

**BRIEFING TO ADVISORY COMMITTEE ON NUCLEAR WASTE
ON STATUS OF WASTE CLASSIFICATION AT
HANFORD, SAVANNAH RIVER, AND WEST VALLEY**

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BRIEFING OUTLINE

- **BACKGROUND ON CONCEPT OF “INCIDENTAL WASTE”**
- **STATUTORY BASIS FOR NRC INTEREST IN INCIDENTAL WASTE**
- **CRITERIA FOR INCIDENTAL WASTE CLASSIFICATION DETERMINATIONS**
- **WASTE CLASSIFICATION DETERMINATIONS AT:**
 1. **HANFORD**
 2. **SAVANNAH RIVER**
 3. **WEST VALLEY**

BACKGROUND ON INCIDENTAL WASTE

- **CONCEPT OF RESIDUAL/INCIDENTAL WASTES RECOGNIZED IN PROMULGATION OF APPENDIX F TO PART 50 (1970)**
- **APPENDIX F ESTABLISHED COMMISSION “POLICY RELATED TO THE SITING OF FUEL REPROCESSING PLANTS AND RELATED WASTE MANAGEMENT FACILITIES”**
- **APPENDIX F PROVIDED DEFINITION FOR PLANT HIGH-LEVEL LIQUID WASTES:**

“THOSE AQUEOUS WASTES RESULTING FROM THE OPERATION OF THE FIRST CYCLE SOLVENT EXTRACTION SYSTEM, OR EQUIVALENT, AND THE CONCENTRATED WASTES FROM SUBSEQUENT EXTRACTION CYCLES, OR EQUIVALENT, IN A FACILITY FOR REPROCESSING IRRADIATED REACTOR FUELS”

BACKGROUND ON INCIDENTAL WASTES (cont'd)

- **SUPPLEMENTARY INFORMATION IN APPENDIX F STATEMENT OF CONSIDERATIONS:**
 - **SPECIFIED ULTIMATE DISPOSITION OF HLW IS FEDERAL RESPONSIBILITY (i.e., burial required in Federal repository)**
 - **RECOGNIZED REPROCESSING PLANT OPERATIONS, INCLUDING STORAGE, TREATMENT, AND ISOLATION OF HLW, WILL GENERATE LOW-LEVEL OR INCIDENTAL WASTE**
 - **IDENTIFIED EXAMPLES OF INCIDENTAL WASTE:**
 - CLADDING HULLS**
 - IRRADIATED/CONTAMINATED FUEL STRUCTURAL HARDWARE**
 - ION EXCHANGE BEDS**
 - SLUDGES**
 - CONTAMINATED LAB ITEMS, CLOTHING, TOOLS, AND EQUIPMENT**

BACKGROUND ON INCIDENTAL WASTES (cont'd)

- **INDICATED STUDIES UNDERWAY TO DETERMINE IF TRANSURANIC CONTAMINATED, INCIDENTAL WASTES UNSUITABLE FOR DISPOSAL IN A LICENSED LLW BURIAL FACILITY (PART 61 PROMULGATED LATER WITH CRITERIA FOR CLASSIFYING WASTE A,B,C, OR GTCC)**

