DOE/RL-2000-69
Revision 0

Richland Operations Environment, Safety and Health Fiscal Year 2000/2001 Execution Commitment Summary

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

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

United States Department of Energy
P.O. Box 550
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Date Published
December 2000

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Release Approval Date

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EXECUTIVE SUMMARY

E1.0 INTRODUCTION

All sites in the U.S. Department of Energy (DOE) Complex prepare this report annually for the DOE Office of Environment, Safety and Health (EH). The purpose of this report is to provide a summary of the previous and current year's Environment, Safety and Health (ES&H) execution commitments and the Safety and Health (S&H) resources that support these activities. The fiscal year (FY) 2000 and 2001 information and data contained in the *Richland Operations Environment, Safety and Health Fiscal Year 2002 Budget-Risk Management Summary* (RL 2000a) were the basis for preparing this report. Fiscal year 2001 activities are based on the President's Amended Congressional Budget Request of $689.6 million for funding Office of Environmental Management (EM); $44.0 million for Fast Flux Test Facility standby less $7.0 million in anticipated DOE, Headquarters holdbacks for Office of Nuclear Energy, Science and Technology (NE); and $55.3 million for Safeguards and Security (SAS). Any funding changes as a result of the Congressional appropriation process will be reflected in the Fiscal Year 2003 ES&H Budget-Risk Management Summary to be issued in May 2001.

This report provides the end-of-year status of FY 2000 ES&H execution commitments, including actual S&H expenditures, and describes planned FY 2001 ES&H execution commitments and the S&H resources needed to support those activities. This requirement is included in the ES&H guidance contained in the *FY 2002 Field Budget Call* (DOE 2000).

The scope of this report includes ES&H activities performed at Richland Operations (RL) under the management of the following DOE Secretarial Offices:

- DOE EM activities associated with environmental cleanup. This office accounts for most of the DOE resources expended at RL and includes:
  - Treatment, storage and disposal of solid and liquid wastes, removal of spent nuclear fuel from storage basins and transferring it to dry storage on the 200 Area Plateau, stabilizing plutonium bearing materials, transitioning aging nuclear facilities to a safe and cost effective surveillance and maintenance state, and providing general and infrastructure support to these activities. These activities are accomplished under the Project Hanford Management Contract (PHMC) managed by Fluor Hanford, Inc. (FH).
  - Interim and final cleanup of waste sites, contaminated groundwater and final decontamination and decommissioning (D&D) of surplus facilities. This effort is accomplished under the Environmental Restoration Contract managed by Bechtel Hanford, Inc. (BHI).
  - The Science and Technology Project managed by the Battelle Memorial Institute (BMI), operator of the Pacific Northwest National Laboratory (Pacific Northwest).

- DOE Office of Science (SC) activities associated with environmental science, energy research and technology programs managed by BMI, operator of Pacific Northwest. An ES&H commitment affirmation response for SC-funded activities is presented in Appendix A

- NE activities associated with maintaining the Fast Flux Test Facility complex as an option for accomplishing expanded civilian nuclear energy research and development and isotope production missions. These activities also are managed by FH.

- SAS activities associated with safeguard and security of the Hanford Site.

Activities funded by the DOE Office of River Protection (ORP), which oversees the River Protection Project and is responsible for management and disposal of tank waste and ancillary facilities, are not included in this report.

E2.0 ENVIRONMENT, SAFETY AND HEALTH PERFORMANCE

This section provides a summary of RL's FY 2000 S&H performance, status of Integrated Safety Management System implementation, and status of ES&H execution commitments.

E2.1 STATUS OF SAFETY AND HEALTH PERFORMANCE

A major S&H milestone was reached on November 1, 2000 when the PHMC, FH, achieved 10 million worker hours without any lost away workday injuries. This was accomplished during a time when significant progress on cleanup activities was being achieved and a range fire that charred nearly one-half of the Hanford Site was being fought.

This S&H performance is reflected in two nationally recognized measures of S&H performance for RL prime contractors. These are the OSHA Recordable Case Rate and the OSHA Lost/Restricted Workday Case Rate. The reported performance indicators are based on a population that includes all employees of FH and their subcontractors, and lower tiered subcontractors; BHI; and BMI, operator of Pacific Northwest.

The OSHA Recordable Case Rate tracks the number of work-related deaths and illnesses and those work-related injuries that result in loss of consciousness, restriction of work or motion, transfer to another job, or that require treatment beyond first aid. The most recent long-term rate of 1.9 cases per 200,000 hours is 30 percent below the current DOE average of 2.7. The DOE average is the average of all sites in the DOE Complex as compiled in the DOE Performance Indicators – Environment, Safety and Health quarterly report (DOE 1999).

The OSHA Lost/Restricted Workday Case Rate tracks the number of work-related injuries or illnesses that involve days away from work or days of restricted work activity or both, per 200,000 hours worked. The most recent RL long-term rate of 0.8 cases per 200,000 hours is 33 percent below the current DOE average rate of 1.2. The DOE average is the average of all sites in the DOE Complex.

E2.2 INTEGRATED SAFETY MANAGEMENT IMPLEMENTATION

Early in FY 2000, the Secretary of Energy established a goal that all Operations/Field Offices in the DOE Complex implement DOE's Integrated Safety Management System (ISMS) outlined in DOE Policy P450.4 (DOE 1996a) and the Department's Implementation Plan for Defense Nuclear Facility Safety Board (DNFSB) Recommendation 95-2 (DOE 1996b) by September 30, 2000. On September 20, 2000, declaration was made that the basic components, processes and manuals of practice for Integrated Safety Management were in place at RL and were implemented within RL's prime contractor organizations (RL 2000b).

E2.3 MAJOR FISCAL YEAR 2000 ACCOMPLISHMENTS

Significant cleanup progress was achieved at RL in FY 2000. Some of the major accomplishments are summarized below.

- **Stabilized and packaged plutonium.**
  - Quadrupled thermal stabilization rates for plutonium (Pu) oxides over FY 1999 rate using 5 muffle furnaces.
  - Began stabilizing Pu-bearing solutions using magnesium hydroxide precipitation process.
  - Installed bagless transfer system to accelerate stabilization and packaging of Pu and to reduce exposure levels.
- **Completed construction, equipment installation and testing for Spent Nuclear Fuel**
  - Completed construction and testing of Canister Storage Building (CSB) and Cold Vacuum Drying facility and made major modifications on K West Basin. Also completed construction of the Interim Storage Area adjacent to the CSB.
  - Implemented a strategy to conduct early testing of K West Fuel Retrieval System and Integrated Water Treatment System which will reduce schedule risk and improve fuel production rates in FY 2001.
  - Made significant progress toward readying T Plant to receive spent nuclear fuel sludge and complete sludge removal one year ahead of schedule.

- **Treated and disposed of waste materials.**
  - Shipped approximately one-third of the excess uranium stored on the Hanford Site to Portsmouth, Ohio.
  - Shipped 89 drums of transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) at Carlsbad, New Mexico. This was the first of 2,500 shipments scheduled for shipment to the WIPP over the next 30 years.
  - Treated or direct-disposed of 1,204 cubic meters (39,800 cubic feet) of mixed low-level waste (MLLW) meeting a *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) milestone 18 months ahead of schedule.
- **Removed highly radioactive waste from the 300 Area.**
  - Shipped 327 Building bulk waste, legacy waste buckets, sample cans and fuel pins to the 200 Area Central Waste Complex.
  - Completed 324 Building B Cell 2A Rack removal and size reduction.
  - Shipped 17 remote-handled grout containers from the 324 Building to the Low-Level Waste Burial Grounds for storage/disposal.
- **Completed removal and disposal of contaminated waste and waste sites.**
  - Removed and disposed of over 579,000 metric tons (639,000 tons) of contaminated waste in the Environmental Restoration Disposal Facility (ERDF).
  - Excavated 42 contaminated waste sites for a total of 219 sites cleaned up of the 1,547 sites identified to date.
  - Completed construction of ERDF Cells No. 3 and 4 satisfying Tri-Party Agreement Milestone M-16-92B and doubling the size of the disposal facility.

E2.4 STATUS OF FISCAL YEAR 2000 ENVIRONMENT, SAFETY AND HEALTH EXECUTION COMMITMENTS

A total of 58 ES&H execution commitments were planned for completion by the EM-funded RL missions in FY 2000. No reportable ES&H execution commitments were assigned to SC, NE or SAS programs. Included in ES&H execution commitments are major and interim Tri-Party Agreement milestones (Ecology et al.1990), DNFSB Recommendation commitments, and Regulatory milestones. These commitments are reportable to DOE Headquarters (HQ) as DOE-HQ controlled and/or Field Office milestones. The overall year-end status of these milestones and commitments is provided in Table ES-1 by RL mission. Year- end status of the FY 2000 ES&H execution commitment milestones is summarized below.

- 51 (88%) milestones were completed on or ahead of schedule.
- One (2%) milestone was completed behind schedule.

- Six (10%) milestones were deferred or deleted by change control from the FY 2000 baseline.

Table ES-1. Summary Year-End Status of Richland Operations Fiscal Year 2000 Environment, Safety and Health Execution Commitments by Mission.

Mission	Number of Milestones[a]					
	A/S	O/S	B/S	C/O	Revise[b]	Total
Waste Management	2	0	0	0	0	2
Spent Nuclear Fuel	2	0	0	0	0	2
Facility Stabilization	3	2	0	0	2	7
Environmental Restoration	17	0	1	0	2	20
Science and Technology	0	0	0	0	0	0
Mission Support and Other Projects	22	3	0	0	2	27
Total	***46***	***5***	***1***	***0***	***6***	***58***

[a] A/S = Completed ahead of schedule; O/S = completed on schedule; B/S = completed behind schedule; and C/O = carried over from FY 2000 for completion in FY 2001.
[b] Schedule revised by change control to defer or delete milestone from the FY 2000 baseline.

E2.4 STATUS OF FISCAL YEAR 2001 ENVIRONMENT, SAFETY AND HEALTH EXECUTION COMMITMENTS

A total of 28 ES&H execution commitments are planned for completion in FY 2001 as shown in Table ES-2. These commitments include 21 Tri-Party Agreement milestones, 3 DNFSB commitments, and 4 regulatory milestones.

Table ES-2. Summary of Planned Richland Operations Fiscal Year 2001 Environment, Safety and Health Execution Commitments by Milestone Type.

Mission	Number of Milestones			
	TPA	DNFSB	REG	Total
Waste Management	3	0	0	3
Spent Nuclear Fuel	2	1	0	3
Facility Stabilization	2	2	0	4
Environmental Restoration	14	0	0	14
Science and Technology	0	0	0	0
Mission Support and Other Projects	0	0	4	4
Total	**21**	**3**	**4**	**28**

E4.0 SUMMARY ASSESSMENT OF FISCAL YEAR 2001 ENVIRONMENTAL MANAGEMENT RISK AND COMPLIANCE VULNERABILITIES

The President's Amended FY 2001 Budget Request of $689.6 million provides sufficient funding to accomplish the high priority FY 2001 EM-funded activities. The impacts described in the following paragraphs are based on a $70.2 million shortfall from the $759.8 million needed by RL to fully fund compliance with regulatory requirements. This shortfall is identified in Table ES-3 as Regulatory Compliance Increment 2.

Table ES-3. Fiscal Year 2001 Summary Funding of Richland Operations Environmental Management Missions by Priority Category (dollars in millions).[a]

Priority Category	Richland Operations Mission[b]						Total
	WM	SF	FS	ER	ST	MS[c]	
Essential Safety	63.2	26.0	86.2	24.5	4.2	14.0	218.0
Essential Services	48.2	18.5	19.1	15.2	10.2	58.3	161.5
Compliance TPA/DNFSB	10.5	144.8	48.5	102.3	0	0	306.0
Regulatory Compliance (Increment 1)	0	0	2.8	0	0	1.3	4.1
President's Amended Budget[e]	**$121.9**	**$189.2**	**$156.7**	**$141.9**	**$14.4**	**$65.5**	**$689.6**
Regulatory Compliance (Increment 2)	10.6	0	8.2	41.2[d]	1.9	8.3	70.2
Subtotal Compliance[e]	**$132.5**	**$189.2**	**$164.9**	**$183.1**	**$16.3**	**$73.8**	**$759.8**
Additional Requirements	7.8	0	6.2	21.1	0	0	35.1
Total Requirements	**$140.3**	**$189.2**	**$171.1**	**$204.2[d]**	**$16.3**	**$73.8**	**$794.9**

[a] Based on the President's Amended Budget Request to Congress of $689.6 million for Environmental Management. Any changes in funding resulting from the Congressional appropriation process will be reflected in the Richland Operations 2003 ES&H budget-Risk Management Summary to be issued in May 2001.

[b] WM = Waste Management Project; SF = Spent Nuclear Fuel; FS = Facility Stabilization; ER = Environmental Restoration; ST = Science and Technology; and MS = Mission Support and Other Projects.

[c] Includes funding for Hazardous Materials Management and Emergency Response; Mission Support; RL Directed Support; Office of Safety Regulation of the Waste Treatment Contractor; Advanced Reactors Transition; and Landlord Project.

[d] Includes $10 million of additional Congressional authorization recommended by the U.S. Senate to continue Reactor Interim Safe Storage activities.

[e] These values refer to the FY 2001 Compliance TPA/DNFSB funding requirements as identified in the September 22, 2000 Phase I Multi-Year Work Plan Final Project Priority List (PPL).

In addition to impacts to FY 2001 ES&H execution commitments, there are significant programmatic impacts and emerging requirements that need to be addressed in FY 2001 in order to reduce out-year impacts to ES&H execution commitments. These are summarized below.

- **TRU Waste Retrieval.** Completing retrieval of post 1970 contact handled TRU and TRU mixed waste by September 2004 (Tri-Party Agreement Milestone 91-07) is severely impacted by lack of funding in FY 2001. The milestone requires retrieval of about 10,000 suspect TRU drums of which approximately 8,800 are earth-covered. Funding is needed in FY 2001 for completing the Interim Safety Basis modification and Operational Readiness Review work necessary for retrieval of the earth-covered drums.

- **10 CFR 830 Nuclear Safety Management Implementation.** Initial estimates have identified a need to upgrade authorization basis documents for 13 facilities at an estimated cost of $10.0 million. Funding constraints in FY 2001 will reduce the available time to complete these upgrades from 30 months to 18 months, jeopardizing completion of upgrades by April 10, 2003 as stipulated in the regulation.

- **Plutonium Finishing Plant.** Although internal reprogramming of funds will provide some additional funding to address needs in FY 2001, a need exists for additional funding in FY 2001 to address out-year DNFSB Commitments at the PFP. The confidence in achieving out-year DNFSB Commitments to complete stabilization and packaging of plutonium solutions (by December 31, 2001), polycubes (by August 30, 2002) and residues (by April 30, 2004) has changed from medium to low. Additional funding in FY 2001 would fund activities to improve the confidence that the schedule dates would be met.

The FY 2001 President's Amended Budget Request also provides $44.0 million for Fast Flux Test Facility (FFTF) standby, less $7.0 million in anticipated DOE-HQ holdbacks, for this NE-funded activity. In addition, the FY 2001 President's Amended Budget Request provides $55.3 million to fund SAS activities at RL. The President's Amended Budget Request addresses significant risks for both NE and SAS activities in FY 2001.

The following summary highlights the major FY 2001 potential impacts of the President's Amended Budget Request for EM-funded activities. These impacts are being addressed by RL and their contractors, to mitigate both the FY 2001 and out year vulnerabilities to compliance issues. The FY 2001 President's Amended Budget addresses significant risks for both NE and SAS activities.

- **Waste Management.** Tri-Party Agreement Milestone M-91-11-T01 to complete the Mixed Low-Level Waste (MLLW) engineering study and functional design criteria (FDC) is not funded. Since the Project Management Plan for MLLW proposed using existing facilities to perform treatment of the waste, DOE has proposed that the Engineering Study and FDC are no longer required. The regulators have not yet accepted the proposal to delete this milestone.

- **Spent Nuclear Fuel.** The FY 2001 budget is adequate for meeting ES&H execution commitments related to moving spent nuclear fuel from the fuel basins starting in FY 2001.

- **Facility Stabilization.** Incremental funding is needed to support Line Item Project W-460, Plutonium Stabilization and Packaging System. This equipment is critical in supporting the DNFSB Recommendation 2000-01 commitment to complete packaging of oxides (>30 weight % plutonium/uranium) by May 2004. It is expected that additional Congressional funding and budget reprogramming will resolve this issue.

- **Environmental Restoration.** Compliance vulnerabilities exist for the 200 Area assessment and remediation activities and completion of 100 B/C remedial actions. Also, the tritium investigation concerns at the 618-11 Burial Ground represents a significant emerging risk issue that will most likely require additional funding in FY 2001 to address.

- **Science and Technology.** Safety and health risks to onsite workers, the environment, and the public will be impacted because of failure to expeditiously remove highly radioactive material from close proximity to population centers and the Columbia River in compliance with the Resource Conservation and Recovery Act (RCRA).

- **Mission Support.** Activities established to comply with federal laws and regulations concerning the protection and management of ecological resources on the Hanford Site, i.e., Ecosystem Monitoring and Ecological Compliance, will not be fully maintained.

E5.0 SAFETY AND HEALTH EXPENDITURES FOR FISCAL YEARS 2000 AND 2001

Table ES-4 provides a comparison of total (direct plus indirect) RL FY 2000 planned-to-actual expenditures for S&H activities performed by the DOE Secretarial Offices. Actual total RL expenditures on S&H activities was lower than planned expenditures by $2.0 million (1.1%) in FY 2000. Total RL direct S&H expenditures were less than planned expenditures by less that $0.1 million (0.0%) and indirect S&H expenditures were lower than planned expenditures by $1.9 million (2.8%) in FY 2000. S&H expenditures for indirect-funded EM activities, which were $2.0 million (3.6%) lower than planned had the largest cost difference. The decrease in indirect S&H expenditures is due primarily to revised expenditures for dosimetry services for the Office of River Protection and River Protection Project who started paying for their own dosimetry service in FY 2000.

Table ES-5 provides a comparison of total RL (direct plus indirect) actual FY 2000 to planned FY 2001 expenditures for S&H activities, summarized by Secretarial Office. Planned FY 2001 expenditures on RL S&H activities is forecast to be $11.0 million (6.1%) higher than FY 2000 actual expenditures. The largest contributors to the increase are EM-direct and indirect activities and SAS activities as discussed below.

- **EM-Direct Funded Missions.** Essentially all of the increase in FY 2001 S&H expenditures is due to the Landlord Project activities discussed below:

- Increased Fire Protection due to costs incurred for recovery from the June 2000 Hanford Site range fire and higher than planned costs in FY 2001 for renovation of the Fire Department's emergency services facility.

- Increased Industrial Hygiene for upgrades to provide water system isolation and backflow prevention at the PFP to resolve water quality issues with the State of Washington.

- Increased Industrial Safety due to procurement of an electrical utility truck and chlorine mitigation unit in FY 2001 that was planned for FY 2000.

- Increased Radiation Protection for costs of carryover work scope to FY 2001 for disposing of two contaminated spent nuclear fuel well rail cars.

- **EM-Indirect Funded Activities.** The $1.0 million increase is due to a combination of small increases in most of the S&H functional areas.

SAS-Funded Activities. The $1.0 million increase is due to transfer of safeguards and security activities from indirect to direct funding.

Table ES-4. Comparison of Planned to Actual Safety and Health Expenditures for Fiscal Year 2000 Richland Operations Activities by Secretarial Office (dollars in thousands)[a].

DOE Secretarial Office	FY 2000 Planned	FY 2000 Actual	Change	Percent Change
EM Direct Mission S&H Costs	96,570	96,275	-295	-0.3
EM-10, EM Program Direction	11,958	12,429	+471	+3.9
Total Direct EM S&H Costs	**$108,528**	**$108,704**	**+176**	**+0.2**
Fast Flux Test Facility Complex	3,065	2,728	-337	-11.0
Total Direct NE S&H Costs	**$3,065**	**$2,728**	**-337**	**-11.0**
Pacific Northwest National Laboratory	500	612	+112	+22.4
Total Direct SC S&H Costs	**$500**	**$612**	**+112**	**+22.4**
Total RL Direct S&H Costs	**$112,093**	**$112,044**	**-49**	**-0.0**
Indirect EM S&H Costs	55,599	53,600	-1,999	-3.6
Indirect SC S&H Costs	13,727	13,798	+71	+0.5
Total RL Indirect S&H Costs	**$69,326**	**$67,398**	**-1,928**	**-2.8**
Total RL S&H Costs	**$181,419**	**$179,442**	**-1,977**	**-1.1**

[a] Includes direct plus indirect S&H expenditures for Richland Operations activities.

Table ES-5. Comparison of Actual Fiscal Year 2000 to Planned Fiscal Year 2001 Safety and Health Expenditures for Richland Operations by Secretarial Office (dollars in thousands)[a].

DOE Secretarial Office	FY 2000 Actual	FY 2001 Planned	Change	Percent Change
EM Direct Mission S&H Costs	96,275	104,075	+7,800	+8.1
EM-10, EM Program Direction	12,429	12,928	+499	+4.0
EM Safeguards and Security (SAS)	0	929	+929	N/A
Total Direct EM S&H Costs	**$108,704**	**$117,932**	**+9,228**	**+8.5**
Fast Flux Test Facility Complex	2,728	2,684	-44	-1.6
Total Direct NE S&H Costs	**$2,728**	**$2,684**	**-44**	**-1.6**
Pacific Northwest National Laboratory	612	1,323	+711	+116.2
Total Direct SC S&H Costs	**$612**	**$1,323**	**+711**	**+116.2**
Total RL Direct S&H Costs	**$112,044**	**$121,939**	**+9,895**	**+8.8**
Indirect EM S&H Costs	53,600	54,551	+951	+1.8
Indirect SC S&H Costs	13,798	13,916	+118	+0.9
Total RL Indirect S&H Costs	**$67,398**	**$68,467**	**+1,069**	**+1.6**
Total RL S&H Costs	**$179,442**	**$190,406**	**+10,964**	**+6.1**

[a] Includes direct plus indirect S&H expenditures for Richland Operations activities.

E6.0 REFERENCES

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APPENDIX

TABLES

FIGURES

TERMS

BIO	Basis for Interim Operation
BMI	Battelle Memorial Institute
CAR	Construction Authorization Request
CDD	Conceptual Design Document
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
CH	Contact Handled
CHG	CHM2Hill Hanford Group
CSB	Canister Storage Building
CVD	Cold Vacuum Drying
D&D	Decontamination and Decommissioning
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy, Headquarters
DQO	Data Quality Objective
EA	Enforceable Agreement
Ecology	Washington State Department of Ecology
EH	DOE Office of Environment, Safety and Health
EM	DOE Office of Environmental Management
ESA	Endangered Species Act
EPA	U.S. Environmental Protection Agency
EPCRA	*Emergency Planning and Community Right-to-Know Act of 1986*
ER	Environmental Restoration
ERDF	Environmental Restoration Disposal Facility
ES&H	Environment, Safety and Health
ETF	Effluent Treatment Facility
FDC	Functional Design Criteria
FH	Fluor Hanford, Inc.
FFTF	Fast Flux Test Facility
FS	Facility Stabilization
FSAR	Final Safety Analysis Report
FY	fiscal year
GFI	ground fault indicator
HAMMER	Hazardous Materials Management and Emergency Response
HAMTC	Hanford Atomic and Metals Trade Council
HLW	high-level waste
IPL	Integrated Priority List
ISMS	Integrated Environment, Safety and Health Management System
ISS	Interim Safe Storage
IWTS	Integrated Water Treatment System
LANL	Los Alamos National Laboratory
LCAR	Limited Construction Authorization Request
LDR	Land Disposal Restrictions

TERMS (cont'd)

LLMW	low-level mixed waste
LLW	low-level waste
MCC	motor control center
MCO	Multiple Canister Overpack
MYWP	multiyear workplan
NEC	National Electrical Code
NE	DOE Office of Nuclear Energy, Science and Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NPL	National Priority List
ORR	*Operational Readiness Review*
Pacific Northwest	Pacific Northwest National Laboratory
PBS	Project Baseline Summary
PFP	Plutonium Finishing Plant
Pu	Plutonium
RCRA	*Resource Conservation and Recovery Act of 1976*
REC	Radiochemical Engineering Cell (324 Building B Cell)
RI/FS	Remediation Investigation/Feasibility Study
RL	DOE, Richland Operations Office
RPL	Radiochemical Processing Laboratory
SAP	Standards Approval Package
SAR	Safety Analysis Report
SC	DOE Office of Science
S&H	Safety and Health
SNM	Special Nuclear Material
TEDF	Treated Effluent Disposal Facility
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
TRU	transuranic (waste)
TRUM	transuranic mixed (waste)
TSCA	Toxic Substance Control Act of 1976
WAC	*Washington Administrative Code*
WESF	Waste Encapsulation and Storage Facility
WIPP	Waste Isolation Pilot Plant
WM	Waste Management
WMA	Waste Management Area
WRAP	Waste Receiving and Processing (Facility)
WSCF	Waste Sampling and Characterization Facility
WTP	Waste Treatment Plant

RICHLAND OPERATIONS FISCAL YEAR 2000/2001 ENVIRONMENT, SAFETY AND HEALTH EXECUTION COMMITMENT SUMMARY

1.0 INTRODUCTION

1.1 BACKGROUND

All sites in the U.S. Department of Energy (DOE) Complex prepare this report annually for the DOE Office of Environment, Safety and Health (EH). The purpose of this report is to provide a summary of the previous and current year's Environment, Safety and Health (ES&H) execution commitments and the Safety and Health (S&H) resources that support these activities. The fiscal year (FY) 2000 and 2001 information (Sieracki 2000) and data contained in the *Richland Operations Environment, Safety and Health Fiscal Year 2002 Budget-Risk Management Summary* (RL 2000a) was used as a basis in preparing this report.

