

**FY 2002
Environment, Safety,
Health, Quality, and
Infrastructure
Management Plan
and Execution Plan
for the
Oak Ridge National
Laboratory**

December 2001

**FY 2002
ENVIRONMENT, SAFETY, HEALTH,
QUALITY, AND INFRASTRUCTURE
MANAGEMENT PLAN
AND EXECUTION PLAN

FOR THE

OAK RIDGE NATIONAL
LABORATORY**

December 2001

**Prepared by
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6302
managed by
UT-Battelle, LLC
for the
U.S. DEPARTMENT OF ENERGY
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ACRONYMS AND ABBREVIATIONS

ADS	activity data sheet
B&R	budget and reporting
BES	Office of Basic Energy Sciences
CAS	Condition Assessment Survey
CFC	chlorofluorocarbon
DNFSB	Defense Nuclear Facilities Safety Board (DOE)
DOE	Department of Energy
DOP	dioctyl phthalate
ES&H	environment, safety, and health
ESH&Q	environment, safety, health, and quality
ESHQ&I	environment, safety, health, quality, and infrastructure
ETTP	East Tennessee Technology Park
F&O	Facilities and Operations
FEVA	Facility Environmental Vulnerability Assessment
FEVARI	Facility Environmental Vulnerability Assessment Recommendations for Improvement
FIMS	Facility Information Management System
FRP	Facilities Revitalization Project
FWP	Field Work Proposal
FY	fiscal year
GPE	general-purpose equipment
GPP	general plant project
H&S	health and safety
HEPA	high-efficiency particulate air (filter)
HFIR	High Flux Isotope Reactor
HVAC	heating, ventilating, and air-conditioning
IFEL	Irradiated Fuels Examination Laboratory
IMET	Irradiated Materials Examination and Testing
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
LCAM	Life Cycle Asset Management
LDRD	Laboratory Directed Research and Development
LI	line item
OCB	oil circuit breaker
OIP	Operations Improvement Program
ORNL	Oak Ridge National Laboratory
ORO	Oak Ridge Operations Office (DOE)
OSHA	Occupational Safety and Health Administration
PMTS	Program Management Tracking System
R&D	research and development

ACRONYMS AND ABBREVIATIONS (cont'd)

RPM	Risk-Based Priority Model
S&H	safety and health
SAMS	Space Allocation Management System
SBMS	Standards-Based Management System
UNICALL	Unified Field Budget Call
URL	Uniform Resource Locator
WSSs	Work Smart Standards

ENVIRONMENT, SAFETY, AND HEALTH GOAL STATEMENT

Oak Ridge National Laboratory (ORNL) is committed to excellence in all aspects of environment, safety, health, quality, and operations. This commitment is reflected in the UT-Battelle, LLC Laboratory Agenda that defines our balanced management approach called “Simultaneous Excellence,” which is:

- excellence in science and innovative solutions to complex problems;
- excellence as a leader in efficient operation and protection of workers, the public, and the environment; and
- excellence as a trusted and valued community/regional asset.

The management contract between the Department of Energy (DOE) and UT-Battelle establishes the fundamental environment, safety, health, and quality (ESH&Q) expectations of DOE. The Laboratory has established critical outcomes, objectives, and performance indicators to help achieve the goals defined in the Laboratory Agenda.

EXECUTIVE SUMMARY

The Oak Ridge National Laboratory (ORNL) is a multiprogram science and technology laboratory managed for the U.S. Department of Energy (DOE) by UT-Battelle, LLC. In support of DOE's missions, ORNL conducts basic and applied research and development (R&D) to create scientific knowledge and technological solutions that strengthen the nation's leadership in key areas of science; increase the availability of clean, abundant energy; restore and protect the environment; and contribute to national security.

ORNL is committed to systematically carrying out its mission in a manner that achieves excellence, cost-effectiveness, and competitiveness in R&D, while simultaneously protecting its workers, the public, and the environment. Toward this end, ORNL has adopted the Integrated Safety Management System (ISMS) by Contract (DEAR Clause 970.5204-2) as a management system approach to systematically integrate safety into management tools and work practices.

ORNL systematically and fully integrates safety into management and work practices at all levels so that the mission of ORNL is successfully accomplished while protecting the public, the worker, and the environment. Operations are conducted in compliance with regulations and in a manner consistent with the hazards associated with the work. ORNL systematically evaluates work processes through an ongoing self-assessment program designed to ensure that the mission of the Laboratory is carried out in a safe and effective manner.

This *Environment, Safety, Health, Quality, and Infrastructure (ESHQ&I) Management Plan and Execution Plan* describes the approach used at ORNL to ensure the health and safety of employees and the public, to protect the environment, and to develop and implement a comprehensive integrated planning process consistent with DOE 430.1A, "Life Cycle Asset Management (LCAM)." This plan documents the systems and processes used by ORNL to (1) establish and communicate ESHQ&I expectations and requirements to the ORNL community, (2) identify and secure funding for ESHQ&I activities using risk-based planning and priority setting, (3) conduct R&D activities and operations through integration of ESHQ&I principles in work planning and execution, and (4) assess ESHQ&I performance and provide feedback to promote continuous improvement. The plan was prepared in accordance with guidelines in the *DOE Guidance Manual for the ES&H Planning Process*, and its issuance satisfies the requirement in the DOE-UT-Battelle, LLC Management Contract, I.101 DEAR 970.5204-2 Paragraph C.

The annual requirement for an Environment, Safety, and Health (ES&H) Commitment Information Letter is addressed by this plan. A summary of the major ES&H commitments that were addressed in the FY 2001 work plan and their final end-of-year status is stated in Section 6. Section 7 provides a summary of the major ES&H commitments in the FY 2002 work plan. Significant ES&H vulnerabilities in the FY 2002 work plan are identified in Section 8. This section also provides a disposition status of activity data sheets (ADSs) that were identified as vulnerabilities in the FY 2001 submittal of this plan. The FY 2002 overhead/space charge budget funding and funding provided for Landlord line items, general plant projects, and general-purpose equipment are sufficient to complete the scope of work for the key abatement issues identified in the FY 2001 work plan (Section 6.3.1).

Achieving excellence in ESHQ&I is accomplished through effective interaction between the line organization and the ESHQ&I staff, with employee involvement at all levels. Line management is responsible for fully implementing requirements within its organizations by (1) developing systems and approaches that result in the effective management of risks and (2) creating a culture that effectively integrates work planning, execution of work activities, and performance assessment and feedback. The ESHQ&I staff supports the line organization by providing specialized technical assistance and guidance, interfacing with DOE and external regulators, and providing program oversight necessary to assure effective integration of ESHQ&I management systems into all research and operations activities.

ORNL has a strong base on which to continue development of the ESHQ&I programs as well as the technical resources vital to program development. UT-Battelle deploys management systems as its approach to business management. ISMS ensures full integration of environment, safety, health, and quality (ESH&Q) at all levels within the organization. Development of management systems such as the Standards-Based Management System (SBMS); Roles, Responsibilities, Authorities, and Accountabilities; Facility Use Agreements and the Facility Operations Model; and the Facilities Revitalization Project institutionalizes a method of conducting business that is integral to continuous improvement in Integrated Safety Management (ISM) and the overall ESHQ&I program.

1. INTRODUCTION

Oak Ridge National Laboratory (ORNL) is managed by UT-Battelle, LLC for the Department of Energy (DOE) under Contract DE-AC05-00OR22725. As part of the Management Contract, ORNL has agreed to submit to DOE an Environment, Safety, Health, Quality, and Infrastructure (ESHQ&I) Management Plan and Execution Plan. Issuance of this management plan satisfies the ORNL commitment stipulated in the management contract.

This plan documents the systems and processes used by ORNL to (1) establish and communicate ESHQ&I expectations and requirements to the ORNL population, (2) identify and secure funding for ESHQ&I activities using risk-based planning and priority setting, (3) conduct research and development (R&D) activities through integration of ESHQ&I principles into work planning and execution, and (4) assess ESHQ&I performance and provide meaningful feedback to promote performance improvement. Implementation of the systems and processes described in this document provides the basis by which ORNL ensures the health and safety (H&S) of employees and the public, protects the environment, plans for infrastructure resources, and complies with applicable regulatory requirements.

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2. ESHQ&I MISSION AND PROGRAM APPROACH

The ESHQ&I mission of ORNL is to conduct R&D and operations in a manner that protects the environment, staff, and public, while allowing ORNL to continue to carry out world-class research in a cost-effective, competitive manner.

The mission of infrastructure planning, conducted through the Facilities and Operations (F&O) Infrastructure Planning Division, is to develop and implement a comprehensive/integrated planning process consistent with DOE 430.1A, "Life Cycle Asset Management (LCAM)." The long-term goal is to support DOE critical missions and provide a quality working environment of infrastructure support facilities and systems.

ORNL is committed to the advancement of science and technology while addressing important national and global energy and environmental issues. As DOE's largest multiprogram, nonweapons laboratory, ORNL employs approximately 3800 staff members and annually hosts about 3000 guest researchers from universities and industry. The mission of ORNL is to conduct basic and applied R&D to advance the nation's energy resources, environmental quality, scientific knowledge, educational foundations, and national economic competitiveness. This mission is accomplished with a commitment to excellence in all activities and to cost-effective operation in compliance with applicable ES&H laws and regulations. The diversity of R&D and its support activities creates challenges as well as opportunities for ORNL in the effort to apply ES&H goals and objectives in a manner that supports ORNL's mission and adds value to operational performance.

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3. INTEGRATED SAFETY MANAGEMENT SYSTEM

3.1 PURPOSE AND POLICY

ORNL is committed to systematically carrying out its mission in a manner that achieves excellence, cost-effectiveness, and competitiveness in R&D, while simultaneously protecting its workers, the public, and the environment. Toward this end, ORNL has successfully implemented the Integrated Safety Management System (ISMS) required by Contract (DEAR Clause 970.5204-2).

It is the policy of ORNL to systematically and fully integrate safety into management and work practices at all levels so that the mission of ORNL is successfully accomplished while protecting the public, the worker, and the environment. Operations will be conducted in compliance with applicable regulatory requirements and in a manner consistent with the hazards associated with the work. ORNL will systematically evaluate work processes through an ongoing self-assessment program designed to ensure that the mission of the Laboratory is carried out in a safe and effective manner.

In addition, the policy is to objectively and fully communicate environmental protection and safety and health information to ORNL staff, to subcontractor personnel, to DOE, to applicable stakeholders, and to the public.

3.2 SCOPE

The work conducted at ORNL varies widely in terms of complexity, hazard types and levels, and risk. To provide the tailored approach necessary for effective implementation in the workplace, each line organization determines the need for organization-specific ISMS plans to customize the ISMS principles and core functions to its operations. For complex or special-hazard situations, the line organization determines the need for ISMS plans tailored to specific mission programs or specific facilities.

