



WHC-SP-1187  
Revision 0  
UC-2000

# Transportation and Packaging Headquarters Support 1997 Multi-Year Work Plan WBS 8.1

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Prepared for the U.S. Department of Energy  
Assistant Secretary for Environmental Management



**Westinghouse**  
**Hanford Company**

P.O. Box 1970  
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Approved for public release

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1997 Multi-Year Work Plan WBS 8.1

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### 1.0 TECHNICAL SECTION

#### 1.1 Project Mission

To develop and implement baseline and state-of-the-art transportation and packaging resources for DOE, and its support contractors. These resources include effective strategies, tools and techniques, packaging and transportation systems, operational methods, policy and guidance focused at providing safe, efficient, regulatory compliant and cost-effective materials transportation. Upon request, and with DOE approval these same services can be provided to other agencies and contractors; e.g., DOT, GSA.

Staffing to provide these baseline transportation and packaging resources is supplemented by outsourcing to specialized subcontractors.

Transportation Training establishes the nationwide baseline transportation training program to comply with existing regulations, which will allow hazardous material (HazMat) employees, DOE and contractor HazMat shippers to meet their job requirements. It will also provide training to develop a career path for employees to ensure a highly trained and skilled work force is available to meet the U.S. Department of Energy (DOE) transportation needs.

Transportation Automation provides the information technology infrastructure that will support the DOE across all programmatic areas of transportation management. This entails managing the development, upgrade, implementation, and operation of various computer codes, analytical tools, databases, and communication systems, including independent validation and verification to support both operational and research requirements.

Regulatory Compliance and Technical Assessment provides oversight and assistance to ensure that transportation and packaging operations are conducted safely and within all required laws, regulations, and orders at all DOE sites.

Explosives Classification and Program Management provides the foundation for DOE's explosives transportation activities. The efficient management of the explosives classification and transportation program throughout the DOE ensures safe, effective operations; comprehensive explosives data management; and compliance with established industrial standards and all applicable federal regulations.

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Packaging Engineering and Analysis is an integrated program based on an overall assessment of Departmental transportation packaging needs. An integrated Departmental packaging development program involves utilization of Departmental resources in the most efficient and cost-effective manner. Packagings that can serve the needs of multiple programs and sites will be developed where appropriate; packaging development for specific programs will be supported where appropriate funding is available. Consideration will be given to the use of recycled materials in the development of packagings. Testing and evaluation will be performed as needed to support packaging development and certification.

#### **1.2 Project Technical Endpoint Targets**

The DOE overall strategic mission has changed. Emphasis has shifted from defense programs support to environmental restoration, with many new transportation applications. The packaging and transportation of DOE materials, including hazardous materials, hazardous substances and hazardous and mixed wastes, is a continually identified stakeholder concern and issue. The Department must be prepared to assure full regulatory compliance, actively consider and interact regarding stakeholder views/concerns, and implement a comprehensive and coordinated transportation program.

Performance Packaging provides package testing capabilities to address DOT-7A performance requirements for radioactive materials and wastes, and testing to meet UN performance standards for hazardous materials and wastes as specified under the DOT Hazardous Materials Regulations. Criteria are established to assess package-vendor capabilities to test, evaluate and document performance packages against national and international standards.

Packaging Safety Assessment provides review and confirmatory analysis of Safety Analysis Reports for Packaging (SARPs), risk assessment and NEPA documentation developed within the DOE EM and DP programs and by other federal agencies and contractors. Assessments are performed against applicable regulations and standards.

All of the strategies described above are provided to federal agencies and their contractors at facility locations where economy of scale makes individual staffing of site resources containing the prerequisite expertise nonfeasible for economic reasons and where resources at Hanford can be leveraged effectively to meet the needs of smaller site operations.

Transportation & Packaging (T&P) will work closely with the package users to obtain the necessary package design requirements and payload technical information. T&P will coordinate with DOE, Lawrence Livermore National

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Laboratory, and other regulatory agencies to expedite the regulatory package review and keep these organizations informed on current package designs and any proposed changes that may affect the regulatory hardware and certification of the package to assure the delivery of an approved shipping package.

#### 1.3 Summary-Level Forecasting Data

To accomplish T&P's mission to develop and implement baseline and state of the art transportation and packaging resources for DOE, and other federal agencies as well as their support contractors the program must meet specific objectives in each of the following areas.

##### Transportation Logistics:

- to ensure qualified motor carriers are available to transport hazardous wastes, substances and radioactive materials and special shipping campaigns for DOE and its contractors.
- to ensure motor carrier evaluation program plan and evaluation criteria remain up to date.
- to ensure state-of-the-art tools and operational methods are available for implementation.
- To ensure the Transportation Operations Manual is available and updated as needed and distributed to DOE and site contractor traffic management personnel.

##### Transportation Training:

- to ensure availability of quality training programs focused on HazMat shipping, packaging, and transportation functions and applicable requirements and standards.
- to ensure transport personnel have access to mandated regulatory training.

##### Transportation Automation:

- to ensure integrity of data and related automated systems through strict configuration management.
- to ensure availability of automated transportation management systems that support regulatory compliance and cost-effective operations.

##### Regulatory Compliance:

- to ensure systems and methods are in place to conduct packaging and transportation operations in a safe and compliant manner.
- to ensure up-to-date procedures and systems are in place to achieve efficient and cost-effective operations.

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### Explosives Classification and Program Management:

- to ensure systems are in place and utilized to classify and ship explosives materials safely.
- to ensure explosive classification activities are conducted in an efficient and cost-effective manner.
- to ensure timely distribution of explosive descriptions and classification actions.

### Packaging Engineering and Analysis:

- to provide safe, compliant and cost-effective packagings and transportation systems for radioactive and/or hazardous materials and wastes.

### Performance Packaging:

- to ensure DOT-7A packagings and UN performance packagings are tested and evaluated to meet national and international standards.

## 1.4 Drivers

Federal and State regulations including DOE Orders.

## 1.5 Project Requirements

Transportation Logistics ensures transportation activities are performed in compliance with applicable laws, regulations, and DOE Orders. Specific areas in Transportation Logistics include assessments associated with operational policy analysis and development, productivity and safety enhancements through improved operations technology and methods, and the development and implementation of operational systems. Operations technology and methods include operational analysis (e.g., freight rate negotiations, motor carrier evaluation program, and the Transportation Operations Manual).

Transportation Training supports the regulatory requirements for training of transportation personnel. This program provides training courses nationwide to DOE and its contractor personnel, federal agency personnel, state, Tribal and local officials, commercial carrier employees, and others on the regulatory and DOE transportation requirements. This helps to ensure that contractor packaging and transportation of DOE materials, including radioactive materials, hazardous substances, and hazardous and mixed wastes, are performed consistently and in compliance with applicable laws, regulations, and DOE Orders.

Transportation Automation consists of developing and implementing throughout the DOE complex operational systems that apply various computer codes, models,

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and databases to improve efficiency, cost-effectiveness, and safety of DOE Traffic Management activities. These systems are used to manage overall DOE transportation operations, and are invaluable in responding to internal DOE and external inquiries.

Regulatory Compliance and Technical Assessment provides review and analysis to respond to regulatory changes and address high-visibility issues that affect DOE transportation management. Assessment teams are provided to evaluate field element and contractor transportation activities and to provide technical assistance.

Explosives Classification and Program Management consists of classification reviews, explosives site assessments, information management, reclassification of previously DOT-registered explosives under HM-181, maintenance of the Explosives Classification and Shipment Program Management Plan, and other related explosives classification and transportation activities.

