does not require liners**
 - **IAEA Safety Standard WS-R-1**
- **DOE-HQ policy is to continue disposal of LLW in unlined trenches**
 - **Unlined trench disposal at Nevada Test Site, Los Alamos National Lab, SRS, RWMC Idaho**
 - **Lined facilities were established solely to comply with RCRA Subtitle C requirements**
 - **For example, Oak Ridge CERCLA Disposal Facility did not credit the liner in calculating performance**

The E-Area LLW Facility is Authorized Under a Federal Program

- **The Disposal Authorization Statement (DAS) granted by DOE-HQ (AEA Authority) is the Permit under the DOE Federal Program**
- **The DAS defines the Federal Program for the Design, Construction, Operation and Closure of the E-Area LLW facility**
- **The DAS is:**
 - **Approved by DOE-HQ**
 - **Enforced by DOE-SR**
 - **Implemented by WSRC-contractor**
- **Migration is controlled to ensure that the Safe Drinking Water Act MCLs are not exceeded at facility boundary**
- **There is no receptor at facility boundary**
- **Therefore, slit trench disposal is permitted under a Federal Program and is protective of human health and the environment**
 - **Legal significance of “permitted under Federal Program” will be established later in the presentation**

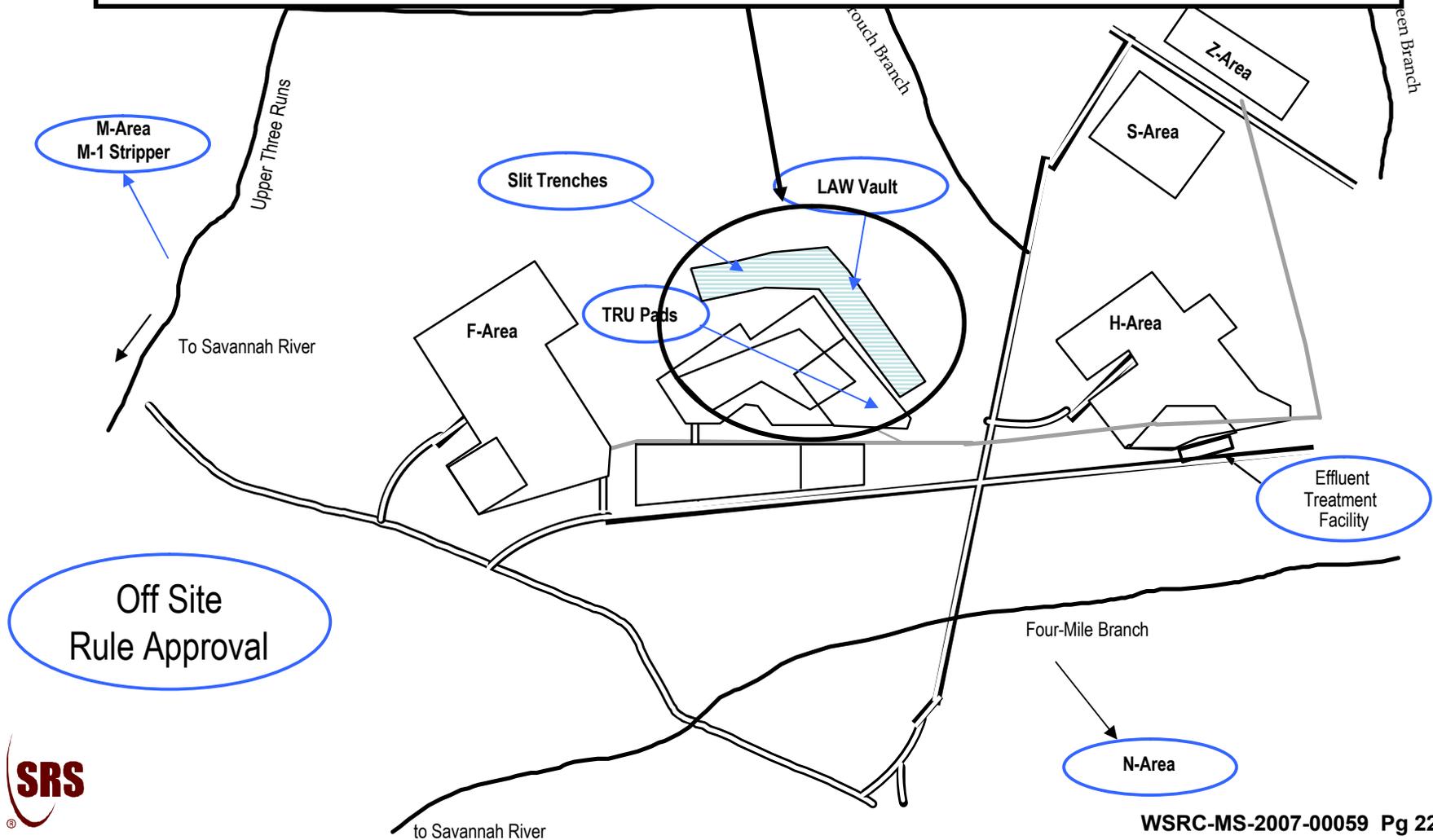


Approach

- Present information to clarify the current status of the affected units, including impacts if their off-site acceptability is not restored
- **Present information specifically regarding the E-Area Slit Trenches to establish the following:**
 - The facility operation is permitted under a Federal program that does not pose a threat to human health and the environment
 - **There has not been a release beyond the facility boundary**
 - If a release has occurred
 - It is not environmentally significant
 - It is controlled by an agreement