The ORNL ISMS responsibility applies to all work activities directed by ORNL management and performed by ORNL employees and by guests and visitors at ORNL, as well as the inclusion of provisions into appropriate subcontracts for on-site and off-site activities.

Specific ORNL ISMS Plans are available on the ORNL Internal Network at
<http://svr1.cmo.ornl.gov/isms/index.htm>

This plan defines present and future plans for ORNL environment, safety, health, and quality (ESH&Q) activities. In addition, it serves as a reference for activity data sheets (ADSs) and funding documents that describe ESH&Q activities, schedules, and funded or requested resources.

3.3 LABORATORY OVERHEAD IMPROVEMENT PROJECTS

Operational ES&H improvement initiatives are identified annually which, when completed, will enhance the Laboratory's ISM status. The funded ES&H improvement initiative projects are listed and described in Section 7.4 of this plan. In addition, three ORNL management control issues were recognized in a memorandum issued on October 17, 2001, "Management Control and Financial Management System Review." The following are the issues which, when corrected, will also improve implementation of ISMS for the Laboratory:

Issue 1: ORNL Facilities Revitalization Program

Issue 2: Facility Electrical Upgrades

Issue 3: Nuclear Safety Improvements

Each of these issues has current plans/projects for improvements and corrections.

4. ORNL INFRASTRUCTURE PLANNING

Infrastructure planning defines present and future plans for ORNL facilities and site development. In addition, it serves as a reference source for a broad base of site and facilities characterization data. Future facility and land requirements are determined by the functional and physical adequacy of existing facilities and equipment and by future mission and program plans. The GPP and LI construction projects required to support ORNL's future mission and program plans are described, and the impacts of this construction on the site's assets are summarized. In addition, essential GPE needs and plans are described.

Listed below (and in Table 4.1) are the key planning documents that support infrastructure planning as well as ESH&Q planning. A short description of the referenced document is provided along with a Uniform Resource Locator (URL), if one is available.

4.1 COMPREHENSIVE INTEGRATED PLANNING PROCESS FOR THE OAK RIDGE OPERATIONS SITES

The *Oak Ridge Reservation (ORR) Comprehensive Integrated Plan* is intended to assist DOE and contractor personnel in implementing a comprehensive/integrated planning process consistent with DOE Order 430.1A, "Life Cycle Asset Management." DOE contractors are charged with developing and producing the *ORR Comprehensive Integrated Plan*, which serves as a summary document, providing information from other planning efforts regarding vision statements, missions, contextual conditions, resources and facilities, decision processes, and stakeholder involvement.

The *ORR Comprehensive Integrated Plan* is a planning reference that identifies primary issues regarding major changes in land and facility use and serves all programs and functions on-site, as well as the DOE-ORO and DOE Headquarters. The plan illustrates how the ORR, as a valuable national resource, is and shall be managed based on the principles of ecosystem management and sustainable development and how mission, economic, ecological, social, and cultural factors are used to guide land and facility use decisions. The long-term goals of the comprehensive integrated planning process, in priority order, are to support DOE critical missions and stimulate the economy while maintaining a quality environment. (Available at URL <http://www.ornl.gov/~dmsi/cip/>.)

4.2 ESHQ&I MANAGEMENT PLAN INFORMATION SYSTEM

The ESHQ&I Management Plan Information System was developed to serve as a management decision-making support tool. It accepts and stores data associated with ESHQ&I ADSs either from the ORNL Program Management Tracking System (PMTS) or as direct input information into an ADS. The system accepts the risk matrix scores assigned to each ADS by the ORNL Risk Ranking Board and screens for entry of all pertinent data associated with an ADS and support data validation where possible and appropriate. This system provides flexibility in viewing and editing data with powerful features for querying, indexing, and reporting data. (Available on the Web at URL <http://svr1.cmo.ornl.gov/eshwc/wc.dll?eshweb~TopPage>.)

Table 4.1. List of organizational contacts for documents/databases

Document/Web Address	Organizational Contact	Bldg./MS	Phone	UID*
<i>Comprehensive Integrated Planning Process for the Oak Ridge Operations Sites</i> (September 1999) (http://www.ornl.gov/~dmsi/cip/)	P. D. (Pat) Parr UT-Battelle	Bldg. 1505/MS 6038	576-8123	par
<i>ESHQ&I Management Plan Information System</i> (http://svr1.cmo.ornl.gov/eshwc/wc.dll?eshweb~TopPage)	P. E. (Patty) Cox UT-Battelle	Bldg. 1000/MS 6302	576-4183	pcx
<i>Environmental Management Program Baselines</i> (http://www.bechteljacobs.org/busmgt/baseline/Baselines.html)	D. A. (David) Starling Bechtel Jacobs	Bldg. K-1225/MS 7293	576-6501	sa9
<i>ESHQ&I Budget Formulation Submission for ORNL</i> (http://www.ornl.gov/camext/CAMIndex.htm)	P. E. (Patty) Cox UT-Battelle	Bldg. 1000/MS 6302	576-4183	pcx
<i>ESHQ&I Management Plan and Execution Plan for ORNL</i> (http://www.ornl.gov/camext/CAMIndex.htm)	R. J. (Rick) Forbes UT-Battelle	Bldg. 1000/MS 6302	574-5490	rfs
<i>ORNL Facility Index</i> (http://home.ornl.gov/~q9t/facility/)	D. (Dave) Kennard UT-Battelle	Bldg. 1000/MS 6302	574-9282	k33
<i>ORNL Institutional Plan</i> (http://www.ornl.gov/inst_plan/IP_Outline.html)	M. B. (Bonnie) Nestor UT-Battelle	Bldg. 4500N/MS 6251	574-4173	mnj
<i>ORNL Laboratory Agenda</i> (http://home.ornl.gov/offices/strategic_planning/stratplan/labagenda/lab_agenda.htm)	M. B. (Bonnie) Nestor UT-Battelle	Bldg. 4500N/MS 6251	574-4173	mnj
<i>ORNL Land and Facilities Plan</i> (http://www.ornl.gov/~dmsi/landUse/)	A. R. (Tony) Medley, UT-Battelle P. D. (Pat) Parr, UT-Battelle	Bldg. 1000/MS 6302 Bldg. 1505/MS 6038	574-9156 576-8123	arm par
<i>Oak Ridge Reservation Annual Site Environmental Report</i> (http://www.ornl.gov/Env_Rpt/aser2000/aser2000.htm)	J. F. (Joan) Hughes UT-Battelle	Bldg. 4500S/MS 6137	574-6649	fhu
<i>Oak Ridge Reservation Management Plan</i> (http://home.ornl.gov/general/orrmp/)	P. D. (Pat) Parr UT-Battelle	Bldg. 1505/MS 6038	576-8123	par
<i>ORNL Strategic Facilities Plan</i> (http://www.ornl.gov/~dmsi/strategic_plan/index.html)	T. E. (Tim) Myrick UT-Battelle	Bldg. 1000/MS 6336	241-4597	uyt
<i>ORNL Parking Lot and Traffic Flow Plan</i> (http://www.ornl.gov/~dmsi/parking/)	F. S. (Faye) Brewer UT-Battelle	Bldg. 1000/MS 6302	241-4710	sni

*Users external to ORNL should add the extension @ornl.gov to all UIDs (e.g., par@ornl.gov).

4.3 ENVIRONMENTAL MANAGEMENT PROGRAM BASELINES

The Environmental Management Baseline is a fiscal year baseline used by the Bechtel Jacobs Company, LLC to plan for completing the cleanup of EM work in the scope of the program. The objective of the baseline is to contract for safely accelerating cleanup and maximizing cost effectiveness through the use of competitive subcontracting. (Available on the Web at URL <http://www.bechteljacobs.org/busmgt/baseline/Baselines.html>.)

4.4 ESHQ&I BUDGET FORMULATION SUBMISSION FOR ORNL

ORNL's annual *ESHQ&I Budget Formulation Submission* is developed in accordance with the annual *DOE Guidance Manual for the ES&H Planning Process*. ESHQ&I activities are identified to ensure the health and safety of employees and the public; protection of the environment; and compliance with applicable laws, regulations, DOE policies and orders, and other ESHQ&I requirements while carrying out the site's missions and the planning for ORNL infrastructure needs that support R&D as well as the environment, safety, health, and quality. This plan is developed using risk-based planning and priority-setting methodologies to (1) establish and communicate ESHQ&I expectations to all stakeholders, (2) support the development of Departmental budgets and secure funding for ESHQ&I programs and activities, (3) support the integration of ESHQ&I principles in site-wide work planning and execution, and (4) assess ESHQ&I performance and provide feedback to promote continuous improvement.

(Available on the World Wide Web at URL <http://www.ornl.gov/camext/CAMIndex.htm>.)

4.5 ESHQ&I MANAGEMENT PLAN AND EXECUTION PLAN FOR ORNL

The annual *ORNL ESHQ&I Management Plan and Execution Plan* was developed to describe the approach used at ORNL to ensure the health and safety of employees and the public, protect the environment, comply with contractual requirements set forth in the Work Smart Standards (WSSs) agreed upon by the contractor and DOE, and manage physical assets and infrastructure from acquisition through operations and disposition. This plan documents the systems and processes used by ORNL to (1) establish and communicate ESHQ&I expectations and requirements to the ORNL community, (2) identify and secure funding for ESHQ&I activities using risk-based planning and priority setting, (3) conduct R&D activities and operations through integration of ESHQ&I principles in work planning and execution, and (4) assess ESHQ&I performance and provide feedback to promote continuous improvement. The plan is prepared annually in accordance with guidelines in the annual *DOE Guidance Manual for the ES&H Planning Process*, and its issuance satisfies the requirement in the DOE/UT-Battelle Management Contract, I.101 970.5204-2 (c). ORNL has an integrated ESHQ&I database system that enables the Laboratory to (1) meet major ESHQ&I commitments, (2) address key issues, (3) manage unfunded ESHQ&I risks, (4) systematically provide information for the reduction of ESHQ&I risks, and (5) establish and maintain stakeholder confidence.

(Available on the Web at URL <http://www.ornl.gov/camext/CAMIndex.htm>.)

4.6 ORNL FACILITY INDEX

The ORNL Facility Index is an internally available Web-based database of ORNL facilities with related links that include ORNL site maps, the ORNL Facilities Management Database, the ORNL Area Responsibility Listing, the ORNL Condition Assessment Survey (CAS), the ORNL Space Allocation Management System (SAMS), the Property Management System (PRISM), GLI Web - General Locator Information, and Whos. Photographs of the facilities are also available at this index. (Available at <http://home.ornl.gov/~q9t/facility/>.)

4.7 ORNL INSTITUTIONAL PLAN

ORNL produces an institutional plan each year to convey information about the Laboratory to DOE. The institutional planning process provides a means for DOE to consider the Laboratory as an institution (rather than as a collection of programs) and to review its mission, its health as an institution, and its plans for the future. DOE approval of ORNL's institutional plan indicates that the Laboratory's mission, vision, and strategic plan are aligned with Departmental needs and plans. (Available on the Web at URL http://www.ornl.gov/inst_plan/IP_Outline.html.)