Packaging Engineering and Analysis involves engineering, design, analysis, and testing for packaging development. DOE-HQ will provide guidance to Department elements for packaging systems development.

#### **1.6 Project Issues and Assumptions**

The regulatory environment will continue to change and apply even stricter standards to the packaging and transportation of hazardous materials.

Compliance to applicable national and international consensus standards and regulatory guides will continue to be mandatory for federal agencies and their contractors.

The annual budgets used by federal agencies and their contractors for packaging and transportation system development will shrink considerably. Privatization initiatives by federal agencies and government contractors will place more work in the private sector.

T&P will actively pursue work within the federal sector where economies can be achieved by leveraging existing transportation and packaging resources at Hanford.

The DOT-7A testing program will continue at current levels of activity.

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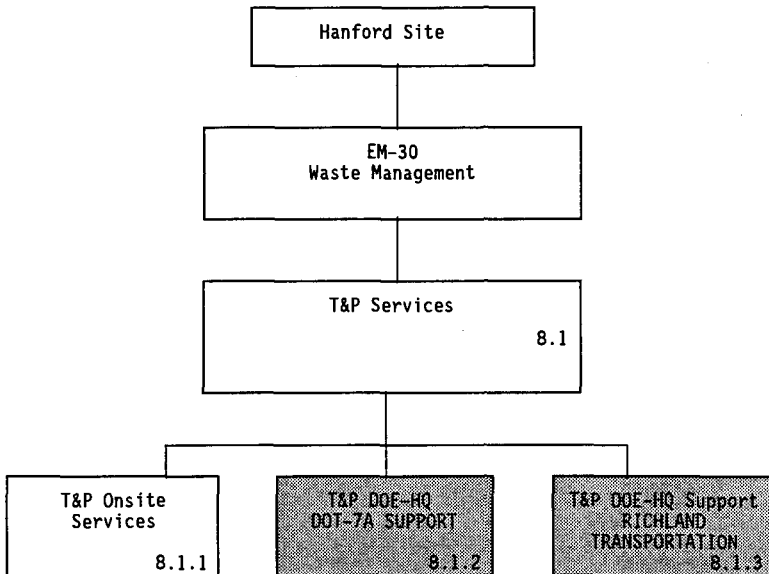
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### 2.0 Work Breakdown Structure

#### 2.1 WBS Hierarchy



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**2.2 WBS Dictionary**

WORK BREAKDOWN STRUCTURE DICTIONARY		
1 PROJECT TITLE/PARTICIPANT Transportation & Packaging	2 DATE August 1996	3 DOE-HQ WBS CODE:
4 DOE-RL WBS ELEMENT CODE 8.1.2/8.1.3	5 WBS ELEMENT TITLE T&P DOE-HQ Support	
6 CONTRACTOR WBS ELEMENT CODE:	7 REVISION # AND AUTHORIZATION	8 DATE
9 APPROVED CHANGES		
10 SYSTEM DESIGN DESCRIPTION	11 BUDGET AND REPORTING NUMBER EW5010, EW5020 and HA0120	

**12 ELEMENT TASK DESCRIPTION**

Ensures transportation activities are performed in accordance with applicable laws, regulations, and DOE Orders. Transportation Automation consists of operational systems and databases, that include development and implementation of various computer codes to improve efficiency, cost effectiveness, and safety.

Provides review and analysis to respond to regulatory changes and addresses high-visibility issues that affect transportation management. The Training Programs provide HazMat and operational training courses nationwide to DOE and its contractors, federal agency personnel, state and local officials, carriers, and others on the regulatory and DOE requirements.

Provides new explosives classifications, explosives site assessments, information management, and reclassification of previously DOT registered explosives. Packaging engineering provides design, analysis and testing for packaging development. Packaging Operations supports the EM-76 effort in evaluating the transportation and packaging needs across the DOE complex.

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Provides engineering, testing and project/program management services to the U.S. Department of Energy, Transportation, Emergency Management and Analytical Services. Services provided are Type A radioactive materials packaging testing and evaluation.

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**2.3 WBS Responsibility Assignment Matrix**

Work Breakdown Structure Index and Programmatic Responsibility Assignment Matrix					
PROGRAM ELEMENT	ACTIVITY	COST ACCOUNT	TITLE	RESPONSIBLE MANAGER	RESPONSIBLE ORGANIZATION
8.1.2	DOT-7A Testing	1YHX01	DOT-7A Testing Program	D. L. McCall	84400
8.1.3	Logistics	1YHAA1	Transportation Logistics	J. H. Portsmouth	84600
8.1.3	Automation	1YHAB1	Transportation Automation	J. H. Portsmouth	84600
8.1.3	Regulatory Compliance	1YHAC1	Regulatory Compliance & Technical Assessments	J. H. Portsmouth D. L. McCall	84600 84400
8.1.3	Program Management	1YHAD1	Program Management	J. H. Portsmouth D. L. McCall	84600 84400
8.1.3	Explosives	1YHBA1	Explosives Classification & Review	D. L. McCall	84400
8.1.3	Packaging Operations	1YHBB1	Packaging Operations	D. L. McCall	84400
8.1.3	Training	1YHAE1	Training	J. H. Portsmouth	84600

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### 3.0 SCHEDULE BASELINE

#### 3.1 Program Master Baseline Schedule

The workscope described in detail in Section 1.0 of this offsite MYWP and which is generally described as Transportation Logistics, Transportation Training, Transportation Automation, Regulatory Compliance, Packaging Engineering and Analysis, Explosives Classification, Performance Packaging, and Packaging Safety Assessment, is governed by the following technical standards and regulations:

49 CFR 171.2(a); 171.11; 171.12; 176.11; and generally 49 CFR 107-180 DOE Orders 1540.1, 6(f); 5700.6C, 9(a); 1000.3C; DOE Order 461 Series.

The T&P organization does not use the P/X Scheduling system for the work done in the organization.

### 3.2 Milestone List

MILESTONE LIST			
Milestone Type	Control Number	Milestone Description	Milestone Completion Date
		Currently there are no FY 1997 milestones. When milestones are negotiated between DOE-HQ and Transportation & Packaging/RL, they can be found under ADS 2601 titled 'Richland Transportation' in the Progress Tracking System.	

- \* TPA, HQ, RL, and selected contractor milestones
- \* On Tri-Party Agreement Milestones, also designate if they are HQ, RL

### 3.3 Milestone Description Sheets

N/A

4.0 Cost Baseline  
4.1

**BUDGET AUTHORITY SUMMARY BY YEAR BY ADS**

(\$000s)

RL WBS #	ADS #	TITLE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	TOTAL
8.1.1	2601	Rhld Transportation	2420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768
<b>SUMMARY (1)</b>			<b>2420</b>	<b>2420</b>	<b>2557</b>	<b>2626</b>	<b>2696</b>	<b>2768</b>	<b>2768</b>	<b>2768</b>	<b>2768</b>	<b>2768</b>	<b>2768</b>

(1) Summary Of All Programmatic ADS's And New B/A (See Exhibit 2); Does Not Include Expense Carryover.