1.2 PURPOSE

The purpose of this report is to provide the end-of-year status of FY 2000 ES&H execution commitments, including actual S&H expenditures, and to describe planned FY 2001 ES&H execution commitments and the S&H resources needed to support those activities. It will identify any significant ES&H risks, the highest ranking unfunded activities, and any unfunded or under-funded activities that address emerging ES&H issues in FY 2001. This report also will provide a basis for the ES&H commitment affirmation letter prepared by each Operations/Field Office Manager for submittal to DOE, Headquarters. The purpose of this letter is to provide confirmation that sufficient resources (funding and staff) are available to meet the established commitments in the current FY, as required by the ES&H guidance for FY 2002 budget formulation and execution (DOE 2000).

1.3 SCOPE

The scope of this report includes all ES&H activities performed by Richland Operations (RL) contractors and subcontractors. The following information is included in this report:

- A summary status of performance with respect to the ES&H execution commitments negotiated for FY 2000.
- Actual FY 2000 and planned FY 2001 expenditures on S&H activities by DOE Secretarial Office and by each of the nine S&H functional areas.
- Description of major ES&H execution commitments planned for FY 2001.
- Identification of significant ES&H risks that are not or will not be adequately addressed in the FY 2001 work plans.

- Identification of the highest ranking unfunded activities that would be candidates for funding in the FY 2001 work plan.

- Identification of unfunded (or under-funded) activities in the FY 2001 work plan that address emerging ES&H issues.

The scope of this report includes ES&H activities performed by RL under the management of the following DOE Secretarial Offices:

- DOE Office of Environmental Management (EM) activities associated with environmental cleanup. This office accounts for most of the DOE resources expended at RL and includes:

  - Treatment, storage and disposal of solid and liquid wastes, removal of spent nuclear fuel from storage basins and transferring it to dry storage on the 200 Area Plateau, stabilizing plutonium bearing materials, transitioning aging nuclear facilities to a safe and cost effective surveillance and maintenance state, and providing general and infrastructure support to these activities. These activities are accomplished under the Project Hanford Management Contract (PHMC) managed by Fluor Hanford, Inc. (FH).

  - Interim and final cleanup of waste sites, contaminated groundwater and final decontamination and decommissioning (D&D) of surplus facilities. This effort is accomplished with the Environmental Restoration Contract managed by Bechtel Hanford, Inc. (BHI).

  - The Science and Technology Project managed by Battelle Memorial Institute (BMI), operator of the Pacific Northwest National Laboratory (Pacific Northwest).

- DOE Office of Science (SC) activities associated with environmental science, energy research and technology programs managed by BMI, operator of Pacific Northwest. An ES&H commitment affirmation response for SC-funded activities is presented as Appendix A.

- DOE Office of Nuclear Energy, Science and Technology (NE) activities associated with maintaining the Fast Flux Test Facility complex as an option for accomplishing expanded civilian nuclear energy research and development and isotope production missions. These activities also are managed by FH.

- DOE Safeguards and Security (SAS) activities associated with safeguard and security of the Hanford Site.

EM activities funded by the DOE Office of River Protection (ORP), which oversees the River Protection Project and is responsible for management and disposal of tank waste and ancillary facilities, are not included in this report.

2.0 FISCAL YEAR 2000 ENVIRONMENT, SAFETY AND HEALTH PERFORMANCE AND COMMITMENT EXECUTION STATUS SUMMARY

Section 2.0 provides a summary of FY 2000 year-end status of ES&H performance, summary analysis of ES&H execution commitments, year-end status of FY 2000 ES&H execution commitments, and summary of major ES&H-related accomplishments. The status information provided in the following sections is also available from the *Environmental Management Performance Report - September 2000* (RL 2000b).

Included in ES&H execution commitments are major and interim *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) milestones including Tri-Party Agreement Consent Order and Consent Decree Milestones (Ecology et al.1990), Defense Nuclear Facilities Safety Board (DNFSB) Recommendation commitments, and regulatory milestones. These commitments are reportable to DOE-HQ as controlled and/or Field Office milestones. Only EM-funded programs have ES&H execution commitments.

2.1 FISCAL YEAR 2000 ENVIRONMENT, SAFETY AND HEALTH PERFORMANCE

This section provides the status of RL's S&H performance and implementation of DOE's Integrated Safety Management System (ISMS).

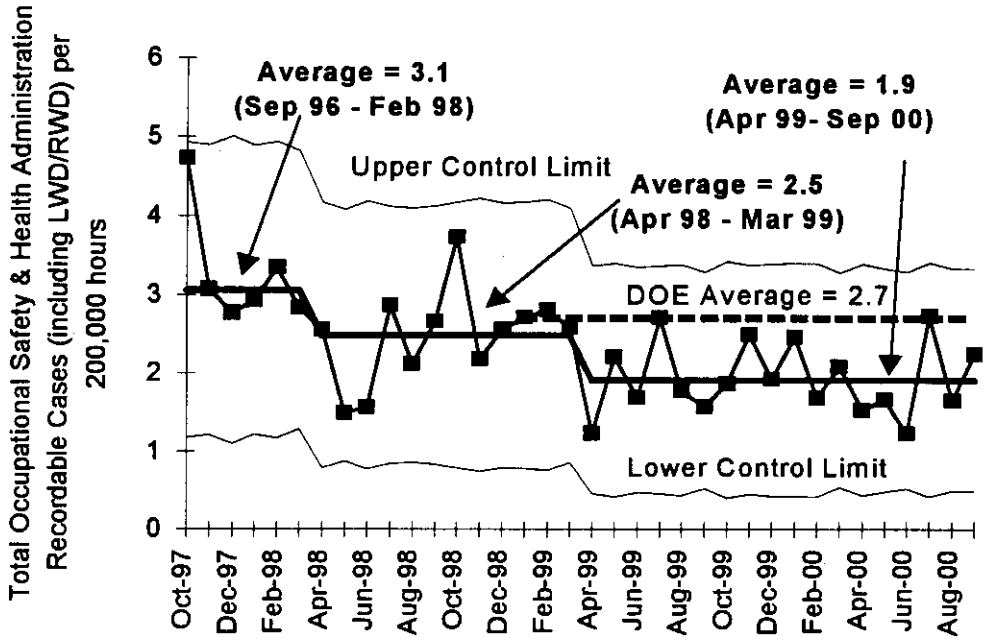
2.1.1 Safety and Health Performance

A major S&H accomplishment was reached on November 1, 2000 when the Project Hanford Management Contractor, Fluor Hanford, Inc. achieved 10 million hours without any lost away workday injuries. This was accomplished during a time when significant progress on cleanup activities was being achieved and a range fire that charred nearly one-half of the Hanford Site was being fought.

This S&H performance is reflected in Figures 2-1 and 2-2 where two nationally recognized measures of S&H performance are shown for RL prime contractors. These are the OSHA Recordable Case Rate and the OSHA Lost/Restricted Workday Case Rate. The reported performance indicators are based on a population that includes all employees of FH and their subcontractors, and lower tiered subcontractors; the Environmental Restoration Contractor, BHI; and Battelle Memorial Institute (BMI) who operates Pacific Northwest National Laboratory.

The OSHA Recordable Case Rate (Figure 2-1) tracks the number of work-related deaths and illnesses and those work-related injuries that result in loss of consciousness, restriction of work or motion, transfer to another job, or that require treatment beyond first aid. The most recent long-term rate of 1.9 cases per 200,000 hours is 30 percent below the current DOE average of 2.7. The DOE average is the average of all sites in the DOE Complex as compiled in the *DOE Performance Indicators – Environment, Safety and Health quarterly report* (DOE 1999).

Figure 2-1. Occupational Safety and Health Administration
Richland Operations Recordable Case Rate.



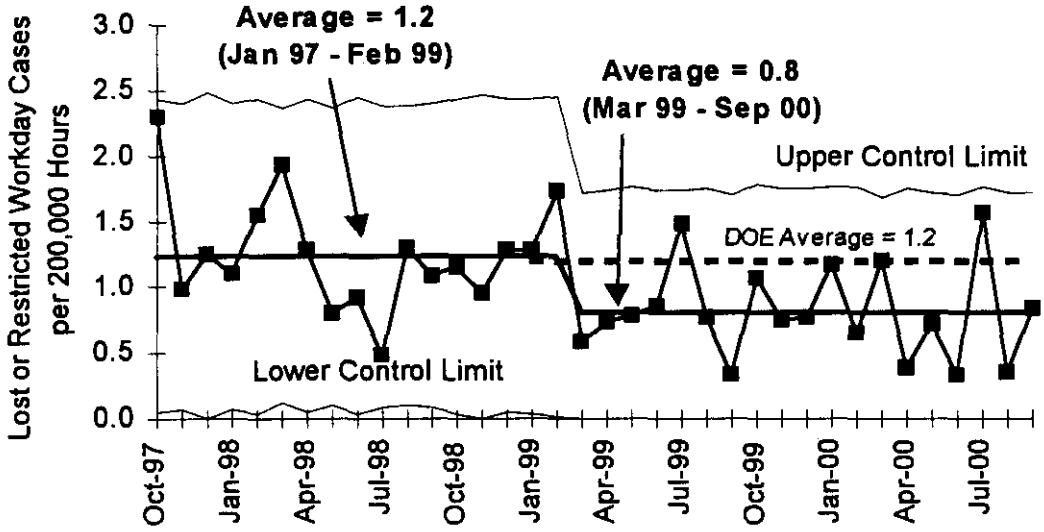
The OSHA Lost/Restricted Workday Case Rate (Figure 2-2) tracks the number of work-related injuries or illnesses that involve days away from work or days of restricted work activity or both, per 200,000 hours worked. The most recent RL long-term rate of 0.8 cases per 200,000 hours is 33 percent below the current DOE average rate of 1.2. The DOE average is the average of all sites in the DOE Complex.

2.1.2 Implementation of Integrated Safety Management System

Early in FY 2000, the Secretary of Energy established a goal that all Operations/Field Offices in the DOE Complex implement DOE's Integrated Safety Management System outlined in DOE Policy P450.4 (DOE 1996a) and the Department's Implementation Plan for DNFSB Recommendation 95-2 (DOE 1996b) by September 30, 2000. On September 20, 2000, declaration was made that the basic components, processes and manuals of practice for Integrated Safety Management were in place at RL and were implemented within RL's prime contractor organizations (RL 2000c).

Verification of ISMS implementation by RL and its prime contractors, FH, BHI, and BMI, was accomplished by reviewing and evaluating the status of ISMS against the seven implementation criteria developed by the Safety Management Implementation Team and issued by the Deputy Secretary on October 25, 1999 (Glauthier 1999). Verification of ISMS implementation was performed in two phases; critical corrective actions associated with opportunities for improvement from these verifications were completed and validated before approval of each prime contractor's ISMS Description.

Figure 2-2. Occupational Safety and Health Administration Richland Operations Lost/Restricted Workday Case Rate.



2.2 SUMMARY ANALYSIS OF FISCAL YEAR 2000 EXECUTION COMMITMENTS

A total of 58 EM-funded ES&H execution commitments were planned for completion in FY 2000. The overall year-end status of these milestones and commitments is summarized by RL mission in Table 2-1. Of the total FY 2000 ES&H execution commitment milestones, 51 were completed on or ahead of schedule, one was completed behind schedule, and six were deferred or deleted from the FY 2000 baseline by change control.

The year-end status of FY 2000 ES&H execution commitments is summarized in Table 2-2 by milestone type, (i.e., Tri-Party Agreement, DNFSB, or regulatory). Included are 29 Tri-Party Agreement milestones, 4 DNFSB commitments and 26 regulatory milestones. One milestone is identified as both Tri-Party Agreement and regulatory.

Table 2-1. Summary Year-End Status of Richland Operations Fiscal Year 2000 Environment, Safety and Health Execution Commitments by Mission.

Mission	Number of Milestones[a]					
	A/S	O/S	B/S	C/O	Revise[b]	Total
Waste Management	2	0	0	0	0	2
Spent Nuclear Fuel	2	0	0	0	0	2
Facility Stabilization	3	2	0	0	2	7
Environmental Restoration	17	0	1	0	2	20
Science and Technology	0	0	0	0	0	0
Mission Support and Other Projects	22	3	0	0	2	27
Total	**46**	**5**	**1**	**0**	**6**	**58**

[a] A/S = Completed ahead of schedule; O/S = completed on schedule; B/S = completed behind schedule; and C/O = carried over from FY 2000 for completion in FY 2001.
[b] Schedule revised by change control to defer or delete milestone from the FY 2000 baseline.

Table 2-2. Summary Year-End Status of Richland Operations Fiscal Year 2000 Environment, Safety and Health Execution Commitments by Milestone Type.

Milestone Type	Number of Milestones[a]					
	A/S	O/S	B/S	C/O	Revise[b]	Total
Tri-Party Agreement Milestones	25	1	1	0	2	29
DNFSB Commitments	1	1	0	0	2	4
Regulatory Milestones	21	3	0	0	2	26
Total	**47[c]**	**5**	**1**	**0**	**6**	**59[c]**

[a] A/S = Completed ahead of schedule; O/S = completed on schedule; B/S = completed behind schedule; and C/O = carried over from FY 2000 for completion in FY 2001.
[b] Schedule revised by change control to defer or delete milestone from the FY 2000 baseline.
[c] One milestone is identified as both Tri-Party Agreement and regulatory.

2.3 SUMMARY OF MAJOR FISCAL YEAR 2000 ACCOMPLISHMENTS

Significant environmental cleanup progress was achieved at RL in FY 2000. Some of the major accomplishments are summarized below.

- **Stabilized and packaged plutonium.**
  - Quadrupled thermal stabilization rates for plutonium (Pu) oxides over FY 1999 rate using 5 muffle furnaces.
  - Began stabilizing Pu-bearing solutions using magnesium hydroxide precipitation process.
  - Installed bagless transfer system to accelerate stabilization and packaging of Pu and to reduce exposure levels.
- **Completed construction, equipment installation and testing for Spent Nuclear Fuel**
  - Completed construction and testing of Canister Storage Building (CSB) and Cold Vacuum Drying facility and made major modifications on K West Basin. Also completed construction of the Interim Storage Area adjacent to the CSB.
  - Implemented a strategy to conduct early testing of K West Fuel Retrieval System and Integrated Water Treatment System which will reduce schedule risk and improve fuel production rates in FY 2001.
  - Made significant progress toward readying T Plant to receive sludge from Spent Nuclear Fuel Project and complete sludge removal one-year ahead of schedule.
- **Treated and disposed of waste materials.**
  - Shipped approximately one-third of the excess uranium stored on the Hanford Site to Portsmouth, Ohio.
  - Shipped 89 drums of transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) at Carlsbad, New Mexico. This was the first of 2,500 shipments scheduled for shipment to the WIPP over the next 30 years.
  - Treated or direct-disposed of 1,204 cubic meters (39,800 cubic feet) of mixed low-level waste (MLLW) meeting a *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) milestone 18 months ahead of schedule.
- **Removed highly radioactive waste from the 300 Area.**
  - Shipped 327 Building bulk waste, legacy waste buckets, sample cans and fuel pins to the 200 Area Central Waste Complex.
  - Completed 324 Building B Cell 2A Rack removal and size reduction.
  - Shipped 17 remote-handled grout containers from the 324 Building to the Low-Level Waste Burial Grounds for storage/disposal.
- **Completed removal and disposal of contaminated waste and waste sites.**
  - Removed and disposed of over 579,000 metric tons (639,000 tons) of contaminated waste in the Environmental Restoration Disposal Facility (ERDF).

- Excavated 42 contaminated waste sites for a total of 219 sites cleaned up of the 1,547 sites identified to date.
- Completed construction of ERDF Cells No. 3 and 4 satisfying Tri-Party Agreement Milestone M-16-92B and doubling the size of the disposal facility.

2.4 YEAR-END STATUS OF FISCAL YEAR 2000 ENVIRONMENT, SAFETY AND HEALTH EXECUTION COMMITMENTS

The year-end status of FY 2000 ES&H execution commitments by RL Mission is provided in Table 2-3 as of September 30, 2000. The status information is summarized from the *Environmental Management Performance Report - September 2000* (RL 2000b). Included is milestone description, commitment identification number, due date, and completion status (completed ahead of schedule [A/S], completed on schedule [O/S], or completed behind schedule [B/S].

Table 2-3. Year-End Status of Richland Operations Fiscal Year 2000 Environment, Safety and Health Execution Commitments. (5 sheets)

Milestone Description	Commit. ID Number	Due Date	Status		
			A/S	O/S	B/S
Waste Management					
RL-WM04, Solid Waste Treatment					
Submit Hanford Site TRU/TRUM waste project management plan to Ecology	M-91-03	06/30/00	C		
Complete construction of small-container contact-handled TRU/TRUM retrieval facility(s) and initiate retrieval	M-91-04	09/30/00	C		
Spent Nuclear Fuel					
RL-WM01, Spent Nuclear Fuel Project					
Complete K West cask facility modifications	M-34-14A	02/29/00	C		
Submit a remedial design report/remedial action work plan for the K Basins interim action to EPA and Ecology	M-34-04	03/31/00	C		
Facility Stabilization					
RL-TP05, PFP Deactivation					
Complete installation of the production vertical denitration calciner (Comm. 105)	R94-01	09/30/99	Being Deleted by R94-01 IP Rev. 2[a]		
Deliver two core samples from Tank 241-Z-361 to a laboratory for analysis	M-15-37A	10/30/99	C		

Table 2-3. Year-End Status of Richland Operations Fiscal Year 2000 Environment, Safety and Health Execution Commitments. (5 sheets)

Milestone Description	Commit. ID Number	Due Date	Status		
			A/S	O/S	B/S
Install two LANL-designed pyrolysis units at Hanford or another site (Comm. 113)	R94-01	12/31/99	Being Deleted by R94-01 IP Rev. 2[a]		
Document decision for polycubes stabilization path forward (Comm. 113)	R94-01	01/31/00	C[a]		
Submit a revised completion date for polycubes stabilization, if different than August 2002 (Comm. 121)	R94-01	02/29/00		C	
Provide the EPA with complete data packages, including validation, for the two cores collected from Tank 241-Z-361	M-15-37B	05/31/00		C	
RL-TP08, 324/327 Facility Stabilization Project					
Submit 300 Area special-case waste project management plan to Ecology	M-92-13	09/30/00	C		
Environmental Restoration					
RL-ER01, 100 Area Remedial Action					
Complete all remaining 100 Area Operable Unit pre-Record of Decision (ROD) site investigations ...(100-KR-2 & 3, 100-FR-2, and 100-IU-2 & -6)	M-15-00A	12/31/99	C		
Complete remediation and backfill of 19 liquid waste sites in the 100-BC-1 and 100-BC-2 Operable Units	M-16-08B	03/31/00	C		
Complete remediation and backfill of 10 liquid waste sites and process effluent pipelines in the 100-HR-1 Operable Unit	M-16-26C	05/31/01	Modified by Change Request[b]		
Complete remediation and backfill of 22 liquid waste sites and effluent pipelines in the 100-DR-1 and 100-DR-2 Operable Units	M-16-07B	07/31/01	Modified by Change Request[c]		
Initiate remedial action in the 100-FR-1 Operable Unit	M-16-13A	09/30/00	C		
RL-ER02, 200 Area Remedial Action					
Submit 200 U Pond/Z Ditches cooling-water-group work plan	M-13-22	12/31/99	C		
Submit 200-TW-1 work plan	M-13-23	08/31/00	C		
Submit 200-TW-2 work plan	M-13-24	08/31/00	C		

Table 2-3. Year-End Status of Richland Operations Fiscal Year 2000 Environment, Safety and Health Execution Commitments. (5 sheets)

Milestone Description	Commit. ID Number	Due Date	Status		
			A/S	O/S	B/S
RL-ER03, 300 Area Remedial Action					
Submit the 300-FF-2 focused feasibility study report and proposed plan for regulator review	M-15-23B	11/30/99	C		
Complete all 300 Area Operable Unit pre-ROD site investigations under approved work plan	M-15-00B	12/31/99	C		
RL-ER04, Environmental Restoration Disposal Facility					
Engineering Restoration Disposal Facility Cells 3 and 4 ready to accept remediation waste	M-16-92B	12/31/99	C		
RL-ER06, Decontamination and Decommissioning					
Initiate 105-F Reactor Building (ISS) characterization and design	M-93-07	10/31/99	C		
Issue B Reactor phase II feasibility study engineering design report for public comment	M-93-05	06/30/00			C[d]
RL-ER08, Groundwater Management					
Install two additional RCRA wells at SST WMA S-SX	M-24-46	12/31/00	C[f]		
Install RCRA groundwater monitoring wells at a rate of up to 50 in calendar year 1999 (if required)	M-24-00K	02/29/00	C		
Install three additional RCRA wells for the SST Waste Management Area (WMA) S-SX	M-24-41	02/29/00	C		
Install one replacement RCRA well for the 216-S-10 Pond	M-24-42	02/29/00	C		
Install one additional RCRA well for the SST WMA TX-TY	M-24-43	02/29/00	C		
Install one additional RCRA well for the 216-B-3 Pond	M-24-44	02/29/00	C		
Install two additional RCRA wells for the SST WMA B-BX-BY	M-24-45	02/29/00	C		
Mission Support and Other Projects					
RL-OT01, Mission Support					
RCRA permit class I modification notification – quarter 1	ECP-00-302[e]	10/01/99	C		
Update report on estimate of RCRA closure and post closure costs	ECP-00-702[e]	10/22/99	C		

Table 2-3. Year-End Status of Richland Operations Fiscal Year 2000 Environment, Safety and Health Execution Commitments. (5 sheets)

Milestone Description	Commit. ID Number	Due Date	Status		
			A/S	O/S	B/S
Issue quarterly NESHAP status report to RL for transmittal to EPA	ECP-00-901	10/22/99	C		
Issue RCRA Section 3016 report on hazardous waste facilities	ECP-00-508[e]	12/06/99	C		
RCRA permit class I modification notification – quarter 2	ECP-00-303[e]	01/03/00	C		
Issue quarterly NESHAP status report to RL for transmittal to EPA	ECP-00-902	01/28/00	C		
Annual report of Hanford facility RCRA permit noncompliance	ECP-00-701[e]	02/17/00	C		
1999 Hanford Site annual dangerous waste report	ECP-00-503[e]	02/22/00		C	
EPCRA 312 tier emergency and hazardous chemical inventory report	ECP-00-501[e]	02/23/00		C	
Conduct biennial assessments of information and data access needs with EPA and Ecology	M-035-09B	03/31/00	C		
Transmit Effluent Information System/Onsite Discharge Information System data to INEEL	ECP-00-801[e]	04/01/00	C		
Issue annual nonradioactive airborne emissions report	ECP-00-802[e]	04/01/00	C		
RCRA permit class I modification notification – quarter 3	ECP-00-304[e]	04/03/00	C		
Issue quarterly NESHAP status report to RL for transmittal to EPA	ECP-00-904	04/21/00	C		
Submit revision of DOE/RL-91-28, Hanford Facility Dangerous Waste Permit Application, General Information Portion	ECP-00-704[e]	05/01/00	C		
Annual portable/temporary radiological air emissions report to RL	ECP-00-410[e]	06/15/00	C		
Issue annual radionuclide air emissions report	ECP-00-803[e]	06/15/00		C	
EPCRA 313 chemical release inventory report	ECP-00-502[e]	06/23/00	C		
1999 Hanford Site annual polychlorinated biphenyl document log	ECP-00-504[e]	06/23/00	C		
RCRA permit class 1 modification notification – quarter 4	ECP-00-305[e]	07/03/00	C		
Annual polychlorinated biphenyl report	ECP-00-505[e]	07/07/00	Deleted by CR ECP-2000-004		

Table 2-3. Year-End Status of Richland Operations Fiscal Year 2000 Environment, Safety and Health Execution Commitments. (5 sheets)

Milestone Description	Commit. ID Number	Due Date	Status		
			A/S	O/S	B/S
Issue quarterly NESHAP status report to RL for transmittal to EPA	ECP-00-906	07/28/00	C		
Submit an annual Hanford land-disposal restrictions report in accordance with LDR plan	M-26-01J ECP-00-507	07/31/00	C		
Issue annual report on environmental releases	ECP-99-804[c]	08/31/00	C		
Coordinate RCRA pipe mapping and marking	ECP-00-703[c]	09/21/00	C		
RCRA general facility inspections	ECP-00-301[c]	09/30/00	C		
Issue FY 1999 Chief Financial Officer's Report	ECP-00-506[c]	09/30/00	Deleted by CR ECP-2000-004		

[a] Recommendation 94-01 Implementation Plan (IP), Revision 2 was submitted to DOE-HQ on November 8, 1999 to delete DNFSB Commitments 105 and 113. R94-01 Commitment 113, "Install two LANL-designed pyrolysis units at Hanford or another site" was replaced by Commitment 113, "Document a decision for polycubes stabilization path forward".