4.8 ORNL LABORATORY AGENDA

UT-Battelle's plan for ORNL is guided by a commitment to achieving simultaneous excellence in the areas of science and technology, Laboratory operations and ES&H, and community service. The UT-Battelle Leadership Team has developed a Laboratory Agenda to provide a structured framework for the long-term initiatives, critical outcomes, and near-term actions through which it will deliver on this commitment. The Laboratory Agenda is focused on the most significant activities that UT-Battelle must accomplish to deliver on its vision of simultaneous excellence. It includes clear statements of the primary results that will be delivered to DOE over the next few years. (The URL is http://home.ornl.gov/offices/strategic_planning/stratplan/labagenda/lab_agenda.htm.)

4.9 ORNL LAND AND FACILITIES PLAN

The *ORNL Land and Facilities Plan* provides current information concerning DOE-ORO reservation land use development, integrated strategic facilities planning, cost and schedules for planned projects, and conclusions and recommendations. The plan contains maps and tables describing major facility systems and structures. (Available at URL <http://www.ornl.gov/~dmsi/landUse/>.)

4.10 OAK RIDGE RESERVATION ANNUAL SITE ENVIRONMENTAL REPORT

This document contains a summary of environmental monitoring activities on the ORR and its surroundings. The monitoring and documentation criteria are described within the requirements of DOE Order 5400.1, "General Environmental Protection Program." The results summarized in this annual report are based on the data collected prior to and through the reported year. (Available at URL http://www.ornl.gov/Env_Rpt/aser2000/aser2000.htm.)

4.11 OAK RIDGE RESERVATION MANAGEMENT PLAN

The primary purpose of this management plan is to define responsibilities and authority for ORR management. The management plan treats the ORR as a single site wherever possible and addresses roles and responsibilities for managing the physical and human resources of the reservation on both a day-to-day and long-term basis. The focus of the document is to address general overall reservation policy and management, particularly as it relates to the portion of the ORR outside the immediate site boundaries.

(Available on the Web at URL <http://home.ornl.gov/general/orrmp/>.)

4.12 ORNL STRATEGIC FACILITIES PLAN

The *ORNL Strategic Facilities Plan* provides the following: a brief overview of the Facilities Revitalization Project (FRP) team established to accomplish the revitalization mission; a review of the current inventory and condition of existing ORNL facilities, as well as the programmatic mission drivers that are the basis for future facilities needs; and an outline of the specific facilities consolidation, upgrade, and new construction needs that leads to the overall Master Plan for ORNL development. The preliminary cost and schedule estimates for completing that Master Plan are then provided, followed by a short discussion of the conclusions and recommendations of the strategic planning exercise.

(Available at URL http://www.ornl.gov/~dmsi/strategic_plan/index.html.)

4.13 ORNL PARKING LOT AND TRAFFIC FLOW PLAN

The *ORNL Parking Lot and Traffic Flow Plan* addresses the impact of the FRP on Laboratory parking areas and traffic flow. Included in the plan are activities that will be implemented to properly mitigate the impact to employees and visitors, including parking lot construction and operations, a summary of parking supply and demand, new transportation initiatives, communication, and site access and control.

(Available on the Web at URL <http://www.ornl.gov/~dmsi/parking>.)

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5. RESOURCE PLANNING, PRIORITIZATION, AND ALLOCATION

The ORNL ESHQ&I management planning process is supportive of DOE's annual ESHQ&I budget formulation planning process. The budget is prepared consistent with guidance provided in the *DOE Guidance Manual for the ES&H Planning Process* with the guidance for providing ESHQ&I budget planning information incorporated annually in the DOE Controller's Unified Field Budget Call (UNICALL), and with specific guidance from the DOE-HQ Office of Science.

The ORNL ESHQ&I budget formulation and management planning process provides the planning structure and tools needed to help identify and prioritize ESHQ&I needs, make and communicate cost-effective ESHQ&I risk-management decisions, integrate ESHQ&I into all activities and operations, and establish accountability for ESHQ&I performance. ESHQ&I resource planning and prioritization are implemented in a manner consistent with guidance from DOE, as provided in the *DOE Guidance Manual for the ES&H Planning Process*, the Office of Environmental Management Budget Formulation Guidance, and any supplemental guidance received from individual DOE program offices.

The process generally consists of the following steps:

- C ESHQ&I needs assessment,
- C ADS preparation,
- C risk-based prioritization of activities and risk-management decision making, and
- C ESHQ&I budget formulation and development of top-level ESHQ&I budget summaries (annually).

5.1 ESHQ&I NEEDS ASSESSMENT

ESHQ&I needs assessments are performed by ORNL organizations and line management to identify the activities, systems, and programs needed to ensure the effective management of ESHQ&I risks and to create a culture within ORNL that effectively integrates employee protection into work planning and the execution of work activities. These assessments are an ongoing and integral part of ORNL work and mission activities and include identification of risks associated with implementing planned mission activities, applicable policies and standards, emerging or strategic issues, and performance expectations. In response to identified ESHQ&I needs, line organizations and ES&H oversight and support organizations identify cost-effective programs and activities to address the existing and anticipated risks, achieve performance expectations, and comply with applicable policies and standards.

5.2 ACTIVITY DATA SHEET PREPARATION

ESHQ&I ADSs contain the essential scope, schedule, cost, and management information necessary for ORNL organizations to support planning and provide input to the budgeting process. ADSs are

prepared for all ESHQ&I programs and activities needed to operate ORNL in a manner that protects the employees, the public, and the environment and ensures adequate infrastructure resources to meet the mission of the Laboratory.

ADSs are prepared to document those programs and activities selected to address the identified ESHQ&I needs. Each ADS contains key information such as a description of the activity; major milestones and deliverables; estimated costs, funding source, and types of funds associated with the activity; and the risk/benefit score for the activity. ADSs are packaged at a level consistent with the manner in which programs and activities are organized and managed. They correspond to decision units in the overall planning and budgeting processes for ORNL.

5.3 RISK-BASED ACTIVITY PRIORITIZATION

The ORNL Risk Ranking Board uses a Risk-Based Priority Model (RPM) to perform risk evaluations of all ES&H, infrastructure, and overhead ADSs. Using the RPM, a risk-reduction benefit score is derived for each ADS, and ADS scores are used to establish preliminary priority lists that are reviewed by senior management. Priority adjustments are made as necessary in consideration of additional planning factors.

Risk-based prioritization of ESHQ&I activities supports ORNL's ability to allocate resources to the projects or activities that will produce the maximum feasible benefits to the organization. Risk prioritization is the basis for work planning and scheduling decisions for overhead-funded activities at ORNL and is used in conjunction with other planning considerations, such as resource constraints. Where available resources do not allow full and immediate implementation of all proposed ESHQ&I programs and activities, risk-based prioritization provides the mechanism for the allocation of resources.

5.4 RESOURCE ALLOCATION

ADSs are produced for all direct-funded ESHQ&I activities, both target and unfunded, and reflect projected out-year funding for target as well as unfunded activities. ADSs are also produced for all indirect funded (e.g., overhead) activities for which funding has been requested. The annual cost profile for all ESHQ&I activities to be funded is consistent with the overall funding decisions and target budgets for the planning period.

Resource planning and allocation are done on the basis of ESHQ&I programs essential for compliance, fulfillment of ORNL missions, and assurance of the safety and well-being of ORNL personnel, the public, and the environment. The identification of target and unfunded ESHQ&I activities is useful to ORNL management to (1) identify unfunded, risk-significant activities, (2) discuss alternative risk-management strategies, and (3) evaluate alternative resource allocation strategies.

5.5 PROGRAM MANAGEMENT TRACKING AND CHANGE CONTROL SYSTEMS

The value of having ESHQ&I embedded in the business cycle is demonstrated at ORNL. Achieving excellence in ESHQ&I is accomplished through effective interaction between the line organizations and ESHQ&I staffs and includes employee involvement at all levels. Line management is responsible for fully implementing ESHQ&I requirements by developing systems and approaches that result in the effective management of risks and by creating a culture that effectively integrates employee and environmental protection into work planning, execution of work activities, and performance assessment and feedback.

ORNL management has recognized that it is beneficial, cost effective, and efficient to integrate ESHQ&I management data into the information systems used at each Oak Ridge facility to manage and track projects for budgeting purposes. PMTS has been developed at ORNL to track projects and their requested funds. This includes information relative to ES&H and infrastructure support activities.

An important element in the planning and budgeting system is the control of significant funding allocation changes made during the life of a project/activity documented on an ADS. Laboratory overhead budgets are established prior to the beginning of a planned fiscal year. The DOE ORNL Site Office reviews and concurs with the annual overhead budget. The site office is notified for concurrence when a change or reallocation of funds in the overhead budget of greater than or equal to \$250K is proposed. Initial allocation and subsequent reallocation of capital asset (GPP and GPE) funds are approved by the site office.

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6. FY 2001 ESHQ&I PERFORMANCE SUMMARY

6.1 SUMMARY OF ESHQ&I INDIRECT ACTUAL COSTS FOR THE PRIOR YEAR (FY 2001)

NOTE: Planned FY 2001 ESHQ&I budget data in Section 6 contains the original data in the FY 2003 Budget Formulation Plan submitted in March 2001. Sections 6.2 and 6.3 explain significant differences between planned and actual FY 2001 costs and funding.

Indirect target ADSs are those activities being funded by ORNL's overhead budget allocation. Typically, these activities are core functions required to achieve and maintain compliance to requirements set forth in the WSSs. Indirect unfunded activities are unfunded supplemental and new activities that would improve compliance and infrastructure systems.

Actual FY 2001 ESHQ&I indirect expenditures (Laboratory Overhead) are shown in Table 6.1.

Table 6.1		
Actual FY 2001 ESHQ&I Indirect Expenditures (Laboratory Overhead)		
Activity	ESH&Q (ONLY) (\$ in 000s)	ESHQ&I (BOTH) (\$ in 000s)
Environmental Protection and Waste Services Division	6,965	
Health Services Division	2,820	
Laboratory Protection Division	6,138	
Operational Safety Services Division	7,270	
Quality Services Division	2,515	
OSHA/ES&H Corrective Actions	206	
Management Systems and Training Services	431	
Engineering Division		19
Low Value Equipment		275
Laboratory Logistical Services Division		5,091
Plant and Equipment		489
HFIR Process Waste Line Replacement		1,727
HFIR Operational Groundwater Monitoring Program		114
Issues Related to HFIR Tritium Contamination		947
Environmental Monitoring Management Information System (EMMIS)		100
Total	\$26,345	\$8,762

Actual ESHQ&I indirect expenditures (from Space Charge funds) for FY 2001 were as indicated in Table 6.2.