4.1

**BUDGET AUTHORITY BY YEAR BY ADS**

(\$000s)

RL WBS #	ADS #	TITLE	FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	TOTAL
8.1	2601	Rhld. Transportation	Expense	2420	2420	2557	2626	2696	2768	2768	2768	2768	2768	
			CENRTC											
			Line Item											
			GPP											
			<b>Subtotal New B/A</b>	2420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768
			Expense Carryover (1)	1000										
			<b>Total B/A</b>	3420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768
<b>PROGRAM NEW B/A</b>				2420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768
<b>PROGRAM EXPENSE CARRYOVER</b>				1000										
<b>PROGRAM TOTAL B/A</b>				3420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768

(1) Includes Only Expense Carryover Approved By Site Management Board (SMB) Prior To 10/1/96.

4.1

**COST BASELINE BY YEAR BY ADS**

(\$000s)

RL WBS #	ADS #	TITLE	FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	TOTAL
8.1	2601	Rhld. Transportation	Expense	2420	2420	2557	2626	2696	2768	2768	2768	2768	2768	
			CENRTC											
			Line Item											
			GPP											
			<b>Total BCWS/PMB (1)</b>	2420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768
			Mgmt Reserve (2)											
			Line Item Contingency (2)	2420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768
			Expected Carryover (3)	1000										
			<b>Total</b>	3420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768
<b>PROGRAM BCWS/PMB</b>				3420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768
<b>PROGRAM TOTAL</b>				3420	2420	2557	2626	2696	2768	2768	2768	2768	2768	2768

(1) Budgeted Cost Of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB).

(2) Management Reserve And Line Item Contingency Held By RL.

(3) Includes Expected Expense Carryover Requested By Formal Change Control In FY1997.

#### 4.2 Basis of Estimate

Basis of Estimate				
WBS Element/Cost Category		FY 1997	FY 1998	FY 1999
WBS 8.1.2/8.1.3 T&P DOE-HQ Support	\$	2.42M	2.49M	2.557M
	FTE	13.0	13.7	13.7
<p style="text-align: center;">Basis of Estimate (Methodology of estimate and justification of scope)</p> <p>Cost detail will be tracked by B&amp;R code in the Progress Tracking System.</p> <p>The funding for the DOT-7A Testing Program was inadvertently omitted in the ADS guidance for FY 1997. The activity is included in the ADS 2601, the funding will come in under a different mechanism. The funding for the DOT-7A Testing Program will be \$250K.</p>				

**Exhibit: Program Average FTE Projections by COCS Categories**

**Program WBS/Title: ADS 2601 Richland Transportation**

COCS	Title	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
C000	Crafts										
C010	Carpenters										
C020	Electricians										
C030	Heating Air-Conditioning and Refrig Mechanics (HVAC)										
C040	Machinists										
C050	Masons										
C060	Millwrights										
C070	Painters										
C080	Plumbers and Pipefitters										
C090	Structural and Metal Workers										
C100	Vehicle and Mobile Equipment Mechanics										
C110	Welders										
C120	Other Crafts										
E000	Engineers	2.2	2.3								
E010	Chemical Engineers										
E020	Civil Engineers										
E040	Electrical Engineers										
E050	Environmental Engineers	0.5	0.5								
E060	Industrial Engineers										
E070	Mechanical Engineers	1	1								
E080	Nuclear Engineers										
E090	Petroleum/Mining Engineers										
E100	Plant Engineers	0.7	0.8								
E110	Quality Assurance/Control Engineers										
E120	Safety Engineers										
E130	Other Engineers										
E140	Construction Engineers										

**Exhibit: Program Average FTE Projections by COCS Categories**  
**Program WBS/Title: ADS 2601 Richland Transportation**

COCS	Title	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
G000	General Admin, Secretarial & Clerical Support	3.0	3.5								
G010	Administrative Assistants	0.3	0.5								
G020	Office Clerks (General)	1.9	2.1								
G030	Office Clerks (Specialized)										
G040	Secretaries	0.8	0.9								
G050	Typist and Word Processors										
G060	Other General Admin, Secretarial and Clerical Support										
L000	Laborers and General Service Workers	0.0	0.0								
L010	Firefighters										
L020	Food Service Workers										
L030	Janitors and Cleaners										
L040	Laundry Workers										
L050	Handlers, Helpers and Laborers (General)										
L060	Handlers, Helpers and Laborers (Specialized)										
L070	Light Vehicle Drivers										
L080	Security Guards										
L090	Other Laborers and General Services Workers										
M000	Gen Mgrs, Exec, 1st Line Suprv'sr & Prog/Proj Mgrs	1.1	1.2								
M010	First Line Supervisors										
M020	General Managers and Executives	1.1	1.2								
M030	Project and Program Managers										
M040	Other Managers										

**Exhibit: Program Average FTE Projections by COCS Categories**  
**Program WBS/Title: ADS 2601 Richland Transportation**

COCS	Title	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
P000	Professional Administrative & Related Occupations	6.7	6.7								
P010	Accountants and Auditors										
P020	Architects										
P030	Buyers, Procurement and Contracting Specialists										
P040	Communications Specialists										
P050	Compliance Inspectors										
P060	Computer Systems Analysts										
P070	Cost Estimators and Planners and Schedulers										
P080	Health Physicists										
P090	Industrial Hygienists										
P100	Lawyers										
P110	Personnel and Labor Relations Specialists										
P120	Physicians										
P130	Physician Assist, Nurses & Oth Medical Supt Occup'tns										
P140	Safeguards and Other Security Specialists										
P150	Trainers										
P160	Technical Writers, and Editors										
P170	Other Administrative & Professional Other Occupations	6.7	6.7								
R000	Operators	0.0	0.0								
R010	Chemical System Operators										
R020	Drillers										
R030	Material Moving Equipment Operators										
R040	Nuclear Plant Operators										
R050	Nuclear Waste Process Operators										
R060	Production Systems Operators										
R070	Utilities Operators										
R080	Other Operators										

**Exhibit: Program Average FTE Projections by COCS Categories**  
**Program WBS/Title: ADS 2601 Richland Transportation**

COCS	Title	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
S000	Scientists	0.0	0.0								
S010	Chemists										
S020	Environmental Scientists										
S030	Geologists										
S040	Life Scientists										
S050	Materials Scientists										
S060	Mathematicians										
S070	Physicists										
S080	Social Scientists										
S090	Other Scientists										
S100	Computer Scientists										
T000	Technicians	0.0	0.0								
T010	Computer Operator/Coders										
T020	Drafters										
T030	Engineering Technicians										
T040	Environmental Sciences Technicians										
T050	Health Physics Technicians										
T060	Industrial Safety and Health Technicians										
T070	Instrument and Control Technicians										
T080	Laboratory Technicians										
T090	Media Technicians										
T100	Survey and Mapping										
T110	Other Technicians										
<b>Total</b>		<b>13.0</b>	<b>13.7</b>								

## TRANSPORTATION & PACKAGING HQ SUPPORT WBS 8.1.2/8.1.3

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Funding Estimates for FY 1997 are based on funding guidance received from DOE-HQ, Transportation, Emergency Management and Analytical Services.

Past and current year projected expenditures

FY 1994 (\$7.5M)    FY 1995 (\$6.3M)    FY 1996 (\$3.4M)    FY 1997 (\$2.42M)

The number of major projects/tasks initiated in previous years

FY 1994	(EM - 28 major projects/tasks) (EH - 5 Dockets opened) (Work for other sites - Approx. \$60K)
FY 1995	(EM - 24 Major projects/tasks) (EH - 4 Dockets opened) (Work for Other sites - \$80K)
FY 1996	(EM - 30 Major projects/tasks) (EH - 0 Dockets Opened) (Work for Other sites \$120K)

Projects currently scheduled and projected for FY 1997

FY 1997 Est	(EM/EH - 8 major projects/tasks, \$2.6M FY 1996 Carryover \$1M) (DP - SARP reviews, \$250K) (Work for Other sites - \$200K) (RTG - \$361K)
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Basis of this estimate includes projects currently scheduled for FY 1997 and the percentage of walk-in work that is typical after the start of the fiscal year. Walk-in work that comes in after the fiscal year starts generally increases each year's workscope and budget by 20 percent. Budget for FY 1997 is \$2.42M.