[b] Milestone was modified by Tri-Party Agreement Change Request M-16-99-02, Revision 1, approved on February 8, 2000. The schedule was delayed from 08/31/2000 to 05/30/2001 to reflect impact of increased work scope resulting from plume/waste discoveries at waste sites. The Milestone is being delayed further due to elevated chromium levels encountered during closeout verification sampling.

[c] Milestone was modified by Tri-Party Agreement Change Request M-16-00-01, approved on February 8, 2000, to delay schedule from 04/30/2000 to 07/31/2001 due to continued discovery of contaminated plumes and increased work scope.

[d] Milestone M-93-05 was completed late as a result of disruptions due to the Hanford Site range fire during June 2000.

[e] These milestones will no longer be reported in accordance with Baseline Change Request ECP-2000-07, "Change level and Type of Environmental Compliance Program (ECP) Milestones" approved on June 16, 2000. The change was based on the new definition of EA milestones as being those that are driven by the Tri-Party Agreement or other Consent Order.

[f] Tri-Party Agreement Milestone M-24-46 is a FY 2001 milestone completed on September 14, 2000, 15 weeks ahead of schedule.

2.5 YEAR-END STATUS AND MAJOR ACCOMPLISHMENTS

This section provides the year-end status and major FY 2000 accomplishments for the EM-funded missions and NE-funded Fast Flux Test Facility (FFTF).

2.5.1 Status of Waste Management

The year-end status of Waste Management's FY 2000 ES&H execution commitments is provided in Table 2-3. Waste Management had two ES&H commitments in FY 2000, both of which were completed ahead of schedule. Major FY 2000 ES&H-related accomplishments for Waste Management are listed below:

- Achieved certification of the Hanford Site transuranic (TRU) program by the Carlsbad Area Office and the New Mexico Environment Department (NMED).

- Completed the first three shipments of Hanford Site TRU waste for disposal at the Waste Isolation Pilot Plant (WIPP).
- Completed treatment or direct disposal of 1,204 cubic meters (39,750 cubic feet) of MLLW completing Tri-Party Agreement Milestone M-19-00 two years ahead of schedule. This also resulted in freeing up 1,940 cubic meters (64,000 cubic feet) of space in the Central Waste Complex.
- Completed disposal of 8,079 cubic meters (266,700 cubic feet) of LLW.
- Cleared three sections of the T Plant deck for acceptance of future K Basins sludge from the Spent Nuclear Fuels Project.
- Protected groundwater at the site by treating over 64 million liters (17 million gallons) of radioactive/hazardous wastewater at the 200 Area Effluent Treatment Facility.
- Achieved a 99.3% total operational efficiency at the 242A Evaporator, the highest ever achieved.
- Performed analyses at the Waste Sampling and Characterization Facility (WSCF) to support worker safety monitoring, waste processing performance and effluent monitoring.
- Achieved all milestones for laboratory analysis of high-level waste samples for characterization of feed to be supplied to the Waste Treatment Plant.

2.5.2 Status of Spent Nuclear Fuel

A detailed status of the Spent Nuclear Fuel's FY 2000 ES&H execution commitments is provided in Table 2-3. Spent Nuclear Fuel had two ES&H commitments in FY 2000, both of which were completed ahead of schedule. Major FY 2000 ES&H-related accomplishments are listed below:

- Achieved nearly two million safe work hours since the last lost time injury of which one million hours was accomplished in FY 2000 during a time when construction was at a peak.
- Implemented a strategy to conduct early testing of the K West Fuel Retrieval System and Integrated Water Treatment System to reduce schedule risk for movement of spent fuel from K West Basin.
- Implemented a strategy that accelerates sludge removal by one year from August 2005 to August 2004 and saves $16 million in life cycle cost.
- Completed Contractor Operations Readiness Review (ORR) on the Canister Storage Building, K West Basin and transportation systems and initiated ORR on the Cold Vacuum Drying Facility.

2.5.3 Status of Facility Stabilization

A detailed status of the Facility Stabilization's FY 2000 ES&H execution commitments is provided in Table 2-3. Facility Stabilization had a total of 7 ES&H commitments. Of these

commitments, 5 were completed on or ahead of schedule and 2 are in the process of being deleted by change control. Major 2000 FY ES&H accomplishments are listed below:

- Achieved over 2.4 million safe work hours since the last lost time injury.
- Completed thermal stabilization of over 650 plutonium-bearing items at the PFP. Implementation of process improvements and installation of three additional muffle furnaces in March 2000 was instrumental in this achievement.
- Initiated startup of the magnesium hydroxide precipitation process at the PFP to convert potentially volatile plutonium nitrate acid solutions to a stable oxide form thereby reducing a significant safety risk.
- Initiated startup of the Bagless Transfer System at the PFP on September 30, 2000. This system accelerates packaging and reduces radiation exposure by automatically packaging plutonium-bearing material in welded stainless steel containers.
- Initiated accelerated startup of the residue packaging process, which initially is packaging Rocky Flats ash. Completion of packaging Rocky Flats ash is a new Tri-Party Agreement Milestone M-83-07 scheduled for completion by April 30, 2001.
- Completed shipment of 667 metric tons (735 tons) of uranium trioxide to the Uranium Management Center at the Portsmouth Site for future commercial or DOE use.
- Completed key cleanup activities at the 327 Building. This included packaging and shipping of: 32.5 cubic meters (1,070 cubic feet) of bulk waste; 103 legacy waste buckets; 90 percent of the 297 sample cans of radioactive waste materials; all eight fuel pins; and all accountable fissile material in hot cells.
- Submitted the 300 Area Accelerated Closure Project Plan that provides an innovative and integrated plan, schedule and cost estimate for accelerating closure of a significant portion of the 300 Area.
- Treated 215 million liters (57 million gallons) of wastewater at the 300 Area Treated Effluent Disposal Facility.

2.5.4 Status of Environmental Restoration

A detailed year-end status of Environmental Restoration's FY 2000 ES&H execution commitments is provided in Table 2-3. Environmental Restoration had a total of 20 ES&H commitments. Of these commitments, 17 were completed ahead of schedule, one was completed late due to impacts of the Hanford Site range fire, and two were rescheduled by change control. Major FY 2000 ES&H-related accomplishments are listed below:

- Achieved over 1,000,000 safe work hours without a lost-time injury.
- Over 579,000 metric tons (638,000 tons) of contaminated waste were removed and disposed in the ERDF. To date, over 2.2 million metric tons (2.4 million tons) of contaminated waste have been removed and disposed at ERDF since disposal operations began in July 1996.

- Achieved nearly 4,500,000 miles driven by Hanford Atomic and Metal Trades Council (HAMTC) drivers delivering containers to remedial action waste disposal project sites and returning them to ERDF without an at fault vehicle accident.

- Completed excavation of 42 contaminated waste sites. This brings the total waste sites cleaned up to 219, 14% of the 1,547 identified to date.

- Completed dismantlement and decontamination of the 233-S Plutonium Concentration Facility Load-out Hood. Removal and disposal of 59 meters (193 ft) of 233-S Facility exhaust and supply roof duct were also accomplished.

- Completed construction of ERDF Cells No. 3 and 4 satisfying Tri-Party Agreement Milestone M-16-92B and doubling the size of the disposal facility.

- Completed the B Reactor Museum Feasibility Assessment (Phase II) Project document satisfying Tri-Party Agreement Milestone M-93-05.

- Completed inspection of the 221-U Facility 61-centimeter (24-inch) diameter drain header for structural integrity using a robotic crawler.

- Completed installation of 198 meters (650 feet) of subterranean chemical barrier between DR Reactor and the Columbia River. The barrier is 31 meters (100 feet) deep and will ultimately reach a length of 702 meters (2,300 feet) when completed.

- Completed Phase I of the 618-11 Burial Ground elevated tritium investigation. Phase I involved sampling and analysis of 22 wells for tritium and other constituents.

- Initiated surveillance and maintenance of the B Plant facility.

- Completed deactivation of the old 100 N Area water plant. Construction and startup of a replacement water plant was also accomplished.

- Completed removal of legacy waste at KE, KW and H Reactors.

2.5.5 Status of Science and Technology

The Science and Technology Project had no ES&H execution commitments in FY 2000. Major 2000 FY ES&H-related accomplishments are listed below:

- Completed implementation of FY 1999 and FY 2000 updates to the Radiation Processing Laboratory (RPL) safety analysis report in order to maintain the facility safety envelope.

2.5.6 Status of Mission Support and Other Projects

Mission Support and Other Projects consists of six EM-funded projects/programs, five of which are discussed below. One project, Mission Support, had FY 2000 ES&H execution commitments as listed in Table 2-3. Of the 27 ES&H commitments, 25 were completed on or

ahead of schedule and 2 were deleted by change control. Major FY 2000 ES&H-related accomplishments for Mission Support and Other Projects are listed below:

- **Hazardous Materials Management and Emergency Response (HAMMER) Accomplishments**

- Conducted 1,820 classes at the Volpentest HAMMER facility, for a total of 28,077 Hanford site student days. This represents a 14 percent increase over the FY 1999 and exceeds the FY 2000 target of a 10 percent increase. Highest attended health and safety classes included Hazardous Waste Operations, Respiratory Protection, Radiation Worker II Re-qualification, Basic Medic First Aid training, and Basic Crane and Rigging.

- Conducted 33,054 actual student days, which is a 13 percent increase over the FY 1999 actual student day average of 29,215 and exceeds the FY 2000 10 percent target.

- **Mission Support Project Accomplishments**

- Issued the CY 1999 Hanford Site Environmental Report for use by RL and the public.

- Performed extensive monitoring during and after the Hanford Site fire including 240 additional analyses on air, soil and vegetation samples.

- Coordinated site-wide comments on proposed Modifications to the Hanford Federal Facility RCRA Permit and supported submittal of permitting documentation.

- Prepared status report for National Environmental Policy Act (NEPA) activities and updated NEPA source guide.

- Conducted over 25 compliance assessments to ensure that facilities are in compliance with environmental regulations.

- Led development and administration of the Hanford Air Operating Permit application.

- Prepared annual report for anticipated costs for treatment, storage and disposal of closure and post closure activities.

- Initiated on-line data processing tests and established a web page to improve functionality of chemical management system.

- Prepare DOE Order 435.1 Implementation Plan.

- Prepared six regulatory reports on hazardous chemicals and dangerous waste management activities as required by the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA) and Toxic Substance Control Act of 1976 (TSCA).

- **Office of Safety Regulation of the Waste Treatment Contractor Accomplishments**

- Confirmed the Waste Treatment Plant (WTP) Contractor's implementation of ISM.

- Issued review guidance for the Limited Construction Authorization Request (LCAR) and the Construction Authorization Request (CAR).

- Completed safety reviews of the LCAR, Radiological Protection Program, Quality Assurance Program and Implementation Plan, and the Industrial Hygiene and Safety Program.

- Reviewed British Nuclear Fuels, Limited Part B-1 facility and process design deliverables

- Conducted 8 topical meetings to resolve 106 of 133 open technical issues and observed 47 design reviews to identify potential safety and regulatory issues.

- Developed Industrial Hygiene and Safety Regulatory Plan.

- Implemented a comprehensive inspection program of the WTP Contractor and conducted 7 inspections.

- **Landlord Program Accomplishments**

- Coordinated fire suppression and initial recovery activities necessitated by the 267 square kilometer (99 square mile) blaze in late June 2000 on the Hanford Site.

- Completed decontamination and excessing for re-use a 100-ton spent fuel well railcar.

- Sold six non-regulated cranes at auction generating over $700,000 in revenue that was used to purchase a new 70-ton hydraulic mobile crane.

- Completed storm drainage upgrades in 200 East and West Areas to alleviate water runoff accumulation problems which created unsafe walking and driving conditions.

- Completed demolition of the 200 Area Fire Station Emergency Services addition to make way for construction of a new living quarters/administration addition.

2.5.7 Status of Advanced Reactors Transition Project

The Advanced Reactors Transition Project consists of EM-funded Advanced Reactors Transition and the NE-funded FFTF Complex. Advanced Reactors Transition includes the Plutonium Recycle Test Reactor/309 Facility and the NE Legacy facilities. Major FY 2000 accomplishments are listed below.

- **Advanced Reactors Transition Project (EM funded).**

  - The residual sodium-potassium alloy (NaK) in the NE Legacy facilities was safely converted to concentrated hydroxides and disposed of. This task was given priority following the personnel injuries at the Oak Ridge National Laboratory Y-12 plant as a result of cleaning up a NaK spill.

  - An above ground ion exchange column and associated piping were removed from the 309 Building transfer waste tank farm, packaged and buried as low-level waste. The ion exchange column contained low-level contaminants resulting in a 3 mR/hr dose-rate on contact.

  - The lower level of the 309 Building was cleaned out and stabilized. About 43 cubic meters (1,420 cubic feet) of low-level waste was collected and packaged for burial. About 875 square meters (9,000 square feet) of floor and wall (up to 2.44 meters [8 feet] above the floor) surface area was wiped down and about a third of the lower level area (78 square meters [800 square feet]) was reduced from a contamination area to a fixed contamination area.

- **The FFTF Project (NE funded).**

  - Supported development of the Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility.

  - Accumulated over 900,000 safe work hours since the last recorded OSHA recordable injury in December 1998.

3.0 FISCAL YEAR 2001 ENVIRONMENT, SAFETY AND HEALTH EXECUTION COMMITMENTS

The ES&H commitments planned for execution by RL in FY 2001 and a description of the EM-funded missions are presented in this section. Following a summary of FY 2001 ES&H execution commitments, the ES&H-related actions planned for FY 2001 are presented for each of the EM-funded RL mission areas. The planned actions are based on the FY 2001 President's Amended Budget Request of $689.6 million for EM-funded cleanup activities and $44.0 million for FFTF standby, less $7.0 million in anticipated DOE-HQ hold backs, for NE funded activities. Impacts of any change resulting from the Congressional appropriation process will be reflected in the *Richland Operations Environment, Safety and Health Fiscal Year 2003 Budget-Risk Management Summary* scheduled to be issued in May 2001.

DOE NE-funded activities associated with maintaining the FFTF complex, as an option for accomplishing expanded civilian nuclear energy research and development and isotope production missions, are included in Section 3.2.7. No ES&H execution commitments are assigned to NE-funded activities. Tri-Party Agreement milestones associated with the FFTF, were placed in abeyance by change control in August 1999.

An ES&H commitment affirmation response for SC-funded activities is presented in Appendix A. No ES&H execution commitments are assigned to SC-funded activities.

3.1 SUMMARY OF FISCAL YEAR 2001 EXECUTION COMMITMENTS

A total of 28 ES&H execution commitments are planned for completion in FY 2001 as shown in Table 3-1. Included are 21 major and interim Tri-Party Agreement milestones, 3 DNFSB Recommendation commitments, and 4 Regulatory milestones. These execution commitments are reportable to HQ as HQ-controlled and/or Field Office milestones.

Table 3-1. Summary of Richland Operations Planned Fiscal Year 2001 Environment, Safety and Health Execution Commitments by Milestone Type.

Richland Operations Mission	Number of Milestones			
	Tri-Party Agreement	DNFSB	REG	Total
Waste Management	3	0	0	3
Spent Nuclear Fuel	2	1	0	3
Facility Stabilization	2	2	0	4
Environmental Restoration	14	0	0	14
Science and Technology	0	0	0	0
Mission Support and Other Projects	0	0	4	4
Total	**21**	**3**	**4**	**28**

3.2 DESCRIPTION OF ENVIRONMENTAL MANAGEMENT MISSIONS

This section uses Mission titles and descriptions based on the reporting structure used in FY 2000 for the EM-funded projects. In FY 2000, the Facility Stabilization Mission was restructured into the Nuclear Material Stabilization Project and the River Corridor Project as described below.

- The Nuclear Material Stabilization Project includes deactivation of the PFP, stabilization of the plutonium stored in various containers, and safe and secure management of nuclear materials while awaiting final disposition.

- The River Corridor Project includes deactivation of former N Reactor fuel fabrication facilities and contaminated research and development facilities that are ready for transition to an industrially safe, low cost condition pending D&D or return to beneficial use. Also included is deactivation of miscellaneous facilities in the 200 Area.

3.2.1 Waste Management Description

The Solid Waste, Liquid Effluents, and Analytical Services activities provide for the safe storage, treatment, and disposal of solid waste and liquid effluents, both legacy and newly generated, in accordance with applicable Federal and state laws and regulations. Some solid wastes are directly disposed of without treatment, whereas others (e.g., TRU) are stored and treated before disposal. Processing of contact-handled TRU/TRUM waste at the WRAP Facility Module 1 was initiated in September 1998 (Tri-Party Agreement Milestone M-91-02). Shipments of TRU waste to the WIPP facility was initiated in July 2000.

3.2.2 Spent Nuclear Fuel Description

Spent Nuclear Fuel is a major ongoing effort to remove approximately 2,100 metric tons (2,320 tons) of spent fuel from water storage basins along the Columbia River and place them in interim dry storage on the 200 Areas Plateau. The project was formed in 1994 to address the urgent need to move metallic spent nuclear fuel from the present degrading storage conditions in basins along the banks of the Columbia River to safe, interim storage on the Hanford Site Central Plateau.

3.2.3 Facility Stabilization Description

Facility Stabilization transitions nuclear facilities from costly maintenance conditions to a surveillance and maintenance state that is safe and cost effective ("cheap to keep") while awaiting final disposition. Included in the scope is the stabilization of the 4.4 metric tons (4.9 tons) of plutonium stored in more than 8,000 separate containers, glove boxes, tanks, and piping in the PFP and the safe and secure management of nuclear materials while awaiting final disposition. Specific ongoing projects include cleaning and deactivating facilities that are no longer operating and no longer have a mission. Completion of these projects and their transition to the Environmental Restoration Mission, commonly called "mortgage reduction", makes funds available for additional site cleanup efforts.

3.2.4 Environmental Restoration Description

Environmental Restoration provides for interim and final cleanup of waste sites and contaminated groundwater and for final decontamination and decommissioning (D&D) of surplus facilities. In addition, this mission provides surveillance and maintenance of facilities after transfer from Facility Stabilization. Waste site and facility remediation are regulated under the *Comprehensive Environmental Response, Compensation and Liability Act of 1980* (CERCLA) and RCRA. Cleanup standards and subsequent end-states are established through these regulatory processes.

3.2.5 Science and Technology Description

Science and Technology is managed by Pacific Northwest and provides waste management services and compliant operations in support of science and technology development for the multi-program needs of the DOE Complex. In addition, Pacific Northwest manages specific EM-50 funded environmental management and technology development projects, under the direction of the DOE-HQ, which address future cleanup needs with the emphasis on reducing the cost and schedule of cleanup. These EM-50 activities include the National Tank Focus Area technology development activities.

3.2.6 Mission Support and Other Projects Description

Mission Support and Other Projects consist of the EM-funded projects/programs described below. Of these projects/programs, only the Mission Support Project's Hanford Environmental Compliance Program has FY 2001 ES&H execution commitments, which are listed in Table 3-2:

- **The Hazardous Materials Management and Emergency Response (HAMMER).** This program provides a premier hands-on regional training center for health and safety training. Training is conducted in specific areas titled Product Lines. The Product Lines are Environmental & Waste Management, Emergency Operations, Fire Operations, Occupational Safety and Health, Technology Supported Learning, Transportation, Technology, and Law Enforcement.

- **Mission Support Project.** This project provides site wide crosscutting support to all RL missions. It consists of Project Control, the Hanford Environmental Compliance Program, Systems Engineering, and the Pacific Northwest Public Safety and Resource Protection Program.

- **The DOE Richland, Operations Office Directed Support Project.** This project provides for various RL activities, most of which are essential services to the Hanford Site. Other activities include grants to the State of Washington for enhanced emergency preparedness and independent oversight; a grant to the State of Oregon for technical oversight, public information, and emergency preparedness; payment of Ecology fees for RCRA hazardous and/or mixed waste management activities; and a grant to the Washington State Department of Health for radiation protection and air monitoring.

Stakeholder involvement includes the continued participation of the Hanford Advisory Board.

- **The Office of Safety Regulation of the Waste Treatment Contractor.** This activity provides independent radiological, nuclear, and process safety regulation of the River Protection Project (RPP) WTP Contractor. The aim of DOE with regard to this regulation is to establish a regulatory environment that will permit the WTP activities to occur on a timely, predictable, and stable basis with attention to safety consistent with that which would accrue from regulation by the Nuclear Regulatory Commission. This safety regulation is accomplished through safety reviews, through execution of a comprehensive inspection program, and through ensuring proper maintenance of the authorization basis.

- **The Landlord Project.** This project provides replacements, major maintenance, and upgrades of the core infrastructure functions to facilitate the Hanford Site cleanup mission. In addition, the Landlord Project is responsible for final disposition of infrastructure facilities, systems, and equipment when they are no longer required to support the cleanup mission.

3.2.7 Advanced Reactors Project Description

The Advanced Reactors Transition Project consists of EM-funded Advanced Reactors Transition and NE-funded FFTF Complex. Advanced Reactors Transition includes the Plutonium Recycle Test Reactor/309 Facility and the NE Legacy facilities.

3.3 FISCAL YEAR 2001 PLANNED ENVIRONMENT, SAFETY AND HEALTH EXECUTION COMMITMENTS

FY 2001 ES&H execution commitments are listed in Table 3-2 by mission.

