To provide safe and environmentally sound handling, storage, treatment and/or disposal of radioactive, hazardous, and mixed wastes generated at the Savannah River Site.
Waste Management Facilities

- **EXISTING FACILITIES**
- **NEW FACILITIES**
- **PLANNED**

- **HAZARDS/MIXED WASTE DISPOSAL FACILITY**
- **BURIAL GROUND EXPANSION**
- **F AREA**
- **F TANK FARM**
- **SEEPAGE AND RETENTION BASINS**
- **G BURIAL GROUND**
- **H AREA**
- **H TANK FARM**
- **BGI**
- **TWF**
- **S-DWPF**
- **CIF**
- **ETF**
- **Z-SALTSTONE**
- **SEEPAGE AND RETENTION BASINS**

- **ROAD E**
- **ROAD F**
- **ROAD 4**
- **ROAD C**
WASTE CLASSIFICATION

- LOW-LEVEL RADIOACTIVE
- INTERMEDIATE LEVEL RADIOACTIVE
- TRANSURANIC
- MIXED (RADIOACTIVE/CHEMICALLY HAZARDOUS)
LOW LEVEL WASTE

- BETA-GAMMA ACTIVITY <300 mrem/hr

- ALPHA ACTIVITY <10 nCi/g

- WASTE EXAMPLES:
  - PROTECTIVE CLOTHING
  - HAND TOOLS
  - CONSTRUCTION DEBRIS
  - SOIL

- ANNUAL GENERATION: 950,000 FT$^3$
INTERMEDIATE LEVEL WASTE

- BETA-GAMMA ACTIVITY >300 mrem/hr
- ALPHA ACTIVITY <100 nCi/g
- WASTE EXAMPLES:
  - TRITIUM CRUCIBLES
  - SEPARATIONS PROCESS EQUIPMENT
  - REACTOR SCRAP METAL
- ANNUAL GENERATION: 75,000 FT$^3$
MIXED WASTE

- WASTE THAT POSES BOTH CHEMICAL AND RADIOACTIVE HAZARDS

- WASTE EXAMPLES:
  - TRITIATED OIL, MERCURY
  - SCINTILLATION SOLUTIONS
  - CONTAMINATED LEAD AND CADMIUM
  - PROCESS EQUIPMENT

- ANNUAL GENERATION: 20,000 CU FT$^3$
TRANSURANIC WASTE

- ALPHA ACTIVITY >100 nCi/g

- WASTE EXAMPLES:
  - PROTECTIVE CLOTHING
  - GLOVEBOX WASTE
  - PROCESS EQUIPMENT

- ANNUAL GENERATION: 30,000 FT³
TYPES OF MATERIAL IN BURIAL GROUND

- JOB CONTROL WASTE
- CONTAMINATED PROCESS EQUIPMENT AND SHIELDING
- REACTOR AND FUEL HARDWARE
- SPENT REACTOR MODERATOR DEIONIZER RESINS
- SPENT Li-Al TARGETS FROM TRITIUM FACILITIES
SUMMARY OF LLW DISPOSAL PRACTICES

SHALLOW LAND BURIAL (1953 - 1985)
- Waste packaged in cardboard boxes
- Loose waste packaged in dumpsters
- Dumped in trenches

ENGINEERED LOW LEVEL WASTE TRENCHES (1985 --> PRESENT)
- Waste packaged in steel Boxes
- Stacked in close array
- Increased utilization of burial ground space

GREATER CONFINEMENT DISPOSAL DEMONSTRATIONS (1985 --> PRESENT)
- High activity waste
- Boreholes
- GCD trench - Bulky Waste (Reactor Scrap, Tritium Crucibles)
DOE Defense High Level Waste

- Hanford: 37.5% (53.8% of total)
- Savannah River Site: 53.8% (8.7% of total)
- Other: 8.7% (0.0% of total)

Total 1,110,000,000 Curies
Waste results from chemical processing of irradiated fuel assemblies

- Typical rate is 2-3 million gallons/year
- Over 86 million gallons of fresh waste generated since startup
- Concentrated to 35 million gallons by evaporation
- Current inventory of 605 million curies
Waste Characteristics

- Insoluble Sludges, Primarily
  - Iron Hydroxide
  - Aluminum Hydroxide
  - Manganese Dioxide

- Soluble Salts, Primarily
  - Sodium Nitrate
  - Sodium Nitrite
  - Sodium Hydroxide

- Wastes Segregated by Heat Content
  - High-Heat Waste
  - Low-Heat Waste

- Temperature
  - High-Heat Waste Sludges - 50-100°C
  - Other Wastes - 25 - 70°C
Waste Segregation

F and H Area Canyons

Waste (Four different streams)

Waste Receipt Tanks

Salt Receipt Tanks

Evaporators

Overheads
Overall Program Flowsheet

Waste Removal

In-Tank Waste Processing for DWPF

Sludge Washing & Aluminum Dissolution

In-Tank Precipitation

DWPF

Salt Tanks

Sludge Tanks

DWPF Glass

Saltstone