Packaging needs identified in the offsite needs assessment effort:

- Type B Drum Overpack
- Family of metal boxes
- New or updated metal drum and box specifications
- New systems contract for procurement of drums
- Replacement casks for B-3 and FL-10
- Shielded version of Type B Drum Overpack
- TRIGA fuel cask

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The number of engineering and logistical studies from past years:

FY 1994 - 5 engineering studies, 3 logistical studies  
FY 1995 - 3 engineering studies, 2 logistical studies  
FY 1996 - 0 engineering studies, 0 logistical studies

Projected engineering and logistical studies for FY 1997

FY 1997 Projected - 1 engineering study, 1 logistical study  
Based on previous year activity, scheduled work and expected walk-in work.

Regulatory changes requiring manual and procedural changes

Implementation of Drug and Alcohol testing standards for drivers  
Changes in DOE Orders 5480.3 and DOE Order 1540 Series to 460 Series.  
FY 1996 and FY 1997 implementation of HM-169A rule changes.  
Implementation of HM-215 rule-making which changes the classification  
and description of certain materials and hazard communication  
requirements.

The number of classes held and students trained in past and present year and  
projections for FY 1997:

FY 1994 (55 Classes, 1100 students)  
Note: Attendance in FY 1994 reflects mandatory federal training  
requirements from rule-making HM-126F.  
FY 1995 (48 Classes, 1000+ students)  
FY 1996 (33 Classes, 1000+ students)  
Projected for FY 1997 (35 Classes, 1000+ students)

Based on past and present levels of activity as described above, FY 1997  
projected workscope will require 13 FTEs. It is also assumed that some  
portion of this work will be outsourced locally and nationally to obtain  
engineering and other technical services needed to meet milestones committed  
to by T&P management and staff.

Management and Administration will require 3.2 FTEs.

Transportation Logistics will require .5 FTE.

Transportation Training will require 5 FTEs.

Transportation Automation will require 1.2 FTEs.

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Explosives Classification will require 1.9 FTEs.

Performance Packaging will require 1.2 FTEs.

Total 13 FTEs for the Transportation Management and DOT-7A Testing support scope of work.

## TRANSPORTATION & PACKAGING HQ SUPPORT

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#### 5.0 EXECUTION YEAR

#### 5.1 Performance Measure/Objectives

ES&H Performance Indicator - Measures track for evaluation all first aid, recordable and lost workday injuries and lost/restricted time. The lost workday incident rate is computed per 200,000 work hours and compared to the company goal.

Schedule Performance Indicators - Measurements track and trend schedule performance on customer milestones and commitments as agreed to in project and task work plans. Schedule status and milestones are adjusted when necessary to re-baseline and to account for circumstances beyond the control of T&P. Each major project or task is assigned internal and external milestones, and deliverables are agreed to by the customer/program and T&P management and staff assigned to the task. Progress is reported in weekly project reports, the DOE Progress Tracking System report and by other customer requested means.

Cost Performance Indicator - Measurements track and trend cost variance on major projects and tasks. Adjustments are made if necessary for customer directed changes in work scope, budget adjustments, and other circumstances beyond the control of T&P.

Customer Satisfaction Performance Indicator - Timely closeout of Customer Contact Records and internal and external customer surveys are conducted to assess customer satisfaction and to identify opportunities to improve the product and service quality.

To accomplish the DOE's national Transportation Management mission, the program encompasses the oversight and management of:

Transportation operations logistics for all DOE non-weapons material including hazardous materials, excluding the Office of Civilian Radioactive Waste Management commercial irradiated nuclear fuel.

Packaging selection, utilization and maintenance, onsite and offsite.

Development of needed systems and technologies (i.e., packaging development, automation initiatives, and training and professional development programs).

Development and implementation of a technical assessment/technical assistance program to ensure that safe, economical, and efficient transportation services meet regulatory requirements and are consistently available to DOE programs to fulfill their missions.

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Transportation management supports DOE-wide activities with research and development capabilities. In that regard, T&P is supporting DOE-HQ in developing a nation-wide transportation system information and communications infrastructure that collects, stores, and disseminates reliable transportation information throughout DOE and to other federal agencies and jurisdictions.

#### 5.2 Program Performance Baseline Schedule

Not Applicable

5.3

### COST BASELINE FOR EXECUTION YEAR BY PROGRAM BY FUND TYPE BY MONTH

(\$000s)

RL WBS #	PROGRAM TITLE	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
8.1	Rhkl Transportation	Expense	200	201	203	201	203	201	202	202	202	201	203	201	2420
		CENRTC													0
		Line Item													0
		GPP													0
		<b>Total BCWS/PMB (1)</b>													0
		Mgmt Reserve (2)													0
		Line Item Contingency (2)													0
		Expected Carryover (3)	1000												1000
		<b>Total</b>	1200	201	203	201	203	201	202	202	202	201	203	201	3420

<b>PROGRAM BCWS/PMB</b>	200	201	203	201	203	201	202	202	202	201	203	201	2420
<b>PROGRAM TOTAL</b>	1200	201	203	201	203	201	202	202	202	201	203	201	3420

- (1) Budgeted Cost Of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB).
- (2) Management Reserve Held By RL And Line Item Contingency Held By RL.
- (3) Includes Expected Expense Carryover Requested By Formal Change Control In FY1997.

5.4

### COST BASELINE FOR EXECUTION YEAR BY PROGRAM BY COST ELEMENT BY MONTH

(\$000s)

RL WBS #	PROGRAM TITLE	COST ELEMENT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
8.1	Rhld Transportation	0 Salaries & Cont of Serv	72	74	74	74	74	74	74	74	74	74	74	74	886
		1 Material	1		1		1		1		1		1		6
		2 Purchased Services	62	62	62	62	62	62	62	62	62	62	62	62	744
		3 Charges From Other Co													0
		4 Internal Services	1			1			1			1			4
		5 Internal Charges													0
		6 BCS Richland	21	21	21	21	21	21	21	21	21	21	21	21	252
		7 Overheads & Adders	44	44	44	44	44	44	44	44	44	44	44	44	528
		8 Revenue													
		<b>Total BCWS/PMB (1)</b>	<b>201</b>	<b>201</b>	<b>202</b>	<b>202</b>	<b>202</b>	<b>201</b>	<b>203</b>	<b>201</b>	<b>202</b>	<b>202</b>	<b>202</b>	<b>201</b>	<b>2420</b>
<b>PROGRAM BCWS/PMB</b>			<b>201</b>	<b>201</b>	<b>202</b>	<b>202</b>	<b>202</b>	<b>201</b>	<b>203</b>	<b>201</b>	<b>202</b>	<b>202</b>	<b>202</b>	<b>201</b>	<b>2420</b>

(1) Budgeted Cost Of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB) And Is Consistent With BCWS/PMB (Exhibit 3).  
Above Amounts Do NOT Include Management Reserve Held By RL, Line Item Contingency Held By RL, Or Expected Expense Carryover Requested By Formal Change Control In FY1997.