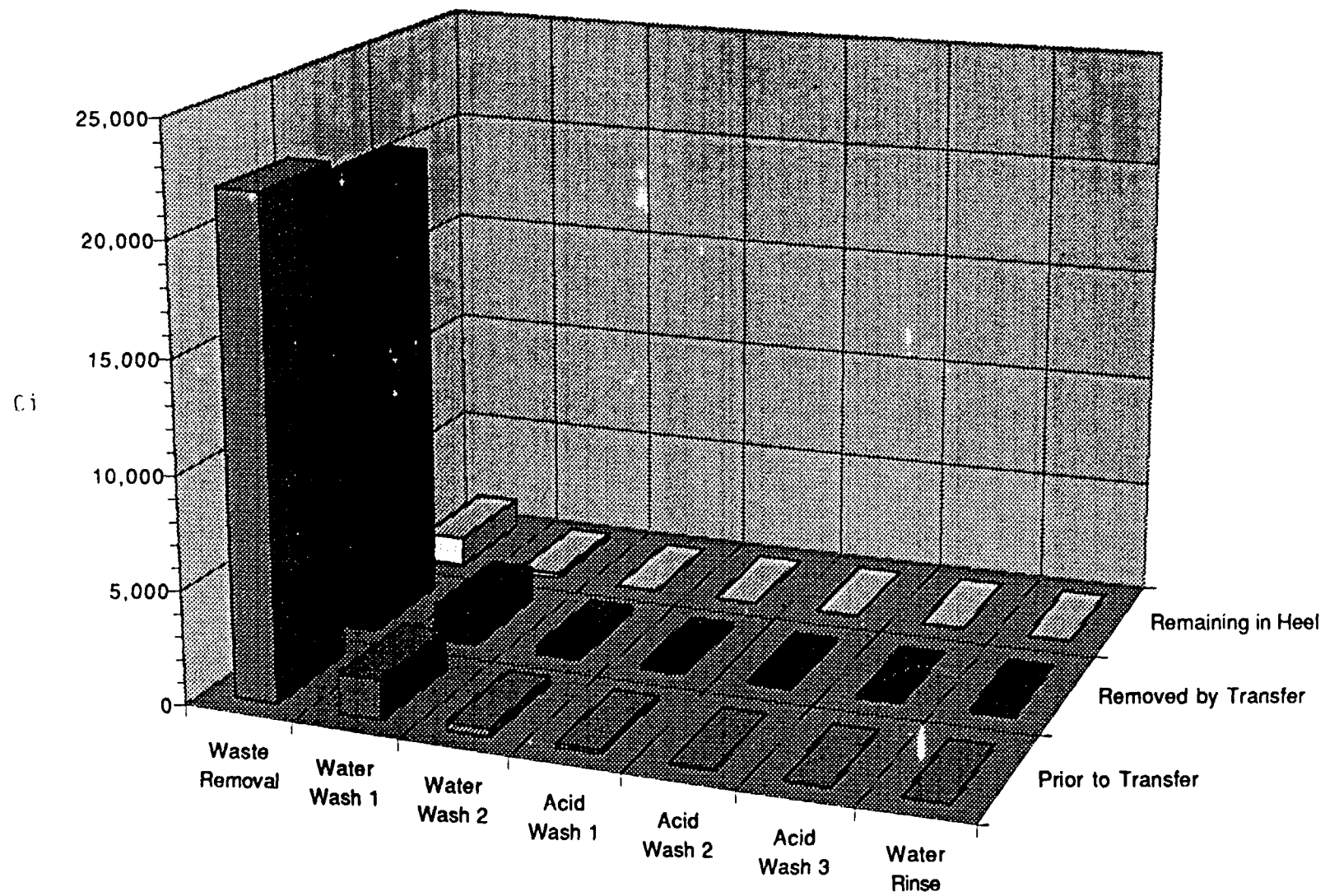
NRC INTEREST IN INCIDENTAL WASTE

- **WHY IS NRC INTERESTED IN WASTE CLASSIFICATION AT DOE FACILITIES (i.e., HLW or Incidental)?**
- **ENERGY REORGANIZATION ACT OF 1974 SPECIFIES THAT LONG-TERM STORAGE OR DISPOSAL OF DEFENSE-RELATED HLW IS SUBJECT TO NRC LICENSING.**
- **NRC DOES NOT REGULATE DOE MANAGEMENT OF LLW OR INCIDENTAL WASTE.**
- **WASTE CLASSIFICATION DETERMINATIONS ARE NECESSARY TO ENSURE WASTES NOT SUBJECT TO NRC LICENSING.**

CRITERIA FOR INCIDENTAL WASTE CLASSIFICATION

- **INCIDENTAL WASTE CLASSIFICATION CRITERIA FORMULATED IN FEBRUARY 1993 COMMISSION DENIAL OF RULEMAKING PETITION (1990) FROM STATES OF OREGON AND WASHINGTON RE HANFORD TANK WASTES**
 - **PETITION REQUESTED CLARIFICATION OF PROCESS FOR WASTE CLASSIFICATION**
 - **DENIAL BECAUSE PRINCIPLES FOR WASTE CLASSIFICATION WELL-ESTABLISHED**
- **WASTES INCIDENTAL IF:**
 1. **WASTE PROCESSED AND KEY RADIONUCLIDES REMOVED TO MAXIMUM EXTENT TECHNICALLY AND ECONOMICALLY FEASIBLE.**
 2. **WASTE WILL BE INCORPORATED IN SOLID PHYSICAL FORM AT CONCENTRATIONS LOWER THAN PART 61 CLASS C LIMITS.**
 3. **WASTE WILL BE MANAGED TO SATISFY PERFORMANCE OBJECTIVES IN PART 61.**

