FY 1987
CURRENT FISCAL YEAR
WORK PLAN

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ROCKWELL INTERNATIONAL
WESTINGHOUSE

JOINT INTEGRATION OFFICE
ALBUQUERQUE, N.M.

DECEMBER 1986

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FY 1987
CURRENT FISCAL YEAR WORK PLAN

JOINT INTEGRATION OFFICE
ROCKWELL INTERNATIONAL CORPORATION
WESTINGHOUSE ELECTRIC CORPORATION

December 1986

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TABLE OF CONTENTS

	<u>Page</u>
SUMMARY.....	1
WORK BREAKDOWN STRUCTURE.....	2
PROGRAM MANAGEMENT MILESTONES.....	3
PROGRAM MANAGEMENT MILESTONES (CHART).....	4
PROGRAM ANALYSIS MILESTONES.....	5
PROGRAM MANAGEMENT MILESTONES (CHART).....	6
ORGANIZATION.....	7
JIO TASK CONFIGURATION.....	7
PROGRAM MANAGEMENT.....	7
Program Planning.....	7
Work Breakdown Structure.....	8
Budget Preparation.....	9
Program Update Meetings.....	10
Program Administration.....	10
Task Administration and Monitoring.....	11
Guidance.....	11
Monitoring.....	12
Reporting.....	12
Quality Assurance.....	13
Program Documentation.....	13
Strategy Document.....	13
Master Plan.....	14
Responsibilities Plan.....	14
Annual Program Plan.....	14
Integration.....	15
WPO/TLO ICB.....	15
Waste Acceptance Criteria Certification Committee.....	15
Transportation Integration.....	16
Traffic Management Interface.....	16
Transportation Monitoring.....	16
Reduced Waste Generation, National Working Group.....	17
Lead Sites Interface.....	17
Other Agency Interface.....	18

TABLE OF CONTENTS (Cont'd)

	<u>Page</u>
Program Review.....	18
Independent Review Committee.....	18
Office of Management and Budget.....	19
General Accounting Office.....	19
Environmental Evaluation Group.....	19
Foreign Exchange.....	19
PROGRAM ANALYSIS.....	20
System Planning.....	20
Integrated Program Scheduling.....	20
System Modeling.....	21
System Cost Modeling.....	21
Certified Waste Projections.....	21
Requirements Analysis.....	21
Remote Handled Waste Management.....	21
Special Case Waste Management.....	22
Facilities.....	22
Transportation Packaging.....	22
Criteria and Procedures Development.....	22
Certification.....	22
In-Situ-Vitrification.....	23
Buried and Special Case Waste Technical Support.....	23
Legislative and Regulatory Analyses.....	23
NEPA Compliance.....	24
40 CFR 191.....	24
Transportation Issues.....	24
RCRA.....	25
CERCLA.....	25
Impact and Tradeoff Analyses.....	25
Transportation System Analysis.....	25
Risk Analysis.....	25
Ad Hoc Analyses.....	25

TABLE OF CONTENTS (Cont'd)

	<u>Page</u>
Data Base.....	25
TRU Waste Data Base.....	26
Integrated Data Base.....	26
Waste Characterization.....	26
BUDGET SUMMARY - JIO.....	27
QUALITY ASSURANCE PLAN.....	28

APPENDICES

Appendix-A, TLO/WPO iWG Support.....	29
Appendix-B, Transportation Integration.....	31
Appendix-C, TRUPACT Monitoring.....	34
Appendix-D, RWG-National Working Group.....	37
Appendix-E, Independent Review Committee.....	39
Appendix-F, System Simulation Modeling.....	41
Appendix-G, Gas Generation Studies.....	44
Appendix-H, Buried Waste/Special Case Waste Technical Support.....	50
Appendix-I, Transportation Assessment and Guidance Report Revision.....	59

JOINT INTEGRATION OFFICE FY87 CURRENT YEAR WORK PLAN

This plan describes the internal operations and milestones of the Joint Integration Office, Rockwell International, and Westinghouse Electric (JIO). It includes the JIO organization and staff assignments, identifies tasks and milestones, and describes the work plan.

SUMMARY

This Current Year Work Plan presents a detailed description of the activities to be performed by the Joint Integration Office during FY87. It breaks down the activities into two major work areas: Program Management and Program Analysis.

Program Management is performed by the JIO by providing technical planning and guidance for the development of advanced TRU waste management capabilities. This includes equipment/facility design, engineering, construction, and operations. These functions are integrated to allow transition from interim storage to final disposition. JIO tasks include program requirements identification, long-range technical planning, budget development, program planning document preparation, task guidance, task monitoring, information gathering and task reporting to DOE, interfacing with other agencies and DOE lead programs, integrating public involvement with program efforts, and preparation of program status reports for DOE.

Program Analysis is performed by the JIO to support identification and assessment of alternatives, and development of long-term TRU waste program capabilities. This work plan includes: system analyses, requirements analyses, interim and procedure development, legislative and regulatory analyses, dispatch and traffic analyses, and data bases.

The following is a presentation of the JIO Operating Budget:

Budget Summary-JIO												(\$K)
	O	N	D	J	F	M	A	M	J	J	A	S
Total	265	265	265	265	265	267	265	265	265	265	265	268
Cumulative	265	530	795	1060	1325	1592	1857	2122	2387	2652	2917	3185

The JIO's two major work areas are Program Management and Program Analysis shown in the Work Breakdown, Figure 1. The Program Management and Program Analysis Milestones follow.

PROGRAM MANAGEMENT MILESTONES FY 87

<u>MILESTONE</u>	<u>DATE</u>
Issue the JIO Current Year Work Plan (CYWP).....	12 - 86
Complete End of Year Report.....	11 - 86
Complete Current Fiscal Year Program Plan.....	12 - 86
Complete FY 89 Budget Call.....	12 - 86
Update TRU Long Range Defense Waste Master Plan.....	01 - 87
Submit FY 89 Budget to DOE/AL.....	04 - 87
Issue TRU Waste Program Budget and Task Guidance for FY 88.....	08 - 87
Complete Draft Responsibilities Management Plan Update.....	09 - 87
Issue Final Report on RWG National Working Group.....	09 - 87

JIO WASTE SYSTEMS OFFICE

PROGRAM MANAGEMENT MILESTONES FY 87	1987											
	O	N	D	J	F	M	A	M	J	J	A	S
Issue the JIO Current Year Work Plan (CYWP)			▼									
Deliver Annual End of Year Technical Report		▼										
Complete Current Fiscal Year Program Plan		▼										
Complete FY 89 Budget Call		▼										
Update TRU Long Range Defense Waste Master Plan		▼										
Submit FY 89 Budget to DOE/AL						▼						
Issue TRU Waste Program Budget and Task Guidance for FY 88										▼		
Complete Draft Responsibilities Management Plan Update											▼	
Issue Final Report on RWG National Working Group												▼

PROGRAM ANALYSIS MILESTONES FY 87

<u>MILESTONE</u>	<u>DATE</u>
Issue Revised Transportation Assessment and Guidance Report.....	05 - 87
Complete the TRU Program (JIO) Database.....	03 - 87
Issue Final RH Program Status and Needs Report.....	11 - 86
IDB Data Submission to ORNL.....	07 - 87 ?
Buried and SC Waste Tech Support Annual Report.....	06 - 87
Gas Generation TRUPACT Hydrogen Test Complete.....	06 - 87

ORGANIZATION

The JIO is responsible for program management and program analysis in the Defense TRU Waste Management Program as shown in Figure 1. The organization is staffed by both Rockwell International and Westinghouse. Each corporate entity has a program manager and several program administrators and staff support personnel. Each JIO staff member coordinates several tasks to ensure integration and coordination of all tasks in the TRU Waste Program.

JIO TASK CONFIGURATION

The general JIO internal work breakdown of Figure 1 has been organized in a more detailed work breakdown structure as shown in Figure 2. In the discussions that follow, each JIO task is described and milestone schedules are included to indicate the time frame and important accomplishments for each activity. Technical information for elements 2.1 Program Analysis is given in the main body of this work plan.

2.1 (Program Management)

This JIO work element includes tasks related to coordination and planning for the TRU waste program. There is a strong tie between this element and element 2.2.1 TRU Systems Analysis since the analysis work provides a basis for many planning decisions. The major elements in Program Management are listed below and discussed on the following pages.

<u>Element</u>	<u>Title</u>
2.1.1	Program Planning
2.1.2	Task Administration and Monitoring
2.1.3	Program Documentation
2.1.4	Integration
2.1.5	Program Review
2.1.6	Foreign Exchange

WBS NO. 2.1.1 (Program Planning)

The JIO is responsible for the technical and financial planning to assist DOE/AL in managing the TRU Waste Management Program. Included in the responsibility is long-range technical planning, budget preparation and conducting update meetings.