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#### **5.5 Program Funding Required**

The Transportation Operations program funding for FY 1997 will be \$2.42M, with an additional \$1M in carryover from FY 1996 as identified by DOE-HQ EM-76.

The DOT-7A Testing program funding for FY 1997 will be a budget of \$250K; however, the funding is not included in the ADS guidance and will come in under another mechanism. Subsequent year funding is estimated to remain level due to standardization of packagings across the DOE complex necessitating fewer tests to meet DOT-7A standards.

#### **6.0 References**

N/A

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**and Defense Programs**

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**1.0 TECHNICAL SECTION**

**1.1 Project Mission**

Radioisotope Thermoelectric Generator

This work breakdown structure element encompasses the activities conducted at Hanford in support of DOE Office of Space and Defense Power Systems in the development of the Radioisotope Thermoelectric Generator (RTG) Transportation System (RTGTS). The goal of this effort is to develop a transportation system for the transport of RTGs in full compliance with the requirements of the U.S. Department of Transportation (DOT), the U.S. Nuclear Regulatory Commission (NRC), DOE guidance, and approved RTG User Community functional requirements and guidance.

Defense Programs

T&P has been requested by the DOE-Albuquerque (DOE-AL) Field Office Nuclear Explosives Safety Division (NESD) to participate as a member of the Transportation Safety Review Panel (TSRP). The TSRP has the responsibility for reviewing Safety Analysis Reports for Packaging (SARPs) and Transportation Safety Risk Assessments (TSRAs), providing comments to the applicant, and developing the Safety Evaluation Reports. This work is in support of DOE Order 5610.10, for the transportation of nuclear explosive components.

Work for Other Sites

This work category provides other DOE sites with cost reimbursement Hazardous Materials (HAZMAT) training as well as operational classes, such as Federal Motor Carrier Safety Regulations and vehicle inspections classes, transportation automation expertise and assistance, freight bill processing and ATMS operation. Also provided is transportation management technical assessment and oversight assistance, as requested.

This work directly supports DOE's mission in assisting other DOE site locations with transportation management expertise and training classes that may not be available at their locations.

This work also supports the Hanford Site mission by providing work scope and additional funding to augment the Hanford Site funding levels, thereby allowing a "center of expertise" in training and automation areas to be



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available to serve site needs. Hanford workload alone is insufficient to retain the highly-skilled personnel in these areas.

#### 1.2 Project End Point Targets

##### Radioisotope Thermoelectric Generator

In January 1995, the RTGTS was assigned to the T&P. In fiscal year 1996, the design, fabrication, and testing of the RTGTS, except for fabrication of the third RTG Packaging, was completed. The hardware, except for the third RTG packaging, was delivered to the ultimate system custodian, EG&G Mound Applied Technologies Inc. In addition, a Certificate of Compliance certifying that the RTG Packaging meets the DOT and NRC requirements for shipments of the General Purpose Heat Source RTG within the U.S. was issued in May 1996.

In fiscal year 1997, T&P will deliver the third RTG Packaging, pursue issuance of Competent Authority Certification for the RTG Packaging allowing international shipments, complete the program documentation, transfer appropriate program documentation to the system custodian, and provide continuing level-of-effort program support to the custodian and DOE as directed.

##### Defense Programs

Enabling Assumption: It is expected that T&P will participate in approximately three SARP and/or TSRA reviews per year. The endpoint target for each review is a technical data submittal to DOE-AL/NESD that provides the assumptions, analysis, and conclusions of the review.

##### Work for Other Sites

Enabling assumption: It is expected that T&P will conduct and participate in approximately 20 training classes, site assessments, and/or requests for technical assistance in the automation area per year.

The end-point target for each activity will be the performance of the class at the requesting site or, in the case of an assessment, a written report.

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**1.3 Summary-Level Forecasting Data**

Radioisotope Thermoelectric Generator

N/A

Defense Programs

Packaging Safety Assessment

- to provide methodology and effective criteria for assessing safety and risk associated with transportation activities.
- to provide codes, standards and methodology for conducting confirmatory analysis on packaging designs.

Work for Other Sites

N/A

**1.4 Drivers**

Radioisotope Thermoelectric Generator

The primary regulatory drivers for the development of the RTGTS are 10 Code of Federal Regulations (CFR) 71, 49 CFR 173, and DOE Order 460.1. Non-regulatory drivers include the requirements of the RTG User Community.

**1.5 Project Requirements**

Radioisotope Thermoelectric Generator

There is no long-term life-cycle for this program, as it will terminate at the end of FY 1997.

Management requirements: The T&P group will continue to provide direct technical and financial management and oversight of design, fabrication, procurement, testing, certification, and program documentation activities associated with the RTGTS. This management and oversight includes any level-of-effort tasks assigned by DOE and also applies to any subcontractor activities. Specifically, the T&P group will:

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- Direct technical and financial oversight of all program activities and performing subcontractor's efforts. This includes maintaining schedule and applicable budget activities as required by T&P management and DOE guidance.
- Ensure that the RTGTS meets the applicable DOT, NRC, DOE, and RTG User Community requirements and ensure that such compliance is documented.
- Continue the development of the SARP as necessary to obtain the Competent Authority Certification and additional DOE Certifications as necessary. This activity includes coordination and liaison with the DOE Office of Transportation, Emergency Management, and Analytical Services.
- Provide coordination and liaison with the RTG User Community. The objective of this liaison will be to appraise the users of the RTGTS program status and to ensure that the RTGTS conforms to user requirements.
- Provide coordination and liaison with the ultimate system custodian, EG&G Mound Applied Technologies. The objective of this activity will be to assist the custodian in operating and supporting the RTGTS. This activity is a level-of-effort task.
- Submit monthly technical and financial reports to RL.
- Support periodic program update meetings as directed by DOE.

Defense Programs

Performance packaging evaluates package designs and analysis against regulatory standards, vendor qualifications against specific regulatory criteria and QA standards, package documentation against requirements, national and international standards and regulatory guides as applicable.

Packaging Safety Assessment evaluates SARPs, risk assessment and NEPA documentation against national and international standards and regulatory guides.

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In addition it includes: proof-testing, performing confirmatory analysis, and conducting comprehensive technical design review.

Management requirements: It is assumed that approximately three SARP/TSRA reviews will take place each fiscal year. Key dates for each fiscal year are approximated as follows:

Submittal of review results for Review #1: 1/31  
Submittal of review results for Review #2: 5/31  
Submittal of review results for Review #3: 9/30

Conduct reviews of weapons components SARPs and TSRAs in accordance with DOE-AL/NESD guidance and DOE Order 5610.1 requirements.

### Work for Other Sites

It is assumed in this submittal that approximately 20 training classes, site assessments, technical assistance requests in the automation area will be performed during this reporting period. Key dates and deliverables will depend on the task requested to be performed and needed delivery dates that will be negotiated with the requesting site.

### 1.6 Project Issues and Assumptions

#### Radioisotope Thermoelectric Generator

Issues: Although the RTG Packaging has received a Certificate of Compliance for use within the U.S., a Competent Authority Certificate will be pursued by the DOE with the DOT to allow international use in FY 1997. This issue is outside the direct control of T&P, but T&P will continue to support this effort as directed in FY 1997.

#### Assumptions:

- In FY 1996, per agreement with RL, a communications protocol was established between T&P and the RTG Community. This protocol allowed T&P to submit reports and other documentation directly to the DOE Program Monitor electronically for review and then distribute the documents concurrently to the RTG Community and DOE. In addition, direct communication within the scope of work was allowed between T&P and the RTG User Community.