Table 3-2. Richland Operations Fiscal Year 2001
Environment, Safety and Health Execution Commitments. (3 sheets)

Milestone Description	Commit. ID Number	Due Date	Status		
			A/S	O/S	B/S
Waste Management					
RL-WM04, Solid Waste Treatment					
Initiate thermal treatment of currently stored and newly generated CH LLMW	M-91-12	12/31/00		O/S	
Submit an annual Hanford Land Disposal Restrictions (LDR) report in accordance with the LDR plan	M-26-01	04/30/01		O/S	
RL-WM05, Liquid Effluents Project					
Submit to EPA and Ecology an evaluation of development status of tritium treatment technology...	M-26-05H	08/31/01		O/S	
Spent Nuclear Fuel					
RL-WM01, Spent Nuclear Fuel Project					
Initial removal of K-West Basin Spent Nuclear Fuel	M-34-16	11/30/00			C
Begin fuel removal from the K-West Basin	R00-01	11/30/00		O/S	
Transmit the T-Plant sludge storage conceptual design document to Ecology	M-91-18	06/29/01		O/S	
Facility Stabilization					
RL-TP05, PFP Deactivation					
Complete brushing and repackaging of metal inventory (Comm. 110)	R00-01	03/31/01			B/S
Complete repackaging and shipment of all Rocky Flats ash mixed waste currently stored in PFP to the Central Waste Complex for storage	M-83-07	04/30/01		O/S	
Ship aluminum alloys to Savannah River Site or package for disposition to WIPP. Brush and package remaining alloys at PFP (Comm. 114)	R00-01	06/30/01		O/S	
RL-TP08, 324/327 Facility Stabilization Project					
Complete removal of 324 Building Radiochemical Engineering Cell B-Cell MW and equipment	M-89-02	11/30/00			B/S

Table 3-2. Richland Operations Fiscal Year 2001
Environment, Safety and Health Execution Commitments. (3 sheets)

Milestone Description	Commit. ID Number	Due Date	Status		
			A/S	O/S	B/S
Environmental Restoration					
RL-ER01, 100 Area Remedial Action					
Complete remediation, backfill and revegetation of 51 liquid waste sites and process effluent pipelines in the 100-BC-1 and 2, 100-DR-1 and 2, and 100-HR-1 Operable Units	M-16-26B	02/28/01	To Be Modified by Change Request[a]		
Complete remediation and backfill of 10 liquid waste sites and process effluent pipelines in the 100-HR-1 Operable Unit	M-16-26C	05/31/01	To Be Modified by Change Request[b]		
Complete remediation and backfill of 22 liquid waste sites and effluent pipelines in the 100-DR-1 and 100-DR-2 Operable Units	M-16-07B	07/31/01		O/S[c]	
RL-ER02, 200 Area Remedial Action					
Submit one 200 NPL RI/FS (RFI/CMS) work plans	M-13-00K	12/31/00		O/S	
Submit uranium rich process waste group (200-PW-2) work plan	M-13-25	12/31/00		O/S	
Submit general process waste group (200-PW-4) work plan	M-13-26	06/30/01		O/S	
RL-ER03, 300 Area Remedial Action					
Complete remediation of the waste sites in the 300-FF-1 Operable Unit to include excavation, verification and back filling, excluding 618-4 Burial Ground	M-16-03E	09/30/01		O/S	
RL-ER08, Groundwater Management					
Complete 100-HR-3 Phase 1, ISRM barrier replacement, planning, well installation, and barrier emplacement	M-16-27A	12/31/00		O/S	
Install RCRA groundwater monitoring wells at a rate of up to 50 in calendar year 2000 (if required)	M-24-00L	12/31/00		O/S	
Install two additional wells at SST Waste Management Area (WMA) S-SX	M-24-46[d]	12/31/00	C		
Install four additional wells at SST WMA T	M-24-47	12/31/00		O/S	
Install four additional wells at SST WMA TX-TY	M-24-48	12/31/00		O/S	
Install four (4) additional well at SST WMA S-SX	M-24-49	04/30/01		O/S	
Install one (1) additional well at SST WMA TX-TY	M-24-50	04/30/01		O/S	

Table 3-2. Richland Operations Fiscal Year 2001
Environment, Safety and Health Execution Commitments. (3 sheets)

Milestone Description	Commit. ID Number	Due Date	Status		
			A/S	O/S	B/S
Mission Support and Other Projects					
RL-OT01, Mission Support					
Issue quarterly NESHAP status report to RL for transmittal to EPA	ECP-01-901	10/20/00	C		
Issue quarterly NESHAP status report to RL for transmittal to EPA	ECP-01-902	01/29/01		O/S	
Issue quarterly NESHAP status report to RL for transmittal to EPA	ECP-01-903	04/23/01		O/S	
Issue quarterly NESHAP status report to RL for transmittal to EPA	ECP-01-904	07/30/01		O/S	

[a]Milestone M-16-26B will be modified when the pipeline remediation contract is in place.

[b]Milestone M-16-26C is being delayed due to elevated chromium levels encountered during closeout verification sampling. A Tri-Party Agreement Change Request will be processed after impacts are evaluated.

[c]Milestone M-16-07B completion was extended from April 30, 2000 to July 31, 2001 due to continued discovery of contaminated plumes which increase the work scope.

[d]Milestone M-24-46 was completed on September 14, 2000, 15 weeks ahead of schedule.

3.4 MAJOR FISCAL YEAR 2001 ENVIRONMENT, SAFETY AND HEALTH PLANNED ACTIONS

3.4.1 Waste Management Fiscal Year 2001 Planned Actions

Major ES&H-related activities planned for FY 2001 are listed below.

- Complete disposal of 364 cubic meters (12,000 cubic feet) of MLLW and 6,718 cubic meters (222,800 cubic feet) of LLW.
- Initiate commercial thermal treatment of MLLW.
- Treat and dispose of over 660 million liters (175 million gallons) of wastewater.
- Continue to safely store 1,936 cesium and strontium capsules containing 134 million curies of radioactivity.
- Provide laboratory analysis of HLW samples for characterization of feed to be supplied to the Waste Treatment Plant.

3.4.2 Spent Nuclear Fuel Fiscal Year 2001 Planned Actions

Major ES&H-related activities planned for FY 2001 are listed below.

- Initiate removal of spent nuclear fuel from K West Basin.

3.4.3 Facility Stabilization Fiscal Year 2001 Planned Actions

Major ES&H-related activities planned for FY 2001 are listed below.

- Complete modifications to at least one PFP vault cubicle to support the Repackaging System.
- Complete SNM inventories of the fifteen (15) active Material Balance Areas.
- Complete Installation of 12 BackFlow Preventers.
- Begin processing plutonium metals including processing of polycubes and disposition of Pu alloys.
- Begin preparatory activities for stabilization/repackaging of Hanford ash.
- Complete installation of the Bagless Transfer System in 2736-ZB.
- Complete installation of the Outer Can Welder for welding the DOE-STD-3013-99 container.
- Complete stabilization/packaging of the Rocky Flats Ash.
- Complete Tri-Party Agreement Milestone M-89-02, "Complete Removal of 324 Building REC B-Cell MW and Equipment".
- Complete implementation of technical update to the 324 Building Authorization Basis (Safety Analysis Report).
- Complete implementation of technical update to 327 Building Authorization Basis (Basis of Interim Operation).
- Complete shipment of ~235 metric tons (259 tons) of excess uranium billets to Portsmouth, Ohio.
- Complete disposition of ~ 140 metric tons (154 tons) of surface contaminated uranium fuel.

3.4.4 Environmental Restoration Fiscal Year 2001 Planned Actions

Major ES&H-related activities planned for FY 2001 are listed below.

- Complete ISMS related assessments, analysis and identification of areas for improvement; develop performance objectives, commitments, measures and indicators; and complete annual ISMS Description update.
- Facilitate worker ISMS awareness through ISMS question of the day program and implement a new hazard evaluation process.
- Support the Hanford Site hosted DOE ISMS workshop.
- Provide support to the ERC integrated self assessment program.
- Maintain the VPP Safety Leadership Council and Voluntary Protection Program (VPP) committees.
- Complete excavation of twelve waste sites in the River Corridor and place 490k tons of contaminated soil, debris and miscellaneous materials into the ERDF. In addition, initiate 100 B/C pipelines remedial actions, continue remedial actions at 100 F & N areas, package, treat & dispose of 260 above-ground uranium/oil drums and issue the subcontract to remediate the 618-4 burial ground.
- Continue Decontamination & Decommissioning (D&D) of the 233-S Pu concentration facility, continue Interim Safe Storage (ISS) activities at F & DR Reactors and perform hazards mitigation at B Reactor.
- Operate groundwater pump & treat systems at four River Corridor and one Central Plateau location, along with passive monitoring and initiation of additional testing at the Central Plateau vapor extraction interim action location. Continue In-Situ Redox Manipulation activities at the 100 D/DR location, including installation of 24 injection wells and performance sampling & monitoring. Also, complete Phase II-A tritium investigation report and the Phase II-B DQO/SAP for the 618-11 burial ground. Continue groundwater/vadose zone integration activities as well.
- Continue Surveillance & Maintenance (S&M) of inactive facilities, waste site pre- and post-remediation S&M activities and Radiation Area Remedial Actions. Initiate HEXONE tank interim stabilization actions and repair PUREX and B-plant roofs.

3.4.5 Science and Technology Fiscal Year 2001 Planned Actions

Major ES&H-related activities planned for FY 2001 are listed below.

- Complete replacement/upgrade of the HVAC and electrical switch gear in the RPL to assure operation within the facility safety envelope.

3.4.6 Mission Support and Other Projects Fiscal Year 2001 Planned Actions

Major ES&H-related activities planned for FY 2001 are listed below.

- **Hazardous Materials Management and Emergency Response (HAMMER)**
  - Continue to increase support to Hanford Site hands-on training with the emphasis of prop usage and/or active learning.
  - Continue to support and strengthen strategic partnerships to improve efficiencies in delivery of training in support of the Hanford Site.
- **Mission Support Project**
  - Issue the Hanford Site Environmental Report for CY 2000 for use by DOE and the public.
  - Conduct minimum safe air, river, community, and agricultural products environmental surveillance and oversight activities.
  - Operate the Hanford Meteorological Station and provide weather data to support emergency response and programmatic needs.
  - Submit the annual radionuclide air emissions report to the EPA.
  - Prepare and submit Hanford Site environmental compliance reports mandated by RCRA, *Washington Administrative Code* (WAC), EPCRA and TSCA regulations.
- **The DOE Richland Operations Office Directed Support Project**
  - Continue to provide essential services to RL.
  - Provide grants to state and local agencies for independent oversight, technical oversight, emergency preparedness, payment of fees, etc.
- **Office of Safety Regulation of the Waste Treatment Contractor**
  - Perform transition reviews of CHM2Hill Hanford Group (CHG) and the WTP Contractor.
  - Issue revised review planning handbooks for the Standards Approval Package (SAP), LCAR, and CAR.
  - Initiate safety reviews of the revised LCAR and revised SAP
  - Assure maintenance of the authorization basis through review of the Authorization Basis Amendment Requests.

- Conduct safety inspections of CHG and the WTP Contractor and continue topical meetings and design reviews.

- **Landlord Project**

  - Continue renovation of the 200 Area Fire Station, replace fire engine pumper truck and replace section of the export water line to 200 West Area to enhance the outer area fire protection safety and emergency response for site personnel.

  - Continue biological recovery efforts to mitigate heightened blowing dust safety risks caused by the June 2000 Hanford Wildland fire.

  - Install water isolation valves and piping to prevent cross contamination of the 200 Area sanitary water system to improve industrial hygiene for site personnel.

  - Replace electrical utilities and mobile crane vehicles that have numerous safety deficiencies to improve industrial safety for site personnel.

  - Add a chlorine gas containment system at the 200 West Area water treatment plant to eliminate accidental releases of chlorine gas.

  - Continue disposition of radiologically contaminated legacy rail and heavy mobile equipment to improve worker safety.

  - Continue road overlay of key site roads to maintain safe transport of site personnel and material.

3.4.7 Advanced Reactors Transition Fiscal Year 2001 Planned Actions

Major ES&H-related activities planned for FY 2001 are listed below.

- Ship the sodium filled, thermal transient Loop cold trap to an off site disposal facility.

- Complete clean out and stabilization of the 309 Building fuel transfer pit.

3.4.8 Fast Flux Test Facility

Major ES&H-related activities planned for FY 2001 are listed below.

- Support the preparation of the Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility.

- Complete the design of repairs and upgrades to the Solid Waste Cask to allow handling spent fuel.

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4.0 FISCAL YEAR 2001 ENVIRONMENT, SAFETY AND HEALTH MANAGEMENT RISK AND COMPLIANCE VULNERABILITIES

4.1 INTRODUCTION

This section provides a summary assessment of ES&H management risk and compliance vulnerabilities for EM-funded and NE-funded activities scheduled to be performed in FY 2001. An ES&H commitment affirmation response for DOE Office of SC-funded activities is presented in Appendix A. Compliance vulnerabilities and impacts identified in this report are based on the FY 2001 President's Amended Budget Request to Congress. Impacts of any changes resulting from the Congressional appropriation process will be reflected in the *Richland Operations FY 2003 ES&H Budget-Risk Management Summary* scheduled to be issued in May 2001. Included in this section are:

- A summary assessment of management risk and compliance vulnerability for FY 2001 activities.
- Identification of significant ES&H risks that are not or will not be adequately addressed in the FY 2001 work plans.
- Identification of the highest-ranking unfunded/under-funded activities.
- Identification of unfunded or under-funded activities in the FY 2001 work plans that address emerging ES&H issues.

4.2 SUMMARY ASSESSMENT OF MANAGEMENT RISK AND COMPLIANCE VULNERABILITIES

Impacts of the proposed FY 2001 President's Amended Budget Request of $689.6 million for achieving the EM-funded activities are summarized in this section. This budget provides sufficient funding to accomplish the high priority FY 2001 EM-funded activities. The impacts described in this section are based on a $70.2 million shortfall from the $759.8 million needed by RL to fully fund compliance with regulatory requirements. This shortfall is identified in Table 4-1 as Regulatory Compliance Increment 2.

In addition to impacts to FY 2001 ES&H execution commitments, there are significant programmatic impacts and emerging requirements that need to be addressed in FY 2001 in order to reduce out-year impacts to ES&H execution commitments. These are summarized below.

- **TRU Waste Retrieval.** Completing retrieval of post 1970 contact handled TRU and TRU mixed waste by September 2004 (Tri-Party Agreement Milestone 91-07) is severely impacted by lack of funding in FY 2001. The milestone requires retrieval of about 10,000 suspect TRU drums of which approximately 8,800 are earth-covered. Funding is

needed in FY 2001 for completing the Interim Safety Basis modification and Operational Readiness Review work necessary for retrieval of the earth-covered drums.

- **10 CFR 830 Nuclear Safety Management Implementation.** Initial estimates have identified a need to upgrade authorization basis documents for 13 facilities at an estimated cost of $10 million. Funding constraints in FY 2001 will reduce the available time to complete these upgrades from 30 months to 18 months, jeopardizing completion of upgrades by April 10, 2003 as stipulated in the regulation.

- **Plutonium Finishing Plant.** Although internal reprogramming of funds will provide some additional funding to address needs in FY 2001, a need exists for additional funding in FY 2001 to address out-year DNFSB Commitments at the PFP. The confidence in achieving out-year DNFSB Commitments to complete stabilization and packaging of plutonium solutions (by December 31 2001), polycubes (by August 30, 2002) and residues (by April 30, 2004) has changed from medium to low. Additional funding in FY 2001 would fund activities to improve the confidence that the schedule dates would be met.

Table 4-1. Fiscal Year 2001 Summary Funding of Richland Operations Environmental Management Missions by Priority Category (dollars in millions).[a]

Priority Category	Richland Operations Mission[b]						Total
	WM	SF	FS	ER	ST	MS[c]	
Essential Safety	63.2	26.0	86.2	24.5	4.2	14.0	218.0
Essential Services	48.2	18.5	19.1	15.2	10.2	58.3	161.5
Compliance TPA/DNFSB	10.5	144.8	48.5	102.3	0	0	306.0
Regulatory Compliance (Increment 1)	0	0	2.8	0	0	1.3	4.1
President's Amended Budget[e]	**$121.9**	**$189.2**	**$156.7**	**$141.9**	**$14.4**	**$65.5**	**$689.6**
Regulatory Compliance (Increment 2)	10.6	0	8.2	41.2[d]	1.9	8.3	70.2
Subtotal Compliance[e]	**$132.5**	**$189.2**	**$164.9**	**$183.1**	**$16.3**	**$73.8**	**$759.8**
Additional Requirements	7.8	0	6.2	21.1	0	0	35.1
Total Requirements	**$140.3**	**$189.2**	**$171.1**	**$204.2[d]**	**$16.3**	**$73.8**	**$794.9**

[a] Based on the President's Amended Budget Request to Congress of $689.6 million for Environmental Management. Any changes in funding resulting from the Congressional appropriation process will be reflected in the Richland Operations 2003 ES&H budget-Risk Management Summary to be issued in May 2001.

[b] WM = Waste Management; SF = Spent Nuclear Fuel; FS = Facility Stabilization; ER = Environmental Restoration; ST = Science and Technology; and MS = Mission Support and Other Projects.

[c] Includes funding for Hazardous Materials Management and Emergency Response; Mission Support; RL Directed Support; Office of Safety Regulation of the Waste Treatment Contractor; Advanced Reactors Transition; and Landlord Project.

[d] Includes $10 million of additional Congressional authorization recommended by the U.S. Senate to continue Reactor Interim Safe Storage activities.

[e] These values refer to the FY 2001 Compliance TPA/DNFSB funding requirements as identified in the September 22, 2000 Phase I Multi-Year Work Plan Final Project Priority List (PPL).

Also included are impacts of the proposed FY 2001 President's Amended Budget Request of $44.0 million for FFTF standby, less $7.0 million in anticipated DOE-HQ holdbacks, for NE-funded activities. In addition, the FY 2001 budget provides $55.3 million to fund SAS activities at RL. The FY 2001 President's Amended Budget addresses significant risks for both NE and SAS activities.

Allocation of funding to the EM-funded missions is provided in Table 4-1 by priority category. The priority categories are identified in Table 4-1 and described below:

- **Essential Safety.** Provides $218.0 million for essential safety activities and base operational requirements to maintain safety for workers and the public and to provide protection of the environment.

- **Essential Services.** Provides $161.5 million for services and support activities essential to environmental cleanup progress and regulatory compliance.

- **Compliance TPA/DNFSB.** Provides $306.0 million to address those existing conditions posing the greatest potential for impacting the safety of workers, the public, or the environment. The compliance activities being addressed in FY 2001 include:

  - DNFSB Implementation Plan commitments.

  - Removal of K Basins fuel from its current location near the Columbia River and safely storing it away from the river.

  - Progress toward cleanup of the 324 Building B Cell and transfer of radioactive material to the 200 Areas for safe storage.

  - Progress toward completing stabilization of plutonium at the Plutonium Finishing Plant by December 2004.

  - Groundwater remediation of sites along the Columbia River and D&D of the 233-S Plutonium Concentration Facility.

- **Regulatory Compliance Increments.** Provides a $4.1 million funded increment and includes a $70.2 million unfunded increment for additional regulatory compliance activities that address compliance with requirements or drivers in laws, regulations, enforceable agreements, consent orders, consent decrees, permits, and implementation plans for DNFSB recommendations. Funding of work activities in this category provides a high level of confidence that ES&H execution commitments will be met in FY 2001 and beyond.

- **Additional Requirements.** Includes $35.1 million that would address improvements that would reduce future cleanup risks and costs. Although benefits in FY 2001 would be minimal, the benefit to future cleanup activities could be substantial.

The FY 2001 President's Amended Budget Request funds the Essential Safety, Essential Services and Compliance TPA/DNFSA priority categories and $4.1 million (6%) of the $74.3 million of Regulatory Compliance activities included in Increments 1 and 2 of Table 4-1. The most significant impacts of the $70.2 million shortfall of the FY 2001 President's budget are to the Environmental Restoration Mission, which accounts for 59 percent of the $70.2 million of unfunded Regulatory Compliance activities in FY 2001.

The following summary highlights the major potential impacts of the FY 2001 President's Amended Budget Request. These impacts are being addressed by RL and their contractors, to mitigate both the FY 2001 and out year vulnerabilities to compliance issues. More detailed discussions on significant ES&H risks and compliance vulnerabilities, highest ranking unfunded activities, and unfunded or under-funded activities that address emerging issues are given in Sections 4.3, 4.4, and 4.5 for each of the EM-funded project missions. Impacts to the NE-funded FFTF are also included in Sections 4.3.7, 4.4.7 and 4.5.7. No significant impacts have been identified for safeguards and security activities.

- **Waste Management.** Tri-Party Agreement Milestone M-91-11-T01 to complete the MLLW Engineering Study and Functional Design Criteria is not funded. Since the Project Management Plan for MLLW proposed using existing facilities to perform treatment of the waste, DOE has proposed that the Engineering Study and FDC are no longer required. The regulators have not yet accepted the proposal to delete this milestone.

  Replacement of aging analytical equipment and restoration of laboratory facilities as the 222-S Laboratory and WSCF will fall further behind. Infusion of funds will be necessary to maintain support to meet Waste Treatment Plant feed delivery needs.

- **Spent Nuclear Fuel.** The President's budget is adequate for meeting ES&H execution commitments related to moving spent nuclear fuel from the fuel basins starting in FY 2001.

- **Facility Stabilization.**

  - Incremental funding is needed to support planned work for Line Item Project W-460, Plutonium Stabilization and Packaging System in order to complete the stabilization and packaging equipment portion of the project by FY 2001. This equipment is critical in supporting DNFSB Recommendation 2000-01 commitment to complete packaging of oxides (>30 weight % plutonium/uranium) by May 2004. It is expected that additional Congressional funding and budget reprogramming will resolve this issue.

  - Stabilization of Hanford Site ash residues is delayed to FY 2002. This work scope is required to support DNFSB Recommendation commitment to complete packaging/ stabilization of residues by April 2004.

- **Environmental Restoration.** Compliance vulnerabilities exist for the 200 Area assessment and remediation activities and completion of 100 B/C remedial actions. Also, the tritium investigation concerns at the 618-11 Burial Ground represents a significant emerging risk issue, which will most likely require additional funding in FY 2001 to address.

- **Science and Technology.** Safety and health risks to onsite workers, the environment, and the public will be impacted because of failure to expeditiously remove highly radioactive material from close proximity to population centers and the Columbia River in compliance with RCRA.

- **Mission Support.** Activities established to comply with federal laws and regulations concerning the protection and management of ecological resources on the Hanford Site, i.e., Ecosystem Monitoring and Ecological Compliance, will not be maintained.

Impacts of the proposed funding for the NE-funded FFTF are described in Sections 4.3.7, 4.4.7 and 4.5.7.

4.3 SIGNIFICANT RISKS NOT ADEQUATELY ADDRESSED

Identification of significant risks not adequately addressed in the FY 2001 President's budget is described below for the EM-funded Missions and the NE-funded FFTF as of October 31, 2001. Since then, progress has been made in reducing or mitigating impacts of the potential risks and compliance vulnerabilities identified below.

4.3.1 Waste Management

222-S Laboratory and WSCF reliability issues are increasing due to shortfalls in replacement of aging analytical equipment and restoration of aging support facilities.

4.3.2 Spent Nuclear Fuel

Significant risks are addressed at the FY 2001 President's budget.

4.3.3 Facility Stabilization

Significant risks are addressed at the FY 2001 President's budget.

4.3.4 Environmental Restoration

Although significant risks and most FY 2001 compliance goals are supported in the President's Amended Budget, compliance vulnerabilities exist for the 200 Area assessment and remediation activities and completion of 100 B/C remedial actions. Also, the tritium

investigation concerns at the 618-11 Burial Ground represents a significant emerging risk issue, which will most likely require additional funding in FY 2001 to address.

4.3.5 Science and Technology

The following significant ES&H risks are not adequately addressed at the FY 2001 President's budget. There has been a continued delay in identifying adequate priority funding for disposing of existing DOE legacy waste and contamination in facilities assigned to Pacific Northwest. The proposed investment to dispose of these wastes at Pacific Northwest National Laboratory is not commensurate with the investments being made in disposing of other Hanford Site wastes. Delaying the remediation of legacy wastes and contamination consequently delays reducing the safety risks posed by abandoned radiological and hazardous materials in these DOE facilities. These wastes pose increased risk to onsite workers, the public, and the environment. The continued safe conduct of laboratory operations is threatened as long as legacy wastes remain undisposed. The impact of funding reductions not only delays reducing safety risks, but also delays making more effective use of laboratory spaces and facilities. Laboratory operations cannot be conducted efficiently while legacy wastes remain in the facilities. Additionally, full funding for disposition of Pacific Northwest legacy wastes and contamination would reduce mortgages with potential average savings of greater than $1 million per year. It would also support accelerated cleanup of DOE facilities assigned to Pacific Northwest in the 300 Area as a part of RL's Strategic Outcome to *Restore the River Corridor for Multiple Uses*. These savings could then be made available in the future for other critical needs across the Site.

4.3.6 Mission Support and Other Projects

Several environmental monitoring activities of the Surface Environmental Surveillance Project are not provided for in the funded minimum safe Hanford Environmental Surveillance activity. This shortfall includes measuring radionuclides on nearby farm products and the Columbia River; Hanford Environmental Dose Overview, which ensures consistency in dose calculation methodology and interpretation; and support to RL on the development of a sitewide Environmental Radiation Protection Plan to comply with the anticipated promulgation of 10 CFR 834.

4.3.7 Office of Nuclear Energy, Science and Technology Activities

Significant risks are addressed at the FY 2001 President's budget.

