

## 2.0 PURPOSE AND NEED FOR ACTION

The Savannah River Plant is one of 14 DOE sites located throughout the United States that generate and/or store radioactive TRU waste in the national defense program (Figure 2-1). TRU waste results from activities associated with the production of nuclear material and nuclear weapons. This waste is stored or buried at SRP and other DOE sites, either held in specially designed interim storage areas or buried in trenches.

The proposed action is to retrieve and process retrievably stored TRU radioactive waste at SRP and ship certified TRU waste to WIPP. A new TRU Waste Facility (TWF) will be constructed at SRP to retrieve and process SRP TRU waste in interim storage to meet WIPP criteria. The new TWF facility and associated retrieval and shipping of TRU waste to WIPP will reduce risks to the environment by eliminating a potential source of groundwater contamination at SRP and removing TRU waste from storage pads. The TRU waste storage pads can then be decommissioned and the burial grounds can be closed according to DOE directives.

WIPP is a research and development facility designed to demonstrate the safe and environmentally acceptable disposal of radioactive waste from national defense programs. It will initially be used to primarily store defense TRU waste. After a five year demonstration phase of operations, scheduled to begin in late 1988, a decision will be made on its conversion to a permanent repository for TRU waste. The proposed action will phase out interim storage of TRU waste at SRP and ensure that SRP's stored TRU waste is acceptable for shipment and emplacement in WIPP.

TRU waste management at SRP has changed in response to Federal waste management regulations and site operating experience since it began in 1953. Prior to 1965, SRP nonretrievably buried most of its TRU waste with other radioactive waste. Beginning in 1965, TRU waste was segregated at SRP according to content into retrievable and nonretrievable categories. Waste containing  $>0.1$  Ci per package was designated as retrievable and additional containment added in the form of prefabricated concrete containers. Waste forms that would not fit into the prefabricated containers were encapsulated in the burial trench. Waste containing  $<0.1$  Ci per package was disposed of unencapsulated.

According to the DOE Defense Waste Management Plan, in 1970 the U.S. Atomic Energy Commission declared that TRU waste must be stored retrievably in packages designed to last 20 years or more, pending decisions on its permanent disposal. It defined TRU waste as that waste contaminated with alpha-emitting radionuclides to greater than 10 nCi/g and required TRU waste to be packaged and stored separately from other radioactive wastes.