The sub-elements in Program Planning are listed below and are discussed on the following pages.

<u>Element</u>	<u>Title</u>
2.1.1.1	Budget Preparation
2.1.1.2	Program Update Meetings
2.1.1.3	Program Administration

JOINT INTEGRATION OFFICE

WORK BREAKDOWN STRUCTURE

WRS NO. 2.1.1.1 (Budget Preparation)

Defense Transuranic Waste Program tasks are first compiled in a draft priority list for the next two consecutive years.

A call for proposals to perform the tasks are sent out to US DOE field contractors who in turn reply with a field task proposal/agreement (FTP/A). These proposals are compiled in a Work Package Agreement Structures (WPAS) for Program Management and Technology Development.

An overall budget is formulated based on individual task funding requests and tailored to fit DOE Waste Management budget guidance. The initial budget is prepared from the WPAS as a zero base budget (ZBB) and is presented to DOE/HQ in April for eventual presentation to the Office of Management and Budget (OMB). This budget is for the two fiscal years following the current year.

At the US DOE Field Coordination meeting selection of tasks and task level funding for the coming fiscal year (FY+1) is accomplished. Prior to the beginning of the budgeted fiscal year in August, the final formulation of the TRU Waste Management Program financial plan is completed. This budget, together with task guidance, is transmitted to the individual task contractors in September by DOE through the appropriate field office.

Task budgets may need revision during the fiscal year due to changing task or program needs. These changes are discussed with the task contractors and are executed through DOE financial plan changes, which are transmitted from DOE/AL to JIO for documentation.

The Annual budget call covers programs that will be funded in the current fiscal year+2 (19CY+2). The optimum sequence for scheduling of events and responsibilities associated with this budget submission are described below; however, the precise schedule may vary depending on DOE requirements.

1. JIO compiles a rough draft priority list of Defense TRU Waste Program Tasks for DP-12 approval.
2. December - DP issues overall programmatic and budget guidance for the nuclear (19CY+2) waste management programs to the lead field offices.
3. January - AL issues detailed programmatic and budget guidance for the TRU lead program elements to the participating field offices.
4. February - Participating field offices/laboratories/contractors prepare and submit to AL a Multi-year Work Element Plan for each TRU Waste R&D task in the form of a Field Task Proposal Agreement (FTP/A).
5. March - AL/JIO consolidates the field inputs and prepares and submits separate Work Package Agreement Structures (DOE WPAS Form 5120.1) for the TRU Lead Program elements of Program Management and Technology Development.

WBS NO. 2.1.1.2 (Program Update Meetings)

Program update meetings are held semi-annually for attendance by representatives of the Defense Transuranic Waste program. The participants include DOE/HQ, the DOE field offices, DOE/AL as the Lead Field Office, the field contractors, and JIO as the Lead Contractor.

Speakers provide presentations on program task goals, progress, accomplishments, milestones, and future direction. In addition, working sessions are organized for topical areas of specialized interest to specific groups. In general, these meetings are an open forum for continued integration of the program. The update meetings are timed to coincide with the DOE-sponsored Field Coordination Meetings.

WBS NO. 2.1.1.3 (Program Administration)

Program administration develops five year budget requests from the WPAS mentioned in section 2.1.1.1, budget preparation. The WPAS presents detailed descriptions of tasks and funding levels for the following two fiscal years. Three additional years of funding level estimates are provided by contractors and milestones for those outyears are also identified.

Program status and planning briefings are prepared for DOE/HQ for field coordination meetings held semi-annually. Also maintaining contacts with DOE Interim Waste Operations, sites, and site traffic management enables JIO to assess program issues and priorities. JIO maintains a regular flow of program information among DOE/AL, DOE/HQ, and the sites.

As the program issues and priorities change, JIO maintains an appropriate level of staffing.

JIO maintains files on all DOE/HQ, DOE/AL, DOE/RFAO, RI/RFP, and USDOE contractor and subcontractor correspondence. Program files on current year work plans and field task proposal/agreements for each fiscal year of program operation are also maintained. Contractor reports and JIO published documents are kept on file along with all program documentation, contractor monthly and year-end summary program reports. Also notes and proceedings of all TRU Program Contractor update meetings are kept on file.

WBS NO. 2.1.2 (Task Administration and Monitoring)

The JIO is responsible for administration and monitoring of all tasks in the TRU Waste Management Program. Most of these activities are done by DOE field contractors who operate major DOE facilities that are integrated into the overall Defense Program. The remainder of the tasks are done by other contractors who are assigned specific Program tasks only. Primary responsibility for conduct of individual tasks within the Program lies with the contractor performing the task and with the DOE field office which administers that contract. The JIO follows progress of each task, and if and when any corrective actions are necessary, makes specific recommendations to AL. Task scope, milestones, deliverables, and budgets are negotiated with the contractors at the start of each task and near the beginning of each fiscal year or after any financial plan or technical program changes and then documented.

The JIO elements in Task Administration and Monitoring are listed below.

<u>Element</u>	<u>Title</u>
2.1.2.1	Guidance
2.1.2.2	Monitoring
2.1.2.3	Reporting
2.1.2.4	Quality Assurance

WBS NO. 2.1.2.1 (Guidance)

JIO operation and R&D requirements are defined by long range planning and analysis of technical development tasks. Specific tasks are then defined, contractors selected, and task scopes, milestone, deliverables, and budgets are negotiated. Budgets are planned as described in Section WBS NO. 2.1.3. of this plan. Task guidance is issued to contractors through DOE channels during the August-September time frame. The guidance includes a description of the task current year objectives and associated constraints such as time, budget, and specific task interactions. The guidance is used by the contractor to produce a current year work plan to be delivered to JIO by October 1. JIO then uses the current year work plans to monitor the program tasks for the fiscal year, and a current FY Program Plan is also compiled from the current year work plans and delivered to DOE/AL in November. In December the fiscal year plus two budget calls for program tasks and funding is submitted to the field to receive field task proposals to do work.

MILESTONES

Current Year Work Plan For FY87	December 1986
Current Year Program Plan	December 1986
CY + 2 Budget Call	December 1986
Budget/Task Guidance Issued for FY88	August 1987

WBS NO. 2.1.2.2 (Monitoring)

The current fiscal year work plan is used to monitor current year technical and financial performance. The JIO uses the individual task information to produce TRU Waste Management Program schedules, milestones, and tracking charts for budgets and performance for the current year.

Each current year task plan submitted by the contractors contains a Work Breakdown Structure, task schedules, goal-oriented milestones, and budget data for the current fiscal year.

JIO staff members are assigned to follow each task. The staff members know and understand the technical area, maintain close contact with the contractor, and monitor the tasks on a continuing basis. The monitoring involves clarification of task guidance, regular communication through telephone contacts and reviews at the operating facility, negotiation and documentation of any changes to existing task guidance, milestone tracking, financial planning, and review of draft reports.

Actual task expenditures and task progress are monitored against the plans submitted by each contractor. When necessary, financial adjustments are recommended to AL.

WBS NO. 2.1.2.3 (Reporting)

The JIO is responsible for preparing weekly highlights, monthly milestone update, monthly program status, and annual program summary reports.

The monthly and annual reports for DOE are described in WBS elements which follow.

The participating sites will submit to AL and JIO a monthly progress report for each assigned task within 15 working days from the end of each month. The report will provide a narrative on highlights, technical accomplishments, and publications. In addition, actual costs and milestone accomplishments will be compared to the baseline established in the Current Fiscal Year Work Plan and significant variance analyzed.

The JIO writes a monthly program status report using information from the participating sites monthly reports. The JIO summarizes reported costs and compare to baseline projections, evaluates program status, and highlight program achievements and problem areas. The monthly report is due to DOE/HQ 25 working days from the end of the month being reported.

Contractors are required to prepare an annual technical report summarizing task accomplishments, budget status, and problem areas encountered. This report is to be submitted to JIO in October and will aid JIO in preparation of a summary annual technical report which encompasses the Defense TRU Program.

WBS NO. 2.1.2.4 (Quality Assurance)

Field offices and contractors are responsible for providing a description of their QA plans for each task identifying those elements of existing Quality Assurance Programs, and any controls which may be required to conform with guidance from the lead sites. Plans cover a control item matrix that involves three different levels of quality application. The three levels are generally characterized by the following descriptions:

JIO reviews the QA summary in each site's CYWP and proposes QA levels that will be approved by DOE/HQ for the DTWP guidance.