Table 6.2 Actual FY 2001 ESHQ&I Indirect Expenditures (from Space Charge Funds)		
Activity	ESH&Q (ONLY) (\$ in 000s)	ESHQ&I (BOTH) (\$ in 000s)
Laboratory Protection (for Fire Protection Engineering)	376	
Infrastructure Planning Division		768
Engineering Division		257
Facilities and Operations		15,981
Facilities Revitalization		1,643
Deactivation		2,267
Vacant Space Costs		2,376
Special Requirements		2,624
Total	\$376	\$25,916

6.2 SUMMARY OF ESHQ&I DIRECT ACTUAL COSTS FOR PRIOR YEAR (FY 2001)

Landlord funding (direct costs) for ORNL is through the DOE-SC Office of Basic Energy Sciences (BES). BES supports a broad spectrum of research in the physical sciences at ORNL through its subprograms in materials sciences, chemical sciences, and engineering and geosciences. The following tables are derived from the planning base systems and documentation for Landlord LIs, GPPs, and GPEs. Planned costs are from the March 2001 FY 2003 ESHQ&I Budget Formulation Submission. These costs are compared to actual direct costs for FY 2001. Table 6.3 contains a listing of planned and actual direct costs for FY 2001 by program elements. Table 6.4 contains a listing of individual LIs, GPPs, and GPE with planned and actual costs for FY 2001.

6.3 FY 2001 ESHQ&I ABATEMENT PERFORMANCE

Several key abatement issues were addressed through the ORNL FY 2003 ESHQ&I Budget Formulation Submission reported in March 2001. ADSs are discussed in this submission to address these key issues.

Table 6.3. Planned and Actual Direct Costs for FY 2001 by Program Elements

(\$ in 000s)

Program	From the March 2001 FY 2003 ESHQ&I Budget Formulation Submission	Carryover/New FY 2001 Cost	FY 2001 Actual Cost From Table 6.4	Explanations of Categories
	FY 2001 Planned Direct Budget			
HFIR Operating Cost	12,196		12,196	HFIR Operating Costs - HFIR ES&H operating cost is \$12,196K as identified on ADS E93D0021, "High Flux Isotope Reactor Operation." This funding recognizes costs for ES&H-related activities that would be funded through the Basic Sciences Program activities.
SNS (ESHQ Services)	1,165		1,165	SNS (ESHQ Services) - These cost are specific for ESH&Q planning and oversight for the SNS project during the construction phase.
KG Program Cost (LI)	6,627	824	2,498	KG Line Item Cost - Four LI projects accrued costs during FY 2001. Three of the projects (Electrical Systems Upgrade, Fire Protection Systems Upgrade, and Laboratory Facilities HVAC Upgrades) are ongoing. The Roofing Replacement LI was completed with a total of 1,126,510 square feet of roofing replaced during the project cycle.
KC Program Cost ESHQ&I (GPP)	4,550	397	1,985	KC GPP ESHQ&I Cost - The Chemical Reuse Center was completed. Two projects were either delayed or deferred.
KC Program Cost ESHQ&I (GPE)	455	220	1,835	KC GPE ESHQ&I Cost - The SF6 Breaker project was completed. Three ongoing projects include the access controls installation, #6 boiler installation in the steam plant, and breaker procurement for the City of Oak Ridge.
KC Program Cost Infrastructure Only (GPP)	1,900	3,659	4,742	KC GPP Infrastructure Only Cost - The Neutron Science Support Facility, HFIR Cooling Tower, Environmental and Life Sciences Laboratory, and the 6th Street parking lot were completed. Two building facility projects are ongoing (Advanced Materials Characterization Laboratory and the Laboratory Expansion Nanoscience Metrology). The remaining projects are in support of parking and entrance/egress associated with the Laboratory Revitalization Program.
KC Program Cost Infrastructure Only (GPE)	1,245	621	1,042	KC GPE Infrastructure Only Cost - The projects identified as infrastructure only do not have significant ESH&Q drivers. Six GPE projects were completed with two projects ongoing and one project deleted.
Total KG/KC Program Elements	28,138	5,721	25,463	

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Table 6.4. FY 2001 Direct Program Planned vs Actual Cost for ESHQ&I Landlord Activities
(\$ in 000s)

Activity	Type	Planned FY Cost	New/Carryover FY Cost	Actual FY Cost	Status	Comments and/or Explanations of Significant Variances
KG Program ESHQ&I Landlord Line Item Program						
Electrical Systems Upgrade	LI	2,700		1,182	Ongoing	WBS 1.1.1 - Rebuild overhead Feeders - approximately 6.9% complete. WBS 1.1.2 - Metering system design complete. Procurement packages issued for CFC. Bid to be awarded by 12/7/01. WBS 1.1.3 - Upgrade Building Electrical Service Entrances and WBS 1.1.4 Substation 4909 are 33% complete.
Fire Protection Systems Upgrade	LI	380		144	Ongoing	Design package for 16-inch water main replacement is 60% complete. The PEP has been approved by DOE. The Value Engineering Assessment has been completed and considerations reflected in the design.
Laboratory Facilities HVAC Upgrade	LI	350		348	Ongoing	The project design was 90% complete vs the scheduled 70% complete. Directive authorization was received 12/7/00. A-E contract was awarded on 2/1/01. CD-2 was approved on 6/21/01. Bid packages were provided to potential bidders on 10/15/01.
Replace Deteriorated Roofing	LI		824	824	Complete	1,126,510 square feet of deteriorated built-up shingle and sheet metal roofing were removed from ORNL buildings and replaced with new roofing. Buildings were reroofed on a priority basis with roofs in the worst condition completed first.
TOTAL	LI	3,430	824	2,498		
KC Program ESHQ&I Landlord GPP Program						
Lambert Quarry Signage and Fencing	GPP	165	-161	3	Deferred	Fencing project deferred until out-year funding is identified.
Fire Protection Systems Upgrade	GPP	550	25	416	Delayed	Completion delayed due to interface with HFIR operational readiness review.
East Campus Electrical Systems Upgrade	GPP	300	135	322	Ongoing	Continuing project for electrical service to new private sector/DOE facilities.
East Campus Infrastructure Improvements	GPP	400	-400	0	Change	Scope change - refer to infrastructure only projects for parking lot, signage, and entrance projects.
Open Campus Improvements - Fencing	GPP	420	-420	0	Deleted	This project was cancelled based on current assessment of security requirements.
Chemical Management Center, Building 7013	GPP	100		99	Complete	Center complete and in operation.
Upgrade Reservoir # 1	GPP		1,218	1,145	Ongoing	Construction is 95% complete. TEC of this project has been reduced from \$1,700K to \$1,450K.
TOTAL	GPP	1,935	397	1,985		
KC Program ESHQ&I Landlord GPE Program						
Backup Diesel Generator For #6 Boiler	GPE	250		213	Ongoing	Generator has been procured. Installation will be completed in FY 2002.
Open Campus Improvements - Access Controls	GPE	1,071		1,398	Ongoing	Funding for this project has been increased to \$1,500K in FY 2001.
Primary Substation SF6 Breakers	GPE	379		220	Complete	This project provided for the replacement of three breakers in the primary substation with SF6 breakers.
City of Oak Ridge Breakers	GPE		220	4	Ongoing	This project will provide three replacement breakers for SF6 breakers promised to the City of Oak Ridge, which will be installed in the ORNL primary substation.
TOTAL	GPE	1,700	220	1,835		
KC Program Infrastructure Only GPP Program						
7600 Area Office Building	GPP	300	-300	0	Deleted	Project deleted - personnel to be house in the Research Office Building.
4500N Parking Lot Extension	GPP		550	178	Ongoing	Construction 20% complete.
6026 Gravel Lot Extension/Paving	GPP		620	163	Ongoing	Construction 20% complete.
ORNL Bethel Valley Road Signs	GPP		125	59	Ongoing	Design 30% complete.
Miscellaneous Area Parking Lots	GPP		175	159	Complete	Construction of 6th Street lot complete.
6026 North Parking Lots	GPP		55	22	Ongoing	Design 90% complete.
5th Street South Side Avenue Parking	GPP		10	0	Ongoing	Field surveying completed.
5th Street Entrance	GPP		40	7	Ongoing	Design 20% complete.
Building 7602 High Bay Upgrade	GPP	200	0	29	Ongoing	This cost is for design of initial facility modifications.
HFIR Cooling Tower Replacement	GPP	2,250	1,211	3,284	Complete	Project complete except for final testing - minor claims pending resolution. TEC reduced \$750K to \$4,050K.
Advanced Materials Characterization Laboratory	GPP		560	78	Ongoing	Design 30% complete for a facility to house sensitive materials characterization instruments.
Lab Expansion Nanoscience Metrology	GPP	607	0	172	Ongoing	Requisition clean room could not be delivered in FY 2001.
Neutron Science Support Facility	GPP		18	18	Complete	This cost represents final closeout of outstanding commitments.
Environmental and Life Sciences Laboratory Facility	GPP		395	395	Complete	Installation of laboratory casework added to project scope in FY 2001.
Building 1061 Modification	GPP		200	178	Ongoing	Construction is 95% complete.
TOTAL	GPP	3,357	3,659	4,742		
KC Program Infrastructure Only GPE Program						
Internet Firewall	GPE	94		0	Deleted	Transferred to programmatic funding.
LDRD - General Purpose Equipment	GPE	70	18	81	Complete	LDRD GPE projects were identified and fully costed.
Dry Chemical Processing Station	GPE	382	62	433	Complete	Procurement and installation of station for micro-fabrication support infrastructure.
SAP Equipment	GPE		202	202	Complete	Identified equipment was procured and installed.
Heavy Truck, 44.3K GVW Mod Bed	GPE		66	66	Complete	Truck procured and in operation.
Café Condensers and Evaporators	GPE		14	14	Ongoing	Systems procured with approximately 50% installation.
LERC Data Acquisition System	GPE		42	42	Complete	Procurement and installation of LERC computer, drive, printer, and other associated hardware.
8,000 Gallon Ethanol Tank	GPE		107	107	Complete	Procurement and installation of ethanol fuel tank for full load deliveries from E85 supplier.
CFC Chiller Building 7910	GPE		110	97	Ongoing	System procured with approximately 80% installation.
TOTAL	GPE	546	621	1,042		

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ORNL possesses one of the oldest physical plant facilities within the DOE system. About one-third of ORNL's total existing buildings are over 40 years old, and DOE capital expenditures to upgrade and replace ORNL facilities have been only a small fraction of those in normal industrial practice. Thus, ORNL has accumulated a substantial legacy of ES&H problems for correction. The existing buildings, utilities, and equipment require substantial maintenance cost to ensure reliability to continue R&D efforts in an environmentally and worker-safe condition. The ESHQ&I process has been initiated at ORNL to provide a means of reporting infrastructure planning and budgeting information in an integrated, efficient, timely, and consistent manner that will support ORNL and DOE budgetary needs and requests. Many infrastructure activities may have an impact on the environment and on the safety and health of site workers and the public. Similarly, ES&H requirements and needs drive many infrastructure activities. Many infrastructure activities identified in the development of the FY 2003 Budget Formulation Plan were driven by ES&H needs.