4.4 HIGHEST RANKING UNFUNDED/UNDER-FUNDED ACTIVITIES

Identification of the highest ranking unfunded/under-funded EM activities from the FY 2001 IPL and FY 2001 unfunded/under funded NE activities, which could have an impact on ES&H management risk and regulatory compliance, are noted in this section.

4.4.1 Waste Management

TRU retrieval is the highest unfunded activity having an environmental risk. Deferring TRU retrieval will increase worker risk in the handling and processing of this waste stream resulting from aging waste drums. An additional one-year delay to this project continues the delay trend, which is considered to be unacceptable. Replacement of aging analytical laboratory equipment and support systems is high ranked due to the impact of poor reliability on other Hanford Site activities.

4.4.2 Spent Nuclear Fuel

Necessary activities are funded at the FY 2001 President's budget.

4.4.3 Facility Stabilization

- Planning and construction of the 324 Liquid Waste Handling System is delayed to FY 2002, with only minimal resources provided for engineering evaluation of the approach to remove contaminated fluids from the facility. This system is critical to final cell clean-out activities and facility deactivation, which is required to meet Tri-Party Agreement Milestone M-89-00, "Complete Closure of Non-Permitted Mixed waste Units in the 324 Building REC B-Cell, REC D-Cell and High Level Vaults".

- Incremental funding is needed to support planned work for Line Item Project W-460, Plutonium Stabilization and Packaging System in order to complete the stabilization and packaging equipment portion of the project in FY 2001. This equipment is critical in supporting DNFSB Recommendation 2000-01 commitment to complete packaging of oxides (>30 weight percent plutonium/uranium) by May 2004. It is expected that additional Congressional funding and budget reprogramming will resolve this issue.

- Stabilization of Hanford Site ash residues is delayed to FY 2002. This work scope is required to support DNFSB Recommendation commitment to complete packaging/ stabilization of residues by April 2004.

4.4.4 Environmental Restoration

The highest ranking unfunded candidates are (1) additional 200 Area assessment activities in support of near-term and out-year Tri-Party Agreement milestones, and (2) interim stabilization of hexone tanks.

4.4.5 Science and Technology

The highest-ranking unfunded activity is management and disposal of Pacific Northwest legacy waste and contamination, allowing radioactive and hazardous material to remain in

locations where there is little control over public access creating a potential for contamination spread to the public.

4.4.6 Mission Support and Other Projects

The highest ranked unfunded activity is implementing the Threatened and Endangered Species Management Plan for Columbia River spring Chinook salmon and steelhead trout in the Mission Support Project.

4.4.7 Office of Nuclear Energy, Science and Technology Activities

Implementation of the Programmatic Environmental Impact Statement record of decision will be constrained by available funding. This may result in delay of either restart or shutdown.

4.5 UNFUNDED/UNDER-FUNDED ACTIVITIES THAT ADDRESS EMERGING ENVIRONMENT, SAFETY & HEALTH ISSUES

This section identifies unfunded and under-funded activities from the FY 2001 IPL that address emerging issues for the EM-funded missions and the NE-funded FFTF.

4.5.1 Waste Management

Delay in radioactive mixed-waste treatment increases the age of the chemical waste stored at the Central Waste Complex. In addition, delay in funding analytical laboratory renovation could impact start up of the Waste Treatment Plant for vitrifying HLW.

4.5.2 Spent Nuclear Fuel

Process validation activities are being developed to provide assurance that fuel drying will be effective. The safety basis is sufficiently robust that no change in equipment or processes is expected. If changes are identified during process validation development activities or as a result of the Operational Readiness Review before start of fuel movement, they would not be within the current scope. Implementation of DOE Order 435.1, Radioactive Waste Management requirements has not been funded. Additional funding may be necessary to support the phased startup initiative to ensure issues are addressed with minimum impact to commitments and to implement DOE Order 435.1.

4.5.3 Facility Stabilization

The need for electrical upgrades at WESF was identified during investigation of a near-fatal accident that occurred in June 1998. The recommended upgrades in FY 2001 include (1) refurbishment of conduit bonding, (2) replacement of electrical feeders between the substation and motor control center (MCC), (3) replacement of breakers on the standby electrical

generator, (4) installation of substation ground fault indicator (GFI) equipment, and (5) refurbishment, testing, and replacement of substation breakers.

4.5.4 Environmental Restoration

Support of tritium investigation and potential follow-on remediation or interim action activities associated with the 618-11 Burial Ground and the additional testing and future groundwater remediation technologies and activities are significant emerging issues that will most likely require additional funding.

4.5.5 Science and Technology

The replacement/upgrade of the HVAC and electrical switch gear in the Radiochemical Processing Laboratory (RPL) required to assure that the facility safety envelope maintained in accordance with the SAR is underfunded. This EM Category II nuclear facility is now experiencing essential operating system failures and a high rate of repair with no spare parts availability.

4.5.6 Mission Support and Other

- Implementation of Endangered Species Management Plan for Salmon and Steelhead is not funded. Columbia River salmon and steelhead trout have recently been listed under the Endangered Species Act (ESA) as threatened/endangered.

- Coordination with the US Fish & Wildlife Service on Hanford Site resource management activities is unfunded. There was a recent Presidential proclamation that designated Hanford as a National Monument requiring certain actions be taken by DOE to protect natural values of the remaining Hanford Site land not included within the Monument.

- Compliance of Environmental Surveillance Air Sampling Systems is unfunded. Recent electrical inspections of Hanford Site ambient air sampling systems have revealed several National Electrical Code (NEC) violations, some of which are of safety concern, that must be corrected.

4.5.7 Office of Nuclear Energy, Science and Technology Activities

Implementation of the Nuclear Safety Management Rule is not funded. This rule was published as an Interim Final Rule on October 10, 2000 and will become effective 60 days later. This publication wasn't anticipated and the budget planning didn't provide for this scope. As a result, other activities may have to be deferred to give appropriate priority to this implementation process.

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5.0 EXPENDITURES FOR SAFETY AND HEALTH ACTIVITIES IN FISCAL YEARS 2000 AND 2001

This section identifies the actual FY 2000 expenditures and planned FY 2001 expenditures for RL direct and indirect-funded S&H activities. FY 2001 planning is based on the President's Amended Budget Request to Congress of $689.6 million for EM-funded activities, $44.0 million, less $7.0 million in anticipated DOE-HQ holdbacks, for NE-funded FFTF standby activities, and $55.3 million for SAS activities. Impacts of any changes resulting from the Congressional appropriation process will be reflected in the *Richland Operations Fiscal year 2003 Budget-Risk Management Summary* scheduled to be issued in May 2001. Expenditures for SC direct and indirect-funded S&H activities are provided in the SC commitment affirmation response included as Appendix A.

In this report, S&H expenditures include the labor and support costs for professional staff working in one or more of the nine S&H functional areas as identified in Table 5-1. Activities to improve or upgrade the S&H functional areas are also included in S&H expenditures. Examples are facility upgrades for Emergency Preparedness, procurement of equipment for Fire Protection, etc. A detailed definition of the S&H functional areas is given in *Guidance for FY 2002 Budget Formulation and Execution* (DOE 2000).

5.1 SUMMARY OF RICHLAND OPERATIONS FISCAL YEAR 2000 SAFETY AND HEALTH EXPENDITURES

Table 5-1 provides a comparison of total (direct plus indirect) planned to actual FY 2000 expenditures for S&H activities according to the nine S&H functional areas. Included in Table 5-1 are direct and indirect S&H expenditures for activities funded by the DOE EM, NE, and SC Secretarial Offices and SAS activities. Actual expenditures on RL S&H activities were less than planned by $2.0 million (1.1%) in FY 2000. The functional areas with the largest S&H cost differences are Nuclear Safety, Radiation Protection and Management Oversight as explained below.

- The $3.3 million (20.7%) increase in Nuclear Safety is almost entirely attributed to the EM-funded Spent Nuclear Fuel Mission as explained in Section 5.3.

- Part of the $2.8 million (4.8%) decrease in Radiation Protection results from implementing the accelerated sludge strategy by the Spent Nuclear Fuel Mission. This strategy leveled staffing requirements from five to two shifts and accelerated sludge removal from the spent fuel basins. The decrease also results from revised estimates for indirect-funded dosimetry services that excludes costs for the Office of River Protection's River Protection Project.

- The $1.9 million (4.9%) decrease in Management Oversight is the result of reduced EM-funded regulatory oversight needed due to termination of the Privatization Contract with BNFL.

Table 5-1. Comparison of Planned to Actual FY 2000 Expenditures for Richland Operations Safety and Health Activities by Functional Area (dollars in thousands)[a].

Safety & Health Functional Area	FY 2000 Planned	FY 2000 Actual	Change	Percent Change
Emergency Preparedness	11,631	11,552	-79	-0.7
Fire Protection	20,993	20,285	-708	-3.4
Industrial Hygiene	6,163	6,493	+329	+5.3
Industrial Safety	10,971	10,362	-609	-5.5
Occupational Medical Services	11,455	11,434	-21	-0.2
Nuclear Safety	15,985	19,292	+3,307	+20.7
Radiation Protection	57,721	54,930	-2,791	-4.8
Transportation Safety	9,067	9,508	+441	+4.9
Management and Oversight	37,434	35,586	-1,848	-4.9
Total Safety & Health	**$181,419**	**$179,442**	**$+1,997**	**+1.1**

[a] Includes direct plus indirect S&H expenditures for Department of Energy Offices of Environmental Management (EM), Science (SC), and Nuclear Energy, Science and Technology (NE).

Table 5-2 provides a comparison of total (direct plus indirect) RL planned to actual FY 2000 S&H expenditures by DOE Secretarial Office. Total RL actual direct S&H expenditures were less than planned expenditures by less than $0.1 million (0.0%), and total actual indirect S&H expenditures were less than planned by $1.9 million (2.8%) in FY 2000. The only significant change in planned versus actual expenditures on S&H activities in FY 2000 was the $2.0 million (3.6%) reduction in EM-funded indirect activities. Explanation of the decrease in EM-funded indirect S&H expenditures is provided in Section 5.4.

5.2 SUMMARY OF RICHLAND OPERATIONS FISCAL YEAR 2001 SAFETY AND HEALTH EXPENDITURES

Comparisons of planned FY 2001 to actual FY 2000 S&H expenditures are provided in Table 5-3 according to the nine S&H functional areas. Included in Table 5-3 are direct and indirect S&H expenditures for RL activities funded by the DOE EM, NE, and SC Secretarial Offices SAS activities. Planned FY 2001 expenditures on S&H activities are $11.0 million (6.1%) greater than FY 2000 actual expenditures. Explanations for significant differences between planned FY 2001 and actual FY 2000 expenditures are explained in conjunction with Table 5-4.

Table 5-2. Comparison of Actual to Planned Fiscal Year 2000 Safety and Health Expenditures for Richland Operations Activities by Secretarial Office (dollars in thousands)[a].

DOE Secretarial Office	FY 2000 Planned	FY 2000 Actual	Change	Percent Change
EM Direct Mission S&H Costs	96,570	96,275	-295	-0.3
EM-10, EM Program Direction	11,958	12,429	+471	+3.9
EM Safeguards and Security (SAS)	0	0	0	0.0
Fast Flux Test Facility Complex (NE)	3,065	2,728	-337	-11.0
Pacific Northwest National Laboratory (SC)	500	612	+112	+22.4
Total RL Direct S&H Costs	**$112,093**	**$112,044**	**$-49**	**-0.0**
Indirect EM S&H Costs	55,599	53,600	-1,999	-3.6
Indirect SC S&H Costs	13,727	13,798	+71	+0.5
Total RL Indirect S&H Costs	**$69,326**	**$67,398**	**$-1,928**	**-2.8**
Total RL S&H Costs	**$181,419**	**$179,442**	**$-1,977**	**-1.1**

[a] Includes direct plus indirect S&H expenditures for Richland Operations activities.

Table 5-3. Comparison of Planned Fiscal Year 2001 to Actual Fiscal Year 2000 Expenditures for Richland Operations Safety and Health Activities by Functional Area (dollars in thousands)[a].

Safety & Health Functional Area	FY 2000 Actual	FY 2001 Planned	Change	Percent Change
Emergency Preparedness	11,552	12,057	+505	+4.4
Fire Protection	20,285	24,778	+4,493	+22.1
Industrial Hygiene	6,493	7,993	+1,500	+23.1
Industrial Safety	10,362	11,319	+957	+9.2
Occupational Medical Services	11,434	11,936	+502	+4.4
Nuclear Safety	19,292	17,181	-2,111	-10.9
Radiation Protection	54,930	60,550	+5,620	+10.2
Transportation Safety	9,508	8,587	-921	-9.7
Management and Oversight	35,586	36,005	+419	+1.2
Total RL Safety & Health	**$179,442**	**$190,406**	**$+10,964**	**+6.1**

[a] Includes direct plus indirect S&H expenditures for Richland Operations activities.

In Table 5-4, comparisons of planned FY 2001 S&H expenditures to actual FY 2000 S&H expenditures are summarized by DOE Secretarial Office. As noted earlier, planned FY 2001 expenditures on RL S&H activities is forecast to be $11.0 million (6.1%) higher than FY

2000 actual expenditures. Major reasons for the increase is due mainly to the large increases of $7.8 million for direct-funded EM activities, $0.9 million for SAS activities, and $1.0 million for indirect-funded EM activities. These are discussed below.

Table 5-4. Comparison of Actual Fiscal Year 2000 to Planned Fiscal Year 2001 Expenditures for Richland Operations Safety and Health Activities by Secretarial Office (dollars in thousands)[a].

DOE Secretarial Office	FY 2000 Actual	FY 2001 Planned	Change	Percent Change
EM Direct Mission S&H Costs	96,275	104,075	+7,800	+8.1
EM-10, EM Program Direction	12,429	12,928	+499	+4.0
EM Safeguards and Security (SAS)	0	929	+929	N/A
Fast Flux Test Facility Complex (NE)	2,728	2,684	-44	-1.6
Pacific Northwest National Laboratory (SC)	612	1,323	+711	+116.2
Total RL Direct S&H Expenditures	**$112,044**	**$121,939**	**$+9,895**	**+8.8**
Indirect EM S&H Expenditures	53,600	54,551	+951	+1.8
Indirect SC S&H Expenditures	13,798	13,916	+118	+0.9
Total RL Indirect S&H Expenditures	**$67,398**	**$68,467**	**$+1,069**	**+1.6**
Total RL S&H Expenditures	**$179,442**	**$190,406**	**$+10,964**	**+6.1**

[a] Includes direct plus indirect S&H expenditures for Richland Operations activities.

- Details of the $7.8 million (8.1%) increase in direct-funded EM activities are discussed in Section 5.3.
- The $0.9 million increase in SAS S&H expenditures is the result of transferring Safeguards and Security (Transportation Safety) activities from indirect to direct funding starting in FY 2001.
- The $1.0 million (1.8%) increase in indirect-funded EM activities is explained in Section 5.4.

5.3 SAFETY AND HEALTH EXPENDITURES ON ENVIRONMENTAL MANAGEMENT DIRECT-FUNDED MISSION ACTIVITIES

This section provides information on S&H expenditures for the direct-funded EM Missions. These missions are responsible for the ES&H execution commitments assigned to RL and approximately 85% of direct-funded S&H expenditures.

5.3.1 Fiscal Year 2000 Environmental Management Direct Safety and Health Expenditures

Comparisons of planned to actual FY 2000 expenditures on S&H activities by S&H functional area are provided in Table 5-5 for the RL EM-funded Missions. Actual total FY 2000 expenditures on S&H activities by the EM-funded Missions were $0.3 million (0.3%) lower than planned. Significant differences between planned and actual S&H expenditures are noted for two S&H functional areas, Industrial Safety ($1.0 million, 16.5% decrease) and Nuclear Safety ($3.2 million, 44.8% increase). Explanation of these differences is provided in conjunction with table 5-6.

Table 5-5. Comparison of Planned to Actual Fiscal Year 2000 Expenditures for Environmental Management Direct-Funded Safety and Health Activities by Functional Area (dollars in thousands).

Safety & Health Functional Area	FY 2000 Planned	FY 2000 Actual	Change	Percent Change
Emergency Preparedness	6,459	6,346	-113	-1.7
Fire Protection	5,723	5,758	+35	+0.6
Industrial Hygiene	2,686	2,748	+62	+2.3
Industrial Safety	6,115	5,107	-1,008	-16.5
Occupational Medical Services	1,114	1,068	-46	-4.1
Nuclear Safety	7,101	10,284	+3,183	+44.8
Radiation Protection	41,366	39,425	-1,941	-4.7
Transportation Safety	7,617	8,176	+559	+7.3
Management and Oversight	18,389	17,363	-1,026	-5.6
Total Direct Safety & Health Expenditures	**$96,570**	**$96,275**	**$-295**	**-0.3**

A comparison of planned to actual FY 2000 S&H expenditures on direct-funded activities by EM-funded missions is given in Table 5-6. Four missions had significant differences between planned and actual expenditures in FY 2000 as discussed below. The Spent Nuclear Fuel Mission is added to explain increased Nuclear Safety costs which masked reduced Radiation Protection costs.

- **Waste Management.** The $2.4 million (21.1%) increase in Waste Management is due to increased Radiation Protection and Management Oversight needed for preparing the T Plant Canyon to receive sludge from K Basins, TRU retrieval and dealing with more complex waste streams.

- **Spent Nuclear Fuel.** Most of the increase in Nuclear Safety identified in Table 5-5 is due to higher than planned efforts in safety analysis activities related to the spent fuel

Canister Storage Building (CSB) and Cold Vacuum Drying (CVD) Facility. This increase was offset by a significant reduction in the need for Radiation Protection due to implementation of the accelerated sludge removal strategy.

- **Environmental Restoration.** The $2.9 million (21.8%) increase in Environmental Restoration is due primarily to increased Radiation Protection and Management Oversight to handle the growth in quantities of plumes requiring remediation in the 300 Area landfills and ponds and additional Congressional Authorization for continuing reactor interim safe storage (ISS) work.

Table 5-6. Comparison of Planned to Actual Fiscal Year 2000 Expenditures for Direct-Funded Environmental Management Mission Safety and Health Activities (dollars in thousands).

Mission	FY 2000 Planned	FY 2000 Actual	Change	Percent Change
Waste Management	11,470	13,893	+2,423	+21.1
Spent Nuclear Fuel	13,217	13,708	+491	+3.7
Facility Stabilization	23,661	21,807	-1,854	-7.8
Environmental Restoration	13,184	16,063	+2,879	+21.8
Science and Technology	2,962	3,300	+338	+11.4
Mission Support and Other Projects[a]	32,076	27,504	-4,572	-14.4
Total Direct EM Project S&H Costs	**$96,570**	**$96,275**	**$-295**	**-0.3**

[a]Includes Hazardous Materials Management and Emergency Response (HAMMER); Mission Support; RL Directed Support; Office of Safety Regulation of the Waste Treatment Contractor; Advanced Reactor Transition; Landlord and Security Investigations.

- **Science and Technology.** The $0.3 million (11.4%) increase in Science & Technology is due to implementation of updates to the Radiochemical Processing Laboratory (RPL) safety analysis report (SAR).

- **Mission Support and Other Projects.** The $4.6 million (14.3%) decrease in Mission Support and Other Projects is due to reductions in Landlord Project activities in FY 2000 as explained below. These reductions were partially offset by additional Fire Protection costs associated with the June 2000 Hanford Site range fire.

  - Deferred work scope related to renovation of the Patrol Training Academy (Transportation Safety).

  - Delay in delivery of an electrical utility truck and chlorine mitigation unit (Industrial Safety) until FY 2001.

- Moratorium placed on recycling of radioactively contaminated material (Radiation Protection) related to disposition of contaminated spent fuel well rail cars.

5.3.2 Fiscal Year 2001 Environmental Management Direct Safety and Health Expenditures

Comparisons of planned FY 2001 to actual FY 2000 expenditures on S&H activities by S&H functional area are provided in Table 5-7 for the EM-funded Missions. Planned FY 2001 expenditures on S&H activities are $7.8 million (8.1%) higher than actual FY 2000 expenditures. Significant differences between planned FY 2001 and actual FY 2000 expenditures identified in Table 5-7 by S&H functional area are explained in conjunction with Table 5-8.

Table 5-7. Comparison of Planned Fiscal Year 2001 to Actual Fiscal Year 2000 Expenditures for Direct-Funded Environmental Management Mission Safety and Health Activities by Functional Area (dollars in thousands)[a].

Safety & Health Functional Area	FY 2000 Actual	FY 2001 Planned	Change	Percent Change
Emergency Preparedness	6,346	6,443	+97	+1.5
Fire Protection	5,758	9,418	+3,660	+63.6
Industrial Hygiene	2,748	3,883	+1,135	+41.3
Industrial Safety	5,107	5,754	+647	+12.7
Occupational Medical Services	1,068	861	-207	-19.4
Nuclear Safety	10,284	7,445	-2,839	-27.6
Radiation Protection	39,425	44,629	+5,204	+13.2
Transportation Safety	8,176	7,163	-1,013	-12.4
Management and Oversight	17,363	18,479	+1,116	+6.4
Total Safety & Health Direct	**$96,275**	**$104,075**	**$+7,800**	**+8.1**

[a]Includes direct S&H expenditures for Environmental Management Missions only.

A comparison of planned FY 2001 to actual FY 2000 expenditures on S&H activities for EM-funded Missions is given in Table 5-8. Three missions have significant differences between planned FY 2001 and actual FY 2000 S&H expenditures. These are discussed below.

- **Spent Nuclear Fuel.** The $1.2 million (8.8%) decrease in S&H expenditures is due mainly to completion of safety analysis implementation (Nuclear Safety) for the CSB and Cold Vacuum Drying Facility. A $1.6 million increase in Radiation Protection needed to support removal and processing of spent nuclear fuel from K West Basin is masked because it is offset by the decrease in Nuclear Safety and other activities.

- **Science and Technology.** The $0.9 million (26.0%) increase in S&H expenditures is due to increased Radiation Protection needed to support planned increments for maintenance and repair of excess facilities assigned to Pacific Northwest.

- **Mission Support and Other Projects.** The $9.4 million (34.3%) increase in FY 2001 is due to the Landlord Project activities discussed below:

  - Increased Fire Protection due to costs incurred for recovery from the June 2000 Hanford Site range fire and higher than planned costs in FY 2001 for renovation of the Fire Department's emergency services facility.

  - Increased Industrial Hygiene due to upgrades to provide water system isolation and backflow prevention at the PFP to resolve water quality issues with the State of Washington.

  - Increased Industrial Safety due to procurement of an electrical utility truck and chlorine mitigation unit in FY 2001 that was planned for FY 2000.

  - Increased Radiation Protection due to costs for carryover work scope to FY 2001 for disposing of two contaminated spent nuclear fuel well rail cars.

Additionally, the $1.0 million reduction in Transportation Safety identified in Table 5-7 is associated with reduced transportation for disposition of waste and hazardous materials from the 324/327 Facility. Also, the $1.1 million increase in Management Oversight identified in Table 5-7 is associated with increased regulatory oversight of design by the newly selected Waste Treatment Plant contractor.

Table 5-8. Comparison of Planned Fiscal Year 2001 to Actual Fiscal Year 2000 Expenditures for Direct-Funded Environmental Management Mission Safety and Health Activities (dollars in thousands)

Mission	FY 2000 Actual	FY 2001 Planned	Change	Percent Change
Waste Management	13,893	13,953	+60	+0.4
Spent Nuclear Fuel	13,708	12,504	-1,204	-8.8
Facility Stabilization	21,807	21,285	-522	-2.4
Environmental Restoration	16,063	15,235	-828	-5.2
Science and Technology	3,300	4,158	+858	+26.0
Mission Support and Other Projects[a]	27,504	36,940	+9,436	+34.3
Total Direct EM Project S &H Costs	**$96,275**	**$104,075**	**$+7,800**	**+8.1**

[a]Includes Hazardous Materials Management and Emergency Response (HAMMER); Mission Support; RL Directed Support; Office of Safety Regulation of the Waste Treatment Contractor; Advanced Reactor Transition; and Landlord Programs.

5.4 SAFETY AND HEALTH EXPENDITURES ON ENVIRONMENTAL MANAGEMENT INDIRECT-FUNDED ACTIVITIES

This section provides information on EM indirect-funded S&H expenditures. These expenditures represent over 80% of the RL's indirect expenditures on S&H activities. Discussion of SC indirect-funded S&H activities and expenditures is included in the Pacific Northwest commitment affirmation response for SC activities in Appendix A of this report.