JIO role in QA of tasks include the following:

1. Review of task QA requirements
2. Assignment of proper task QA level
3. Assist sites in developing QA controls
4. Review and concur with site QA summaries in CYWP
5. Monitor progress of QA commitment
6. Identify the need and request a QA audit of a field task when required

WBS NO. 2.1.3 (Program Documentation)

The JIO is responsible for updating four major program documents: The TRU Program National Strategy Document, which is updated as required, the preparation of the Long-Range Master Plan for the Defense Transuranic Waste Management, Defense TRU Waste Program Responsibilities Plan, and the Annual Program Plan:

MILESTONES

Update Annual Program Plan	December 1986
Update TRU Waste Program Responsibilities Plan	September 1987
Update TRU Long Range Master Plan	January 1987
Update TRU Program Strategy Document	September 1987

The documents are submitted to AL and DOE/HQ for review and approval, with review and comments also requested from participating field offices.

WBS NO. 2.1.3.1 (Strategy Document)

The purpose of the National Strategy Document is to (i) provide background information on the nature and quantities of TRU wastes, (ii) identify short and long-term National objectives for TRU waste management, and (iii) describe the program strategies to meet the National objectives.

WBS NO. 2.1.3.2 (Master Plan)

The purpose of the Long-Range Master Plan is to establish a multi-year, integrated planning basis for the Program. This Program must meet National objectives for short and long-term TRU waste management and reduce costs and risks. This plan will serve as a framework for the smooth transition from interim management to permanent disposal. This document will be issued through DOE/HQ and is the official TRU Program Planning document.

WBS NO. 2.1.3.3 (Responsibilities Plan)

The purpose of the Responsibilities Plan is to (i) summarize the management roles of participants in the total TRU Waste Management Program, (ii) detail responsibilities and authorities for R&D and System Integration, (iii) define organizational interfaces and communication channels for Operations and R&D and System Integration, and (iv) establish procedures for planning, reporting, and budgeting of the operation related and R&D activities.

WBS NO. 2.1.3.4 (Annual Program Plan)

The purpose of the Annual Program Plan is to provide an overall scope of work summary that categorizes each of the task elements into a work breakdown structure. Each task has a brief description of goals and objectives, current status, task description, listing of milestones, and funding level. The Annual Program Plan identifies the Defense TRU Waste Program's approach to achieving overall program objectives as identified in the Strategy Document.

WBS NO. 2.1.4 (Integration)

As part of the Defense TRU Waste Program (DTWP), the Transuranic Lead Organization (TLO), JIO, and DOE/AL will integrate and coordinate all activities to ensure that TRU Waste Management requirements and needs for research and development, operations, and facility design, engineering, and construction allows for the smooth transition from interim storage to final disposition. This will implement the Defense TRU Program Strategy Document and the Long-Range Master Plan for Defense TRU Waste Management. Interfaces are established with the generating, storage, and burial sites and with the WIPP Project Office to ensure integration of all program activities within DTWP.

<u>Element</u>	<u>Title</u>
2.1.4.1	WPO/TLO Interface Control Board ICB
2.1.4.2	WACCC
2.1.4.3	Transportation Integration
2.1.4.4	Traffic Management Interface
2.1.4.5	Technology Transfer
2.1.4.6	RWG National Working Group
2.1.4.7	Lead Sites Interface
2.1.4.8	Other Agency Interface

WBS NO. 2.1.4.1 (WPO/TLO ICB)

The purpose of interface management agreement between the TRU Waste Lead Organization (TLO) and the Waste Isolation Pilot Plant (WIPP) Project Office (WPO) is to provide formal planning and administration between the two organizations. It provides a system for exchange of information, setting baselines for interface areas, and full cooperation in decisions affecting both organizations. The scope of this management charter, extends to technical and programmatic areas affecting both TLO and WPO in carrying out their respective missions.

The Interface Control Board (ICB) has been established to cover programmatic interfaces. The primary role of the ICB will address communicating and distributing to both TLO and WPO any proposed changes in directives, criteria, political or institutional agreements, analyses, plans or other developments which may impact either WIPP or the DTWP.

In addition to serving the Board as non-voting members, JIO has responsibility to administer activities of the ICB. This responsibility includes supporting monthly meetings, seeing that action items are carried out, developing guidance for Interface Working Group (IWG's) and preparing the semi-annual reports. The JIO will keep aware of the progress on IWG task and recommendations to the ICB and where appropriate will serve as active members of IWG's. (See Appendix A)

WBS NO. 2.1.4.2 (Waste Acceptance Criteria Certification Committee)

The WACCC is responsible for the review and evaluation of individual site certification plans, Quality Assurance Plans, and waste form specific certification procedures to ensure compliance with WIPP Waste Acceptance

Criteria. The committee is composed of representatives from DOE Waste Management Technology Development Division, JIO, and WIPP. The committee provides comments on document reviews which are incorporated into certification plans and procedures leading to committee conditional approval. Final approval involves the WPO and the State of New Mexico Environmental Evaluation Group (EEG).

JIO, as a WACCC member, provides a certification plan review and audit function. Certification, Quality Assurance, and related documents as submitted by waste generating sites are reviewed by JIO to ensure compliance with WIPP Waste Acceptance Criteria. Following conditional approval of these plans by WACCC, pre-operational audits are performed by WACCC for conformance verification.

Additionally, JIO oversees various technical studies to define/delineate technical aspects of Waste Acceptance Criteria conformance.

WBS NO. 2.1.4.3 (Transportation Integration)

Transportation packaging for the transport of transuranic waste has been under development since FY 1978. Since that time, conceptual, preliminary, final design, and fabrication of four prototype TRUPACT units have been completed. Since FY 1981, these transportation development tasks have been monitored by a DOE subcontractor, currently the Joint Integration Office. Funding provided under this scope of work will be used to continue program planning, monitoring and implementation activities for the prototype TRUPACT (TRUPACT-I) System.

In addition to integrating the CH-TRU transportation activities, this task includes initiating development of a transportation plan for the RH-TRU system. A project monitor will follow RH-TRU related tasks, i.e., receipt of RH-TRU transportation packaging, RH-TRU strategy development, and site shipping concerns, and preparation of a plan for moving this waste from generation and storage sites to the WIPP. (Appendix B)

WBS NO. 2.1.4.4 (Traffic Management Interface)

Interface activities involving both the TLO and the WPO will be specific to the coordination of schedules, through-put for permanent disposal, and transportation receipt and handling of TRU wastes from storage and generating sites to the WIPP. Defense contractor site traffic management departments are consulted by JIO. JIO, in turn, appraises the traffic community of TRUPACT development and planning activities which could affect the establishment of routes, schedules and tariffs to accomplish permanent WIPP disposal.

WBS NO. 2.1.4.5 (TRUPACT Monitoring)

The JIO will manage the development and demonstration of the Transport Tracking System as an integral part of the overall waste management logistics program. The results of this development and demonstration activity will prove the feasibility of using a satellite-based vehicular tracking system. (Appendix C)

WBS NO. 2.1.4.6 (Reduced Waste Generation; RWG, National Working Group)

The activities of the RWG National Working Group are 1) technology exchange for reduced waste generation, 2) peer review of the planning and funding of new DTWP RWG tasks, and 3) establish cooperative work tasks to develop or implement reduced waste generation technology. This technology includes administrative control, materials substitution, process development or improvement, and new equipment utilization. (Appendix D)

WBS NO. 2.1.4.7 (Lead Sites Interface)

The JIO interfaces with other DOE Defense programs. Interfaces include, but are not limited to, the following list:

<u>Lead Sites</u>	<u>Interfaces</u>
High-Level Waste (HLW)	waste forms, canisters, transportation shared technologies
Low-Level Waste (LLW)	incineration, quantities of TRU decontaminated to LLW, LLW definition, quantities of LLW now in TRU storage as a result to definition change, greater confinement disposal
Remedial Action Programs	quantities of waste generated, decontamination techniques, WIPP certification
Decontamination and Decommissioning (D&D)	decontamination techniques, waste volume generated
Transportation Technology Center (TTC)	transportation criteria, wastepackage, canister design, NEPA compliance support
Waste Isolation Pilot Plant (WIPP)	repository criteria, waste- package, canister design, transportation operations and planning
HLW, LLW, AIRBORNE, WIPP, NE, West Valley, SFMP, and OCRWM Programs	improve technology transfer and eliminate technology duplication

WBS NO. 2.1.4.8 (Other Agency Interface)

Interfaces with other agencies occur under DOE direction as necessary for long-range planning and establishing or interpreting regulations. These interfaces include organizations such as the Nuclear Regulatory Commission (NRC), Department of Transportation (DOT), Council of Environmental Quality (CEQ), Environmental Protection Agency (EPA), and the State Planning Council.

WBS NO. 2.1.5 (Program Review)

In accordance with the DOE's commitment to seek public involvement in the planning of radioactive-waste management programs, the JIO is seeking input on TRU Waste Management Programs. An Independent Review Committee has been established for reviewing the overall TRU program, as well as specific tasks. The program is also periodically reviewed by OMB, GAO, and the State of New Mexico Environmental Evaluation Group (EEG).

The major element associated with Program Review is listed below.