Tank 16 Waste Removal History



CRITERIA FOR INCIDENTAL WASTE CLASSIFICATION (cont'd)

- **WASTE CLASSIFICATION CRITERIA, PETITION DENIAL, PROVIDED TO DOE IN MARCH 1993 LETTER (BERNERO TO LYTTLE) AS GUIDANCE FOR APPROPRIATE MANAGEMENT OF WASTES REMOVED FROM TANKS AT HANFORD**

WASTE CLASSIFICATION AT HANFORD

- **INTERACTIONS WITH DOE INITIATED IN 1988 TIME FRAME TO DISCUSS DISPOSITION OF WASTES IN 28 DOUBLE SHELL TANKS (DSTs)**
 - **DOE IDENTIFIED 10 TANKS AS HLW FOR TREATMENT, VITRIFICATION, AND DISPOSAL IN REPOSITORY**
 - **DOE IDENTIFIED 18 TANKS AS LLW OR INCIDENTAL FOR DIRECT GROUTING, ONSITE DISPOSAL**
- **STAFF DID NOT AGREE WITH DOE CLASSIFICATION OF WASTES IN THE 18 DSTs**
 - **CONCERN ABOUT DOE WASTE CLASSIFICATION EXPRESSED IN MARCH 1993 BERNERO LETTER**
 - **DOE SHOULD RECONSIDER TANK WASTE REMEDIATION PLANS**

WASTE CLASSIFICATION AT HANFORD (cont'd)

- **IN 1993, DOE REVISED PLANS FOR MANAGEMENT OF DST WASTE AND INITIATED TANK WASTE REMEDIATION SYSTEM (TWRS) PROGRAM**
 - **TWRS REFLECTS INTEGRATED STRATEGY FOR MANAGEMENT OF WASTES IN ALL SINGLE SHELL TANKS (SSTs) (149) AND DSTs (28)**
 - **DOE COMMITMENT TO CONSIDER, PROCESS WASTES IN ALL TANKS AS HLW**
- **IN NOVEMBER 1996, DOE REQUESTED NRC AGREEMENT THAT LOW-ACTIVITY FRACTION FROM HLW TREATMENT IS INCIDENTAL, NOT SUBJECT TO NRC LICENSING AUTHORITY (LETTER FROM KINZER TO PAPERIELLO).**
 - **DOE REQUEST INCLUDED:**
 1. **preliminary plans for segregation of HLW into high-activity, low-activity fractions**
 2. **technical basis for classification of low-activity fraction as incidental**
 3. **plans for onsite disposal of low-activity fraction and repository disposal of high-activity fraction**

WASTE CLASSIFICATION AT HANFORD (cont'd)

- **STAFF/COMMISSION REVIEW (SRM DATED MAY 28, 1997) OF DOE WASTE CLASSIFICATION METHODOLOGY COMPLETED IN JUNE 1997 (LETTER FROM PAPERIELLO TO KINZER)**
 - **REVIEW BASED ON CONFORMANCE WITH THREE CRITERIA IN 1993 BERNERO LETTER**
 - **PRELIMINARY CONCLUSION THAT LOW-ACTIVITY FRACTION IS INCIDENTAL, NOT SUBJECT TO NRC LICENSING**
 - **CONCLUSION PROVISIONAL DUE TO PRELIMINARY CHARACTER OF DOE PLANS FOR WASTE TREATMENT SEGREGATION AND DISPOSAL:**
 1. **disposal facility site not selected**
 2. **disposal facility design incomplete**
 3. **treatment alternatives (e.g., evaporation, ion exchange, etc.) not selected**
 4. **HLW tanks not well-characterized**
- **DOE CONTRACTORS CURRENTLY DEVELOPING DESIGN CONCEPTS FOR TWRS**

WASTE CLASSIFICATION AT HANFORD (cont'd)

- **FUTURE REVIEWS OF DOE DESIGN CONCEPTS, PERFORMANCE ASSESSMENTS, TANK CHARACTERIZATION NECESSARY TO MAKE FINAL DETERMINATIONS RE INCIDENTAL WASTE CLASSIFICATION**