Location of SRS Facilities with Off Site Rule Approval

The E-Area LLW Disposal Facility includes the soil underneath, the soil around and the 100 meter buffer zone. Point of Compliance is at the edge of the facility



Design of Facility Meets DOE Requirements and is consistent with NRC requirements

- Part 61- Licensing Requirements for Land Disposal of Radioactive Waste
- 10 CFR 61.2 Definitions
 - “**Buffer zone** is a portion of the disposal site that is controlled by the licensee and that lies under the disposal units and between the disposal units and the boundary of the site.”
 - “**Disposal unit** means a discrete portion of the disposal site into which waste is placed for disposal. For near-surface disposal the unit is usually a trench.”
 - “**Disposal site** means that portion of a land disposal facility which is used for disposal of waste. **It consists of disposal units and a buffer zone.**”

Design of DOE Facility Consistent with NRC Requirements

- **Part 61.7 Concepts**

“(a) The disposal facility. The disposal site is that portion of the facility which is used for disposal of waste and consists of disposal units and a buffer zone. A disposal unit is a discrete portion of the disposal site into which waste is placed for disposal. For near-surface disposal, **the disposal unit is usually a trench**. A buffer zone is a portion of the disposal site that is controlled by the licensee and that lies under the site and between the boundary of the disposal site and any disposal unit.”

- **Part 61.52 Land disposal facility operation and disposal site closure**

“(8) A buffer zone of land must be maintained between any buried waste and the disposal site boundary and beneath the disposed waste. The buffer zone shall be of adequate dimensions to carry out environmental monitoring activities specified in §61.53(d) of this part and take mitigative measures if needed.”

DOE Order Requirements

- **DOE Order and NRC Regulations recognize facility boundary as the Point of Compliance.**
- **Therefore, there is no migration beyond facility boundary that meets the definition of release under the CERCLA Off-Site Rule.**

Approach

- Present information to clarify the current status of the affected units, including impacts if their off-site acceptability is not restored

- **Present information specifically regarding the E-Area Slit Trenches to establish the following:**
 - The facility operation is permitted under a Federal program that does not pose a threat to human health and the environment
 - There has not been a release beyond the facility boundary
 - **If a release has occurred**
 - **It is not environmentally significant**
 - **It is controlled by an agreement**

Migration of Tritium Is Not Environmentally Significant

- Migration is controlled to ensure that the Safe Drinking Water Act MCLs are not exceeded at facility boundary
- There is no receptor at facility boundary
- Therefore, slit trench disposal is protective of human health and the environment

Asserting Environmental Significance of Release is Inconsistent Application of Environmental Standards

- **MCLs are consistent with NRC practices**
- **MCLs are considered as an ARAR under SRS' RCRA/CERCLA program**
- **For example:**
 - **Barnwell tritium release deemed insignificant by South Carolina Department of Health and Environmental Control**
 - **Regulators have considered there to be little reason for concern over significance of radionuclide migration to existing drinking water supplies (See SCDHEC publication “Commercial Low-Level Radioactive Waste Disposal in South Carolina”)**
 - **RCRA landfill requirements use MCLs as a standard of groundwater protection**
 - **EPA/NRC Memorandum of Understanding (OSWER No. 9295.8-06a)**

If there is a Release; it is Controlled by an Enforceable Agreement

- **40 CFR 300.440(b)(2)(ii)(D)**
 - “ . . . unless the release is controlled by an enforceable agreement for corrective action under an applicable Federal or State authority.”

- **Federal Facility Agreement signed by DOE, EPA and SCDHEC**
 - **1) Authorizes Federally Permitted Releases under DOE orders, (Section IV.E.) – Incorporates controls of DOE orders**
 - “SRS releases of source, special nuclear, and byproduct materials in compliance with legally enforceable DOE regulations or orders issued pursuant to the AEA are "federally permitted releases" as defined in Section 101(10) of CERCLA, 42 U.S.C. § 9601(10).”
 - **2) FFA establishes enforceable requirements for any necessary response actions and in fact EPA has invoked FFA procedures in this matter**

Legal Position: EPA Definition of Release for Off-Site Rule

- EPA alleges a release under Section 101(22) of CERCLA, §42 USC 9601(22), and 40 CFR 300.5
- EPA letter does not address (40 CFR 300.440(b)(2)):

“(2) *Releases.* (i) Release is defined in §300.5 of this part. Releases under that section do not include:

* * *

(B) Releases permitted under Federal programs or under Federal programs delegated to the States (Federally permitted releases are defined in §300.5), except to the extent that such releases are found to pose a threat to human health and the environment;”

Legal Position: EPA Region 4 Agrees DOE Orders May Authorize Federally Permitted Release

- Federal Facility Agreement for SRS, Section VI.E. (signed by EPA Region 4)

“SRS releases of source, special nuclear, and byproduct materials in compliance with legally enforceable DOE regulations or orders issued pursuant to the AEA are "federally permitted releases" as defined in Section 101(10) of CERCLA, 42 U.S.C. § 9601(10).”