The current conditions of ORNL facilities and infrastructure and the future program needs of the ORNL research community point to requirements for significant upgrades and replacement of many of the existing Laboratory facilities. In response to this need, the Facilities Revitalization Project has been established by UT-Battelle to define and implement an integrated approach to exiting old facilities and constructing new facilities.

The UT-Battelle facilities revitalization approach is to provide new integrated facilities constructed in close proximity to the existing ORNL strategic research facilities, utilizing a combination of DOE, State of Tennessee, and private sector financial resources. UT-Battelle would focus DOE capital funding on capabilities that are not likely to be financially or technically feasible by third parties, use State funds for the type of shared scientific facilities appropriate for collaborative research, and use private sector construction for light laboratory and office support needs that accompany research efforts. This approach will result in a modernized physical plant, eliminating older, high-maintenance facilities with many of the legacy ES&H problems.

A key objective of the ORNL Landlord Program is to achieve timely and efficient utilization of available capital funding. The LCAM Performance Measure PM 3.1 specifies that 50% of available capital funding should be costed to achieve satisfactory performance. ORNL's objective is to cost at least 65% of available capital funding. Table 6.5 reflects the costing level achieved in FY 2001.

Table 6.5 FY 2001 Capital Funding Costs			
Funding Category	Available Funding (\$ in 000s)	Actual Cost (\$ in 000s)	% Costed
MEL/FS Line Item	8,147	2,529	31.0%
General Plant Projects	9,441	6,727	71.3%
General-Purpose Equipment	3,494	2,883	82.5%
Total	\$21,082	\$12,139	57.6%

Overall, 57.6% of available Landlord capital funding was costed in FY 2001. Opportunities for improvement exist in the line item costing area. Line item project costing did not meet objectives. A primary driver behind this problem is the delay of initiation of project activities awaiting action on a myriad of new project reviews instituted by DOE Headquarters, including External Independent Reviews, Independent Project Reviews, and Critical Decision Reviews. These reviews were required subsequent to the development of project baselines for all FY 2001 funded line items and were not included in project schedules. Resolution of comments from the Independent Project Review delayed start of design until late in the fiscal year. Time for required reviews will be incorporated in future project baselines.

6.3.1 FY 2001 Key Abatement Issues

The following ADSs are projects having a primary ESH&Q driver providing improvements to either core facility operations systems or for compliance with requirements as identified in the Laboratory's Standards-Based Management System.

Electrical Systems Upgrade (C97D0106) (LI)

This project provides significant restoration and expansion of the ORNL electrical distribution system to assure continued operation in support of the research and operation missions of the Laboratory. (Ongoing project: Full description in Section 7.4, FY 2002 Planned ESHQ&I Abatement Activities)

Status: The project completion status is as follows: (1) WBS 1.1.1 overhead feeders 244 and 264 upgrade was initiated and is 6.9% complete; (2) WBS 1.1.2 design for the electrical metering system is complete; (3) WBS 1.1.3 for building service entrances and WBS 1.1.4 for substation 4909 restoration is 33% complete.

Fire Protection Systems Upgrade (A99D0018) (LI)

The mission of this project is to provide ORNL with improved, more reliable fire alarm and suppression capabilities by replacing deteriorated, obsolete systems, replacing the single 16-inch water main in the east central section of ORNL with a looped system, and extending coverage of automatic alarm systems and sprinkler systems to areas not previously served. (Ongoing project: Full description in Section 7.4, FY 2002 Planned ESHQ&I Abatement Activities)

Status: The design package for the 16-inch water main replacement is 90% complete. The Performance Evaluation Plan was approved by DOE. The Value Engineering Assessment has been completed and considerations are reflected in the design.

Laboratory Facilities HVAC Upgrade (A99D0017) (LI)

This project will upgrade heating, ventilating, and air-conditioning (HVAC) systems that serve most of ORNL's major multiprogram research and related support facilities that have been in service for over 30 years and are in need of renovation, upgrade, or replacement due to age. (Ongoing project: Full description in Section 7.4, FY 2002 Planned ESHQ&I Abatement Activities)

Status: The project design is 90%, with bid packages provided to potential contractors on October 15, 2001.

Replace Deteriorated Roofing (S97D0029) (LI)

This project involves the replacement of deteriorated roofs on buildings and facilities throughout the ORNL complex. Most of the roofs at the complex have been in service for over 30 years and, because of deterioration, have developed numerous leaks. In many instances, these leaks have adversely affected equipment, records, and research, as well as the health and safety of personnel working within the facilities.

The scope of this project includes the replacement of built-up roofing, including removal and disposal of existing membrane and insulation, inspection and repair of damaged deck, and installation of new insulation and membrane with associated flashing and trim. A small percentage of the total roof replacement is accomplished using a polyurathane foam system that is applied over existing roof systems.

Status: Deteriorated, built-up shingle and sheet metal roofing (1,126,510 square feet) has been removed from ORNL buildings and replaced with new roofing. The project is complete.

East Campus Electrical Systems Upgrade (AA0D0058) (GPP)

This project will provide the resources necessary to extend the existing 13.8-kV electrical feeder No. 254 into the new east end campus area and set transformer stations as needed to provide electrical service to new facilities to be located there. For aesthetic purposes, the new electrical services will be run underground in a concrete ductbank and placed in an established utility easement that will be flexible enough to provide for future expansion within the area without requiring constant utility relocations. (Ongoing project: Full description in Section 7.4, FY 2002 Planned ESHQ&I Abatement Activities)

Status: The construction contract has been awarded, and the contractor mobilized on the job site October 18, 2001.

Chemical Management Center, Building 7013 (AA1D0004) (GPP)

The Chemical Management Center was established in Building 7013 to provide active management of excess chemicals. The management of the center will locate new users for the chemicals within, and outside of, the DOE system.

Status: Complete. The center is currently in operation for the collection of chemicals. An Operations Improvement Program (OIP) project was approved for FY 2002 to establish systems and methods of redistribution of collected chemicals. (Refer to Section 7.4 for ESH&Q OIP funded activities.)
Operations Improvement Program

Upgrade Reservoir No. 1 (S97D0021) (GPP)

This project will provide a new 1.5-million-gallon steel water reservoir adjacent to the existing 3-million-gallon No. 1 water reservoir. The reservoir serves the Bethel Valley portion of the Laboratory and provides water storage capacity for both operational needs and fire protection purposes. (Ongoing project: Full description in Section 7.4, FY 2002 Planned ESHQ&I Abatement Activities)

Status: The construction of the reservoir is complete with minor punch list items to correct.

Backup Diesel Generator For No. 6 Boiler (A99D0067) (GPE)

The backup diesel generator for the steam plant No. 6 boiler is required to make a complete transition to natural gas as the primary fuel. (Ongoing project: Full description in Section 7.4, FY 2002 Planned ESHQ&I Abatement Activities)

Status: The contract has been awarded, and the contractor mobilized at the job site on October 18, 2001. The generator has been procured. Installation will be completed in FY 2002.

Access Controls–Open Campus Improvements (AA0D0084) (GPE)

This project provides access control features that eliminate the need for perimeter fencing at ORNL, except at selected facilities. Proximity cards and administrative means will be utilized for access control. This project provides the necessary badge reader systems for Laboratory buildings.

Status: 98% of the allocated funding for access control features was expended. Completion of remaining activities will be completed within the first quarter of FY 2002.

Primary Substation SF6 Breakers (A99D0033) (GPE)

This project replaces three existing 161-kV oil circuit breakers (OCBs) with three new surplus SF6 insulated breakers in the ORNL Primary Substation. The breakers replaced are the three power transformer primary breakers (874, 884, and 894). The work included removal, transport, and disposition of the oil from the old breakers, removal of the existing OCBs and associated buswork, installation of new concrete pads, installation of the new SF6 breakers, reinstallation of associated buswork connections, and installation of new control cables to the existing 0901 control building. The installation of the power transformer No. 3 breaker required the removal of an existing switch support structure and foundations and the relocation of existing metering for current transformers.

Status: Complete. Breakers have been replaced and are in operation.

City of Oak Ridge Breakers (AA1D0026) (GPE)

ORNL received five SF6 breakers from the East Tennessee Technology Park (ETTP) for upgrades in the primary substation. The City of Oak Ridge was promised three of these breakers. In order to

meet this commitment, ORNL will purchase new breakers for Oak Ridge to specifications requested by the City. This will permit the installation of matching breakers in the ORNL Primary Substation. (Ongoing project: Full description in Section 7.4, FY 2002 Planned ESHQ&I Abatement Activities)

Status: The breakers are currently being fabricated and will be turned over to the City of Oak Ridge in January 2002.

6.3.2 Treatment of Key Abatement Issues

Compliance with ESHQ&I regulations, orders, and procedures is the responsibility of ORNL line management. Excellence in ESHQ&I is achieved through close cooperation with ESHQ&I professional and technical staff members. An ADS describes each ESHQ&I activity, associated milestones, risk of not implementing or continuing activity, and activity funding requirements and funding sources. Risk-based ranking of programs and activities was performed to ensure that activities providing the highest-risk benefit were funded from the limited pool of funding resources.

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7. FY 2002 ESHQ&I EXECUTION PLAN

7.1 BUDGET ANALYSIS AND IMPACTS

7.1.1 Major Planning Assumptions

Planning assumptions are based on direct guidance from the Cognizant Secretarial Offices funding programmatic activities at ORNL. In addition, DOE-ORO funding guidance is followed to assure consistency of Field Work Proposals (FWPs), ADSs, Capital Equipment Requests, GPP Requests, and LI requests. All overhead planning assumptions are based on a prioritization of risk to the mission of ORNL, infrastructure needs, personnel safety and health, environmental issues, and public issues. Reductions in funding may impact compliance with some of the requirements of DOE orders and may severely impact implementation of best management practices.

7.1.2 Funding Bases

The Secretarial Office responsible for Landlord activities at ORNL is the Office of Science, Basic Energy Sciences. With the exception of activities funded directly by the Office of Environmental Restoration and Waste Management Program (EM), all direct funding allocated to ORNL by the Office of Science and other programs is recognized within the ESHQ&I Management ADS submittals. Where cost is escalated on an ADS included in this plan, a cost escalation rate of approximately 3.2% for labor and materials is used.

For each ADS submitted in the FY 2002 *ESHQ&I Management Plan*, ESHQ&I activities are designated as either direct (Program) funded or indirect funded from a variety of allocable cost pools. ORNL ESHQ&I activities to be direct (Program) funded are identified as either target (funded) or unfunded with the appropriate Resource Structure Code and budget and reporting (B&R) code specified. The allocable cost pools include the site overhead pool (OH) and division-specific overhead pools (DA). Other allocable cost pools that may be designated are distributed accounts through service organizations (DI) and burdened accounts supported by a specific division (BC). Each ADS to be funded from these allocable cost pools is identified as either target or unfunded and includes identification of the associated funding pool.