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- Except for the completion and delivery of the third RTG Packaging, all other work in this task for FY 1997 shall be level-of-effort as determined by program requirements and the needs of the DOE and RTG Community in support of the RTGTS.

Defense Programs

The key assumption for this work plan is that there will be approximately three technical SARP/TSRA reviews in each fiscal year. The actual number of reviews may vary from one to six in each fiscal year, and will vary in complexity.

Work for Other Sites

The key assumption for this work plan is that there will be approximately 20 HAZMAT classes, site assessment, or technical assistance activities funded during FY 1997 from other DOE site locations. These sites will continue to look to T&P to provide this expertise to augment their existing staffs and to fill "voids" in areas such as training, where capable HAZMAT instructors and materials may not exist at a particular site. T&P is also recognized throughout the DOE complex as being a "center of expertise" in the areas of training and automation development and deployment.

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**2.0 WORK BREAKDOWN STRUCTURE**

**2.1 WBS Hierarchy**

WORK BREAKDOWN STRUCTURE DICTIONARY		
1 PROJECT TITLE/PARTICIPANT  Space Power Programs	2 DATE  August 12, 1993	3 IDENTIFICATION NO.  DE-AC06-87RL10930
4 WBS ELEMENT CODE  5.1.3	5 WBS ELEMENT TITLE  RTG Transportation System	
6 INDEX LINE NO.	7 REVISION NO. AND AUTHORIZATION	8 DATE
9 APPROVED CHANGES		
10 SYSTEM DESIGN DESCRIPTION	11 BUDGET AND REPORTING NUMBER  AF-70-10-20 & AF-70-30	

**12. ELEMENT TASK DESCRIPTION**

This program element is for the design, fabrication, testing, certification, and procurement of three shipping packages, two custom semitrailers, and necessary operations and ancillary equipment for the transport of RTGs. It includes the engineering activities needed to meet the technical requirements (thermal, mechanical, shielding, interface, etc.) for shipping RTGs, and the preparation of the Safety Analysis Report for Packaging (SARP) needed to meet regulatory requirements defined in 10 CFR 71.

The RTG Transportation System Program is divided into three elements: (1) Program Management, (2) Design/Fabrication, and (3) RTG Contractors. The Design/Fabrication effort is further divided into five elements. These elements are identified as follows:

- System 100 - Systems Engineering

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- System 120 - Packaging System
- System 140 - Trailer System
- System 160 - Operations and Ancillary Equipment
- System 180 - Facility Transport System

**2.3 WBS RAM**

Radioisotope Thermoelectric Generator

<b>Work Breakdown Structure Index and Programmatic Responsibility Assignment Matrix</b>					
<b>PROGRAM ELEMENT</b>	<b>ACTIVITY</b>	<b>COST ACCOUNT</b>	<b>TITLE</b>	<b>RESPONSIBLE MANAGER</b>	<b>RESPONSIBLE ORGANIZATION</b>
5.1.3			RTG TRANSPORTATION SYSTEM	WF IRVINE	T&P
	5.1.3.1		PROGRAM MANAGEMENT	DL McCALL	T&P
		5.1.3.1.1 1XJ101	PROGRAM MANAGEMENT	DL McCALL	T&P
		5.1.3.2.1 6XJ200	RTG DESIGN & FABRICATION	JG FIELD	T&P

**3.0 SCHEDULE BASELINE**

**3.1 Program Master Baseline Schedule**

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**3.2 Milestone List**

Radioisotope Thermoelectric Generator

MILESTONE LIST				
Milestone Type	Control Number	WBS/ADS	Milestone Description	Milestone Completion Date
HQ	SIP-97-063	5.1.3.4	Deliver RTG Transportation System to Custodian	12-15-96
RL	SIP-95-070	5.1.3.2.2	Complete Fabrication of Third Package	12-1-96

\* TPA, HQ, RL, and selected contractor milestones

\* On Tri-Party Agreement Milestones, also designate if they are HQ, RL



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3.3 Milestone Description Sheets

<b>Westinghouse Hanford Company MILESTONE DESCRIPTION SHEET #1</b>			
Title: Deliver RTG Transportation System to Custodian		Date: 08-05-94	
Assigned To: J. G. Field		CIN:	
Program WBS Designator: 5.1.3.4		Due Date:  12-15-96	
Control Number: SIP-97-063		Rev: 0	
<b>MILESTONE TYPE:</b>	<b>DIVISION:</b>	<b>DELIVERABLE:</b>	<b>ADDRESS TO:</b>
<input checked="" type="checkbox"/> DOE-HQ <input type="checkbox"/> DOE-RL <input type="checkbox"/> CONTRACTOR	<input type="checkbox"/> State <input type="checkbox"/> Federal <input checked="" type="checkbox"/> DOE <input type="checkbox"/> RCRA <input type="checkbox"/> TPA Number	<input type="checkbox"/> Report <input checked="" type="checkbox"/> Letter <input type="checkbox"/> Drawings <input type="checkbox"/> Other (specify)	<input type="checkbox"/> DOE-HQ <input checked="" type="checkbox"/> DOE-RL <input type="checkbox"/> Other (specify)
Milestone Description:			
Turn the RTG Transportation System, over to the custodian.			
Description of what constitutes completion of this milestone:			
- Release System 100 to the custodian via letter.			
NOTE: This milestone is dependent upon the issuance of the Certificate of Compliance. The Certificate of Compliance is not completely in the control of Westinghouse Hanford Company as it is issued by the DOE Office of Space and National Security Programs.			
Cost Account Manager: J. C. McCoy	Date	Program/Project Manager W. F. Irvine	Date
Program Element Manager D. L. McCall	Date		

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<b>Westinghouse Hanford Company MILESTONE DESCRIPTION SHEET #2</b>			
<b>Title:</b> Complete Fabrication of Third Package		<b>Date:</b> 08-01-95	
<b>Assigned To:</b> J. G. Field		<b>CIN:</b> SI5-195-008	
<b>Program WBS Designator:</b> 5.1.3.2.2		<b>Due Date:</b>  12-01-96	
<b>Control Number:</b> SIP-95-070		<b>Rev:</b> 0	
<b>MILESTONE TYPE:</b> <input type="checkbox"/> DOE-HQ <input checked="" type="checkbox"/> DOE-RL <input type="checkbox"/> CONTRACTOR	<b>DIVISION:</b> <input type="checkbox"/> State <input type="checkbox"/> Federal <input checked="" type="checkbox"/> DOE <input type="checkbox"/> RCRA <input type="checkbox"/> TPA Number	<b>DELIVERABLE:</b> <input type="checkbox"/> Report <input checked="" type="checkbox"/> Letter <input type="checkbox"/> Drawings <input type="checkbox"/> Other (specify)	<b>ADDRESS TO:</b> <input type="checkbox"/> DOE-HQ <input checked="" type="checkbox"/> DOE-RL <input type="checkbox"/> Other (specify)
<b>Milestone Description:</b> Complete fabrication of third package, System 120.			
<b>Description of what constitutes completion of this milestone:</b> - Complete fabrication of third package in accordance with specification WMC-S-0397.			
<b>Cost Account Manager:</b> J. C. McCoy	<b>Date</b>	<b>Program/Project Manager</b> W. F. Irvine	<b>Date</b>
<b>Program Element Manager</b> D. L. McCall	<b>Date</b>		

4.0 Cost Baseline  
4.1

**BUDGET AUTHORITY SUMMARY BY YEAR BY ADS**

(\$000s)

RL WBS #	ADS #	TITLE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	TOTAL
5.1.3		RTG Program	361	0	0	0	0	0	0	0	0	0	0
		Defense Programs	250	263	276	289	304	319	334	351	369	387	
		Work for Others	200	206	212	218	224	230	236.9	244	251	258	
<b>SUMMARY (1)</b>			<b>811</b>	<b>469</b>	<b>488</b>	<b>507</b>	<b>528</b>	<b>549</b>	<b>570.9</b>	<b>595</b>	<b>620</b>	<b>645</b>	

(1) Summary Of All Programmatic ADS's And New B/A (See Exhibit 2); Does Not Include Expense Carryover.

