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Tank Waste Processing and Disposal Technology Development Data Summary

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TANK WASTE PROCESSING AND DISPOSAL TECHNOLOGY DEVELOPMENT DATA SUMMARY

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ABSTRACT

The U.S. Department of Energy's Waste Management and Technology Development Programs are engaged in a number of projects to develop, demonstrate, test, and evaluate new technologies to support the clean-up and site remediation of more than 300 underground storage tanks containing over 381,000 cubic meters (100 million gallons) of radioactive mixed waste. Significant development is needed within primary processing functions and in determining an overall bounding strategy. This document is a first attempt to summarize the overall strategy and show technology development activities within the strategy. It is intended to serve as an information resource to support understanding, decision making and integration of multiple program technology development activities. Recipients are encouraged to provide comments and input to the authors for incorporation in future revisions.

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A TECHNOLOGY DEVELOPMENT ACTIVITIES CHART A-1

LIST OF TERMS

DOE	U.S. Department of Energy
EM-30	Waste Management Program
EM-50	Technology Development Program
UST-ID	Underground Storage Tank - Integrated Demonstration
WPDP	Waste Processing and Disposal Program

TANK WASTE PROCESSING AND DISPOSAL TECHNOLOGY DEVELOPMENT DATA SUMMARY

1.0 INTRODUCTION

This document presents the results of ongoing efforts within the Department of Energy's Underground Storage Tank - Integrated Demonstration (UST-ID) to facilitate an integrated approach in developing emerging technologies needed for tank waste remediation. The Waste Processing and Disposal Program (WPDP) of the UST-ID is conducting a number of technology development projects aimed at tank waste processing and disposal at four UST-ID participating sites: Hanford, Savannah River, Idaho National Engineering Laboratory, and Oak Ridge.

Production of nuclear materials has been a major mission of the U.S. Department of Energy (DOE) and predecessor agencies for the last 50 years. These activities have contributed to a substantial accumulation of hazardous, radioactive, and mixed wastes at a number of sites. One of DOE's most significant challenges will be remediating the more than 300 underground storage tanks and associated near-field environments at the participant sites. The DOE has made a commitment to remediate the tank sites that are not in compliance with state and federal regulations and to treat and dispose of the wastes in accordance with accepted practice. This remediation program will constitute one of the most complex and resource-intensive clean-up actions ever attempted by a government agency.

The cost of cleanup of the tank sites will be prohibitive using some of the current baseline technologies. Furthermore, major gaps exist in key technology areas for processing and disposal of the waste. New and improved technologies are needed that will support the baseline strategies, reduce costs, accelerate clean-up, and enhance safety. Accordingly, the DOE's Waste Management (EM-30) and Technology Development (EM-50) Programs are engaged in a number of projects to develop, demonstrate, test, and evaluate new technologies to support the tank waste clean-up mission.

The EM-30 Program at each site has the responsibility to safely store and proceed to treat and dispose of existing and new wastes in a manner that is environmentally sound, technically correct, safe to workers and the public, cost-effective, and in full compliance with applicable laws, regulations and DOE orders. To support these remediation objectives, EM-30 must develop the baseline strategy for retrieval, treatment, and disposal, and ensure that the needed technologies are developed.