Legal Position: FFA Recognition of Federally Permitted Releases Consistent with EPA Policy

- **54 FR 22524-01**
“To the extent releases of source, byproduct, and special nuclear material are in accordance with licenses, permits, orders, or regulations issued under the AEA through provisions not administered by the Commission or its Agreement States, they also would be considered federally permitted releases. For example, DOE governs its radiation protection activities under the AEA by a series of internal orders. When such orders are issued under DOE’s AEA authority and releases of source, byproduct, or special nuclear material are in compliance with the applicable order(s), these releases are federally permitted under section 101(10)(K).”
- **See also 53 FR 27268-01**

Summary

- **Status of SRS Units Affected by Offsite Rule Determination**
 - 4 of the 15 affected units are no longer needed
 - 10 of the affected units are operating under state permits, have been inspected, and are operating in compliance
 - 2 of the affected units are operating under a federally permitted program, meet established standards, and are operating in compliance

- **Impacts of Loss of Acceptability**
 - Loss of access to these units will force the SRS to incur higher operational expenses and could impact ability to meet other Compliance Agreements, e.g. ROD

Location of SRS Facilities with Off Site Rule Approval

Facility	Facility type	Permit Status	Mission	Programmatic Impact	Cost Impact
M-1 Stripper	Wastewater Treatment (WWT)	Clean Water Act	Ongoing WWT	Disposal of remediation derived purgewater could not continue	~\$16K per year
F&H Effluent Treatment Facility	Wastewater Treatment	Clean Water Act	Ongoing WWT	Disposal of remediation derived purgewater could not continue	~\$40K per year
TRU Pads 3-6	Storage TRU/MW TRU	RCRA permitted	Storage TRU/MW TRU	Loss of flexibility to store current inventory of TRU CERCLA wastes. Ability to support ongoing and future SRS D&D program which will generate CERCLA TRU, CERCLA mixed TRU, CERCLA mixed and CERCLA hazardous wastes	Near Term: ~\$200,000
TRU Pads 7-13	Storage	RCRA Interim Status	Scheduled to close 3/09		
TRU Pads 14-19	Storage TRU/MW TRU	RCRA Permitted	Storage TRU/MW TRU		Life Cycle: TBD
TRU Pads 23,24	Storage TRU Waste	No permit	Storage TRU Waste		
643-29E, 643-43E	Storage & Treatment MW	RCRA Permitted	Storage & Treatment MW		
645-N, 645-2N, 645-4N	Storage & Treatment, HW & MW	RCRA Permitted	Storage & Treatment, HW & MW		
Storage Pads 1,2,3	Storage, HW	RCRA Permitted	Storage, HW		
E-Area Vaults	Disposal, LLW	Atomic Energy Act	Disposal, LLW	Loss of ability to support disposal of CERCLA LLW in near term and future D&D program activities	Near Term: ~\$2.5 million
E-Area Slit Trenches	Disposal, LLW	Atomic Energy Act	Disposal, LLW		Life Cycle: ~\$200 million
RX Seepage Basins P, K, R	One Time Approval	Closed	Closed	None	None
741-1N	Storage, PCB Waste	None Needed	No longer in use	None	None



Summary

Established the following regarding the E-Area Slit Trenches:

- **The E-Area LLW Facility is permitted under a Federal Program**
 - **Under the Atomic Energy Act as amended, the DOE has the authority to manage source, special nuclear, and byproduct material. The operation of the slit trenches is permitted under this federal program.**

- **There has not been a release exceeding the requirements of the Performance Assessment beyond facility boundary**
 - **The boundary of the facility extends in breadth and depth to include a buffer zone, consistent with NRC regulations and in compliance with DOE Orders**
 - **The buffer zone enables monitoring to ensure the facility maintains compliance; operational controls further ensure compliance and operation in a manner that is safe and protective of human health and the environment**

Summary

- **The CERCLA Off-Site Rule definition of release does not include releases authorized under Federal programs that do not pose a risk to human health and the environment.**
- **If EPA believes tritium migration is a release, it is not environmentally significant and is controlled by an enforceable agreement.**
- **DOE legal position: DOE position is consistent with EPA policy**

Request to Present Additional Information

- **DOE submitted comments on 3/16/2007 requesting additional information to provide DOE notice of basis for EPA determination**
- **No response from EPA to date**
- **When EPA responds, DOE requests an opportunity to update information**
- **If EPA does not respond, but provides a written decision, DOE requests an opportunity to provide information in response to any new information or reasoning raised by EPA in decision document**