<u>Element</u>	<u>Title</u>
2.1.5.1	Independent Review Committee
2.1.5.2	OMB
2.1.5.3	GAD
2.1.5.4	EEG

WBS NO. 2.1.5.1 (Independent Review Committee)

An Independent Review Committee (IRC) has been formed to act as an independent review organization for the TRU Waste Management Program.

The IRC:

- A) Reviews and evaluates TRU Program plans and progress.
- B) Serves in a review capacity to provide unique input to TRU Program Management or matters pertaining to the quality and progress of Research and Development projects (ongoing and new), and the proposed direction of these efforts in fulfilling TRU Program objectives.

JIO schedules and coordinates IRC meetings when projects arise that require IRC participation. (See Appendix E)

WBS NO. 2.1.5.2 (Office of Management and Budget)

The Office of Management and Budget (OMB) reviews the program on an annual basis to determine program expenditures, renew program direction, and identify future program funding requirements.

WBS NO. 2.1.5.3 (General Accounting Office)

The General Accounting Office (GAO) periodically reviews the program or parts of the program for progress, direction, accomplishments, strategy, integration, funding, expenditures, etc. Review meetings are held and comments/questions are answered.

WBS NO. 2.1.5.4 (Environmental Evaluation Group)

The State of New Mexico Environmental Evaluation Group (EEG) periodically reviews portions of the program that might affect the safety and environment of New Mexico. Quarterly review and special issue meetings are held and comments/questions are answered.

WBS NO. 2.1.6 (Foreign Exchange)

The international exchange of information in the nuclear waste management field established by the DOE will involve the following activities in FY 87:

1. Status documentation for the U.K., F.R.G., France, and PNC-Japan agreements will be prepared and distributed by JIO
2. Workshops, seminars, and meetings will be conducted to ensure information is disseminated to the appropriate technical specialists within the USDOE complex.
3. Assessments of Foreign Technology are to be made of foreign R&D efforts and waste management practices to determine value and benefits that may be derived from a particular agreement.

WBS NO. 2.2 (Program Analysis)

The major objectives of Program Analysis are to define long-range requirements and goals. Formal studies and planning activities provide the foundation for program direction decisions. These activities identify needs for individual tasks. From the study results, options are identified for the Long-Range Master Plan, Program Integration and TRU Program Strategies.

The major elements in Program Analysis are listed below.

<u>Element</u>	<u>Title</u>
2.2.1	Systems Planning
2.2.2	Requirements Analysis
2.2.3	Criteria and Procedures Development
2.2.4	Legislative and Regulatory Analyses
2.2.5	Impact and Tradeoff Analyses
2.2.6	Data Base

WBS NO. 2.2.1 (Systems Planning)

Implementation of an overall program plan involves a series of activities that involve integrated program scheduling systems modeling, system cost modeling, certified waste projections, and a reference integrated shipping plan. Development of the planning basis consists of identifying (a) information and analyses needed for the decisions, (b) operational requirements, and (c) technology and system requirements, and then developing plans for meeting those requirements.

Task WBS numbers and titles are listed below:

<u>Element</u>	<u>Title</u>
2.2.1.1	Integrated Program Scheduling
2.2.1.2	System Modeling
2.2.1.3	System Cost Modeling
2.2.1.4	Certified Waste Projections

WBS NO. 2.2.1.1 (Integrated Program Scheduling)

The program scheduling logic has been incorporated into a user-interactive computer system (LISA PROJECT). The scheduling logic for activities and events in the TRU program will be continually updated, and changed to reflect or anticipate program changes. Critical paths will be identified for special management attention. Schedule progress and problem areas will be reported to provide for informed decision making. The effectiveness of information transfer from field operations to headquarters will also continue to be refined. The adequacy of alternate computerized project scheduling systems to meet JIO needs will continue to be evaluated.

WBS NO. 2.2.1.2 (System Modeling)

Several models have been developed by the JIO as tools in the design of the TRU waste management system. The TRUSIM model is discrete-event type simulation model wherein the system is modeled through a sequence of events that represent the actual operation of the system. The model then simulates the generation, certification, and transportation of TRU waste to the WIPP facility. JIO has developed "Phoenix" which is software to be used with the TRUPACT Monitoring and Dispatching System (TMADS).

JIO will provide guidance for the development of a real-time data base. This data base along with TRUSIM, Phoenix and additional control software will be integrated into TRUSYSTEM. TRUSYSTEM will be initially used to analyze the TRU logistic system. When waste begins to be moved to WIPP, TRUSYSTEM along with TMADS will be used in the management of those movements. (See Appendix C and F)

WBS NO. 2.2.1.3 (System Cost Modeling)

The TRUCOST system cost model, on other models which were developed as part of TRUSYSTEM, will be used to estimate and analyze the costs associated with long-term management of TRU waste, and to support a variety of analyses and planning tasks.

WBS NO. 2.2.1.4 (Certified Waste Projections)

The JIO annually develops certified waste projections of TRU waste for the Integrated Data Base. These projections provide input for the data base system for a variety of analyses that can be performed.

WBS NO. 2.2.2 (Requirements Analysis)

This task is involved in the identification of technology, facility, and system requirements.

Work elements associated with this task are listed below:

<u>Element</u>	<u>Title</u>
2.2.2.1	Remote-Handled Waste Management
2.2.2.2	Special-Case Waste Management
2.2.2.3	Facilities
2.2.2.4	Transportation Packaging

WBS NO. 2.2.2.1 (Remote-Handled Waste Management)

Studies will be conducted to evaluate alternatives and costs for handling, processing, and packaging RH-TRU waste. Facility development, on hold in FY87, will be identified to support these activities. Procedures and plans for WIPP-WAC certification will be developed. A plan will be finalized for support of the WIPP RH waste demonstration. The RH Waste Strategy Document will be finalized in the Long Range Master Plan.

WBS NO. 2.2.2.2 (Special-Case Waste Management)

Special-case waste includes contact-handled waste and remote-handled waste that are difficult to process and certify for WIPP emplacement. The process of characterizing special-case waste in interim storage will be continued in FY87. Special-case waste management activities will also identify facility requirements for handling, processing, packaging and WIPP certification. Guidance will be issued for making decisions on whether wastes are impractical to certify. The SC Waste Implementation Plan will be finalized.

WBS NO. 2.2.2.3 (Facilities)

Requirements for RH waste processing and certification facilities were reviewed in a cost/schedule optimization analysis.

WBS NO. 2.2.2.4 (Transportation Packaging)

Development of a transportation system for remote handled waste will continue. A contract for fabrication of the cask will be awarded in FY87; also the RH cask SARP will be developed.

TRUPACT design changes require the analysis of the impact of gases generated during the transportation period. The analysis of gas control methods in CH waste will be investigated in FY87. (See Appendix G.)

WBS NO. 2.2.3 (Criteria and Procedures Development)

Strategies and technologies are being developed and updated for long-term management alternatives for buried waste. Other capabilities for non-WIPP disposal are being investigated, for waste forms that would otherwise be too difficult and expensive to process for WIPP emplacement. Further studies and field demonstrations for these capabilities will continue in FY87. (See Appendix H.)

Work elements associated with this task are listed below:

<u>Element</u>	<u>Title</u>
2.2.3.1	Certification
2.2.3.2	In-Situ-Vitrification
2.2.3.3	Buried and Special Case Waste Technical Support

WBS NO. 2.2.3.1 (Certification)

As a member of the WIPP-Waste Acceptance Criteria Committee, JIO reviews waste generating and storage site certification and related QA plans to ensure conformance to the WIPP-WAC and performs audits of site waste certification activities.

Additionally, JIO oversees a variety of technical studies designed to identify/resolve issues pertaining to the technical aspects of Waste Acceptance Criteria Conformance. Certification activities during 1987 will

include a guidance to the sites for WAC compliance and a gas generation evaluation. A summary report regarding the status of site certification activities is transmitted quarterly to DOE/HQ waste operations.

WBS NO. 2.2.3.2 (In-Situ-Vitrification)

JIO evaluated the procedures for the large-scale field demonstration of in-situ-vitrification in FY 86 by PNL. Criteria for this candidate method for long-term management alternatives for buried waste will be evaluated in FY 87. The FY 87 In-Situ-Vitrification Program at PNL is planned to close out in FY 87 with a final technology report.

WBS NO. 2.2.3.3 (Buried and Special Case Waste Technical Support)

From 1994 to 1970, Transuranic (TRU) waste was disposed at five major DOE field sites. The TRU was produced from national defense activities. The disposal sites are located at Hanford, Idaho National Engineering Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Savannah River Plant. During these years, the waste was put into various types of containers, such as 55 gallon drums and fiberglass reinforced plywood boxes, and placed into shallow pits and trenches and backfilled with soil. This waste is now termed buried waste.