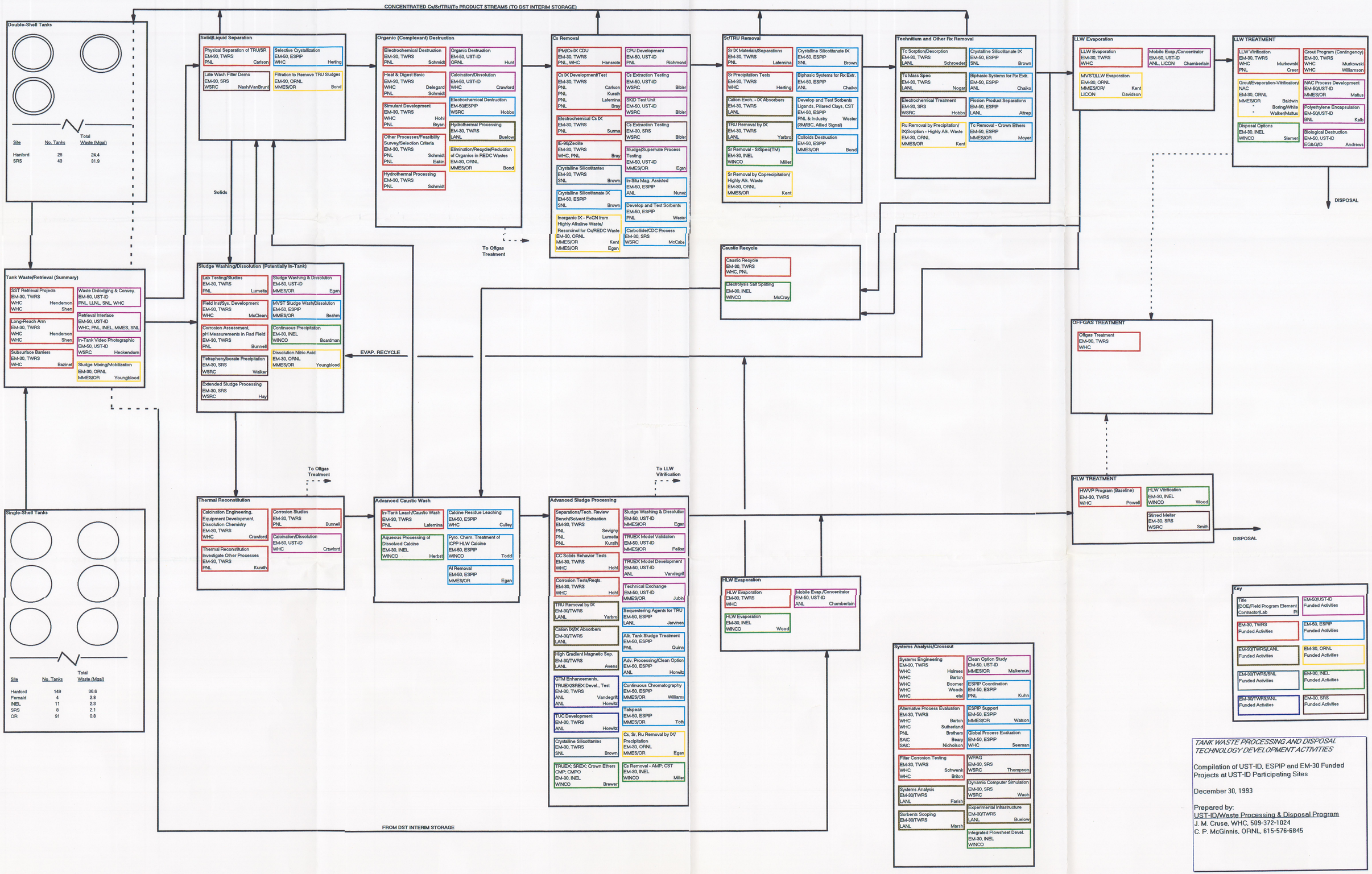
The EM-50 Program is pursuing technology development activities at multiple national laboratories and management/operating contractors to support the site remediation efforts. Tank waste processing and disposal technology development activities are focused in two programs: the Efficient Separations and Processing - Integrated Program and the UST-ID/WPDP. Part of the WPDP mission is to facilitate overall integration of technology development across the sites and programs. To support this effort, the WPDP has compiled the technology development project data and organized it into an overall functional strategy.

Appendix A to this document presents the WPDP Technology Development Activities Chart, which shows the EM-30 and EM-50 technology development activities arranged by major processing functions in the current baseline strategy. The WPDP chart is intended as a visual tool to aid in determining applicability of technologies and the relative emphasis placed in the various functional needs. Recipients are encouraged to review it and provide any input and comments to the authors. Periodic revisions are planned for the purpose of incorporating comments, input, and changes in program direction.

APPENDIX A

TECHNOLOGY DEVELOPMENT ACTIVITIES CHART

Figure A-1. Tank Waste Processing and Disposal Technology Development Activities Chart



TANK WASTE PROCESSING AND DISPOSAL TECHNOLOGY DEVELOPMENT ACTIVITIES

Compilation of UST-ID, ESPIP and EM-30 Funded Projects at UST-ID Participating Sites

December 30, 1993

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