Comparison of planned to actual expenditures on EM indirect-funded S&H activities in FY 2000 are summarized in Table 5-9. Actual S&H expenditures were $2.0 million (3.6%) less than planned in FY 2000. Explanations of significant differences between planned and actual expenditures for EM-funded S&H indirect activities in FY 2000 are given below:

Table 5-9. Comparison of Planned to Actual Fiscal Year 2000 Expenditures for Richland Operations Environmental Management Indirect Safety and Health Activities by Functional Area (dollars in thousands).

Safety and Health Functional Area	FY 2000[a] Planned	FY 2000[b] Actual	Change	Percent Change
Emergency Preparedness	3,807	3,717	-90	-2.4
Fire Protection	14,610	13,724	-886	-6.1
Industrial Hygiene	1,286	1,375	+89	+6.9
Industrial Safety	2,868	3,143	+275	+9.6
Occupational Medical Services	9,959	10,036	+77	+0.8
Nuclear Safety	2,535	2,506	-29	-1.1
Radiation Protection	11,919	10,760	-1,159	-9.7
Transportation Safety	1,001	898	-103	-10.3
Management and Oversight	7,614	7,441	-173	-2.3
Total Safety and Health Indirect	**$55,599**	**$53,600**	**$-1,999**	**-3.6**

- **Industrial Safety.** The $0.3 million (9.6%) increase in actual S&H expenditures resulted from additional support needed to train Radiation Control Technicians for the Spent Nuclear Fuels Mission and updating the data base for recording OSHA recordable and lost/restricted work day cases.

- **Radiation Protection.** The $1.2 million (9.7%) decrease in actual S&H expenditures resulted from revised estimates for dosimetry services that excluded costs for the Office of River Protection's River Protection Project.

- **Transportation Safety.** The $0.1 million (10.3%) decrease in actual S&H expenditures resulted from reduced overtime and closure of the Rattle Snake Barricade.

Comparisons of actual FY 2000 S&H expenditures to planned FY 2001 expenditures on EM indirect-funded S&H activities are summarized in Table 5-10. Planned FY 2001 S&H expenditures are higher than FY 2000 actual expenditures by $1.0 million (1.8%). Explanations of significant differences between actual FY 2000 expenditures for S&H indirect-funded activities and planned FY 2001 expenditures are given below:

- **Emergency Preparedness.** The $0.3 million (9.3%) increase in planned expenditure in FY 2001 results from the need to re-evaluate the Hanford Site Emergency Planning Zones with input from off-site jurisdictions. Upgrade of the Emergency Operations Center communications is also planned.

- **Nuclear Safety.** The $0.3 million (13.8%) increase in planned expenditure in FY 2001 results from additional support needed for implementing revision to 10 CFR 830.120, Nuclear Safety Management regulation.

- **Transportation Safety.** The $0.9 million (94.7%) decrease in planned expenditure in FY 2001 results from transfer of safeguards and security activities from indirect to the direct funding .

- **Management and Oversight.** The $0.8 million (10.8%) decrease in planned expenditure in FY 2001 results from transitioning from implementation and verification of ISMS in FY 2000 to sustaining and maintaining ISMS in FY 2001.

Table 5-10. Comparison of Planned Fiscal Year 2001 to Actual Fiscal Year 2000 Expenditures for Richland Operations Environmental Management Indirect Safety and Health Activities by Functional Area (dollars in thousands).

Safety & Health Functional Area	FY 2000 Actual	FY 2001 Planned	Change	Percent Change
Emergency Preparedness	3,717	4,061	+344	+9.3
Fire Protection	13,724	14,622	+898	+6.5
Industrial Hygiene	1,375	1,479	+104	+7.6
Industrial Safety	3,143	3,190	+47	+1.5
Occupational Medical Services	10,036	10,653	+617	+6.1
Nuclear Safety	2,506	2,853	+347	+13.8
Radiation Protection	10,760	11,009	+249	+2.3
Transportation Safety	898	48	-850	-94.7
Management and Oversight	7,441	6,636	-805	-10.8
Total Safety & Health Indirect	**$53,600**	**$54,551**	**$+951**	**+1.8**

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APPENDIX A

PACIFIC NORTHWEST NATIONAL LABORATORY, U.S. DEPARTMENT OF ENERGY OFFICE OF SCIENCE, ENVIRONMENT, SAFETY AND HEALTH COMMITMENT AFFIRMATION RESPONSE

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PACIFIC NORTHWEST NATIONAL LABORATORY U.S. DEPARTMENT OF ENERGY OFFICE OF SCIENCE, ENVIRONMENT, SAFETY AND HEALTH COMMITMENT AFFIRMATION RESPONSE

Introduction

The Pacific Northwest National Laboratory (Pacific Northwest) is an Office of Science (SC) Multiprogram National Laboratory under the program "landlordship" of the Office of Biological and Environmental Research (OBER). This summary reflects the Environment, Safety and Health, and Infrastructure (ESH&I) programs necessary to support work conducted as part of SC operations (including work for others). This summary includes SC funded activities, Laboratory overhead (OH) funded activities, and funding to support specific Environmental Management (EM) related activities, such as those conducted in the Radiochemical Processing Laboratory (RPL), previously called the 325 Building, which are provided directly by EM and covered in the Hanford Site Summary.

ESH&I Goals and Performance Objectives

Annually, Pacific Northwest establishes Critical Outcomes as part of its Performance Evaluation and Fee Agreement. Typically, one of these Critical Outcomes is Operational Excellence, which has an ESH&I focus. This Critical Outcome is usually supported by multiple objectives and underlying performance indicators. The objectives and their corresponding performance indicators are negotiated with, and agreed to by the DOE Richland Operations Office (RL), before being included in the Evaluation Agreement and incorporated into the operating Contract DE-AC06-76RL01830.

As performance against the objectives associated with the Operational Excellence Critical Outcome is formally monitored and tracked, it serves as the basis for establishing the Pacific Northwest ESH&I/Operations annual performance ratings (i.e., evaluating if the Contractor is managerially and operationally in control of the Laboratory and is meeting the requirements of the DOE). The annual performance rating is reflected in DOE's annual appraisal of the Laboratory; therefore, their annual report will serve as the commitment reporting required by this planning process.

The Operational Excellence Critical Outcome also provides the vehicle for Pacific Northwest to communicate its strategic ESH&I goals to all staff, and incorporate appropriate performance indicators into organizational performance objectives, work plans, and individual staff performance and development goals.

A. Historic (Recently Completed) Execution Fiscal Year Information (FY 2000)

1. Major ESH&I Work Commitments for FY 2000

In FY 2000 Critical Outcome 2.0, Operational Excellence, reads: *"Battelle will conduct work and operate Laboratory facilities with distinction, fully supportive of and integrated with the Laboratory's science and technology mission and fully protective of workers, the public and the environment."* Status of the following two Performance Objectives, reported in (Attachment A) "FY 2000 Annual Self-Evaluation Report for the Pacific Northwest National Laboratory," dated October 23, 2000, describes progress towards the Critical Outcome (i.e., a portion of the ESH&I commitments), and also addresses the Unified Field Budget request.

(ES&H specific)

2.1 Objective—*"Sustain and enhance operational excellence in safety and health, and environmental protection."*

> ***(see Attachment A)*** "FY 2000 Annual Self-Evaluation Report for the Pacific Northwest National Laboratory," dated October 23, 2000.

(Infrastructure specific)

2.2 Objective—*"Deliver, operate, and maintain an optimum set of facilities and supporting infrastructure that are aligned with current and future mission needs."*

> ***(see Attachment A)*** "FY 2000 Annual Self-Evaluation Report for the Pacific Northwest National Laboratory," dated October 23, 2000.

Facility Capital Project Commitments

To ensure a complete reporting of all items called out in Section VIII, "FY 2000 ESH&I Commitments," from this year's DOE ESH&I Management Plan submittal, a listing of the capital project commitments that have been completed is also being provided.

- General Plant Project - 337 Building Piping Replacement
- General Plant Project - 331 Replace Roof Chillers & Fans

The following project was initiated in FY 1999, with planned completion in FY 2001:

- General Plant Project - 331 Building Piping Replacement.

Pacific Northwest ESH&I Improvement Initiative Issues

Chemical Safety *(OH funded)*

Integration of the Chemical Management Data System with the Facility Use Agreements (FUA's) identified gaps regarding resolution of fire zone limit exceedances. An action plan

addressing this, and other issues, was developed and funded via an Operational Improvement Initiative (OII) in FY 2000. The effort funded by the OII will continue into FY 2001 with the Worker Safety and Health Management System OH funds. Completion of this effort will assure complete and accurate categorization and inventory of all chemicals held by Pacific Northwest. It also will provide a mechanism for managing chemical inventories within the FUA fire zone limits.

Institutionalization of Integrated Operations (IOPS) *(OH funded)*

The initiative to institutionalize integrated operations will continue the export of the concept and tools to additional facilities within the Laboratory, building on the lessons learned in the previous rollouts. Pacific Northwest has implemented a tool set that enables the work environment by establishing a conduct of operations philosophy that focuses on people safely doing work at the bench top. This electronic, web delivered tool called Integrated Operations (IOPS), covers hazard identification, mitigation, and self-assessment after the institutional definitions of acceptable work have been met and work is now proceeding at the task level into the work place. The process centers on the definition of a workspace, defining the hazards, creating the self-assessment checklist, and participation in self-assessment and worker registration with the associated creation of individual training matrices. The process covers:

- hazard assessment conducted in the individual work space;
- hazard assessment automatically links to consensus-based work practices that provide mitigation of the hazard;
- training and laboratory access are linked to an individuals requested level of interaction with hazards in the workplace;
- IOPS self-assessment process drives hazard inventory update and continuous evaluation;
- roles and authorities transfer from line management to the individual;
- automated facility-level operational boundaries are visually communicated, managed, documented, and evaluated using map tools;
- automated work control features improve the communication process and link to the hazard inventory of IOPS to reduce the time for planning and implementation of maintenance and construction activities; and, feedback and performance mechanisms in/of IOPS get information back into the system, provide customer information to management in the completion of work, and close the loop in the process of "doing work safely."

The Institutionalization of Integrated Operations initiative is an ongoing activity with a tentative completion date of FY 2003.

Nuclear Safety Rule Compliance *(OH funded)*

In the past year, we have strengthened implementation of management systems related to 10CFR830.120, by taking the following steps:

- The Radiochemical Processing Laboratory (RPL) Facility Manager has reviewed all self-assessments performed in the RPL for 10CFR830.120 issues.

- The Manager of the RPL has conducted a targeted self-assessment of 10CFR830.120 compliance in the RPL.

- The commitment to incorporate requirements for self-assessments of 10CFR830.120 in the RPL Facility Use Agreement (FUA) was re-evaluated. Pacific Northwest determined that a more effective approach to assessing compliance with Price-Anderson Amendment Act (PAAA) requirements would be to incorporate this requirement into the Standards-Based Management System; this has been done.

- The BMI Corporate Quality organization has included an assessment of 10CFR830.120 in its biannual ES&H assessment.

- The Independent Oversight Department was requested by the Quality Directorate to conduct a special study of 10CFR830.120. This commitment, originally scheduled for FY 1999, was moved to the FY 2000 schedule. Subsequently, at the request of the Quality Directorate, the special study was revised to request each Division and Directorate to report the results of their analyses of organizational self-assessment results for nuclear safety issues. This special study was completed on September 1, 2000.

However, several areas of concern regarding Nuclear Safety Rule Compliance remain:

- Recurring Work Planning/Control Issues--Each of these noncompliances, reported through the Noncompliance Tracking System (NTS), involved failure by Laboratory staff to comply with work planning and control requirements. These continuing non-compliances with work planning and control requirements, including procedural adherence, indicate that additional corrective actions are necessary.

- Subcontract Requirements Flow Down--Pacific Northwest has developed contract language explicitly addressing subcontractor ES&H and PAAA responsibilities, and has developed and deployed processes to incorporate these clauses into subcontracts, as required. Pacific Northwest has also updated Laboratory requirements to include proper flow down of requirements, trained project and contracts managers on flow down processes and requirements, reviewed existing open contracts to ensure that appropriate flowdown has been incorporated, developed and deployed a tool (WebReq) to ensure that PAAA requirements are incorporated into Laboratory procurements, and provided for self-assessments of these enhancements in FY 2001 to determine their effectiveness.

- Willful Procedural Nonadherence--In FY 2000, Pacific Northwest has identified and reported through the NTS five instances of willful noncompliance with nuclear safety rules by Pacific Northwest staff members. These involved failure to complete facility

status checks, failure to comply with radiological control procedures, and improper management of radioactive waste. Corrective actions to address these noncompliances have been developed and are being tracked in Pacific Northwest's Assessment Tracking System (ATS).

Legacy Materials *(EM funded)*

Some of the wastes and contamination generated from past federal projects were abandoned in place and their program sponsors no longer exist. These legacy wastes and contamination pose potential Environment, Safety and Health (ES&H) risks. These legacies are the responsibility of Environmental Management (EM) to manage in accordance with the cleanup of the Hanford Site.

A rigorous approach has been taken to identify legacies that exist within the areas of operational responsibility of Pacific Northwest, and the legacies quantified in a baseline. The baseline is used to assure that all legacies are appropriately managed, and that the legacies are worked efficiently, and in priority order. A lifecycle schedule has been completed for addressing the approximately 1,500 open legacy items. In FY 2000, the legacy remediation activities included completion of Special Case Waste (SCW) cask design, cask safety documentation, cask fabrication, packaging preparation, and packaging of a large percentage of the SCW managed by Pacific Northwest. Examples of other activities that were completed in FY 2000 include:

- Repackaging and removal of the material that was in the 3745 vault, and subsequent 3745 shutdown.

- Transfer of five ground contamination sites that require confirmatory sampling or remediation under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to Bechtel Hanford, Inc. (BHI).

- Treatment and packaging of the 325 Building Bowling Ball waste.

- Demolition of 331A Building under CERCLA (this is the first time that Pacific Northwest has used CERCLA for an action of this type, and the first time that Pacific Northwest has shipped waste to the Environmental Restoration Disposal Facility).

The aggressive measures taken to retire surplus facilities and deal with legacy waste in accordance with the Hanford Site cleanup mission were through investment of available OH, carryover, and program efficiency funding sources. A total of $2.5M in OH funding was applied to this effort in FY 1996 and FY 1997. In FY 1998, $2.8M identified from program cost savings and carryover funding provided the resources needed to initiate the tasks to quantify, characterize, and initiate, in limited situations, the removal of legacy materials and begin remediation of facilities or sites. This effort continued in FY 1999 and FY 2000, with $1.9M and $2M, respectively, of program funding.

Pacific Northwest CERCLA Sites *(EM funded)*

In FY 1998, DOE assigned the management of a number of CERCLA sites to Pacific Northwest. Through teaming with BHI and other site organizations, an assessment was completed of nearly

all the CERCLA sites assigned to Pacific Northwest in FY 1998, including the majority of the 300 Area sites. In FY 1999 and FY 2000, the balance of the 300 Area CERCLA sites were assessed. Most of the sites do not require further action, but some will require CERCLA confirmatory sampling or remediation. Five of the sites requiring further action were transferred in FY 2000 to BHI for long-term surveillance and maintenance.

Configuration Management (CM) *(EM funded)*

A Pacific Northwest Independent Oversight Special Study completed in April 1998 validated that basic configuration management elements had been developed and were being executed by competent and knowledgeable staff, but also indicated that institutionalization of an overall program and formalization of key program elements was weak or lacking. During FY 1999, institutionalization of the Pacific Northwest CM Program was strengthened by the completion and publishing of the Pacific Northwest Facility CM Program Description, and two CM Program supporting Subject Areas. During FY 2000, self-assessments of the CM Program's key elements indicated a continuing uncertainty by staff in their understanding of the programs requirements and the timely completion of projects and turnover of project documents.

During FY 2000, several Laboratory-level implementing procedures have been written and executed under the auspices of the Facility Acquisition & Disposition Management System (FA&DMS). While substantive progress has been made toward institutionalization and integration of the Pacific Northwest CM Program, the full integration of all elements remains to be fully completed. Most notable is the current commitment for the Pacific Northwest Essential Drawings. Based upon continued resource levels, all of the key milestones for Pacific Northwest's buildings will not be completed until FY 2007. The multi-year, prioritized plan reflects these key milestones and will be completed as follows: Facility Matrices was completed in FY 2000, the Facility Labeling Program in FY 2006 and the Essential Drawing Program in FY 2007.

Facility Transition *(OH & EM funded)*

In 1995, Pacific Northwest reviewed its facility holdings revealing that approximately one half of the facilities were candidates to be vacated over the next five years. Subsequent to this review, actions were taken to consolidate operations for full use of the strategic facilities and closure of non-strategic, uneconomical, or under-used facilities. The Facility Transition Team was established to manage the reconfiguration of space and the relocation of staff and equipment. They ensured that each facility transition was accomplished safely, efficiently, and in compliance with all applicable requirements. The Team's current responsibility is to expedite the final disposition of the excess facilities and assure that the facilities are appropriately surveyed and maintained until disposition actions are complete. Seventy-nine facilities have been physically removed or transferred to a new operator. Laboratory-level OH and EM direct funding support the transition effort. Two concerns relating to the progress of transitioning facilities are 1) cost of the disposition, and 2) the final agreement on DOE landlord responsibilities for the contaminated surplus facilities. The status of the facility transition effort is summarized in Table A-1.

Table A-1. Status of Transition Actions for Pacific Northwest National Laboratory Facilities.

Facility Action	Number of Facilities
Removed or transferred	79
Now in standby	29
Vacated, pending placement in standby	0
Additional facilities to be vacated	3
Total facilities to be vacated by 2003	107

Of the 29 inactive surplus facilities, eight are significantly radiologically contaminated. The majority of contamination in surplus facilities is the result of defense activities related to fuel processing and production prior to 1971. The estimated annual surveillance and maintenance budget for the surplus facilities is $90K, but is expected to greatly increase in the near term due to roof replacements. The cost of final disposition for the clean and slightly contaminated facilities is estimated at $5M, and the cost for the moderately to highly contaminated facilities is in excess of $17M.

Environmental Management *(EM funded)*

Previously, Pacific Northwest received approximately $7M from EM to fund waste operations and environmental compliance technical support services. In FY 2000, a plan for transition of funding from EM to SC was initiated. The initial transfer was for $1.2M. This transfer is taking place partly because SC is the new landlord for Pacific Northwest, and to better allocate costs among the different DOE programs for generated waste. Drivers for this include life cycle costing (the decision to fund programs must be based on all costs including waste management), and waste minimization (the idea that waste generation will be minimized if programs have to pay for it).

Pollution Prevention *(EM, SC & Project Direct funded)*

In FY 2000, Pacific Northwest institutionalized a 5% pollution prevention investment fee. Funds from this fee collected from generators, based on waste disposal costs, are used to implement pollution prevention initiatives within the Laboratory. Three pollution prevention projects were selected by the Laboratory's Pollution Prevention Advisory Board and funded as a result of this effort. Additional achievements in FY 2000 were:

- significant in areas of sustainable facility design, construction, landscaping, and recycling;
- significant reduction from 1999 regulated waste generated/shipped; and
- receipt of five national (e.g., EPA/DOE) pollution prevention awards.

2. Table of Actual ES&H Expenditures for FY 2000 by Functional Area

   (reference Tables A-2 and A-3)

B. Prior Year –Current Execution Fiscal Year Information (FY 2001)

For FY 2001, Critical Outcome 2.0, Management and Operations Excellence, was negotiated and reads, *"Battelle will manage and operate PNNL with distinction, becoming the DOE benchmark standard for Laboratory management, providing stewardship of DOE's assets and protecting the health and safety of workers, the public and the environment."* The two Performance Objectives that support operational excellence are:

- 2.1--*"Provide management and operational excellence in achieving key contract provisions."*
- 2.2--*"Optimize capability alignment with current and future mission needs."*

1. Major ESH&I Work Commitments for FY 2001

The following are the ESH&I issues where the scope is reasonably understood and will be adequately addressed in FY 2001 work plans funding from SC, EM, or Laboratory OH.

- Travel (Off-Site Work) Risk Mitigation
- Subcontractor Requirements Flow Down
- 10 CFR 830.7 Energy/DOE Nuclear Safety Management Rule
- Configuration Management (CM)
- Environmental Management
- Pollution Prevention

Travel (Off-Site Work) Risk Mitigation *(OH funded)*

Several assessments have identified a need for improvement in the way the Laboratory prepares staff for, and manages the risks associated with off-site travel activities. For foreign travel, a subject area exists in SBMS and the projects that are foreign travel intensive have implemented project specific procedures. The assessments concluded, however, that the Laboratory's

approach needs to be more consistent and possibly adopt practices from the projects. For off-site activities, there is no subject area defining how to identify and mitigate the specific risks.

Subcontractor Requirements Flow Down *(OH funded)*

Internal and external assessments performed at the Laboratory revealed that subcontractor requirements were not effectively or consistently being flowed down from the Laboratory to its subcontractors and suppliers, and their implementation verified. Ineffective programs of this nature have resulted in significant proposed PAAA fines of other contractors. In FY 2000, significant changes were made to the acquisition management system. In FY 2001, an assessment will be conducted to determine if those actions were effective.

10 CFR 830.7 Energy/DOE Nuclear Safety Management Rule *(OH funded)*

The promulgation of Subpart B to 10 CFR 830, *Nuclear Safety Management*, will have impact on the Laboratory. Several unplanned activities are required: review and development of comments to the interim final rule, review and development of comments on three supplementary guides supporting the rule, regulatory/requirement analysis, and identification of potential gaps in the management systems and associated implementing documents. The Laboratory's management systems, nuclear safety program, and associated implementing documents will require revision to effectively indicate compliance with the rule. In conjunction with the revisions to Laboratory-level management systems and programs, the authorization basis for the Radiochemical Processing Laboratory (RPL) will require revision to ensure the scope meets the intent of "safety basis" as defined in the rule, as well as, addressing non-DOT transportation activities. The revisions to the authorization basis will also require additional implementation activities. For example, procedure changes and training will be required once the applicable documents have been revised.

Configuration Management (CM) *(EM funded)*

The Facility Configuration Management Program description was published to Pacific Northwest web in June 1999. The Facility CM Program is under the auspices of the Facility Acquisition & Disposition (FAD) Management System. The program description identifies the integrated elements of the Facility CM Program, as well as several organizational-level implementing procedures and formal roles, responsibilities, accountabilities, and authority statements. While substantial progress has been made toward institutionalization and integration of the Pacific Northwest CM Program, the full integration of all elements has not yet been completed. Most notable is the commitment to complete the Pacific Northwest Essential Drawings and Labeling Programs. Current plans outline important buildings and their priority, with a commitment to complete the Labeling Program during FY 2006 and the Essential Drawing Program by the end of FY 2007. Additional resources are required to improve the schedule for completion. In addition, a self-assessment of the Facility CM Program was completed in January 2000, that confirmed appropriateness of the program elements. However, it again confirmed the need to improve the schedule for delivery of the equipment labeling and essential drawings.

Environmental Management (Waste Management ADS A99D0002) *(FWP# 31018) (SC & EM funded)*

Historically, Pacific Northwest has received approximately $7M from Environmental Management (EM) to fund Environmental Compliance and Waste Management. In FY 2001, a transfer of $1.2M was made from EM to SC. This transfer took place partly because SC is the new landlord for Pacific Northwest, and to better allocate costs among the different DOE programs for generated wastes. Drivers for this include life cycle costing (the decision to fund programs must be based on all costs including waste management), and waste minimization (the idea that waste generation will be minimized if programs have to pay for it). In FY 2001, EM continued to directly fund the remaining ~$5.8M. However, to date, the committed $1.2M from SC for waste management in FY 2001 has not been received. The funds are now expected to be received during the month of November, 2000. Pacific Northwest is developing a contingency strategy for cost recovery, in the event the funding does not arrive. The strategy requires waste disposal funding from those projects generating waste.