All indirect funded ORNL ESHQ&I organizations (e.g., Environmental Protection and Waste Services Division) recognize their cost of operation through target, funded supplemental, or funded new ADSs for which the costs correspond directly with the ORNL overhead budget documents. Unfunded activities corresponding with the ORNL overhead budget are recognized as unfunded supplemental or unfunded new. Direct programmatic funding requests by the ORNL ESHQ&I organizations are submitted through FWPs with associated ADSs submitted to the Department of Energy-Office of Science. The FWP submittals working in concert with the ADS submittals allow both the overhead organizations and the programmatic organizations to request Landlord direct funding for ESHQ&I activities.

Current ESHQ&I funding targets were developed as part of the FY 2002 ORNL Site overhead budgeting process. Following risk prioritization of activities, recommendations were made to ORNL management for funding of targets and consideration for the funding of supplemental and new requests. ORNL management then allocated available target funding to ESHQ&I organizations for their activities. Overhead funding is reviewed by DOE Site personnel for concurrence. Following adjustments, ESHQ&I organizations were allocated the available funds to support the highest ranked activities. Adjustments of funded programs are made during the fiscal year based on risk prioritization and management approvals. In addition to the site overhead process, programmatic organizations support intradivisional ESHQ&I activities through a division-specific overhead structure. This funding is controlled by line management to ensure internal compliance to ESHQ&I requirements.

7.2 FY 2002 ESHQ&I INDIRECT BUDGET SUMMARY

Table 7.1 reports the ESHQ&I indirect budget (Laboratory Overhead) for FY 2002, pending DOE approval.

Table 7.1 Planned FY 2002 ESHQ&I Indirect Expenditures (Laboratory Overhead)		
Organization/Functional Area	From the March 2001 FY 2003 ESHQ&I Budget Formulation Submission	Reflects Current ORNL Overhead Budget Planning Figures
	FY 2002 Planned Indirect Target (\$ in 000s)	FY 2002 Revised Target (\$ in 000s)
Environmental Protection and Waste Services Division	6,981	7,379
Health Services Division	2,814	2,937
Laboratory Protection Division	6,121	6,337
Quality Services Division	2,544	2,578
Operational Safety Services Division	7,654	7,557
OSHA/ES&H Corrective Actions	174	183
Low Value Equipment	279	270
Facilities and Operations	18,005	(See Table 7.2) 455
Engineering Division	265	28
Laboratory Logistical Services Division	4,986	4,785
Records, Training, and SBMS Services Division	661	1,630
EMMIS		100
Operations Improvement Program		3,000
Total Planned FY 2002 ESHQ&I Indirect Budget	\$50,484	\$37,239

Planned ESHQ&I indirect expenditures (from Space Charge funds) for FY 2002 are shown in Table 7.2.

Table 7.2 Planned FY 2002 ESHQ&I Indirect Expenditures from Space Charge Funds		
Activity	ESH&Q (ONLY) (\$ in 000s)	ESHQ&I (BOTH) (\$ in 000s)
Laboratory Protection Division	645	
Infrastructure Planning Division		839
ORNL Office Moves		875
Engineering Division		259
Facilities and Operations		20,350
Facilities Revitalization		2,150
Deactivation		1,500
Vacant Space		2,700
Leases		2,251
Special Requirements		2,611
Total	\$645	\$33,535

7.3 FY 2002 ESHQ&I DIRECT BUDGET SUMMARY

UT-Battelle's plan for ORNL is guided by a commitment to achieve simultaneous excellence in the areas of science and technology, Laboratory operations and ES&H, and community service. The UT-Battelle Leadership Team has developed a Laboratory Agenda to provide a structured framework for the long-term initiatives, critical outcomes, and near-term actions through which it will deliver on this commitment. A primary focus of this agenda is to accomplish a fully modernized Laboratory of the 21st Century. The FY 2002 funding represents some of the changes in priorities associated with capital funding to initiate the Facilities Revitalization Project. Table 7.3 is a listing of planned FY 2002 direct costs and revised funding targets following reconciliation of FWP and ADSs. Table 7.4 contains a listing of individual LIs, GPPs, and GPEs with planned costs for FY 2002. Table 7.5 contains a listing of functional area designations for planned FY 2002 budget planning.

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Table 7.3. Planned Direct Costs for FY 2002 by Program Elements

(\$ in 000s)

Program	From the March 2001 FY 2003 ESHQ&I Budget Formulation Submission	Revised FY 2002 Planned Cost From Table 7.4	Explanations of Categories
	FY 2002 Planned Direct Budget		
HFIR Operating Cost	12,196	12,196	HFIR Operating Costs - HFIR ES&H operating cost is \$12,196K as identified on ADS E93D0021, "High Flux Isotope Reactor Operation." This funding recognizes costs for ES&H-related activities which would be funded through the Basic Sciences Program activities.
SNS (ESHQ Services)	1,219	1,219	
KG Program Cost (LI)	7,620	9,483	KG Line Item Cost - One new LI is being initiated for design (Research Support Center) and three LI projects are carryovers from the previous year (Fire Protection Systems Upgrade, Laboratory Facilities HVAC Upgrade, and Electrical Systems Upgrade).
KC Program Cost ESHQ&I (GPP)	4,238	3,681	KC GPP ESHQ&I Cost - Three projects are accruing cost in support of the Laboratory Revitalization Program (Upgrade Sewage Collection System, East Campus Electrical Systems Upgrade, and the Bethel Valley Road Entrances). Three additional projects are in support of facility improvements (Fire Protection Systems Upgrade, Rebuild Steam Station and Supply Piping for 7920, and Upgrade Reservoir #1). All of these projects have significant ESH&Q drivers. GPP funding for Buildings 1503/1506 Seismic Upgrades and Lambert Quarry Fencing has been deferred until FY 2003.
KC Program Cost ESHQ&I (GPE)	327	795	KC GPE ESHQ&I Cost - One new GPE project for HEPA filter replacements at CAT 2 facilities was initiated. Two carryover GPE projects will be completed (Backup Diesel Generator and Breakers for the City of Oak Ridge).
KC Program Cost Infrastructure Only (GPP)	8,450	7,310	KC GPP Infrastructure Only Cost - Two carryover projects are general facility construction and upgrades (Advanced Materials Characterization Laboratory and Lab Expansion - Nanoscience Metrology). The other projects are in support of the Laboratory Revitalization Program.
KC Program Cost Infrastructure Only (GPE)	972	741	KC GPE Infrastructure Only Cost - Access controls is a continuing project for the Laboratory Revitalization Program. LDRD projects are in support of general Landlord research equipment. Two projects are in support of upgrades to HVAC systems at 7910 and the ORNL Cafe.
Total KG/KC Program Elements	35,022	35,425	

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Table 7.4. FY 2002 Direct Program Planned Costs for ESHQ&I Landlord and Infrastructure Only Activities

Activity	Type	New Budget Funding	Carryover Funds	Planned Cost FY 2002	Comments and/or Explanations of Significant Variances
KG Program ESHQ&I Landlord Line Item Program					
Research Support Center	LI	1,500		1,200	This project will provide for the design of the Research Support Center as the Laboratory's central support facility. Future year funding will provide construction.
Fire Protection Systems Upgrade	LI	3,120	440	2,400	This project is to provide more reliable fire alarm and suppression capabilities by replacing deteriorated, obsolete systems, replacing the single 16-inch water main in the East Campus with a looped system, and by extending coverage of automatic alarm systems and sprinkler systems to areas not previously served.
Laboratory Facilities HVAC Upgrade	LI	3,000	137	2,000	This project will provide improvements to a number of heating, ventilating, and air conditioning systems located throughout the 13 buildings that comprise ORNL's central research complex.
Electrical Systems Upgrade	LI		4,625	3,883	Project activities include 244 and 264 overhead feeder upgrades, metering systems installation, building-specific electrical service entrance upgrades, and substation 4509 improvements.
TOTAL	LI	7,620	5,202	9,483	
KC Program ESHQ&I Landlord GPP Program					
Upgrade Sewage Collection	GPP	200		200	This project will make improvements to the ORNL Sanitary Sewage Collection System that are necessary to accommodate the facility modernization plans.
Fire Protection Systems Upgrade	GPP		208	208	Completion delayed due to interface with HFIR operational readiness review.
Rebuild Steam Station and Supply Piping, 7920	GPP	150		150	This project will provide improvements to the existing steam supply, distribution, and containment systems that are aging rapidly and deteriorating.
East Campus Electrical Systems Upgrade	GPP	135	383	450	This project will provide for the extension of the existing 13.8-kV electrical feeder #245 into the new east end campus area and set transformer stations to provide adequate service.
Bethel Valley Road Entrances	GPP	2,600		2,600	This project will provide security portals east and west of the ORNL main campus to improve security for the ORNL site.
Upgrade Reservoir #1	GPP		73	73	Construction is 95% complete.
TOTAL	GPP	3,085	664	3,681	
KC Program ESHQ&I Landlord GPE Program					
Replace HEPA Filters - CAT 2 7920/7030	GPE	380		380	This project will replace filter banks 2855 and 2856 in Building 7920 and filter banks 2870 and 2873 in Building 7930. These are safety-related HEPA filters.
Backup Diesel Generator for #6 Boiler	GPE		199	199	Generator procured. Installation currently in progress.
City of Oak Ridge Breakers	GPE		216	216	This project will provide three replacement breakers for three SF6 breakers promised to the City of Oak Ridge but now required for ORNL primary substation upgrades.
TOTAL	GPE	380	415	795	
KC Program Infrastructure Only GPP Program					
7600 Area High Bay Building - Design Only	GPP	400		400	This program will provide for the design of a new high bay laboratory to carry out current and future programs and projects for relocation of ORNL activities.
HFIR Cooling Tower Replacement	GPP		177	177	Project complete except for final testing - minor claims pending resolution.
Building 7602 High Bay Upgrade	GPP	650	171	821	This project will provide a needed upgrade to the high bay of Building 7602 to return a portion of an unused facility under EM40 into a vital ORNL work and research space.
6026 Gravel Lot Extension/Paving	GPP	480	457	937	This project will extend and pave the 6026 parking area in support of the Facilities Revitalization Program. An additional 200 spaces will be provided in the lot.
Miscellaneous Area Parking Lots	GPP	25	15	40	This project will provide for miscellaneous parking slots in areas impacted by the Facilities Revitalization Program.
6026 North Parking Lots	GPP	495	33	428	This project will provide for the expansion of the 6026 north parking lot in support of the Facilities Revitalization Program.
5th Street/South Side Avenue Parking Lot	GPP	265	10	275	This project will provide for additional parking areas north and south of South Side Avenue just to the west of 5th Street to support the Facilities Revitalization Program.
5th Street Entrance	GPP	160	33	193	This project will provide improved access for employees and visitors to the East Campus. The current access will be eliminated due to construction of the Research Support Facility.
4500N Parking Lot	GPP		322	272	This project will provide for the expansion of the 4500N parking lot in support of the Facilities Revitalization Program.
East Campus Infrastructure Improvements	GPP	200		200	This project provides for the construction/relocation of site infrastructure features, telecommunications ductbanks, utility services, roadways, and parking in the East Campus.
East Campus Telecommunications Ductbank	GPP	250		50	This project provides for the telecommunications ductbanks planned for the East Campus.
Advanced Materials Characterization Laboratory	GPP	2,000	482	2,482	This project will provide a new 15,000-square-foot structure with a high-quality environment for characterization equipment (electron microscopes) for the next generation of advanced materials research.
Lab Expansion-Nanoscience Metrology/Instrumentation	GPP	600	435	1,035	This project will modify space in Building 3500 and will provide approximately 3,000 square feet of modular clean room space for the expansion of nanoscience research.
TOTAL	GPP	5,525	2,135	7,310	
KC Program Infrastructure Only GPE Program					
Access Controls - Open Campus Improvements	GPE	500	102	602	This project will provide access control features that eliminate the need for perimeter fencing at ORNL, except at selected facilities.
CFC Chiller Building 7910	GPE		13	13	CFC chiller procurement and installation ongoing.
LDRD - General Purpose Equipment	GPE	28		28	LDRD - GPE funding provides financial support for innovative R&D ideas that, while within the general mission of the Laboratory, have no direct programmatic funding.
LDRD Scanning Probe Electrochemical Microscope	GPE	56		56	LDRD - GPE funding provides financial support for innovative R&D ideas that, while within the general mission of the Laboratory, have no direct programmatic funding.
4500N Conference Room	GPE	34		34	This project provides an integrated controller for the J233 conference room video/computer system.
Café Condensers and Evaporators	GPE		21	8	Procurement and installation of condensers and evaporators is ongoing.
TOTAL	GPE	618	136	741	