4.1

### BUDGET AUTHORITY BY YEAR BY ADS

(\$000s)

RL WBS #	ADS #	TITLE	FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	TOTAL
5.1.3		RTG Program	Expense	361	0	0	0	0	0	0	0	0	0	0
		Defense Programs	Expense	250	263	276	289	304	319	334	351	369	387	
		Work for Others	Expense	200	206	212	218	224	230	236	244	251	258	
			CENRTC C/O	330										
			Line Item											
			GPP											
			<b>Subtotal New B/A</b>	1141	469	488	507	528	549	570	595	620	645	
			Expense Carryover (1)	75										
			<b>Total B/A</b>	1216	469	488	507	528	549	570	595	620	645	
<b>PROGRAM NEW B/A</b>				1141	469	488	507	528	549	570	595	620	645	
<b>PROGRAM EXPENSE CARRYOVER</b>				75										
<b>PROGRAM TOTAL B/A</b>				1216	469	488	507	528	549	570	595	620	645	

(1) Includes Only Expense Carryover Approved By Site Management Board (SMB) Prior To 10/1/96.

4.1

**COST BASELINE BY YEAR BY ADS**

(\$000s)

RL WBS #	ADS #	TITLE	FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	TOTAL
5.1.3		RTG Program	Expense	361	0	0	0	0	0	0	0	0	0	0
		Defense Programs	Expense	250	263	276	289	304	319	334	351	369	387	
		Work for Others	Expense	200	206	212	218	224	230	236	244	251	258	
			CENRTC C/O	330										
			Line Item											
			GPP											
			<b>Total BCWS/PMB (1)</b>	1141	469	488	507	528	549	570	595	620	645	
			Mgmt Reserve (2)											
			Line Item Contingency (2)											
			Expected Carryover (3)	75										
			<b>Total</b>	1216	469	488	507	528	549	570	595	620	645	
<b>PROGRAM BCWS/PMB</b>				1216	469	488	507	528	549	570	595	620	645	
<b>PROGRAM TOTAL</b>				1216	469	488	507	528	549	570	595	620	645	

(1) Budgeted Cost Of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB).

(2) Management Reserve And Line Item Contingency Held By RL.

(3) Includes Expected Expense Carryover Requested By Formal Change Control In FY1997.

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Radioisotope Thermoelectric Generator (WBS 5.1.3)  
and Defense Programs**

FY 1997 Work Plan

MHC-SP-1187

FY 1997 PROGRAM CARRYOVER (\$ in 000'S)

\$330 This carryover is committed to two program areas. The first is workscope carryover for October 1996 for the former WHC, ICF Kaiser, and BCSR support personnel at Hanford. The second is to support completion of the procurement of the third RTG Packaging production unit. Note that the bulk of the carryover was created by the schedule constraints for delivery of the production unit packagings. Additionally, these carryover funds plus the \$361,000 is the minimum funding requirement to complete the entire scope of work. Funding levels less than this will necessitate a reduction in workscope.

4.2 Basis of Estimate

Basis of Estimate				
WBS Element/Cost Category		FY 1997	FY 1998	FY 1999
WBS 5.1.3 RTG	\$	436K	0	0
	FTE	3.4	0	0
Defense Programs	\$	250K	250K	250K
	FTE	2	2	2
Work for Others	\$	200K	200K	200K
	FTE	1.5	1.5	1.5
Basis of Estimate (Methodology of estimate and justification of scope)				

Radioisotope Thermoelectric Generator

The estimate included in the carryover is based on the fixed-price contract already negotiated for the completion of the third production unit RTG Packaging. The estimate for the remainder of the workscope is based on an anticipated level-of-effort to complete the remaining program task and provide support to the DOE and custodian for putting the RTGTS into operation.

**TRANSPORTATION & PACKAGING HQ SUPPORT  
Radioisotope Thermoelectric Generator (WBS 5.1.3)  
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FY 1997 Work Plan

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Defense Programs

The key assumption for this estimate is that there will be approximately three technical SARP/TSRA reviews in each fiscal year.

Work for Others Sites

This estimate was derived from past experience and work history in this area in FY 1995 and FY 1996.

**Exhibit: Program Average FTE Projections by COCS Categories**  
**Program WBS/Title: 5.1.3 Radioisotope Thermoelectric Generator**

COCS	Title	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
<b>C000</b>	<b>Crafts</b>										
C010	Carpenters										
C020	Electricians										
C030	Heating Air-Conditioning and Refrig Mechanics (HVAC)										
C040	Machinists										
C050	Masons										
C060	Millwrights										
C070	Painters										
C080	Plumbers and Pipefitters										
C090	Structural and Metal Workers										
C100	Vehicle and Mobile Equipment Mechanics										
C110	Welders										
C120	Other Crafts										
<b>E000</b>	<b>Engineers</b>	2.6	0.0								
E010	Chemical Engineers										
E020	Civil Engineers	0.75	0								
E040	Electrical Engineers										
E050	Environmental Engineers										
E060	Industrial Engineers										
E070	Mechanical Engineers	0.75	0								
E080	Nuclear Engineers	1	0								
E090	Petroleum/Mining Engineers										
E100	Plant Engineers	0.1	0								
E110	Quality Assurance/Control Engineers										
E120	Safety Engineers										
E130	Other Engineers										
E140	Construction Engineers										



**Exhibit: Program Average FTE Projections by COCS Categories**  
**Program WBS/Title: 5.1.3 Radioisotope Thermoelectric Generator**

COCS	Title	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
G000	<b>General Admin, Secretarial &amp; Clerical Support</b>	0.6	0.0								
G010	Administrative Assistants	0.2	0								
G020	Office Clerks (General)	0.2	0								
G030	Office Clerks (Specialized)										
G040	Secretaries	0.2	0								
G050	Typist and Word Processors										
G060	Other General Admin, Secretarial and Clerical Support										
L000	<b>Laborers and General Service Workers</b>	0.0	0.0								
L010	Firefighters										
L020	Food Service Workers										
L030	Janitors and Cleaners										
L040	Laundry Workers										
L050	Handlers, Helpers and Laborers (General)										
L060	Handlers, Helpers and Laborers (Specialized)										
L070	Light Vehicle Drivers										
L080	Security Guards										
L090	Other Laborers and General Services Workers										
M000	<b>Gen Mgrs, Exec, 1st Line Suprv'sr &amp; Prog/Proj Mgrs</b>	0.2	0.0								
M010	First Line Supervisors										
M020	General Managers and Executives	0.2	0								
M030	Project and Program Managers										
M040	Other Managers										

**Exhibit: Program Average FTE Projections by COCS Categories**  
**Program WBS/Title: 5.1.3 Radioisotope Thermoelectric Generator**