Special case waste (SC) is that fraction of CH and RH TRU waste which cannot be readily and practically certified for emplacement at WIPP using existing processing and certification technology. The SC waste is retrievably stored until safe cost-effective processing and certification technologies are developed and evaluated.

Both buried and SC wastes must be addressed by the Department of Energy in order to meet all commitments and regulations. This task is therefore established to provide for the creation of two Long Range Master Plans; one for buried waste and one for SC waste.

These plans are a necessary function to provide for integration of the TRU Program participants in developing consistent goals, milestones, and focused objectives. To date, no formal plans have been written and approved except on a piecemeal basis. These plans will include policies, strategies, site-specific plans, alternatives, schedules, milestones, and cost estimates. All plans will be reviewed by the sites and DOE/HQ for approval.

Program objectives and overall schedules will be as stated in The Defense Waste Management Plan.

WBS NO. 2.2.4 (Legislative and Regulatory Analyses)

Legislative and regulatory analyses will be ongoing to provide early warning as to how program strategy would be affected by proposed and pending Congressional actions, including legislation, appropriations, and hearings.

Four areas of analysis listed below are anticipated to have the most impact of proposed or existing legislation and regulations that affect or could affect the management of defense TRU wastes:

<u>Element</u>	<u>Title</u>
2.2.4.1	NEPA Compliance
2.2.4.2	40 CFR 191
2.2.4.3	Transportation Issues
2.2.4.4	RCRA
2.2.4.5	CERCLA

WBS NO. 2.2.4.1 (NEPA Compliance)

The initial steps of assessing environmental requirements for retrieving, processing, certifying, transporting, and emplacing defense TRU wastes in the WIPP, were the development and issuing of a NEPA Strategy and Planning Document. This document supported site-specific and generic planning and scheduling to meet appropriate environmental requirements. The activity supported sites in making initial assessments of any required site-specific environmental documentation, e.g. action description memoranda. The NEPA effort will continue in FY 87.

The revisions to the Transportation Assessment and Guidance Report (TAGR) task will ensure that objectives, analyses, and goals are being performed to meet the Transuranic (TRU) Waste Program objectives of shipping TRU waste to the Waste Isolation Pilot Plant (WIPP) beginning October 1988. The results of this task will provide the defense TRU waste generating sites with an updated Transportation Assessment and Guidance Report (TAGR) for their use in preparing required National Environmental Policy Act (NEPA) documentation. (See Appendix I.)

The small TRU waste generating sites (ANL-E, LLNL, Mound, NTS, Sandia, etc.) will prepare the appropriate NEPA documentation in FY 87. The documentation prepared will address the individual site actions required to ship TRU waste to WIPP. ORNL will prepare an ADM for RH TRU waste.

WBS NO. 2.2.4.2 (40 CFR 191)

This regulation is proposed by the Environmental Protection Agency and is entitled "Environmental Standards and Federal Radiation Protection Guidance for Management and Disposal of Spent Nuclear Fuel, High-Level, and Transuranic Radioactive Wastes." JIO reviewed this document and provide analysis of potential impact on handling, processing, packaging transporting, and certification of TRU wastes for WIPP emplacement. Specific actions for compliance will also be recommended.

WBS NO. 2.2.4.3 (Transportation Issues)

JIO participates in an ad hoc working group established to develop a DOE plan for identifying and addressing institutional issues associated with transportation of TRU wastes.

WBS NO. 2.2.4.4 (RCRA)

JIO will monitor implementation of the 1984 EPA-DOE agreement on application of RCRA to defense wastes, and provide support in controlling costs at the site level.

WBS NO. 2.2.4.5 (CERCLA)

JIO will monitor implementation of the 1984 EPA-DOE agreement on application of CERCLA to defense wastes, and provide support in controlling costs at the site level.

WBS NO. 2.2.5 (Impact and Tradeoff Analyses)

Numerous impact, tradeoff, and optimization studies are necessary to organize the analysis of a large volume of relevant information and constraints defining both the operational system and the development program. Work tasks associated with this element are listed below:

<u>Element</u>	<u>Title</u>
2.2.5.1	Transportation System Analysis
2.2.5.2	Risk Analysis
2.2.5.3	Ad Hoc Analyses

WBS NO. 2.2.5.1 (Transportation System Analysis)

As transportation system plans evolve, system simulation models will be used to optimize transportation system plans. TRUSYSTEM will be used to assist in developing a recommendation as to whether a decentralized dispatch system, or a centralized dispatch system, or a combination of both would be cost effective. TRUPACT loading optimization analyses and rail/truck transportation tradeoff analyses will be incorporated.

WBS. NO. 2.2.5.3 (Risk Analysis)

Risk analyses will be performed in support of the development of waste acceptance criteria and in support of recommendations on transportation system development.

WBS NO. 2.2.5.4 (Ad Hoc Analyses)

Evolving program plans and the identification of alternative approaches in the program make it necessary to perform short-term analyses throughout the year. JIO responds to requests for decision making information from DOE/HQ and DOE/AL, as well as to needs it identifies.

WBS NO. 2.2.6 (Data Base)

The TRU Program, working with the Integrated Data Base at ORNL, compiles and maintains a data base on TRU waste quantities and characteristics, as support for policy decision making, long-range planning, economic and technical tradeoff analysis, technology development, process selection, facility sizing/design, and public information.

Work elements associated with this element are listed below:

<u>Element</u>	<u>Title</u>
2.2.6.1	TRU Waste Data Base
2.2.6.2	Integrated Data Base
2.2.6.3	Waste Characterization

WBS NO. 2.2.6.1 (TRU Waste Data Base)

The JIO is developing a data base designed to speed up data acquisition for program trade-off studies and analyses. The initial data has been provided to JIO by the sites. This data is being computerized at the JIO and will be updated on an annual basis.

WBS NO. 2.2.6.2 (Integrated Data Base)

JIO develops and transmits to the Integrated Data Base at the ORNL data to be incorporated into annual DOE reports. This information is the consistent set of data to be used as the basis for all DOE analyses. The document addresses not only TRU waste, but also discusses High-Level, Low-Level, Spent Fuel, Uranium Mill Tailings, Airborne Wastes, etc.

WBS NO. 2.2.6.3 (Waste Characterization) -

Waste Characterization analyses are performed at the JIO on a regular basis to further understanding of waste management requirements. These studies are used in setting limits on waste acceptance at the WIPP, analyses concerned with radiation exposure to workers and the environment, transportation container design, program scheduling and planning.

BUDGET SUMMARY - J10
FY 87

OPERATING-INPUT-3185K
\$K

PLANNED(1)	O	N	D	J	F	M	A	M	J	J	A	S
Monthly PM *	159	159	159	159	159	159	159	159	159	159	159	161
Monthly PA **	106	106	106	106	106	108	106	106	106	106	106	107
Total	265	265	265	265	265	267	265	265	265	265	265	268
Cumulative	265	530	795	1060	1325	1592	1857	2122	2387	2652	2917	3185

OUTPUT-3185K
\$K

PLANNED(1)	O	N	D	J	F	M	A	M	J	J	A	S
Total PM *	159	159	159	159	159	159	159	159	159	159	159	161
Total PA **	106	106	106	106	106	108	106	106	106	106	106	107
Total	265	265	265	265	265	267	265	265	265	265	265	268
Cumulative	265	530	795	1060	1325	1592	1857	2122	2387	2652	2917	3185

* PM = Program Management (\$800K) + Independent Review (\$50K) + National Working Group Reduced Waste Generation (\$90K) + Transportation Integration (\$470K) + TRUPACT Monitoring (\$500K) or \$1,910K.

** PA = Program analysis (\$800K) + TAGR Revision (\$100K) + System Simulation Modeling (\$100K) + Buried and SC Waste Tech Support (\$125K) + Gas Generation (\$150K) or \$1,275K.

QUALITY ASSURANCE

The JIO Quality Assurance (QA) activity follows the established QA procedures and plans of the Rockwell International and Westinghouse Corporation. The QA effort is consistent with the requirements of DOE Order 5820.2 and DOE Order 5700.6.

The major products of JIO fall into one of the following categories:

- National strategies & plans
- Integrated schedules & cost projections
- Procurement cost estimates
- System requirements & tradeoff analyses
- Interface Working Group reports
- Waste inventory and characteristics data
- System models
- Technical analyses
- Task guidance
- JIO plans & reports
- Foreign technology status reports
and workshop proceedings

The key quality issues are:

- Does the document meet its objectives?
- Is it quantitatively correct?
- Is it internally consistent?
- Is it consistent with DOE policy?
- Is it consistent with other planning documents?
- Is it responsive to site input?