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Table 7.5

**ESHQ&I Management Plan Information System
Functional Area Breakdown by Cost
(\$ in Millions)**

Functional Area	FY 2002 Direct	FY 2002 Indirect
Safety and Health:		
EP Emergency Preparedness	0.1	1.6
FP Fire Protection	4.7	1.6
IH Industrial Hygiene	8.6	—
IS Industrial Safety	9.5	0.5
MO Management and Oversight	12.2	41.8
Occupational Medical Services	—	2.9
Nuclear Safety	7.2	—
Radiation Protection	1.9	—
Transportation Safety	—	2.4
Sub-Total Safety and Health	44.2	50.8
Environmental:		
CA Protection of Air Quality	1.5	—
CW Protection of Water Quality	0.2	—
MR Management Oversight and Reporting	0.3	7.5
WM Waste Management	0.2	—
Sub-Total Environmental	2.2	7.5
Grand Total	46.4	58.3

7.4 FY 2002 PLANNED ESHQ&I ABATEMENT ACTIVITIES

NOTE: This section contains current planning for the FY 2004 ESHQ&I Budget Formulation Submission. Additional details will be submitted in the March 2002 planning document.

Research Support Center (A99D0056) (LI)

The Research Support Center will consist of a new multistory, multipurpose building of approximately 50,000 square feet. It will be located north of the Central Research complex and will house the core support service facilities required in support of the effective operation of a national research laboratory. The Research Support Center will serve as the cornerstone and focal point of the East Research Campus envisioned in the Facilities Revitalization Project. This building will be an attractive state-of-the-art facility with easy visitor access, reflective of the Laboratory's stature and as functionally flexible as possible. The location and synergy of the functions planned for this facility will provide valuable support and services for the nationally respected ORNL research community, visitors and guests, and DOE. This building will include an auditorium and conference center, cafeteria, visitor reception and control area, and support offices for approximately 50 occupants. Sustainable design features will be incorporated where practical.

Fire Protection Systems Upgrade (A99D0018) (LI)

The mission of this project is to provide ORNL with improved, more reliable fire alarm and suppression capabilities by replacing deteriorated, obsolete systems, replacing the single 16-inch water main in the east central section of ORNL with a looped system, and by extending coverage of automatic alarm systems and sprinkler systems to areas not previously served. Many of ORNL's fire detection alarm and suppression systems are approaching or have exceeded their useful service lives. Replacement parts are not available for these systems. Consequently, there are increasing problems with the systems that degrade or jeopardize their protective capabilities. The upgrades will reduce maintenance costs, and the new upgrade installations will comply with current codes and standards. New fire alarm equipment will provide emergency responders with greatly improved annunciation of the causes and locations of alarms and will provide code compliant occupant notification evacuation alarms for enhanced life safety. It will also include timesaving, automatic diagnostic capabilities that will reduce maintenance costs. The new occupant notification systems will comply with the Americans with Disabilities Act. The fire alarm receiving equipment at the site fire department headquarters will be upgraded to ensure its reliability, modernize its technology, and meet the demands of an expanded fire alarm system network.

Specifically this project will:

1. Replace antiquated fire alarm systems in eight major research buildings:
 - Isotope Technology Building, 3047
 - Instrumentation and Controls Building, 3500
 - Radiochemical Laboratory Building, 4501
 - Experimental Engineering Building, 4505
 - Metals and Ceramics Laboratory, Building 4508

- High-Voltage Accelerator Laboratory Building, 5500
- Central Research and Administration Building, 4500S
- Radiochemical Engineering Development Laboratory Building, 7920

2. Replace and add redundancy in the fire alarm and circuit monitoring functions of the central receiving stations.

3. Replace the 55-year-old, 16-inch underground water main in the 6000 Area of ORNL with approximately 7000 feet of new lines. Associated isolation valves, pressure-reducing valves, hydrants, and valve pits will be installed with the new water main.

Laboratory Facilities HVAC Upgrade (A99D0017) (LI)

This project will upgrade HVAC systems that serve most of ORNL's major multiprogram research and related support facilities that have been in service for over 30 years and are in need of renovation, upgrade, or replacement due to age. This deteriorated condition is resulting in a growing number of repeated operational interruptions, prolonged equipment downtime, and increasing maintenance cost. Repair is often complicated by difficulty in finding replacement parts for units that are now obsolete. The interruptions are affecting experimental quality assurance for a significant number of the laboratories and are causing problems for supporting computer systems and service shops.

The scope of work will include (1) installation of primary/secondary central chilled water plant pumping system, 4509; (2) installation of 4501/4505 chilled water tie-in; (3) installation of chilled water coil inside 3500E air handler; (4) replacement of 4501 and 5500 air handlers; and (5) replacement of 4500S reheat system.

Electrical Systems Upgrade (C97D0106) (LI)

The ORNL electrical distribution system requires significant restoration and expansion to assure the continued operation in support of the research and operation missions of the Laboratory. Electrical components throughout the Laboratory are obsolete and increasingly dangerous to operate. Specific funded activities associated with this LI include the following:

1. Overhead Feeders 244 and 264 Upgrade. The 13.8-kV overhead feeders run from the ORNL Primary Substation to the 7600 Area Robotics and Process Systems Division facilities. The feeders serve the 6010 Oak Ridge Electron Linear Accelerator, the 6011 Computing and Telecommunications Facility, the 6012 Computer Science Research Facility, and the 5510 Analytical Mass Spectrometer Laboratory; they also serve as a dual-feed to the 4509 and 2632 major 2.4-kV secondary substations within the Laboratory. The feeders, excluding the conductors, will be completely rebuilt to ensure reliable continuation of service.

2. Electrical Metering System. A computerized electrical metering system will be installed in the ORNL electrical distribution system. Electrical meters will be installed on major distribution feeders and on significant facilities throughout the Laboratory.

Upgrade Sewage Collection (AA1D0016) (GPP)

This project will make improvements to the ORNL Sanitary Sewage Collection System that are necessary to accommodate the facility modernization plans. Facility modernization and additions will result in a shift in population centers at the Laboratory that will require upgrading sewage collection piping and sewage pumping stations. Additional facilities in the area to the east of 4500N and to the west of Building 1000 will place new loads on collection piping and sewage pumping stations currently in place. Line size will need to be increased to meet state requirements and pump station capacity will be increased to accommodate the new inflows.

Fire Protection Systems Upgrade (C97D0071) (GPP)

The following are the remaining projects/tasks in support of the ORNL fire protection systems:

1. Replacement of identified aged and failure-prone automatic preaction sprinkler system deluge valves with highly reliable automatic wet-pipe sprinkler system alarm valves in Building 3012.
2. Upgrade of antiquated fire alarm systems in the High Flux Isotope Reactor (HFIR) buildings.
3. Upgrade of antiquated fire alarm panels in various ORNL buildings. Buildings still needing to be upgraded are 7930, 2010, 6010, 3525, 3025, 6025, 2519, 2026, and 6000.
4. Replacement of fire doors in 4500N between the wings and main corridors.
5. Installation of fire alarm system in Building 7604, which is used for storage of experimental and test equipment such as development hardware, computers, and instrumentation.
6. Upgrade of 7920 hot cells and cubicles fire protection system.
7. Extension of fire alarm system notification and initiating devices into the recovered 7602 high bay, mezzanine, and basement areas.
8. Provision of complete automatic sprinkler protection for Building 2010. Approximately 50% of the building lacks automatic sprinkler protection.

Rebuild Steam Station and Supply Piping, Building 7920 (A01D0019) (GPP)

This project will upgrade components of the existing steam supply, distribution, and containment systems which are aging and rapidly approaching the end of their operational lives. The scope of work will include all piping, valves, joints, and junctions of the entire system and the upgrade of the service entrance to the building.

East Campus Electrical Systems Upgrade (AA0D0058) (GPP)

This ADS will provide the resources necessary to extend the existing 13.8-kV electrical feeder No. 254 into the new east end campus area and set transformer stations as needed to provide

electrical service to the new facilities to be located there. For aesthetic purposes, the new electrical services will be run underground in a concrete ductbank and placed in an established utility easement that will be flexible enough to provide for future expansion within the area without requiring constant utility relocations.

Upgrade Reservoir No. 1 (S97D0021) (GPP)

This project provides a new 1.5-million-gallon steel water reservoir adjacent to the existing 3-million-gallon No. 1 water reservoir. The concrete reservoir serves the Bethel Valley portion of the Laboratory and provides water storage capacity for both operational needs and fire protection purposes. The No. 1 reservoir must be drained and cleaned, structural repairs performed, and a new corrosion-resistant liner installed. Additional work must be performed on the exterior surfaces of the structure to help counter the effects of weather and age. The new 1.5-million-gallon steel reservoir will provide water to ORNL during the repair of the No. 1 reservoir and will provide additional capacity for Laboratory requirements.

Replace HEPA Filters - Category 2 - 7920/7030 (AA1D0029) (GPE)

For Building 7920, High Efficiency Particulate Air (HEPA) filter banks 2855 and 2856 each consist of 20 individual (24-inch by 24-inch by 11.5-inch deep) open-faced HEPA filters arranged in a stacked array. The new filters must be pretested, installed, and dioctyl phthalate (DOP) tested.