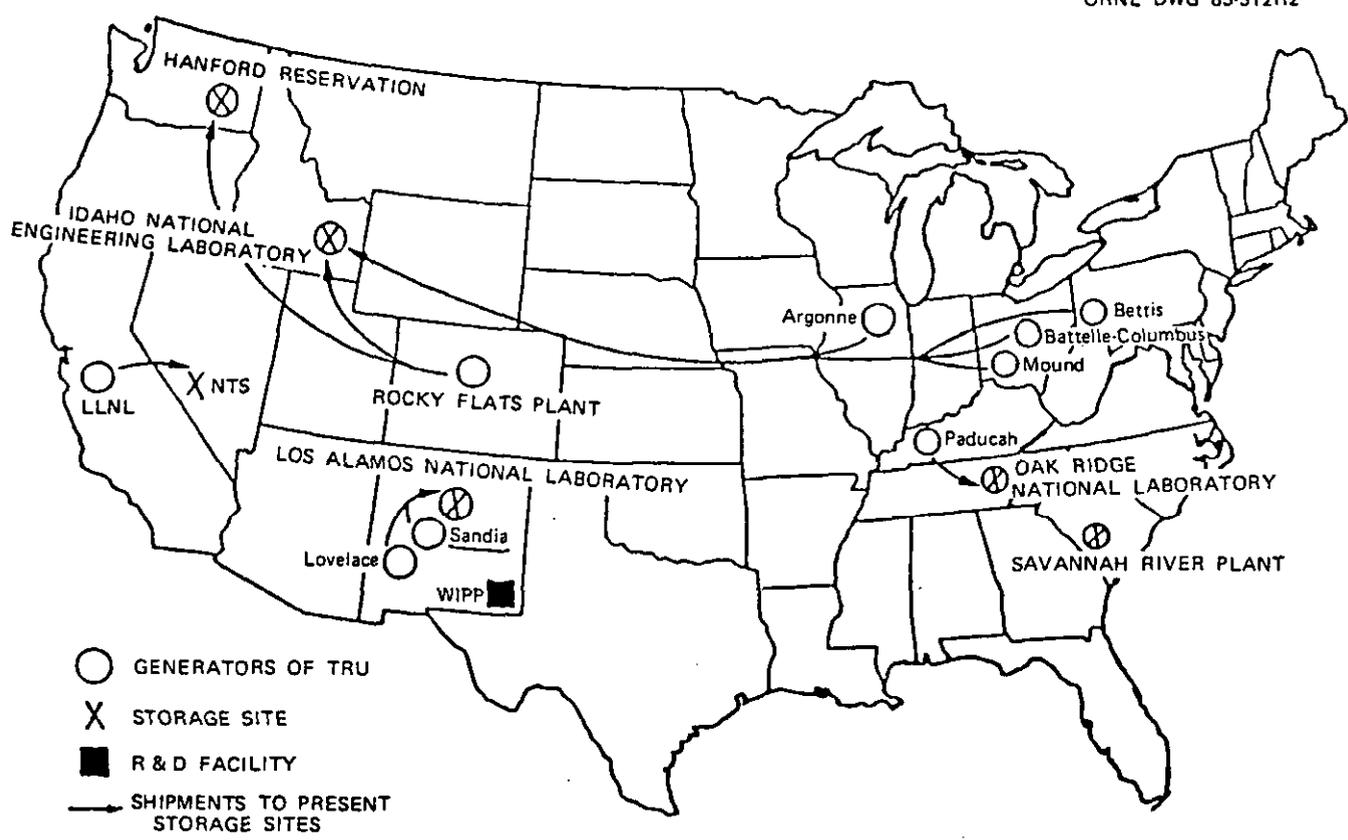


FIGURE 2-1: Points of Origin and Storage Sites of TRU Waste

SOURCE: DOE 1985a

In 1985 the definition of TRU waste was changed to today's definition. DOE Order 5820.2 states that TRU waste is that waste which is contaminated with more than 100 nCi of transuranium elements per gram. The fraction of waste stored at SRP which is contaminated with TRU elements in the 10 nCi/g to 100 nCi/g range is classified as low level waste and will be disposed of at SRP as low level waste.

## 2.1 PURPOSE

The purpose of this document is to assess the potential environmental impacts of proposed management activities for retrieved and newly-generated TRU waste at SRP as required by NEPA. The principal activities being assessed are changes in TRU waste management practices and facility construction and operation to ensure that SRP's TRU waste is acceptable for shipment to WIPP. They include TRU waste retrieval activities at SRP burial grounds, TRU waste preparation activities at the TWF facility in H-Area, onsite material transportation, and TRU waste shipments to WIPP. This document addresses newly-generated TRU waste and TRU waste placed in interim storage at SRP which is scheduled for retrieval, transportation, and emplacement at WIPP. Buried TRU waste which is not retrievable was evaluated in the Groundwater EIS (DOE/EIS-0120). This EIS evaluated the potential environmental and human health effects of waste - including buried, nonretrievable TRU waste - in SRP's burial grounds. DOE determined in its Record of Decision that closure of these burial grounds without removing the buried wastes provided acceptable environmental and human health protection. The final determination on the appropriate closure of these burial grounds will be made in accordance with acceptable regulations and after consulting regulatory authority(s). Potential environmental impacts of alternatives to the proposed action are also being evaluated.

## 2.2 NEED FOR ACTION

As of December 1987, SRP had 368,000 cubic feet of stored and buried solid TRU waste in SRP burial grounds (643-G, 643-7G, and 643-28G). SRP also produces approximately 40,000 cubic feet of newly-generated TRU waste annually. About 56 percent of the TRU waste, or 207,000 cubic feet, is in interim storage on concrete pads or buried in shallow trenches. It is contained in concrete and steel boxes, concrete culverts, and galvanized steel drums covered with four feet of soil or tornado netting (starting in 1985). The stored TRU waste will be retrieved for processing and disposal at WIPP.

Prior to 1965, SRP nonretrievably buried low level waste and TRU waste in trenches in 643-G. Beginning in 1965, SRP segregated TRU waste according to content into retrievable and nonretrievable categories as mentioned earlier in this section. SRP began storing low level waste and TRU waste on concrete pads in 643-7G in 1974. The waste stored on pads and in culverts is to be retrieved for processing and disposal at WIPP.

By 1995 when SRP is scheduled to begin shipping retrieved TRU waste to WIPP, an estimated 370,000 cubic feet of TRU waste will have accumulated in interim storage at SRP. At this time, stored TRU waste containers will begin exceeding the design basis 20 year retrievable storage limit.

At present there are no SRP facilities to process TRU waste so that it is certifiable to meet WIPP waste acceptance criteria. SRP has the largest inventory of TRU waste of any DOE site by radioactive content (62 percent) because of the large amounts of  $^{238}\text{Pu}$  generated at SRP. If the new TWF facility is not built, waste will continue to accumulate on the SRP storage pads. The storage drums will not last forever; and as they become older and deteriorated, the potential for container failure and contamination of the environment will increase.

The TWF facility will process retrieved TRU waste from interim storage and prepare it for certification and emplacement at WIPP. Newly-generated TRU waste requiring processing prior to certification will also be handled in the TWF facility. The TWF facility is scheduled to begin operation in 1995. The new facility will process 15,000 cubic feet of retrieved waste and 6200 cubic feet of newly-generated waste annually, which is the forecasted SRP yearly generation from 1995 to 2013.

### 2.3 COORDINATION WITH OTHER SITES

The DOE Joint Integration Office (JIO) has coordinated the environmental documentation of DOE-wide retrievable TRU waste management activities by planning an overall program strategy and schedule for DOE TRU waste generating and storage sites. These sites are shown in Figure 2-1. JIO had identified system-wide issues such as the transportation of TRU waste from those sites not documented in the "Final Environmental Impact Statement, Waste Isolation Pilot Plant," (DOE/EIS-0026) (WIPP EIS) and the additive impact of transporting SRP TRU waste to WIPP as issues requiring additional NEPA documentation.

The proposed action for SRP TRU waste is consistent with the objectives stated in the WIPP EIS and with the JIO-developed strategy to complete the NEPA documentation process begun in the WIPP EIS. This EA documents SRP TRU waste management activities including SRP TRU waste shipments to WIPP. The "Transportation Assessment and Guidance Report" (DOE-JIO 002) (TAGR), prepared by JIO, was used as the basis for assessing the additive transportation impacts of SRP TRU waste shipments to WIPP. The environmental effects of disposal of TRU waste in WIPP were assessed in the WIPP EIS. In addition, this document is consistent with the goals of the DOE Defense Waste Management Plan. The goals of this plan are to operate WIPP and related facilities and implement actions that are necessary to end interim storage of TRU waste at DOE sites.