WASTE CLASSIFICATION AT SAVANNAH RIVER

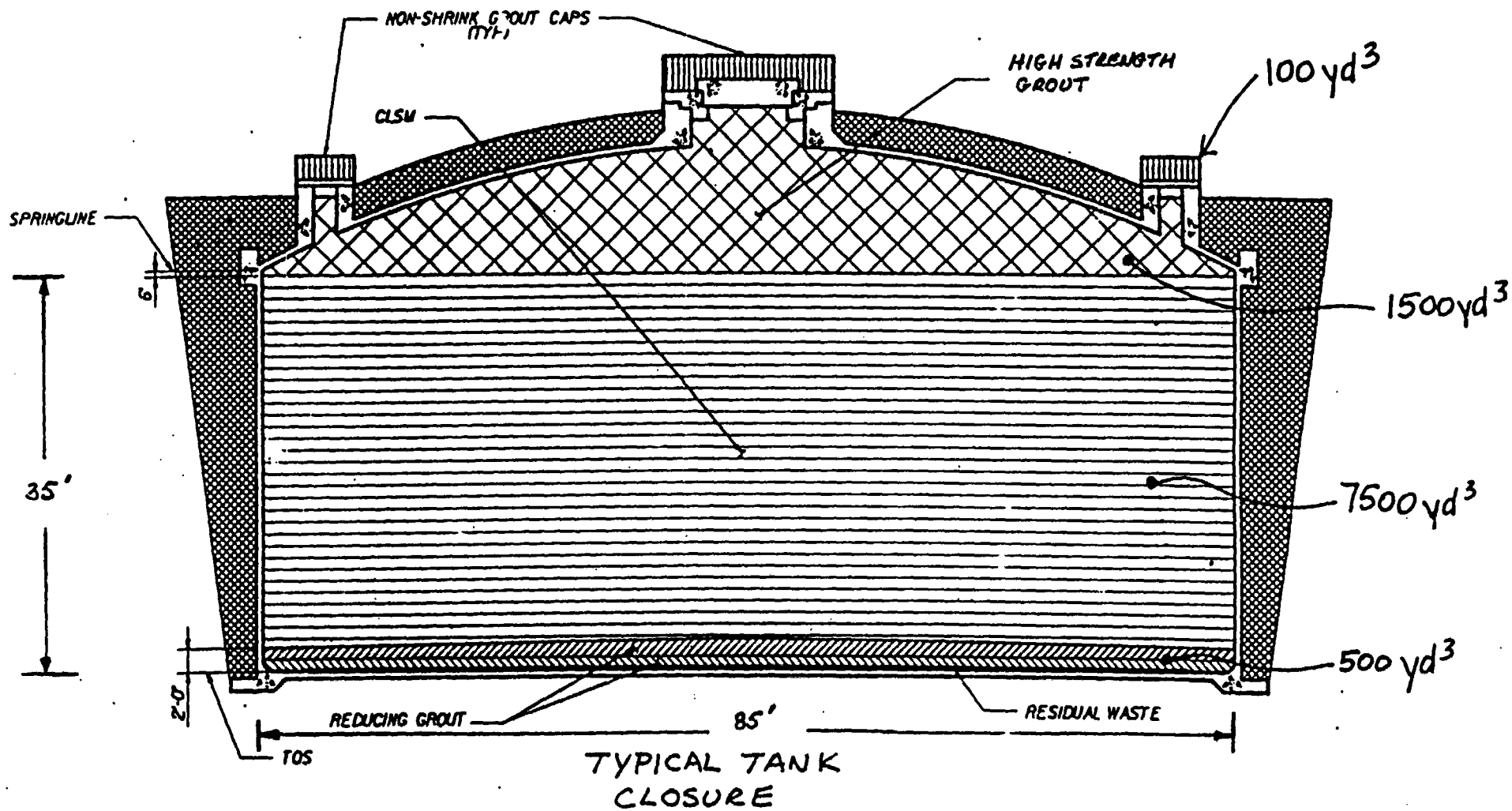
- **IN JANUARY 1996, DOE INITIATED PROCESS FOR RETRIEVAL, TREATMENT, AND VITRIFICATION (DWPF) OF HLW IN 51 TANKS**
- **IN APRIL 1996, STAFF MET WITH DOE TO DISCUSS PLANS FOR CLOSURE OF TANKS EMPTIED OF CONTENTS**
- **KEY ISSUE WHETHER HLW REMOVAL SUFFICIENT TO CLASSIFY RESIDUAL TANK WASTES “INCIDENTAL”**
- **IN AUGUST 1996, DOE REQUESTED STAFF REVIEW OF METHODOLOGY FOR CLASSIFICATION OF RESIDUAL WASTES LEFT IN THE TANKS AS “INCIDENTAL”**
- **IN DECEMBER 1996, DOE PROVIDED ADDITIONAL INFORMATION ON CURRENT PLANS AND SCHEDULES FOR TANK CLOSURE**
 - **DOE INITIATED CLOSURE OF TWO TANKS IN 1997 THAT CAN MEET EXISTING WASTE CLASSIFICATION CRITERIA**