COCS	Title	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
P000	Professional Administrative & Related Occupations	0.0	0.0								
P010	Accountants and Auditors										
P020	Architects										
P030	Buyers, Procurement and Contracting Specialists										
P040	Communications Specialists										
P050	Compliance Inspectors										
P060	Computer Systems Analysts										
P070	Cost Estimators and Planners and Schedulers										
P080	Health Physicists										
P090	Industrial Hygienists										
P100	Lawyers										
P110	Personnel and Labor Relations Specialists										
P120	Physicians										
P130	Physician Assist, Nurses & Oth Medical Supt Occup'tns										
P140	Safeguards and Other Security Specialists										
P150	Trainers										
P160	Technical Writers, and Editors										
P170	Other Administrative & Professional Other Occupations										
R000	Operators	0.0	0.0								
R010	Chemical System Operators										
R020	Drillers										
R030	Material Moving Equipment Operators										
R040	Nuclear Plant Operators										
R050	Nuclear Waste Process Operators										
R060	Production Systems Operators										
R070	Utilities Operators										
R080	Other Operators										

**Exhibit: Program Average FTE Projections by COCS Categories**  
**Program WBS/Title: 5.1.3 Radioisotope Thermoelectric Generator**

COCS	Title	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
S000	Scientists	0.0	0.0								
S010	Chemists										
S020	Environmental Scientists										
S030	Geologists										
S040	Life Scientists										
S050	Materials Scientists										
S060	Mathematicians										
S070	Physicists										
S080	Social Scientists										
S090	Other Scientists										
S100	Computer Scientists										
T000	Technicians	0.0	0.0								
T010	Computer Operator/Coders										
T020	Drafters										
T030	Engineering Technicians										
T040	Environmental Sciences Technicians										
T050	Health Physics Technicians										
T060	Industrial Safety and Health Technicians										
T070	Instrument and Control Technicians										
T080	Laboratory Technicians										
T090	Media Technicians										
T100	Survey and Mapping										
T110	Other Technicians										
<b>Total</b>		<b>3.4</b>	<b>0.0</b>								

**TRANSPORTATION & PACKAGING HQ SUPPORT  
Radioisotope Thermoelectric Generator (WBS 5.1.3)  
and Defense Programs**

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FY 1997 Work Plan

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**5.0 EXECUTION YEAR**

**5.1 Performance Measure Objectives**

Radioisotope Thermoelectric Generator Transportation System

This program is not specifically identified in the Project Hanford Contract Request for Proposal.

**5.2 Program Performance Baseline Schedule**

Activity description	RL WBS	Milestone Control #	MS TYPE	FY97												
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
<b>SPACE POWER PROGRAMS</b>																
SPACE POWER PROGRAMS (3)	5 1															
<b>RTG TRANSPORTATION</b>																
RTG TRANSPORTATION SYSTEM	5 1 3															
<b>. Program Management</b>																
PROGRAM MANAGEMENT	5 1 3 1															
COMPLETE PROGRAM DOCUMENTATION	5 1 3 1															
REVISE SARP to OBTAIN COMPETENT AUTHORITY CERT	5 1 3 1															
SARP MAINTENANCE	5 1 3 1															
MAINTAIN PROGRAM FILES	5 1 3 1															
PROVIDE TECHNICAL ASSISTANCE to CUSTODIAN & DOE	5 1 3 1															
<b>.....100 - Final System Testing</b>																
M/S - RTG SYSTEM TO CUSTODIAN DEC 13, 1996	5 1 3 4	SIP97063	HQ													
<b>....Packaging System - 120</b>																
PACKAGING SYSTEM - 120	5 1 3 2															
FABRICATE 3rd PACKAGE	5 1 3 2 2															
M/S - COMPLETE FABRICATION of 3rd PACKAGE	5 1 3 2 2	SIP95070	RL													

FY97											
OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP

Project Start	01OCT96		NOTE
Project Finish	30SEP97		
Start Date	01OCT96		
End Date	09AUG96		

WESTINGHOUSE HANFORD COMPANY  
 RTG TRANSPORTATION SYSTEM  
 MYPP - Baseline Schedule - FY97

FY97 BASELINE			
Date	Revision	Checked	Approved

5.3

**COST BASELINE FOR EXECUTION YEAR  
BY PROGRAM BY FUND TYPE BY MONTH**

(\$000s)

RL WBS #	PROGRAM TITLE	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
5.1.3	RTG	Expense	45	45	45	73	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	436
	Defense Programs	Expense	20.8	20.8	20.8	20.8	20.8	20.8	20.9	20.9	20.9	20.9	20.8	20.8	250
	Work For Others	Expense	16.6	16.7	16.7	16.7	16.7	16.7	16.7	16.8	16.7	16.6	16.6	16.7	200
		CENRTC C/O	330												330
		Line Item													
		GPP													
		<b>Total BCWS/PMB (1)</b>													
		Mgmt Reserve (2)													
		Line Item Contingency (2)													
		Expected Carryover (3)	75												75
		<b>Total</b>	<b>487.4</b>	<b>82.5</b>	<b>82.5</b>	<b>110.5</b>	<b>66</b>	<b>66</b>	<b>66.1</b>	<b>66</b>	<b>66.1</b>	<b>66</b>	<b>65.9</b>	<b>66</b>	<b>1291</b>

<b>PROGRAM BCWS/PMB</b>	<b>412.4</b>	<b>82.5</b>	<b>82.5</b>	<b>110.5</b>	<b>66</b>	<b>66</b>	<b>66.1</b>	<b>66</b>	<b>66.1</b>	<b>66</b>	<b>65.9</b>	<b>66</b>	<b>1216</b>
<b>PROGRAM TOTAL</b>	<b>487.4</b>	<b>82.5</b>	<b>82.5</b>	<b>110.5</b>	<b>66</b>	<b>66</b>	<b>66.1</b>	<b>66</b>	<b>66.1</b>	<b>66</b>	<b>65.9</b>	<b>66</b>	<b>1291</b>

(1) Budgeted Cost Of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB).

(2) Management Reserve Held By RL And Line Item Contingency Held By RL.

(3) Includes Expected Expense Carryover Requested By Formal Change Control In FY1997.

5.4

**COST BASELINE FOR EXECUTION YEAR  
BY PROGRAM BY COST ELEMENT BY MONTH**

(\$000s)

RL WBS #	PROGRAM TITLE	COST ELEMENT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
5.1.3	RTG	0 Salaries & Cont of Serv	35.3	35.3	35.3	17.1	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	263
	Defense Programs	0 Salaries & Cont of Ser	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	150
	Work for Others	0 Sarlies & Cont of Ser	10	10	10	10	10	10	10	10	10	10	10	10	120
		1 Material													0
		2 Purchased Services			330										330
		3 Charges From Other Co													0
		4 Internal Services													0
		5 Internal Charges													0
		6 BCS Richland													0
		7 Overheads & Adders	30	30	30	21	21	21	21	21	21	21	21	20	278
		8 Revenue													
		<b>Total BCWS/PMB (1)</b>	<b>87.8</b>	<b>87.8</b>	<b>417.8</b>	<b>60.6</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>60</b>	<b>1141</b>
<b>PROGRAM BCWS/PMB</b>			<b>87.8</b>	<b>87.8</b>	<b>417.8</b>	<b>60.6</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>60</b>	<b>1141</b>

(1) Budgeted Cost Of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB) And Is Consistent With BCWS/PMB (Exhibit 3).  
Above Amounts Do NOT Include Management Reserve Held By RL, Line Item Contingency Held By RL, Or Expected Expense Carryover Requested By Formal Change Control In FY1997.

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