Pollution Prevention *(EM funded)*

The initiative to integrate and ingrain pollution prevention practices in all Laboratory activities is continuing. Pacific Northwest's Environmental Management organization is working with the Research and Development divisions, and with the Facilities and Operations staff during project planning to identify waste avoidance, reduction, recycling, reuse, and treatment options. Using waste forecasting, planning, and costing tools will allow more detailed and complete costing of waste management activities, as well as identification of pollution prevention opportunities. In addition, Pacific Northwest institutionalized a 5% pollution prevention investment fee. Funds from this fee collected from generators, based on waste disposal costs, are used to implement pollution prevention initiatives within the Laboratory. Three pollution prevention projects were selected by the Laboratory's Pollution Prevention Advisory Board and funded as a result of this effort. Pacific Northwest is implementing options for treating waste on-site to reduce or eliminate volume, toxicity, future costs and liabilities. Pacific Northwest requires waste generators to ensure a waste disposal pathway exists prior to generation of waste as one element of a program designed to reduce or eliminate future liabilities. In FY 2001, the Laboratory will begin its pursuit of implementation of ISO 14001 in earnest. The ISO 14001 criteria provides a tool to evaluate the existing Integrated Safety Management systems for environmental management system content that goes beyond regulatory compliance to pollution prevention. The use of ISO 14001 to evaluate and drive changes in existing Integrated Safety Management systems will enable the Laboratory to 1) embrace pollution prevention in their business systems and meet the requirements in Executive Order 13148; 2) rigorously evaluate other key components of their management system (e.g., records management, corrective action management) from a slightly different perspective; and 3) establish environmental improvement goals and demonstrate continuous improvement as required by the Integrated Safety Management DEAR clause.

2. Identification of Any Significant ESH&I Risks That Are Not or Will Not be Adequately Addressed in the FY 2001 Work Plans.

The following are ESH&I issues where the scope is reasonably understood and are not, or will not be adequately addressed in FY 2001 work plans funding from SC, EM, or Laboratory OH.

- DOE-HQ Pollution Prevention and Energy Efficiency Goals
- Radioactive Waste Management Order (435.1)
- Legacy Materials
- Pacific Northwest CERCLA Sites
- 325 Radiochemical Processing Laboratory (RPL) HVAC Controls
- Infrastructure Issues
  - Facility Capital Construction Project
  - Facility Transition Project

DOE-HQ Pollution Prevention and Energy Efficiency Goals *(SC unfunded)*

Strategy to Address DOE-HQ P2 Energy Efficiency Goals ADS (AA0D0006) *(FWP# 40882)*-- This ADS is the mechanism to address the DOE-HQ Pollution Prevention and Energy Efficiency goals as they apply to the Pacific Northwest. The additional DOE-HQ goals are aggressive and will require the development of a detailed strategy to tackle the baseline issues, tracking, reporting, toxic chemical use reduction, vehicle fleet efficiency, purchasing items with recycled content, waste reduction, recycling, and energy efficiency accomplishments.

Radioactive Waste Management Order (435.1) *(EM unfunded)*

DOE's new Radioactive Waste Management Order (435.1) was issued in FY 1999. Pacific Northwest developed an implementation plan in coordination with the Hanford Site. The plan requires additional funding to incorporate new and revised requirements into its management systems and operating procedures. A request for funding has been issued, however, at this point, no additional funding has been received.

Legacy Materials *(EM funded)*

Some of the wastes and contamination generated from past federal projects were abandoned in place and their program sponsors no longer exist. These legacy wastes and contamination pose potential environment, safety and health risks. These legacies are the responsibility of Environmental Management (EM) to manage in accordance with the cleanup of the Hanford Site. A rigorous approach has been taken to identify legacies that exist within the areas of operational responsibility of Pacific Northwest, and the legacies quantified in a baseline. The baseline is used to assure that all legacies are appropriately managed, and that the legacies are

worked efficiently and in priority order. A lifecycle schedule has been completed for addressing the approximately 1,500 open legacy items.

Due to FY 2001 and FY 2002 budget ceilings, the Site proposed Integrated Priority List target case limits requested funding for legacy waste and contamination management at Pacific Northwest to $2M in FY 2001 and to $1M in FY 2002. Four million dollars is required each fiscal year to make acceptable progress on legacy contamination issues. The impact of the reduced funding is to delay the remediation of legacy wastes and contamination, and consequently delay reducing the safety risks posed by abandoned radiological and hazardous materials in the DOE Hanford facilities. Additionally, the funding reduction has delayed effective use of Laboratory spaces, facilities, and improving compliance for Laboratory operations. Pacific Northwest is concerned about the burden created by those legacies without a clear strategy for future remediation that can be supported by direct funding from DOE. Efforts continue to be made to augment Hanford Site funding for managing the DOE legacies and proceeding with cleanup of the Laboratory.

Two legacy issues are currently being addressed to reach an agreement on the details for accomplishing remediation. These are:

- The AEC Bus lot is a ground contamination site that contains contaminants that exceed the Washington State Model Toxic Control Act limits. The site was contaminated by historical federal government operations, and is located on ground that was subsequently sold to Battelle. While significant progress has been made toward reaching agreement on funding site cleanup, a final agreement has not yet been reached between DOE and Battelle. The site remediation is planned for this coming fiscal year, and due to the sensitive location of the site, it would not be prudent to delay the remediation. This issue is currently being worked with RL-AMT.

- Some Battelle private facilities have been contaminated with radioactive material, with nearly all of the contamination a result of federal government programs. While initial discussions with DOE have been held regarding removal of the contamination, an agreement has not yet been reached on the cost allocation and funding mechanism for the remediation of these facilities. This issue is currently being worked with RL-AMT.

Pacific Northwest CERCLA Sites *(EM funded)*

In FY 1998, DOE assigned the management of a number of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites to Pacific Northwest. Through teaming with Bechtel Hanford, Inc. (BHI) and other Site organizations, an assessment was completed of nearly all the CERCLA sites assigned to Pacific Northwest in FY 1998, including the majority of the 300 Area sites. In FY 1999 and FY 2000, the balance of the 300 Area CERCLA sites were assessed. Most of the sites do not require further action, but some will require CERCLA confirmatory sampling or remediation. Five of the sites requiring further action were transferred in FY 2000 to BHI for long-term surveillance and maintenance.

One site remains a concern, the 200-W-16 Site that is located within the boundary of T Plant. Pacific Northwest is not the most appropriate contractor for the management of this Site. Other

Site contractors are located in the immediate proximity of the site, and have the expertise to manage the site under existing processes and with existing personnel.

325 Radiochemical Processing Laboratory (RPL) HVAC Controls (*EM funded)*

During the annual request for funding, Pacific Northwest requested funding from the Site EM Landlord Program for the 325 RPL HVAC Controls Upgrade for FY 2001. This project was prioritized with the other Site priorities and indications from the EM Landlord Program Office advised that Pacific Northwest would not receive FY 2001 funding. During this same time period, Pacific Northwest was engaged in the update and revision to the 325 RPL Safety Analysis Report (SAR). The update to 325 RPL SAR classified the HVAC Controls as a Safety Significant System, Structure, or Component (SSC). This reclassification required a review of the 325 RPL HVAC Controls project and, subsequently, Pacific Northwest deemed that an increase to the Capital Asset Management Process (CAMP) score from 53 to 65 was warranted. The SAR update reflected new requirements and information, which was not available when the 325 RPL HVAC Controls project was originally scored for programmatic impacts.

The project justification speaks to the direct business impacts if this system were to shut down. Also, the justification describes the negative impact to the building and research when the system has to be shut down for troubleshooting. In the event of a system failure, it is required to place the building in a standby mode to ensure a minimized risk of release of radioactive materials. Additionally, all work with radioactive material would be required to cease, resulting in considerable programmatic impacts.

The most urgent RPL projects are the RPL HVAC Controls and the RPL HVAC Upgrade, which must receive funding in FY 2001. Pacific Northwest will continue to pursue FY 2001 funding of the projects through the normal process. Pacific Northwest will also continue to work with the EM Landlord Program Office to review and discuss the new priority of these projects and the process, which may result in receiving FY 2001 funding.

Infrastructure Issues

Pacific Northwest faces a challenging and changing environment as it enters the 21st Century. The pace of technology development and deployment is becoming increasingly rapid. Cooperative partnerships and teaming across multiple technical disciplines are an important part of the fabric of developing innovative solutions and products. The new ways of doing business are taxing what is already an aging set of facilities and infrastructure. Pacific Northwest has worked hard to maintain this set of facilities and more must be done. Further complicating this situation is the limited DOE funding. Pacific Northwest is evaluating all options to finance this revitalization effort.

This is evident when understanding that the condition of all active DOE spaces can be described as 37% adequate, 16% requiring minor rehabilitation, 43% requiring major rehabilitation, and 5% requiring replacement. The general condition of Pacific Northwest space can be described as 51% adequate, 32% requiring minor rehabilitation, and 17% requiring major rehabilitation. Coupled with the fact that the average age of the active DOE-owned buildings is 31 years and Battelle-owned buildings is 21 years, there is a need for revitalization of these facilities. To complicate the situation, facility designs in older facilities do not support modern science.

Sustainable design is an important aspect of the facility strategy, not only for new facilities but in the revitalization efforts as well. Revitalization will take into consideration the life cycle economic, environmental, worker, and community impacts of its expected upgrades and renovations.

To further clarify the arrangement Pacific Northwest manages, it must be understood that the DOE Hanford Site is an EM-designated site; however, the DOE Office of Biological and Environmental Research (OBER) has landlord responsibility for most of the DOE-owned facilities and equipment assigned to Pacific Northwest and Battelle. However, because of the role that Pacific Northwest serves at the Hanford Site, the Project Hanford Management Contract (PHMC) Landlord Program, which is under the Assistant Secretary for EM, is responsible for the general-purpose facilities, equipment, and infrastructure primarily supporting the Hanford Site mission activities. As an occupant of the 300 Area, Pacific Northwest interfaces with the PHMC to obtain all government-provided utilities and site infrastructure services. The multiple service providers increase inefficiencies and make managing these services extremely difficult. Because of this arrangement, Pacific Northwest is partnering with DOE and other Site contractors to review longer-term strategies for improving the delivery and cost-effectiveness of these services.

Revitalization at Pacific Northwest began over a decade ago and substantial progress has been made. Past investments have focused at rehabilitating the physical plant and reducing ES&H risks. This progress in physical plant revitalization and the aggressive facility consolidation program has minimized the impact of the decreasing capital investment in Pacific Northwest infrastructure by DOE. Pacific Northwest continues to investigate alternative means to invest in the critical facilities. One such alternative, which has been successfully used, is the Energy Saving Performance Contract.

More must be done to complete the vision to revitalize the existing facilities to meet the science of the 21st Century. This vision encompasses the entire portfolio relating to SC, EM, and BMI investments. Each funding sponsor has a commitment to ensure that this modernization is a success. The focus for future investments will be required to modernize laboratories at Pacific Northwest to meet the 21st Century mission needs. The initial influx of SC line item funding will aggressively complete the major physical plant upgrades. In addition to the SC line item investment, the GPP and small project (SP) funding from SC, EM, and BMI will allow for revitalization to be successful.

The following projects were submitted for supplemental funding solely as Infrastructure ADS':

- Facility Capital Construction Project ADS (A98D0001)
  This ADS covers a multiple of capital construction projects, such as Line Items (LI), General Plant Projects (GPP) and Small Projects (SP). These projects are required to meet the Laboratory's primary goal to deliver environmental science and technology in the service of the nation and humanity. The Facilities and Operations (F&O) Directorate supporting goals are to demonstrate operational excellence, maintain state-of-the-art R&D facilities with constraint budgets, and prepare for growth. These goals support the continuing need to maintain and rehabilitate the DOE-owned facilities and infrastructure. Maintaining the infrastructure in multi-aged facilities requires an integrated process and system to complete the critical projects in a cost-effective and efficient manner. Pacific Northwest has such a process, in which the most critical requirements are established from facility core teams. These teams establish which facility asset is the most critical to

be replaced. This is accomplished utilizing the priority rated CAMP. Projects are compiled and evaluated by Facility Strategic Planning to ensure the projects are consistent with the Laboratory, and F&O Directorate mission and goals. These projects are presented to senior management to validate consistent thinking throughout the Laboratory.

- Facility Transition Project ADS (A99D0003) *(FWP# 27559)*
  This ADS covers the costs to transfer surplus SC facilities to EM. It fulfills the implementation agreement between SC and EM regarding building transfers. These facilities currently are in a shutdown/standby mode, or are in the planning stages for future shutdown. The facilities present a risk to the environment, the public, and Site workers. Hazards range from legacy material left at the facility and/or hazardous materials of construction (e.g., radioactive contamination, beryllium, PCBs, asbestos, lead paint). There is risk of release of contaminants from facilities, some of which are close to the Columbia River and the Richland city limits. There is risk of injury to Site workers from degrading facilities such as failing roofs or biological hazards such as from insects, rodents, snakes, or pigeons

3. Identification of the Highest Ranking Unfunded Activities.

- Facility Transition Project
- DOE-HQ Pollution Prevention and Energy Efficiency Goals
- Radioactive Waste Management Order (435.1)

4. Identification of Any Unfunded (or under-funded) Activities that Address Emerging ES&H Issues.

The following are ESH&I issues where the scope is reasonably understood and are not, or will not be adequately addressed in FY 2001 work plans funding from SC, EM, or Laboratory OH.

- Land Disposal Restriction (LDR) /Mixed Waste Inventory (RCRA regulations)
- Relocation of the Hanford maximally exposed individual (MEI)

Land Disposal Restriction (LDR) /Mixed Waste Inventory (RCRA regulations) *(EM Funded)*

The Department of Ecology has imposed increased reporting requirements for mixed wastes on the Hanford Site through a recently issued Final Determination. Pacific Northwest has completed an inventory of mixed wastes and prepared a report on these wastes, which was incorporated into the FY 2000 Hanford LDR Report. DOE has prepared an implementation plan for the LDR final determination. A major focus is the compliance assessment portion of the determination, which was not appealed. This assessment may require additional effort for Pacific Northwest related to early identification and management of mixed waste. Significant disagreements with Washington State remain, principally relating to whether closed facilities (contaminated buildings, installed equipment, and/or contaminated soil) are at present considered as "mixed waste" subject to the LDR requirements. The appeal of the remainder of the Final

Determination is proceeding, and a hearing has been set for February 2001. Pacific Northwest has submitted a detailed estimate for reviewing mixed waste in Laboratory facilities (including wastes in hold up).

Relocation of the Hanford Maximally Exposed Individual (MEI) *(EM funded)*

The MEI has been a resident located on the eastern bank of the Columbia River. The US Environmental Protection Agency (EPA) and the Washington Department of Health (WDOH) have issued letters that will move the MEI closer to, and in some cases, within the Hanford boundaries. Although there appears to be no immediate impact to Pacific Northwest stack monitoring requirements, the long-term impacts are uncertain. A new Hanford MEI location may require more rigorous and expensive monitoring requirements for existing Pacific Northwest facilities. DOE-RL continues to work with EPA and WDOH to develop an acceptable dose assessment method for MEI locations that are close to the emissions source and have an occupational rather than residential exposure profile.

5. Table of planned ES&H expenditures for the fiscal year by Functional Area

(reference Tables A-2 and A-3)

Conclusion

The redesigned ESH&I Program has had a significant positive impact on the way Pacific Northwest delivers ESH&I services, and has allowed the overall ESH&I budget to be reduced, while improving the protection of the environment and the safety and health of the workers and the public. The program is focused on integrating ESH&I into the planning and design of work, resulting in improved performance, as evidenced by fewer accidents and incidents, reductions of injuries and illnesses, better control of hazards, and improved compliance with environmental regulations. Pacific Northwest's assessment process is maturing, with emphasis on continuously improving management systems, to develop leading indicators of performance, not solely relying on traditional historical trending analysis. This effort is ongoing, and part of the DOE Complex-wide effort to evaluate performance under Integrated Safety Management. This is being accomplished by providing managers and staff with the technical resources in ESH&I that they need to meet their responsibilities. This approach has allowed Pacific Northwest to control and reduce risk, even during difficult budget times. By incorporating performance-based incentives into the contract, management has shown the commitment to continually improve ESH&I performance. The ESH&I Program is focused on delivering value-added services and eliminating activities that do not provide benefit to protection of the environment and safety and health of workers and the public. A risk-based approach has been adopted so that limited resources may be applied to those areas that will result in the greatest benefit.

Table A-2. ES&H/Infrastructure Management Plan Information System

Pacific Northwest National Laboratory

Annual Total Costs by Functional Area

(Costs in $000's)

ADS Status "Open"

Funding Source: 1 – Direct

Functional Area	FY00 Planning	FY00 Actual	Delta	FY01 Planning
Safety & Health Costs:				
IH Industrial Hygiene	150.300	183.690	-33.390	397.230
IS Industrial Safety	175.350	214.305	-38.955	463.435
MO Management & Oversight	175.350	214.305	-38.955	463.435
Safety & Health Sub-Total	**501.000**	**612.300**	**-111.300**	**1,324.100**
Environmental Costs:				
WM Waste Management	0.000	0.000	0.000	1,200.000
Environmental Sub-Total	***0.000***	***0.000***	***0.000***	***1,200.000***
Non-ES&H Costs:				
Infrastructure	5,971.800	5,971.800	0.000	10,113.500
Non-ES&H Sub-Total	**5,971.800**	**5,971.800**	**0.000**	**10,113.500**
Funding Source: 1 – Direct	**6,472.800**	**6,584.100**	**-111.300**	**12,637.600**

Table A-3. ES&H/Infrastructure Management Plan Information System

Annual Total Costs by Functional Area

Pacific Northwest National Laboratory

(Costs in $000's)

ADS Status "Open"

Funding Source: 2 - Indirect

Functional Area	FY00 Planning	FY00 Actual	Delta	FY01 Planning
Safety & Health Costs:				
EP Emergency Preparedness	811.782	816.480	-4.698	823.698
FP Fire Protection	270.594	272.160	-1.566	274.566
IH Industrial Hygiene	1,488.267	1,496.880	-8.613	1,510.113
IS Industrial Safety	947.079	952.560	-5.481	960.981
MO Management & Oversight	7,504.368	7,538.820	-34.452	7,601.452
NS Nuclear Safety	676.485	680.400	-3.915	686.415
RP Radiation Protection	1,894.158	1,905.120	-10.962	1,921.962
TS Transportation Safety	135.297	136.080	-0.783	137.283
Safety & Health Sub-Total	**13,728.030**	**13,798.500**	**-70.470**	**13,916.470**
Environmental Costs:				
CA Protection of Air Quality	135.297	136.080	-0.783	137.283
CS Control of Toxic Substances	270.594	272.160	-1.566	274.566
CW Protection of Water Quality	135.297	136.080	-0.783	137.283
MR Management Oversight & Reporting	811.782	816.480	-4.698	823.698
Environmental Sub-Total	**1,352.970**	**1,360.800**	**-7.830**	**1,372.830**
Non-ES&H Costs:				
Infrastructure	52,791.000	52,791.000	0.000	52,459.400
Non-ES&H Sub-Total	**52,791.000**	**52,791.000**	**0.000**	**52,459.400**
Funding Source: 2 – Indirect	**67,872.000**	**67,950.300**	**-78.300**	**67,748.700**

Attachment A

FY2000 Annual Self-Evaluation Report for the Pacific Northwest National Laboratory

October, 2000

2.0 Operational Excellence

The Department of Energy's Strategic Plan communicates a strong and very unambiguous commitment to operations and to ensuring the health and safety of our work force and the public, and the protection of the environment.

The Laboratory recognizes that strong scientific and technical performance can not be accomplished at the expense of ES&H or operational performance. In fact, strong ES&H and operational performance is seen as an enabler of the execution of the Laboratory's mission related work. For these reasons, and in partnership with the DOE, the Laboratory has established the Operational Excellence Critical Outcome and its supporting objectives to guide improvement efforts and performance indicators to monitor our progress toward our goals.

The Operational Excellence Critical Outcome Tree, detailing the Critical Outcome and its' supporting Objectives and Performance Indicators, is presented below.

Summary

Pacific Northwest National Laboratory continues to conduct work and operate facilities with distinction and in a manner that is supportive of the Laboratory's science and technology mission. We have made significant investments over the past seven years to integrate sound safety and environmental management practices into daily operations. In addition, we have focused on the set of facilities and infrastructure that will be needed to assure that the world-class science and technology produced by PNNL will be supported by world-class facilities and infrastructure.

As a member of the Hanford contractor family, we actively participated on a joint Hanford contractor review team tasked to provide cost analysis reports to the Hanford Site Management Board (SMB). This team was very successful and is a further indication of PNNL's desire to become a strong component of the Hanford Site's future.

The Laboratory's performance with respect to occupational safety and health, radiological control, waste management, and environmental protection are strong. A comparative analysis of OSHA statistics indicated that PNNL's performance is better than the average for other R&D organizations. Staff continue to perform very well with respect to the OSHA indicators for Lost Workday Case Rate, Total Recordable Case Rate, and Lost Workday Incident Rate. These factors demonstrate that the Laboratory continues to achieve the desired outcomes of its Integrated Safety Management Program.

An internal investigation of waste management activities in the 331 facility resulted in the discovery of four missing waste containers. The missing waste containers consisted of approximately 2.5 gallons of waste, 80% of which was water. This event was reviewed by the DOE IG, the Washington State Department of Ecology (WDOE) and EPA Region X Criminal Division and was documented in ORPS reports. During the review, it was determined that the PNNL hazardous waste management processes meet regulatory requirements. As part of corrective actions and the lessons learned from this review, we have implemented improvements to our waste management self-assessment process. To date, Ecology has taken no action, and has indicated a willingness to review the facts and issue a closure letter. Battelle made a proactive call to the Tri-City Herald after the final ORPS report was placed in the DOE Reading Room. The Herald ran a story on the missing waste containers in late September. The story has not generated any additional public or regulator interest. Although a serious incident, this demonstrates the

Laboratory's ability to effectively manage events that could have significant regulatory and/or public impact.

Performance against the Facility management system Memoranda of Understanding (MOUs) with our DOE-RL counterparts resulted in increased emphasis on the effective and efficient delivery of products and services to Laboratory staff. Noteworthy accomplishments among the Facility management systems included the Emergency Preparedness (EP) management system receiving high marks from DOE-RL for Exercise "Bold Endeavor." In addition, the Facility Acquisition and Disposition (FAD) management system completed Building Life Cycle Plans (BLCP), including Condition Assessments for 16 facilities. The completed condition assessments covered 65% of all buildings and represent 85% to 90% of the content of the Building Life Cycle Planning document. This effort represents significant progress towards improving the level of maturity for evaluating facilities and their life cycle needs. Staff use of the Standards Based Management System continues to increase - up 7% over FY 1999 - but the rate of increase flattened somewhat. In addition, the number of SBMS subject areas appears to be decreasing as we consolidate to reduce redundancy.

PNNL reported a security incident in July 2000 that occurred during the Site-wide Hanford Fire emergency. Following consultation with DOE-RL, PNNL initiated a security stand-down in response to this incident involving the control and protection of a classified document. The stand-down was initiated to ensure that the Laboratory fully maintains our capability to conduct classified work to the highest standards. A team of senior staff from across the Laboratory was formed to examine the status of the Laboratory's classified work, develop lessons learned, and determine the actions necessary to formalize restart criteria. The multiple actions taken during the stand-down included reinforcement of the awareness of all staff and management, strengthening the Roles, Responsibilities, Accountabilities, and Authority (R2A2s) associated with classified work, emphasizing the reporting process for such incidents, and sharing lessons learned. The implementation of these actions revealed several additional opportunities for improvement. Completion of the actions will help to assure that classified work activities continue to be conducted in a manner that not only meets all security objectives, but also enhances our ability to achieve program objectives.

The completion and issuance of the FY 2000 Facility and Infrastructure Strategic Plan on December 30, 1999, reflected a significant improvement over previous plans, primarily due to extensive partnering between Facilities Directorate and all research divisions. The plan also improved alignment with facility and infrastructure needs and the strategic direction of research initiatives and served to enhance our focus on developing and maintaining the facilities and infrastructure that will carry PNNL into the 21st Century. PNNL completed the Limited Areas Island (LAI) facility modifications to the EESB building according to schedule; however, based on the request and the benefits to be realized, we delayed the moves necessary to activate the LAI Phase 2. This action was intentionally delayed by PNNL to permit the acquisition of additional office space. Additionally, the completion of the OC3 System Upgrade, a milestone of great strategic significance for the research missions of the Laboratory, will not be realized until early FY 2001. The completion of the milestones was delayed due to conflicts between service providers which were second tier subcontractors to PNNL, but which PNNL did not have direct control over. The delays encountered have detracted from the overall schedule performance, however, the actions initiated by PNNL demonstrated leadership towards achieving the higher strategic value.

Based on the Objectives that support this Critical Outcome, we believe our performance rating is **Outstanding**.