WASTE CLASSIFICATION AT SAVANNAH RIVER (cont'd)

- **DOE RECOGNIZED THAT THREE CLASSIFICATION CRITERIA (1993 BERNERO LETTER) DEVELOPED WITH FOCUS ON TREATMENT OF WASTES REMOVED FROM TANKS, NOT TANK CLOSURE**
- **DOE REQUESTED STAFF CONSIDERATION OF ALTERNATIVE PROVISIONS IN SECTION 61.58 FOR SATISFYING PART 61 CLASS C LIMITS (CRITERION 2)**
- **REQUIREMENTS IN 61.58 RECOGNIZE ACCEPTABILITY OF OTHER PROVISIONS FOR WASTE CLASSIFICATION (i.e., A, B, or C), IF PERFORMANCE OBJECTIVES OF PART 61 ARE SATISFIED**
- **DOE ALSO REQUESTED GUIDANCE ON APPLICATION OF “BTP ON CONCENTRATION AVERAGING AND ENCAPSULATION” FOR TANK CLOSURE**

WASTE CLASSIFICATION AT SAVANNAH RIVER (cont'd)

- **IN AUGUST 1997, DOE SUBMITTED UPDATED REGULATORY BASIS FOR TANK INCIDENTAL WASTE CLASSIFICATION, FOR STAFF REVIEW**
- **STAFF REVIEW OF DOE WASTE CLASSIFICATION METHODOLOGY UNDERWAY--EXPECT COMPLETION, INCLUDING COMMISSION REVIEW, BY APRIL 1998**
- **STAFF INTENDS TO CONSIDER EXISTING INCIDENTAL WASTE CLASSIFICATION CRITERIA (BERNERO LETTER) AND NEW DECOMMISSIONING RULE CRITERIA, AS APPROPRIATE, FOR SAVANNAH RIVER TANK CLOSURE EVALUATION**
- **STAFF WILL ALSO CONSIDER FLEXIBILITY IN SECTION 61.58 FOR SATISFYING CRITERION 2 (BERNERO LETTER)**



WASTE CLASSIFICATION AT WEST VALLEY

- **DOE/NYSERDA CURRENTLY IMPLEMENTING STATUTORY REQUIREMENTS OF WEST VALLEY DEMONSTRATION PROJECT ACT FOR SITE DECONTAMINATION AND DECOMMISSIONING**
- **FOUR HLW TANKS (TWO LG., TWO SML.) AT WEST VALLEY IN NEED OF D&D, ONE SMALL TANK ONLY SLIGHTLY CONTAMINATED**
- **IN JANUARY 1996, DOE/NYSERDA ISSUED DEIS FOR COMPLETION OF WVDP AND CLOSURE OR LONG-TERM MANAGEMENT OF SITE FACILITIES**
- **DEIS IDENTIFIED ALTERNATIVES FOR TANK DISPOSITION**
 1. **DISMANTLEMENT--OFFSITE WASTE SHIPMENT**
 2. **DISMANTLEMENT--ONSITE WASTE STORAGE**
 3. **IN-PLACE STABILIZATION**
 4. **NO ACTION--MONITORING AND MAINTENANCE AS IS**

WASTE CLASSIFICATION AT WEST VALLEY (cont'd)

- **INCIDENTAL WASTE CLASSIFICATION CRITERIA WOULD FACILITATE SELECTION AND IMPLEMENTATION OF ANY OF TANK DISPOSITION ALTERNATIVES**
- **DOE/NYSERDA NOT CLOSE TO COMPLETING EIS PROCESS**
 - **NO ROD WITH PREFERRED ALTERNATIVE FOR MANY MONTHS**
- **DOE/NYSERDA MONITORING PROGRESS OF TANK CLOSURE AT SAVANNAH RIVER**