The first step to ensure quality is to establish ground rules, such as requiring consistency with the Integrated Data Base (a requirement for all JIO work). Validated computer models are used for repetitive or lengthy calculations, to prevent simple calculation errors. A series of internal and external reviews of draft documents by the potentially affected parties are used to ensure accuracy, consistency, and correctness in the products. The impact of these tools is shown in the following matrix:

<u>Quality Issue</u>	<u>Laying Out Ground Rules</u>	<u>Computer Modeling</u>	<u>Mechanism</u>		<u>Mgmt Review</u>	<u>Comment Response</u>
			<u>JIO Review</u>	<u>Site DOE Review</u>		
Meet objectives	XX			XX	XX	
Quant. correct	XX	XX				
Intern. consistent		XX		XX		
Policy consistent				XX	XX	
Consistent other docs			XX	XX	XX	
Responsive to input						XX

APPENDIX A

CURRENT YEAR WORK PLAN

TLO/WPO IWG SUPPORT

Purpose and Scope

Since September 1983, the WIPP Project Office (WPO) and the Joint Integration Office (JIO) have participated in formal interface control management. The interface organization includes the Interface Control Board (ICB), comprized of DOE representatives from the WPO and the JIO with policy and decision-making responsibility, and a series of Interface Working Groups (IWG's). The IWG's are formed of technical support persons with expertise to focus on specific technical interface issues and problems. The Interface Management Charter established four standing IWG's and provided that additional IWG's could be created to address issues as they arise and to recommend actions to the ICB. Once these special IWG's completed their work they would be dissolved by the ICB.

During the last year, interface activities between the WPO and the JIO have increased as the DTWP moves closer to implementing many of the waste management technologies which have been under development. The ICB, meeting each month, has created IWG's addressing TRU waste packaging, barcoding, NDE/NDA, RH waste characteristics besides assigning issues to Operations and Transportation Planning, and the RH Canister. Because, in part, of the successful record of interface management over the past year, interface activities are expected to be even more active in the coming year. In addition, increased cooperation between the WPO and the JIO is expected to continue.

The current task will support expedient formation of IWG's as interface issues arise as well as the timely response of IWG's to issues assigned by the ICB. Since members of the IWG's are contractors with other responsibilities for other projects, this task will support their temporary reassignment to IWG activities. The support will be allocated to individual IWG activity on an "as needed" basis.

Deliverables

1. Individual IWG Reports to the ICB.
2. Semi-Annual Reports of ICB and IWG Activities.

Milestones

1. Complete first Semi-Annual Report.....03/87
2. Complete second Semi-Annual Report.....09/87

Funding \$75K

Quality Level C

APPENDIX B

CURRENT YEAR WORK PLAN
TRANSPORTATION INTEGRATION

FY 1987

CURRENT YEAR WORK PLAN

TRANSPORTATION INTEGRATION:

Introduction:

Transportation packaging for the transport of transuranic waste has been under development since FY 1978. Since that time, conceptual, preliminary, final design, and fabrication of four prototype TRUPACT units have been completed. Since FY 1981, this transportation development tasks have been monitored by a DOE subcontractor, currently the Joint Integration Office. Funding provided under this scope of work will be used to continue program planning, monitoring, and implementation activities for the prototype TRUPACT (TRUPACT-I) System.

Description of Work:

Funding allocated for this task will be used to support personnel and level of effort activities associated with bringing the CH-TRU transportation system on board. Included in this task is developing a central dispatching concept for the transportation tracking system within the JIO. Additional work is required to be performed on the TRUPACT prototype fleet specifically completion of modification to the TRUPACT-I Units 2 & 3 outer door, procurement of trailers and completion of modifications to the ancillary handling equipment design such that it is compatible with the prototype fleet. Completion of this activity will require continued support of the subcontractor performing design modification work in fiscal year 1987. Shipments of CH-TRU will be initiated between Rocky Flats Plant and the Idaho National Engineering Laboratory to obtain detailed information on the transport of CH-TRU within the TRUPACT. These shipments will be made using the slip-plate loading method. Where necessary, assistance will be provided in support of the TRUPACT-I SARP. An interface will be maintained with the production fleet design effort being conducted at WIPP. Integration of the transportation system includes serving as the liaison between the waste shippers and the WIPP.

In addition to integrating the CH-TRU transportation activities, this task includes initiating development of a transportation plan for the RH-TRU system. A project monitor will follow RH-TRU related tasks, i.e., receipt of RH-TRU transportation packaging, RH-TRU strategy development, and site shipping concerns, and preparation of a plan for moving this waste from generation and storage sites to the WIPP.

PROGRAM MANAGEMENT MILESTONES FY 87

<u>MILESTONES</u>	<u>DATE</u>
Complete hiring of a Central Dispatch Coordinator.....	10FY'87
Develop initial plan for operation of JIO Central Dispatch Office.....	20FY'87
Identify manpower and funding requirements for operation of a 24-hour central dispatch operation.....	20FY'87
Integrate activities of the central dispatch office with the activities of the tracking system demonstration.....	4QFY'87
Subcontractor completion of modifications to ancillary handling equipment design.....	3QFY'87
Complete review of background information on RH-TRU waste documentation in support of developing a transportation plan.....	2QFY'87
Complete retrofit of TRUPACT-I Units 2 & 3.....	2QFY'87
Complete procurement of trailers for TRUPACT-I Units 2 & 3.....	2QFY'87

DELIVERABLES:

Central Dispatch Center Operations document.....	4QFY'87
Tracking system demonstration and central dispatch center integration report.....	4QFY'87
TRUPACT-I prototype modified ancillary handling equipment implementation report.....	4QFY'87
Preliminary draft RH-TRU transportation plan.....	4QFY'87

Funding:

Funding has been allocated at \$470K.
Quality Level A

APPENDIX C

CURRENT YEAR WORK PLAN
TRUPACT MONITORING AND ISPATCHING SYSTEM
(TMADS)

FY 1987

CURRENT YEAR WORK PLAN

TRUPACT MONITORING AND DISPATCHING SYSTEM
(TMADS)

Introduction:

The development and demonstration of the Transport Tracking System is an integral part of the overall waste management logistics program. The results of this development and demonstration activity will prove the feasibility of using a satellite-based vehicular tracking system.

Goals and Objectives:

1. Procurement of a test-bed unit to be used in the demonstration program.
2. Procurement of equipment necessary for the logistics management system.
3. Selection, procurement and development of a historical database.

Quarterly Tasks:

First Quarter - (All deliverables are due on or before the last day of the quarter.)

1. Contract for development of a DOE test-bed for a satellite-based tracking system.
2. Software validation to ensure compatibility of JIO and contractor communication software packages.

Second Quarter - (All deliverables are due on or before the last day of the quarter.)

1. Identification of equipment necessary for logistics management activities.
2. Definition of requirements for the historical database system.

Third Quarter - (All deliverables are due on or before the last day of the quarter.)

1. Receipt of a test-bed in the satellite-based tracking system.
2. Purchase and delivery of logistics management equipment.

Fourth Quarter

1. Report on test-bed for demonstration program and demonstration program update.
2. Documentation of logistics management system including users guide and procedure manual.
3. Documentation on the historical database.

Funding Required (\$000)

FY 1987

Total	500
BA	- 300
CE	200
Quality Assurance:	Level A

APPENDIX D

CURRENT YEAR WORK PLAN
RWG-NATIONAL WORKING GROUP

FY 1987

CURRENT YEAR WORK PLAN

RWG-NATIONAL WORKING GROUP

This task will be for the continuation of the National Working Group for Reduction in TRU Waste Arisings. Organizational objectives are to

- 1) exchange ideas on ways in which waste arisings can be minimized,
- 2) provide analytical input for task development and implementation, and
- 3) establish cooperative work efforts for technical development.

FY 1987 WORK PLAN

Host two meetings to exchange information relevant to waste reduction, and submit a topical report entitled "FY 1987 Summary Report -- National Working Group for Reduction in TRU Waste Arisings."

Milestones:

1. The first FY 87 National Working Group for Waste Reduction is scheduled to coincide with the TRU Update Meeting, scheduled for December 9-11, 1986. Discussions will be on international exchange procedures and prioritization of RWG tasks.
2. The second FY 87 National Working Group for Waste Reduction meeting is scheduled for July 1987. Topic to be determined.
3. Complete report "FY 1987 Summary Report -- National Working Group for Reduction in TRU Waste Arisings."

Budget:

Funding is \$90K.

Quality Assurance Level C

APPENDIX E

CURRENT YEAR WORK PLAN
INDEPENDENT REVIEW COMMITTEE

INDEPENDENT REVIEW COMMITTEE

Objectives

The Independent Review Committee, comprised of seven members with background and experience with radioactive waste management issues, provides independent and objective review of Defense Transuranic Waste Program (DTWP) activities managed by the Joint Integration Office. The membership of the IRC for the coming year includes representatives with experience in nuclear engineering, nuclear waste transportation, industrial quality control, systems and environmental engineering and state and local government interface issues.