2.1 Sustain and Enhance Operational Excellence in Safety, Health and Environmental Protection

Results

In FY 2000, the Laboratory focused on two (2) key aspects of ensuring operational excellence in ES&H; overall effectiveness and performance of the ES&H-related management systems, which includes Q&PM and demonstration of the effectiveness of PNNL's Integrated Safety Management system.

The bases for determining performance of the management systems were Memoranda of Understanding (MOUs) that were developed jointly by the DOE-RL point-of-contact and the Laboratory management system owner. Noteworthy accomplishments in the Facility Safety management system included the development and implementation of the RPL 1999 SAR/TSRs. The Environmental Management Services management system successfully negotiated unique umbrella type permit for research operation at EMSL. This approach eliminated the need to obtain new permits for every change in the operational envelope. Further, the PNNL's Project Management system was approved by the DOE-RL Contracting Officer, and findings from An Independent Review of Recent Project Management System Assessments indicated that of the PNNL management systems reviewed, ". . . this management system appears to be the most mature and the one that has invested the most effort in assessing itself and using the results of assessments to make improvements."

A comparative analysis of our ES&H Lagging Indicators against OSHA statistics indicated that PNNL's performance is better than the average for other R&D organizations. Staff continue to perform very well with respect to the OSHA indicators for Lost Workday Case Rate, Total Recordable Case Rate, and Lost Workday Incident Rate.

An internal investigation of waste management activities in the 331 facility resulted in the discovery of four missing waste containers. The missing waste containers consisted of approximately 2.5 gallons of waste, 80% of which was water. This event was reviewed by the DOE IG, the Washington State Department of Ecology (WDOE) and EPA Region X Criminal Division and was documented in ORPS reports. During the review, it was determined that the PNNL hazardous waste management processes meet regulatory requirements. As part of the corrective actions and the lessons learned from this review, we have implemented improvements to our waste management self-assessment process. To date, Ecology has taken no action, and has indicated a willingness to review the facts and issue a closure letter. Battelle made a proactive call to the Tri-City Herald after the final ORPS report was placed in the DOE Reading Room. The Herald ran a story on the missing waste containers in late September. The story has not generated any additional public or regulator interest. Although a serious incident, this demonstrates the Laboratory's ability to effectively manage events that could have significant regulatory and/or public impact.

Our performance toward this Objective demonstrates the Laboratory's continuing ability to drive improvement in targeted areas while sustaining and even enhancing performance as a whole.

Based upon the performance indicators that support this objective, our rating for FY 2000 is **Outstanding**.

Analysis

DOE's evaluation of overall Contractor performance in the Environment, Safety and Health (ES&H) and selected Quality management systems. This indicator demonstrates the

overall effectiveness of the Laboratory's ES&H and Quality management systems in the areas of compliance with applicable contractual requirements; effective and efficient delivery of products, services and systems; and continuous improvement of the ES&H system. PNNL continues to achieve outstanding progress toward full deployment of systems that are compliance with requirements and deliver effective and efficient products and services to support the mission of the Laboratory.

DOE-RL organizations will utilize PNNL's Self-Assessment results as the primary means for this performance evaluation. DOE-RL business management organizations may also utilize one or more of the following, in addition to Self-Assessment, in evaluating PNNL's performance on this indicator:

1. Operational awareness/daily oversight activities
2. For Cause Reviews
3. Other outside agency reviews
4. Annual 2-Week review.

The bases for the scoring of this indicator were Memoranda of Understanding (MOUs) that were developed jointly by the DOE-RL point-of-contact and the Laboratory management system owner. Each MOU defined out how performance of the specific management system was to be evaluated and how the final score was determined. Overall performance for this indicator was determined by averaging the equally weighted scores of the individual management systems. Table 2.1 provides the evaluation scores for each of the management systems covered by this indicator. Highlights from the selected ES&H and Quality management system self-evaluations follow Table 2.1.

Table 2.1. Summary of Self-Evaluation Scores and Ratings for ES&H and Quality Management Systems

Management System	Rating	Grade
Environmental Management Services	4.9	Outstanding
Facility Safety	4.45	(High) Excellent
Integrated Environment, Safety, and Health (ES&H)	4.7	Outstanding
Radiological Control	4.64	Outstanding
Training and Qualification	5.0	Outstanding
Worker Safety and Health	4.45	(High) Excellent
Project Management	5.0	Outstanding
Quality Management	5.0	Outstanding
Standards-Based Management Systems (SBMS)	4.72	Outstanding
Average	**4.8**	Outstanding

- Worker Safety & Health:
  - Five self-assessments were scheduled, with four being conducted. In addition, two unscheduled self-assessments (the Beryllium and Time Sensitive Chemicals self-assessments are ongoing) were conducted, which were both time and funding intensive. All corrective actions identified from self-assessments within FY 2000 and scheduled for completion within FY 2000 were completed early, or on time.
- Facility Safety:
  - RPL 1999 SAR/TSRs were developed and implemented.
- Environmental Management Services:
  - Successfully negotiated unique umbrella type permit for research operation at EMSL. This approach eliminated the need to obtain new permits for every change in the operational envelope.
  - Reduce overall cost and waste volumes through implementation of operational wide efficiency assessment
- "An Independent oversight assessment concluded that work processes are fundamentally sound and the roles and responsibilities of the individuals completing the work processes are generally clear."
- An internal investigation of waste management activities in the 331 facility resulted in the discovery of four missing waste containers. The missing waste containers consisted of approximately 2.5 gallons of waste, 80% of which was water. This event was reviewed by the DOE IG, the Washington State Department of Ecology (WDOE) and EPA Region X Criminal Division and was documented in ORPS reports. During the review, it was determined that the PNNL hazardous waste management processes meet regulatory requirements. As part of our corrective actions and the lessons learned from this review, we have implemented improvements to our waste management self-assessment process.
- Project Management:
  - The DOE-RL Contracting Officer approved PNNL's Project Management System.
  - The FY 2000 maturity assessment indicates improvement over FY 1999 results in six of the seven areas assessed.
  - The PMP Generator was introduced as a Laboratory-wide tool in late FY 1999 and early FY 2000.
  - Findings from An Independent Review of Recent Project Management System Assessments. – "Based on the reviewers' knowledge of PNNL's management systems, this management system appears to be the most mature and the one that has invested the most effort in assessing itself and using the results of assessments to make improvements."
- Standards Based Management System:
  - Laboratory-wide use of SBMS continues to increase, although at a slower rate than in previous years. FY 2000 user sessions were up 7% above FY 1999 figures.
  - The rate of use of SBMS among the research staff is up. Each of the Divisions shows a positive increase in the number of staff accessing SBMS.
  - As a result of consolidation of a number SBMS subject areas to reduce redundancy and increase the consistency and conciseness of the information, the total number of SBMS subject areas appears to be decreasing.
- Quality Management

- DOE-RL accepted (approved) the Quality Assurance Program Update that addresses 10 CFR 830.120 and DOE 0 414.1 using single program. DOE found the revision including the changes to the adequate and acceptable as delivered.

Compiled results of the management systems that support this Objective are noted in Table 2.1.

Demonstrate the effectiveness of Integrated Safety Management. This indicator is a composite of Performance Measures designed to provide an overall picture of the effectiveness of Integrated Safety Management. The basis for the set of measures is the ISM effectiveness indicators developed by the DOE *Safety Management Implementation Team* (SMIT) and performance indicator 2.1.4 from the Battelle FY 1999 Performance Evaluation and Fee Agreement.

ES&H personnel routinely monitor the performance of a series of Lagging Indicators, so called because they report data after the fact, as opposed to in-process. The composite of these indicators provides an overall indication of the health of the Laboratory's Environment, Safety and Health program. Results indicate that the Laboratory is sustaining a high level of excellence in the protection of workers, the public, and the environment.

For FY 2000, seven (7) of the eight (8) performance measures met, or exceeded their specified level of performance. Performance against this indicator demonstrates that PNNL continues to achieve the desired outcomes of its Integrated Safety Management Program (IES&H Management System). Table 2.2 provides the results of the ES&H Lagging Indicators compared to the target (or specified level) for FY 2000. Of note is the fact that Total Recordable Case Rate, Lost Workday Case Incident Rate, and Lost Workday Incident Rate are below the targets established.

Table 2.2. **Comparison of PNNL Performance ES&H Lagging Indicators Against FY2000 Targets**

Performance Measures	*Target Level*	*Performance*
Total Recordable Case Rate	<2.3 cases/200,000 work hours	2.0 cases/200,000 work hours
Lost Workday Case Incident Rate	<1.2 cases/200,000 work hours	0.9 cases/200,000 work hours
Lost Workday Incident Rate	<30.0 lost workdays/200,000 work hours	20.73 lost workdays/200,000 work hours
Reportable Occurrences of Release to the Environment	≤2 events	1 event
Percent of Employees with Required Training	≥95%	98.9%
Unplanned Dose	0 events	1 event
Spread of Contamination	<3 events	2 event
Loss of Source	0 losses	0 losses

2.2 Deliver, Operate and Maintain an Optimum Set of Facilities and Supporting Infrastructure that are Aligned with Current and Future Mission Needs

Results

This objective has served to focus the Laboratory on the set of facilities and infrastructure that will be needed to assure that the world-class science and technology will be supported by world-class facilities and infrastructure. Further, one of the indicators that support this objective is intended to engage PNNL in a greater level of participation in Hanford Site contractor activities.

Performance against the Facility management system Memoranda of Understanding (MOUs) resulted in increased emphasis on the effective and efficient delivery of products and services to Laboratory staff. Noteworthy accomplishments among the Facility management systems include an Emergency Preparedness (EP) review of corrective actions associated with the Plutonium Reclamation Facility (PRF) incident, and Exercise "Bold Endeavor" receiving high marks from DOE-RL. Facility Acquisition and Disposition (FAD) management system completed Building Life Cycle Plans (BLCP), including Condition Assessments for 16 facilities. The completed condition assessments covered 65% of all buildings and represent 85% to 90% of the content of the Building Life Cycle Planning document. This effort represents significant progress towards improving the level of maturity for evaluating facilities and their life cycle needs.

PNNL reported a security incident in July 2000 that occurred during the Site-wide Hanford Fire emergency. Following consultation with DOE-RL PNNL initiated a security stand-down in response to this incident involving the control and protection of a classified document. The stand-down was initiated to ensure that the Laboratory fully maintains our capability to conduct classified work to the highest standards. A team of senior staff from across the Laboratory was formed to examine the status of the Laboratory's classified work, develop lessons learned, and determine the actions necessary to formalize restart criteria. The multiple actions taken during the stand-down included reinforcement of the awareness of all staff and management, strengthening the Roles, Responsibilities, Accountabilities, and Authority (R2A2s) associated with classified work, emphasizing the reporting process for such incidents, and sharing lessons learned. The implementation of these actions revealed several additional opportunities for improvement. Completion of the actions will help to assure that classified work activities continue to be conducted in a manner that not only meets all security objectives but also enhances our ability to achieve program objectives.

The completion and issuance of the FY 2000 Facility and Infrastructure Strategic Plan on December 30, 1999, reflected a significant improvement over previous plans, primarily due to extensive partnering between the Facilities Directorate and all research divisions. The plan also improved alignment with facility and infrastructure needs and the strategic direction of research initiatives.

Five key milestones delineated in the Facility and Infrastructure Strategic Plan were selected for inclusion into the Laboratory-level Critical Outcomes. Specifically, PNNL completed the EESB Local Area Island facility modifications according to schedule, however, based on the request and the benefits to be realized, delayed the moves necessary to activate the LAI Phase 2. Additionally, the OC3 System Upgrade, which was scheduled form completion in FY 2000 and has great strategic significance for the research missions of the Laboratory, will be realized early in FY 2001. The completion of the milestone was delayed due to conflicts between service providers which were second tier subcontractors to PNNL, but which PNNL did not have direct control over.

PNNL staff participated on a joint Hanford contractor review team tasked to provide cost analysis reports to the Hanford Site Management Board (SMB). Reports were developed and presented on four of 13 services identified for review during FY 2000. The SMB recommended action and/or further study on all four. A fifth presentation was prepared but never presented to the SMB and reviews were completed on seven of the remaining eight services with the conclusion that no action was required from the SMB but rather cost allocation issues would be worked between the contractors.

Based upon the performance indicators that support this objective, our rating for FY 2000 is **Outstanding**.

Analysis

DOE's evaluation of overall Contractor performance in the Facility management systems. This indicator demonstrates the overall effectiveness of the Laboratory's Facility management systems in the areas of compliance with applicable contractual requirements; effective and efficient delivery of products, services and systems; and continuous improvement of the ES&H system. PNNL continues to achieve outstanding progress toward full deployment of systems that are compliant with requirements and deliver effective and efficient products and services to support the mission of the Laboratory.

DOE-RL organizations will utilize PNNL's Self-Assessment results as the primary means for this performance evaluation. DOE-RL business management organizations may also utilize one or more of the following, in addition to Self-Assessment, in evaluating PNNL's performance on this indicator:

1. Operational awareness/daily oversight activities
2. For Cause Reviews
3. Other outside agency reviews
4. Annual 2-Week review.

The basis for the scoring of this indicator were Memoranda of Understanding (MOUs) that were developed jointly by the DOE-RL point-of-contact and the Laboratory management system owner. Each MOU spelled out how performance of the specific management system was to be evaluated and how the final score was determined. Overall performance for this indicator was determined by averaging the equally weighted scores of the individual management systems. Table 2.3 below, provides the evaluation scores for each of the management systems covered by this indicator. Highlights from selected Facility management system self-evaluations follow.

Table 2.3. **Summary of Self-Evaluation Scores for Facility Management Systems**

Management System	Score	Management System	Score
Emergency Preparedness	4.6	Facility Operations and Maintenance	5.0
Facility Acquisition and Disposition	4.75	Safeguards and Security	5.0
		Overall Average	**4.8**

- Emergency Preparedness

- The EP Program Office received an Independent Oversight Special Study of September 20, 1999. This was reviewed and corrective action incorporated into the PNNL ATS for appropriate disposition. All identified actions have been completed. There were three (3) improvement items identified while at the same time identifying eight (8) positive attributes. There were no deficiencies or weaknesses identified.
- Exercise "Bold Endeavor" received high marks from DOE-RL. There were seven (7) Noteworthy Practices identified in the final exercise report. The 325 Building Emergency Response Organization received noteworthy recognition by the Evaluation Team regarding (1) effective use of their procedures and checklist, (2) a comprehensive understanding of the Incident Command System was clearly shown, and (3) team work and professional response during the exercise. Only one improvement item was identified for PNNL, there were no deficiencies or weaknesses identified for PNNL.

- PNNL reported a security incident in July 2000 that occurred during the Site-wide Hanford Fire emergency. Following consultation with DOE-RL PNNL initiated a security stand-down in response to this incident involving the control and protection of a classified document. The stand-down was initiated to ensure that the Laboratory fully maintains our capability to conduct classified work to the highest standards. A team of senior staff from across the Laboratory was formed to examine the status of the Laboratory's classified work, develop lessons learned, and determine the actions necessary to formalize restart criteria. The multiple actions taken during the stand-down included reinforcement of the awareness of all staff and management, strengthening the Roles, Responsibilities, Accountabilities, and Authority (R2A2s) associated with classified work, emphasizing the reporting process for such incidents, and sharing lessons learned. The implementation of these actions revealed several additional opportunities for improvement. Completion of the actions will help to assure that classified work activities continue to be conducted in a manner that not only meets all security objectives but also enhances our ability to achieve program objectives.
- Facility Acquisition and Disposition (FAD)
  - 100% of Assigned Record of Decisions (RODs) were completed and incorporated into FAD External Requirements Flow Down Document.
  - Complete Building Life Cycle Plans (BLCP), including Condition Assessments. In FY 1999, PNNL assessed and recommended improvements to the BLCP context and format. The following building life cycle plans were completed in FY 2000: 305-B, 306W, 318, 320, 323, 325, 331, 337, 338, 747A, 3718A&B, 3730, 3760, EDL, Math, and PSL. These plans constitute 41% (16 of 39) of the plans to be completed. The completed condition assessments covered 65% of all buildings and represent 85% to 90% of the content of the Building Life Cycle Planning document. This effort represents significant progress towards improving the level of maturity for evaluating facilities and their life cycle needs.

Identification of facilities and infrastructure that is commensurate with the Laboratory's strategy of becoming the enduring national asset at the Hanford site. The completion and issuance of the FY 2000 Facility and Infrastructure Strategic Plan on December 30, 1999, fulfilled this indicator action. This plan reflected a significant improvement over previous plans, primarily due to extensive partnering between the Facilities Directorate and all research divisions. The plan improved alignment with facility and infrastructure needs and the strategic direction of research initiatives.

In addition to achieving this objective, the following additional accomplishments were achieved in the area of Facility Strategic Planning.

- Substantial support was provided to the development of the Hanford 300 Area Accelerated Closure Plan that was submitted to DOE on June 28, 2000.
- Conceptual Design Reports was updated and submitted in a very short time frame for the DOE-SC approved Mission Need and Validation for two Line item projects that are designated to upgrade core Laboratory Facilities in the 300 Area. If approved, funding totaling $16.4M would be authorized.
- PNNL finalized negotiations with 3rd party investor to construct User Facilities Housing Facility (UHF). This facility addition represents a significant achievement towards the facility strategy of improving support for scientific collaboration at PNNL user facilities.
- PNNL Hosted a Multi-Program, Laboratory Operating Coordinating Council (LOCC) meeting with other Science Laboratory's on June 7, 8, and 9th to begin developing the requirements for infrastructure improvement initiatives at each laboratory site.
- Planning was initiated to define the science facilities required to accomplish future missions of the PNNL including: Post Genomic R&D, Topical Computing, Terra Scale Computational Research, 300 Area Replacement & Modernization Infrastructure, Sustainable Developmental Laboratory, and Classified Computer Systems.

Prioritization and selection of key FY 2000 facility initiatives from the Facility and Infrastructure Plan. Facilities and Infrastructure milestones were identified and provided to DOE-RL on January 31, 2000. The following milestones were selected as indicators for demonstrating the alignment of the Facility Strategic Plan with R&D infrastructure needs. The completion dates follow each item.

- Activate EESB Limited Area Island - Phase 2 (7/31/00)
- 331A Demolition, 331 Chiller Upgrade using 331A Slab (6/30/00)
- Close 3745 (9/15/00)
- Complete OC3 System Upgrade (8/15/00)
- IBX Telephone System Relocation and Upgrade (7/28/00)

Completion of approved milestones (see above). The status of the individual milestones identified above follows:

- Activate EESB Limited Area Island - Phase 2 (7/31/00) - PNNL completed the facility modifications according to schedule, however, based on the request and the benefits to be realized, delayed the moves necessary to activate the LAI Phase 2. This action was intentionally delayed by PNNL to permit the acquisition of additional office space. Research organizations requested that the original plan and schedule be delayed since the acquisition of additional space would reduce cost and cause less disruption to ongoing activities. These savings were primarily realized by avoiding duplicate moves. Since this delay was to accommodate a request to minimize the potential negative effect on R&D activities, the strategic value of consolidating non-lab LAI's will still be realized after the moves are completed and without significant impact to these R&D objectives.
- 331A Demolition and 331 Chiller Upgrade (6/30/00) - This activity was completed as scheduled and significantly contributed strategic value to facility related issues. The restoration and reuse of an existing pad after facility decommissioning achieved three significant outcomes. Cost savings were realized on both projects and the decommissioning of the facility was the first environmental reclamation completed under CERCLA regulations for PNNL. This reclamation is considered precedent setting for dealing with future facility removals of this type on the Hanford site and should significantly reduce projected costs.

- Close 3745 (9/15/00) - This action was completed on August 25, approximately three weeks ahead of the identified date. The closure of this facility will enable transition of the facility for final D&D and reduce PNNL's cost of vacant space beginning in FY 2001.
- Complete OC3 System Upgrade (8/15/00) - This milestone has great strategic significance for the research missions of the Laboratory and will be realized early in FY 2001. The completion of the milestone was delayed due to conflicts between service providers which were second tier subcontractors to PNNL, but which PNNL did not have direct control over. During the performance period, PNNL met and facilitated issue resolution between the providers and our primary subcontractor to keep this effort on track. Eventually, the service contracts were accomplished and the needed capability was installed on September 20, 1999. Acceptance testing began at that time and technical issues between connection points have extended the delay. At this time, technical resolution is continuing and activation of the system is imminent. The delays encountered have detracted from the overall schedule performance however, the actions initiated by PNNL demonstrated leadership towards achieving the higher strategic value.
- IBX Telephone System Relocation and Upgrade - This project was completed on 7/28/00, as planned. The strategic value of this modification included capacity upgrades, revitalized an aging telecommunication system and with its relocation to more suitable mechanical space will allow for increasing the capacity of the Physical Sciences Laboratory facility.

Influence with the Site Finance Board sub-team regarding site infrastructure services. PNNL staff participated on a joint Hanford contractor review team that presented cost analysis reports to the Site Management Board (SMB) on four (4) of 13 services identified for review during FY 2000. The SMB recommended action and/or further study on all four. A fifth presentation was prepared but never presented to the SMB. Reviews were completed on seven of the remaining eight services with a conclusion that no action was required from the SMB but rather cost allocation issues would be worked between the contractors. Agreement by the site contractors that no action by the Site Management Board was necessary, was considered to be equivalent to making the presentation to the SMB. The remaining service (Desktop Services) was not easily identifiable as a single service, thus no action was taken. A list of the services reviewed and comments follows.

- Dosimetry – While costs are perceived to be high, the current allocation methodology is sound. PNNL management will work with DOE-RL on cost reduction opportunities.
- Transportation/Stores – A proposal to reduce costs by roughly $1M was presented.
- Analytical Labs – The SMB tasked DOE-RL's Infrastructure Division to review options for reducing per unit analytical costs.
- Fleet Services – Improved customer communication processes eliminated many perceived issues.
- Occupational Medicine – Hanford legacy costs will be funded on the EM program base. This action is delayed until FY 2002.
- Hanford Reach – The publishers subcontract will be competed for potential cost reduction and the contractor cost allocation will be renegotiated.
- Records Management – The cost allocation methodology was analyzed and agreed-to.
- Waste Generators – Generators will be allowed to obtain services based on individual need rather than from a central provider.
- Emergency Preparedness – The review was completed with no significant findings to report.
- Media Services – The review was completed with no significant findings to report.

- Locksmith – The review was completed with no significant findings to report.
- Desktop Services – A specific service was not identifiable. No review was conducted.
- Fire Department – A recent cost allocation study was reviewed, services and the facility were observed. The review committee's report agreed with prior recommendations.

The overall performance rating for the Operational Excellence Critical Outcome is determined by comparing the total determined value in Table 2.4, to the rating scale in Table 2.5.

Table 2.4. **Operational Excellence Critical Outcome Performance Rating Development**

Element	Adjectival Rating	Value Points	Indicator Weight	Total Points	Objective Weight	Total Points
2.1 Operational Excellence						
2.1 Sustain and enhance operational excellence in safety and health, and environmental protection.						
2.1.1 DOE's evaluation of the overall Contractor performance in the Environmental, Safety, and Health (ES&H) management systems	Outstanding	5.0	60%	3.0		
2.1.2 Demonstrate effectiveness of Integrated Safety Management	Outstanding	5.0	40%	2.0		
			Obj 2.1 Total	5.0	50%	2.5
2.2 Deliver, operate, and maintain an optimum set of facilities and supporting infrastructure that are aligned with current and future mission needs						
2.2.1 DOE's evaluation of the overall Contractor performance in the Facility management system	Outstanding	5.0	50%	2.5		
2.2.2 Identification of facilities and infrastructure that is commensurate with the Laboratory's strategy of becoming the enduring national asset at the Hanford Site	Outstanding	5.0	20%	1.0		
2.2.3 Prioritization and selection of key FY00 facility initiatives from the Facility and Infrastructure Plan	Outstanding	5.0	10%	0.5		
2.2.4 Completion of approved milestones identified in 2.2.3	Outstanding	5.0	10%	0.5		
2.2.5 Influence with the Site Finance Board sub-team regarding site infrastructure services	Excellent	4.0	10%	0.4		
			Obj 2.2 Total	4.9	50%	2.4
					Outcome Total	4.9

Table 2.5. **Operational Excellence Critical Outcome Final Rating**

Total Score	5.0 - 4.5	4.4 - 3.5	3.4 - 2.5	2.4 - 1.5	<1.5
Final Rating	Outstanding	Excellent	Good	Marginal	Unsatisfactory

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