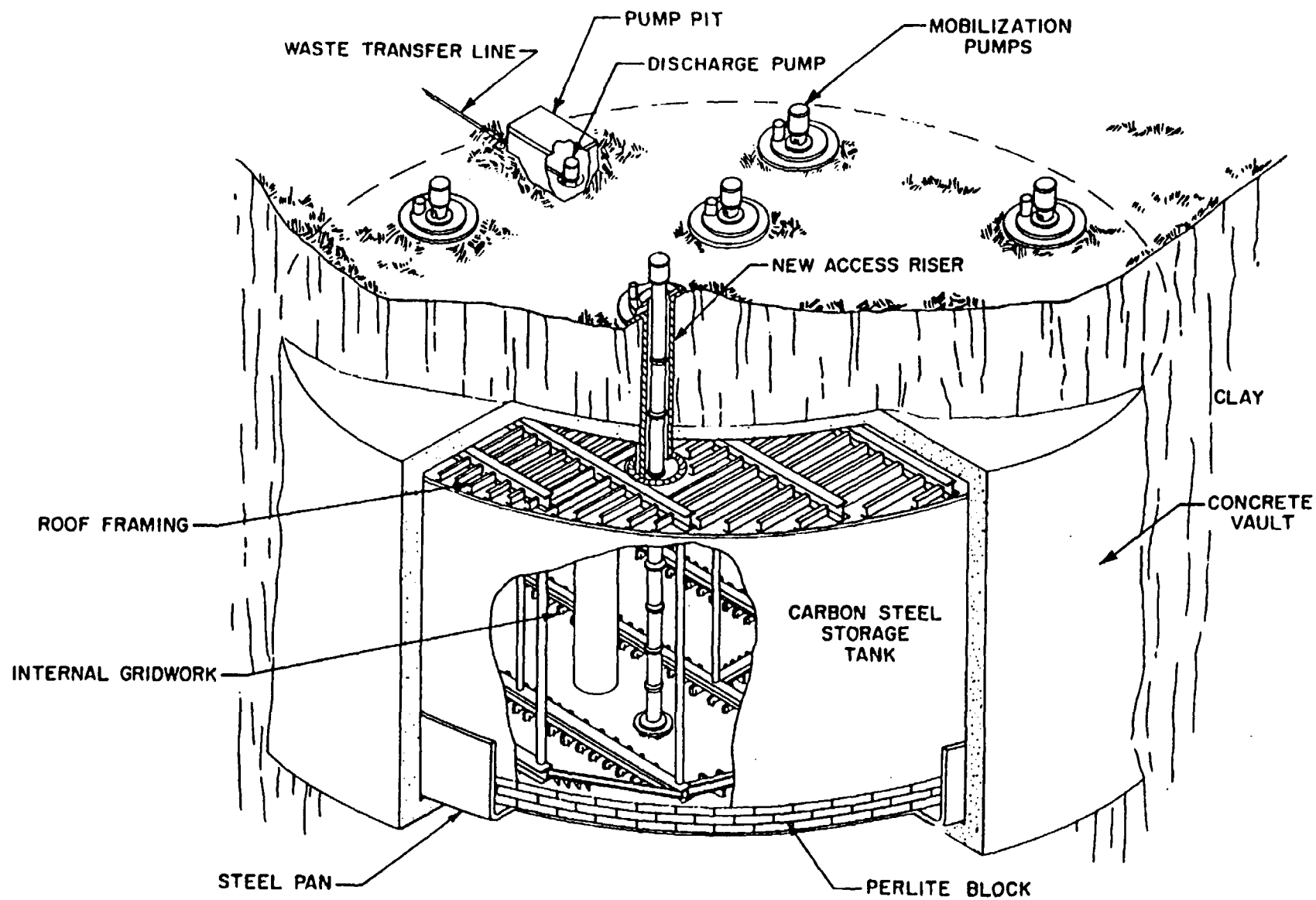


Diagram of Neutralized High-Level Waste Tank

SUMMARY

- **CRITERIA EXISTS FOR DISTINGUISHING HLW FROM INCIDENTAL WASTES**
- **PRELIMINARY REVIEW COMPLETE OF DOE METHODOLOGY FOR CLASSIFICATION OF TREATED HANFORD TANK WASTES**
- **REVIEW OF DOE METHODOLOGY FOR CLASSIFICATION OF SAVANNAH RIVER RESIDUAL TANK WASTES IN PROGRESS**
- **EVALUATION OF PROPOSALS FOR WASTE CLASSIFICATION FROM WEST VALLEY AWAITING COMPLETION OF EIS PROCESS**