Scope

The scope of IRC activities includes objective overall review of JIO sponsored planned, projects and activities, including a technical review of particular research and development tasks and projects. The IRC makes specific suggestions and recommendations based upon expertise in the field of TRU waste management. The Committee operates as a consulting group to the JIO and is governed by a charter identifying its responsibilities and ensuring its objective status.

Tasks

The IRC will meet in committee twice in FY 87 to review program activities. The Committee will assign individual members to act as review leaders in specific technical areas and areas of specific member expertise, e.g. transportation, waste certification, and quality control. As appropriate, individual members will be requested to review documents or participate in review activities specific to their individual expertise.

Milestones

1. Complete Annual Report for Previous Year.....02/87
2. Complete Semi-Annual Meeting and Review.....03/87
3. Complete Final Meeting and Review.....09/87

Funding \$50K

Quality Assurance Level C

APPENDIX F

CURRENT YEAR WORK PLAN
SYSTEM SIMULATION MODELING

FY 1987

CURRENT YEAR WORK PLAN

SIMULATION MODELING TRUSYSTEM

Introduction:

A system of computer programs, models, databases and files (collectively called TRUSYSTEM) are being developed for the analyses and operation of the management of Department of Energy's (DOE) defense related transuranic waste (TRU). The ultimate purpose in developing TRUSYSTEM is to provide a tool to ensure the safe and efficient movement of TRU from the various facilities throughout the country to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, NM. TRUSYSTEM will consist of:

1. logistic system simulation model (TruSim)
2. real time database program (prism)
3. transport tracking software [1] (Phoenix)
4. database files
5. control programs

The preliminary versions of TruSim and Phoenix have been completed, while the real time database program is about half completed. The remaining effort will be the completion of the database program, the entry of data (from the Inventory Work Off Plans, the Integrated Database and submittals from individual sites), and the writing of the control program software. The integration of the real time simulation model into TRUSYSTEM will be the bulk of the effort.

FY 87 Objectives:

The TRUSYSTEM development objectives during Fiscal Year 1987 are:

1. complete the real time database program
2. enter the TRU logistic system data
3. field demonstration of the transport tracking system software
4. perform analyses of the TRU waste logistic system
5. initiate development of the control programs

Quarterly Tasks:

<u>First Quarter</u>	Complete the real time database program
<u>Second Quarter</u>	Complete database enteries
<u>Third Quarter</u>	Support analyses of the TRU waste logistic system and field testing of the transport tracking system
<u>Fourth Quarter</u>	Begin development of the TRUSYSTEM control programs

Budget:

Total Budget: \$100K

Quality Assurance:

The Quality Assurance Program for this effort will be consistent with the guidelines contained in memorandum D-123, "Quality Assurance for Defense Waste Technology Programs, July 1983, for Level C Projects". It will consist of the following elements.[3]

1. code documentation
2. field testing of the tracking system
3. review of the database by QED

3. The simulation model, TruSim has already been independently validated.

APPENDIX G

CURRENT YEAR WORK PLAN
GAS GENERATION STUDIES

STATEMENT OF WORK

TASK A. TRUPACT-II ASSESSMENTS. In support of the TRUPACT-II analysis, design, and testing effort, the following subtasks have been identified:

1. TRUPACT Testing. The current TRUPACT concepts no longer incorporate venting for pressure relief and control of hydrogen buildup. Although venting of TRU waste containers provides a method for controlling hydrogen buildup within containers under storage conditions, transporting hydrogen generating waste in an unvented TRUPACT can be expected to result in reduced effectiveness of container venting during shipment. Previous container vent evaluation work provides important experimental information regarding the buildup of hydrogen in a vented drum container. The corresponding information for the TRUPACT itself is not available. In this subtask, a TRUPACT shipping container will be tested using an experimental approach similar to that used previously for the container evaluations. The following aspects will be addressed:
 - a) Hydrogen TRUPACT seal. The dissipation of hydrogen from a sealed TRUPACT from diffusion and other loss mechanisms will be experimentally measured using the hydrogen concentration decay method previously developed.
 - b) Recombiner/getter performance. The performance of catalytic recombiners and/or getters in the TRUPACT cavity will be experimentally measured.
 - c) Gas composition and pressure vs. time. The impacts of diffusion loss and catalytic recombination on the TRUPACT atmosphere will be evaluated experimentally. In particular, the impact of recombiners on oxygen depletion should be determined.
2. TRUPACT-II Design Review. Transnuclear is currently designing the TRUPACT-II using hydrogen generation/pressurization criteria previously developed and validated. As the design is finalized, a design review will be conducted to evaluate the design against the criteria.
3. TRUPACT-II Criteria/Regulations.
 - a) Pressurization from factories other than gas generation. TRUPACT-II pressurization results not only from gas generation (radiolytic, bacterial, and thermal) but also from other mechanisms including barometric pressure changes, altitude changes and thermal ideal gas law considerations. In addition, the regulatory requirements specify test conditions that affect the pressurization design. The interaction between the different contributors to pressurization criteria will be assessed in this subtask.
 - b) Regulations compliance. Compliance of the TRUPACT-II with existing regulations related to gas generation and TRUPACT certification will be evaluated to determine testing and validation requirements.

4. TRUPACT-II Recombiner/Getter. The use of recombiners and/or getters to control hydrogen gas buildup will be evaluated using experimental information from the TRUPACT testing program and information from the TRUPACT-II design. Impacts on the buildup of flammable gas mixture will be determined for the 30/60 day design requirements specified by NRC IE Notice 84-72 as well as the the one year requirements of 10CFR71.
5. TRUPACT-II Alternative Approaches.
 - a) Alternative approaches to the unvented TRUPACT-II concept will be reviewed and evaluated with regard to gas generation requirements. Included in the evaluation will be containment at the individual container level (i.e., container overpack) as well as six pack containment.
 - b) Gas generation criteria will be assessed to determine implications related to alternative containment approaches.
6. TRUPACT-II - Thermal Gas Generation.
 - a) Previous evaluations have demonstrated the importance of thermal gas generation in establishing TRUPACT-II pressurization levels. Gas generation characteristics for temperatures in the range of 100°C to 250°C will be investigated.
 - b) Strategies for evaluating and controlling the potential for thermal gas generation will be developed.
 - c) The literature related to thermal gas generation phenomena will be reviewed and summarized.
 - d) Certification criteria related to thermal gas generation effects will be assessed.
7. TRUPACT-II Profile. Load profiles from existing and projected inventories will be evaluated and described. Options for load management will be developed and assessed. Load profiles will be related to:
 - a) typical load
 - b) special case shipments
 - c) box containers versus drums

TASK B. TRUPACT-III INTER-SITE IMPACT. Inter-site transfers of TRU waste using TRUPACT shipping containers may involve different parameters than those encountered for the shipment of WIPP certified/certifiable wastes. These impacts will be identified and evaluated.

1. Gas Generation/Pressurize Design Criteria for the 30/60 day requirements (NRC IE Notice 84-72) as well as the one year requirements (10CFR71) will be assessed in regard to the inter-site transfer issue.
2. Validated Design Criteria will be developed using the approach previously applied to the TRUPACT-II.

TASK C. GAS GENERATION HANDLING AND SHIPPING RISK ANALYSIS. Responsible design approaches are intended to minimize the potential for accident risks. Although it is possible to reduce the impacts or likelihood of accident conditions, it is generally not possible to absolutely preclude the occurrence of all potential impacts. The application of risk analysis techniques to handling and shipping operations provides a basis for quantifying the risks of such unlikely events.

1. Newly Generated and Stored Waste. These forms of TRU waste involve different handling but similar shipping operations. Both types will be evaluated for accidental release probabilities and consequences.
2. The buildup of flammable gas concentrations within inner containers could influence the nature or degree of a potential release. The magnitude of this effect will be analyzed from a risk perspective.

TASK D. PEER REVIEW OF GAS GENERATION REPORTS. Periodically, various organizations in and out of the DOE system are expected to prepare reports related to gas generation. These reports will be peer reviewed for technical content and implication.

TASK E. INNER CONTAINER. Sealed containers within a vented TRU waste container can result in the buildup of flammable gas concentrations in spite of adequate container venting. The size, diffusion characteristics, and internal gas generation rates in such inner containers are important aspects of the physical processes resulting in gas buildup.

1. Previously developed models will be applied to calculate the nature and extent of the buildup of hydrogen in sealed inner containers.
2. Previously developed experimental techniques will be applied to measure the physical phenomena related to hydrogen buildup in sealed inner containers.
3. Based on the modeling and experimental insights, strategies for addressing gas buildup in sealed inner liners will be proposed and evaluated.

TASK F. HARDWARE TESTING - CONTAINERS. Previously developed laboratory procedures and equipment have been used to characterize the performance of container vent systems. This approach (the hydrogen decay method) will be applied to:

1. alternative vent designs
2. catalytic recombiners and/or getters
3. the validation of specific vent systems
4. the development of field guidance

TASK G. MINE INFLATION WIPP SUPPORT. Aside from the buildup of flammable gas concentrations, the problem of pressurization of containers has been previously evaluated. The mine inflation scenario is one in which gas generation in TRU waste exceeds the capacity of the sealed facility.

1. The source terms for gas generation will be defined.
2. The capacity of the WIPP facility for gas pressurization will be evaluated.
3. Peer review/evaluation of technical work on mine inflation will be conducted.

TASK H. ADDITIONAL ASSESSMENT SUPPORT. Additional assessments will be carried out on an as-needed basis to support ongoing JIO requirements.

TASK I. ANTICIPATED FOLLOW-ON. In addition to the specific requirements listed above in this work statement, the requirement for expanded efforts in related areas due to changing emphasis of JIO programs may be anticipated.

Budget: \$150K

Quality Assurance Level B.

APPENDIX H

CURRENT YEAR WORK PLAN
BURIED WASTE AND SPECIAL CASE WASTE
TECHNICAL SUPPORT

BURIED AND SPECIAL CASE WASTE TECHNICAL SUPPORT

Introduction:

From 1944 to 1970, Transuranic (TRU) waste was disposed at five major DOE field sites. The TRU was produced from national defense activities. The disposal sites are located at Hanford, Idaho National Engineering Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Savannah River Plant. During these years, the waste was put into various typed of containers, such as 55 gallon drums and fiberglass reinforced plywood boxes, and placed into shallow pits and trenches and backfilled with soil. This waste is now termed Buried Waste.

Special Case Waste (SC) is that fraction of CH and RH TRU waste which cannot be readily and practically certified for emplacement at WIPP using existing processing and certification technology. The SC waste is retrievably stored until safe cost-effective processing and certification technologies are developed and evaluated.

Both Buried and SC Wastes must be addressed by the Department of Energy in order to meet all commitments and regulations. This task is therefore established to provide for the creation of two Long Range Master Plans; one for Buried Waste and one for SC Waste.

These plans are a necessary function to provide for integration of the TRU Program participants in developing consistent goals, milestones, and focused objectives. To date, no formal plans have been written and approved except on a piecemeal basis. These plans will include policies, strategies, site-specific plans, alternatives, schedules, milestones, and cost estimates. All plans will be reviewed by the sites and DOE/HQ for approval.

Program objectives and overall schedules will be as stated in The Defense Waste Management Plan.

Goals and Objectives:

1. Provide a description of the approach, resources, and schedules for ensuring uniform, coordinated Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) response at all DOE sites.
2. Plans should contain HAZRAP and LLW input and review.
3. Plans will provide the latest site characterization.
- 3b. Special Case plans will provide latest SC waste inventories and characterizations.
4. Applicable regulations will be outlined.
5. Provide support for DOE response to GAO report on TRU Program.

6. Provide for expandability to include HAZRAP and LLW sites in future iterations.
7. Coordinate and integrate site-specific input from five sites.
8. Assure most direct path to program goals are being followed.

Milestones:*

1. Current Year Work Plan delivered to AL/WMTDD..... 10/86
2. Present discussion at workshop at TRU Program
Update Meeting..... 12/86
3. Provide working draft of final documents to DOE/AL..... 01/87
4. Send final draft to field offices for review and comment..... 04/87
5. Prepare and distribute final documents..... 06/87

* Applicable to both Buried and Special Case Wastes.

Budget: \$125K

Quality Assurance:

This program will submit to quality assurance Level B. All pertinent records will be maintained at the JIO office in Albuquerque, NM. All computer files will be saved in permanent storage. JIO will bring in advisement from DOE/HQ, outside contractors, and from within Rockwell International to assure the highest probability of success for the task. This advisement will be in the form of informal and formal meetings with the above mentioned participants. These meetings will take place during the Fall of 1986 and the Spring of 1987 at DOE TRU storage contractor sites, Washington D.C., and the JIO offices in Albuquerque, NM. Also, there will be a formal review by DOE and the above mentioned contractor sites before any final documents are published.

Schedules:

Please find on pages following, event schedules utilizing the LISA Project computer system. The dates on the top of the boxes represent early start and finish dates, while the dates on the bottom of the boxes represent late start and finish dates.

Budget: \$125K

BURIED WASTE IMPLEMENTATION PLAN

9/30/86 10/28/86

WRITE NON-TECH SECTIONS OF CIP	20
12/4/86 1/9/87	

1/22/87 1/29/87

DOE/ALD/JIO REVIEW OF DRAFT	5
2/6/87 2/13/87	

11/20/86 12/1/86

TECH EDITOR REVIEW CIP (W/O LRP)	5
1/9/87 1/16/87	

12/4/86 1/9/87

9/19/86 9/30/86

DECISION RE CHANGE OUTLINE	7
11/7/86 11/18/86	

10/9/86 11/20/86

WRITE BASIC STRUCTURE (NON SITE SPECIFIC) OF CIP	30
11/18/86 1/9/87	

11/7/86 11/18/86

9/18/86 10/9/86

ADDITIONAL SITE VISITS OR WORKSHOP	15
10/28/86 11/18/86	

12/24/86 1/22/87

REVISE AND PREPARE FINAL DRAFT 1	15
1/16/87 2/6/87	

12/24/86

SITES COMPLETE DRAFT LRP'S	1/2/87
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1/29/87 2/12/87

INCORPORATE COMMENTS FROM ALD/JIO REVIEW	10
2/13/87 2/27/87	

12/9/86

UPDATE MTG WORKSHOP	
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12/9/86

9/5/86 12/24/86

SITES PREPARE LRP'S/SITE CHAIR	76
9/8/86 1/2/87

SPECIAL CASE IMPLEMENTATION PLAN

1/21/87	1/26/87
TECH. EDITOR REVIEW BASIC STRUCTURE	
1/27/87	1/30/87
3	

1/26/87	2/16/87
REVISE AND PREPARE FINAL DRAFT 1	
1/30/87	2/20/87
15	

2/16/87	2/23/87
DOE/ALO/JIO REVIEW OF DRAFT	
2/20/87	2/21/87
5	

2/23/87	3/2/87
INCORPORATE COMMENTS FROM ALO/JIO REVIEW	
2/27/87	3/6/87
5	

3/2/87	3/30/87
DOE-HQ REVIEW OF DRAFT	
3/6/87	4/3/87
20	

3/30/87	4/6/87
INCORPORATE DOE/HQ COMMENTS	
4/3/87	4/10/87
5	

4/6/87	4/9/87
DOE/ALO REVIEW DRAFT 2 WHICH GOES TO FIELD	
4/10/87	4/15/87
3	

4/9/87	4/13/87
INCORPORATE MINOR DOE/ALO COMMENTS	
4/15/87	4/20/87
2

APPENDIX I

CURRENT YEAR WORK PLAN
TRANSPORTATION ASSESSMENT AND GUIDANCE REPORT (TAGR)
REVISION

REVISIONS TO TRANSPORTATION ASSESSMENT AND GUIDANCE REPORT

Introduction:

The revisions to the Transportation Assessment and Guidance Report (TAGR) task is a necessary function to ensure that objectives, analyses, and goals are being performed to meet the Transuranic (TRU) Waste Program objectives of shipping TRU waste to the Waste Isolation Pilot Plant (WIPP) beginning October 1988. The results of this task will provide the defense TRU waste generating sites with an updated Transportation Assessment and Guidance Report (TAGR) for their use in preparing required National Environmental Policy Act (NEPA) documentation.

The TAGR will be updated to reflect the best available data for TRU waste volumes, characteristics, and waste forms. The TAGR will provide the TRU waste generating sites a referenceable technical report on cumulative transportation risk for shipping TRU waste to WIPP.

Program objectives and overall schedules will be as stated in The Defense Waste Management Plan to achieve permanent disposal and end interim storage. The report will include a transportation risk analyses utilizing RADTRAN III, a risk assessment for TRUPACT II, a risk assessment for newly identified shipping routes, intersite shipments for centralized TRU waste processing, and ATMX railcar shipments.

Goals and Objectives:

- 1) Provide defense TRU waste generating sites with a referenceable technical report for preparing NEPA documents.
- 2) Provide the sites with a report presenting a cumulative risk assessment.
- 3) Provide guidance for preparing NEPA documentation.

Quarterly Task and Descriptions:

First Quarter:

- 1) Current Year Work Plan to ALO/WMTDD

Second Quarter:

- 1) Collect data for RADTRAN III input.
- 2) Analyze selective sample of RADTRAN III computer results.

Third Quarter:

1) Issue revised TARG, 5/30/86.

Funding \$100K

Quality Assurance Level C

END

**DATE
FILMED**

11/14/91