For Building 7930, the HEPA filter banks 2870 and 2873 consist of two stages of HEPA filters contained in a carbon steel specially fabricated enclosure roughly 8 feet by 4 feet by 4 feet, at considerable weights. There are unique hydraulically operated surface sealing devices for each modular enclosure.

Backup Diesel Generator for No. 6 Boiler (AA0D0016) (GPE)

This project provides for the procurement and installation of a diesel generator at Building 2519 to provide backup power to No. 6 Boiler. The project will be a turnkey job and provide 480-V, 600-Amp service in the event normal power is lost.

City of Oak Ridge Breakers (AA1D0026) (GPE)

ORNL received five SF6 breakers from ETPP for upgrades in the primary substation for the installation of matching breakers in the ORNL Primary Substation. The City of Oak Ridge was promised three of these breakers. In order to meet this commitment, ORNL has purchased new breakers for the City of Oak Ridge to their specifications.

Bethel Valley Road Entrances (AA2D0009) (Programmatic GPP)

This project will provide new entrance portals on Bethel Valley Road east and west of the main ORNL site. These portals are being installed to enhance access control to the ORNL site. Currently, Bethel Valley Road is open to all traffic. In December 2001, traffic will be limited to personnel with

official business at ORNL. Temporary portals will be located on Bethel Valley Road until the new portals are completed in March 2002. At each portal location, Bethel Valley Road will be widened to accommodate one outbound and three inbound traffic lanes and an island for a prefabricated portal building. A turnaround loop will also be constructed for vehicles denied access.

7600 Area High Bay Building - Design Only (AA0D0072) (GPP)

A key component of the ORNL Facilities Revitalization Project is the consolidation of ORNL R&D activities at ORNL's main site. In order to consolidate all activities at ORNL, a multiprogram high bay building will be required to accommodate identified high bay needs. To meet these needs, a new 25,000- to 30,000-square-foot high bay building will be constructed in the 7600 Area adjacent to existing high bay space in Buildings 7602 and 7603.

HFIR Cooling Tower Replacement (A99D0048) (GPP)

The existing HFIR cooling tower was constructed in 1965 to provide cooling water to facilities in the HFIR complex area. The cooling tower has exceeded its expected design life. A new cooling tower will ensure the secondary reactor cooling water system remains available for the HFIR complex and will prevent future outages for repeated repairs of the cooling tower or replacement upon complete failure.

Building 7602 High Bay Upgrade (A99D0098) (GPP)

This project will provide a needed upgrade to the high bay of Building 7602 to return a portion of an unused facility under EM40 into a vital ORNL work and research space. The project will involve covering the pit area with the fabrication and installation of a pit cover with a load-bearing capability of 150 pounds per square foot, refurbishing floors and walls, and painting of surfaces.

6026 Gravel Lot Extension/Paving (AA1D0037) (GPP)

This project will provide for paving of the existing gravel lot and expansion of the existing 6026 gravel parking area south of the 6026 trailers. This expansion is necessary to replace parking areas eliminated due to construction of new facilities in existing parking east of 4500 North. The expansion will provide for approximately 200 additional spaces in this existing lot.

Miscellaneous Area Parking Lots (AA1D0042) (GPP)

This project will provide for smaller miscellaneous additional parking areas to support the ORNL Facilities Revitalization Project.

6026 North Parking Lots (AA1D0047) (GPP)

This project will provide for the expansion of the 6026 north parking lot in order to provide additional parking areas to support the ORNL Facilities Revitalization Project.

Fifth Street/South Side Avenue Parking Lot (AA1D0048) (GPP)

This project will provide for additional parking areas north and south of South Side Avenue just to the west of Fifth Street to support the ORNL Facilities Revitalization Project.

Fifth Street Entrance (AA1D0049) (GPP)

This project will provide improved access for employees and visitors to the ORNL East Campus Area and to new parking located north of 4500N. The current access will be eliminated due to construction of new buildings in support of the ORNL Facilities Revitalization Project.

4500N Parking Lot (AA1D0036) (GPP)

This project will provide for the expansion of the 4500N Parking Lot to provide approximately 265 parking spaces. The additional spaces are required to replace parking spaces eliminated due to construction of new facilities in existing parking areas. The new area will be lighted, paved and striped, adequate storm drainage provided, and entrance/exits provided for safe traffic flow to and from the new areas into the existing traffic patterns exiting the facility.

East Campus Infrastructure Improvements (AA0D0065) (GPP)

This project provides for the construction/relocation of site infrastructure features, including utility services, roadways, and parking necessary to accommodate the extensive development planned for the East Campus area. These services will be extended to appropriate interface locations to enable DOE, State, and private sector facilities to be constructed in the main ORNL parking lot area. Parking lots will be strategically located to replace the areas of the main parking lot eliminated by the development.

East Campus Telecommunications Ductbank (AA1D0051) (GPP)

This project provides for the telecommunications ductbanks planned for the East Campus area.

Advanced Materials Characterization Laboratory (AA0D0063) (GPP)

The Advanced Materials Characterization Laboratory, a new 15,000-square-foot structure constructed to provide the high-quality environment required to optimize performance of sophisticated characterization equipment essential for the next generation of advanced materials R&D, will provide for the centralization of advanced materials structural characterization equipment. Electron microscopes, atom probe microscopes, and nanoindenter mechanical properties equipment are now housed in buildings that barely meet the manufacturers' requirements for optimum operation. It is clear that the current buildings will not allow ORNL to maintain state-of-the-art instrumentation for the next generation of this equipment.

Laboratory Expansion–Nanoscience Metrology/Instrumentation (A99D0020) (GPP)

An upgrade to laboratory space in Building 3500 is proposed. The modifications in the east wing of Building 3500 will provide approximately 3000 square feet of additional usable modular clean room laboratory space and reconfigurable office space for the proposed Laboratory Expansion for Nanoscience Metrology and Instrumentation.

Rooms 7, 8, 9, and 10, located on the east side of Building 3500, currently house a small conference room, laboratories, and shop/storage areas. Modifications to these rooms will create usable space to accommodate a modular clean room and its associated services. The modifications will include replacement of the room's west wall, removal of the room's ceilings, and relocation of existing services. In addition, Room A-19 in Building 3500 will be converted from laboratory space to an electron microscope facility. The conversion will require modifications to the room HVAC system and possible foundation modifications for vibration isolation.

Access Controls - Open Campus Improvements (AA0D0084) (GPE)

This project will provide access control features that eliminate the need for perimeter fencing at ORNL, except at selected facilities. The present perimeter (fence) will be reconfigured to an access control system located closer to the resources being protected (building, room, etc.). Proximity cards and administrative means will be utilized for access control. This project will provide the necessary badge reader systems for Laboratory buildings.

CFC Chiller Building 7910 (C97D0125) (GPE)

The chlorofluorocarbon (CFC) chiller in Building 7910, which uses Class I ozone-depleting CFC refrigerants, will be replaced. CFC refrigerants will be recovered from the machines as they are replaced and reused in remaining operating units. The job scope includes removal and replacement of the old unit, electrical starters, and subsequent electrical and piping tie-ins.

LDRD - GPE Reserve (C98D0182) (GPE)

ORNL's Laboratory Directed Research and Development (LDRD) Program provides financial support for innovative R&D ideas that, while within the general mission of the Laboratory, have no direct programmatic funding.

LDRD - Scanning Probe Electrochemical Microscope (AA2D0003) (GPE)

This project will purchase scanning electrochemical microscope equipment, which includes computer-controlled x-, y-, z- positioners with nanometer resolution that can be programmed to move a probe about a sample surface with a 5-cm lateral range. The equipment will be used in the project "Protein Microarray Interactions Read Out Using Stepping Sampling Probe/Electrospray Mass Spectrometry."

4500N Conference Room (AA2D0006) (GPE)

This project provides an integrated controller for the J233 conference room video/computer system.

Café Condensers and Evaporators (AA0D0007) (GPE)

This project will replace three condensing units and three evaporators serving the vegetable cooler and milk cooler at the cafeteria. All three systems show signs of leakage and are basically a mismatched system. Two systems were freezers that were converted to coolers. The project will procure two 1.5-ton condensing units and evaporators for the vegetable cooler and a 1-ton condensing unit and evaporator for the milk cooler.

ORNL Safety and Health - Electrical Systems Upgrade (P98D0019) (OE)

Condition assessment surveys of ORNL facilities have identified legacy vulnerabilities of building electrical systems. These vulnerabilities are generally building specific due to aging facilities and installations that do not meet current National Electrical Codes. Funding has been allocated to begin correction for four primary areas of concern: (1) wiring and panel board replacement, (2) circuit identification and removal of abandoned services, (3) upgrade of wiring to meet current National Electrical Code, and (4) motor control center upgrades. This project will be a continuing activity as vulnerabilities are identified and scheduled for correction.

OSHA/ES&H Corrective Actions (P98D0147) (OE)

This ADS provides funds for correction of identified deficiencies that impact Occupational Safety and Health Administration (OSHA) compliance and other ES&H issues. During FY 2002, funding is allocated to correct electrical deficiencies in ORNL facilities, stabilize the foundation of Building 3017, and upgrade ESHQ&I and Facility Information Management System (FIMS) information data systems.

Low Value Equipment (LVE) (P98D0146) (OE)

This ADS provides overhead funding for Landlord/infrastructure equipment under \$25,000 in value. Projects are identified and scored. A significant amount of LVE funding is allocated to maintain the ORNL vehicle fleet (\$140,000). The remaining funding will be allocated in January 2002. Specific equipment is identified in the ESHQ&I Management Plan Information System.

Combined Nuclear Facility Operations Improvement Project (Total for these ADSs is \$1.3M)

C Enhancing Non-Reactor Nuclear Facility Operations (ADS AA1D0065) (OIP-OE)

This project provides for funding to address immediate concerns regarding system reliability to ensure that workers, the public, and the environment are not at immediate risk and system availability to ensure that systems are available and will perform as designed when called upon to mitigate a hazard or upset condition. The objectives are to update the recently completed Hot Cell Utilization Study, formalize the ORNL Configuration Management Program,

formalize the ORNL Conduct of Maintenance policy or practices, reorganize non-reactor nuclear facilities under a Complex Manager, and implement Facility Use Agreements under the Facility Operations Model.

C Operational Improvements at 3025E and 3525 (ADS AA1D0082) (OIP-OE)

This project provides funding to improve operational efficiency in the ORNL Irradiated Materials Examination and Testing (IMET) Facility and the Irradiated Fuels Examination Laboratory (IFEL) Facility. Operational efficiency will be improved by qualifying (cross-training) operations personnel to perform work in either facility. The change will promote more efficient operations in times of inadequate budgets by allowing both facilities to be operated by one operating crew in “campaign modes,” thus allowing extra personnel to be assigned to other fully funded areas. Additional effort will allow reduction in the contamination level in the IMET Facility Cell Access Area, thus allowing more cost- and time-efficient entry into this area.

C Operations Planning for Management of ORNL Nuclear Facilities (ADS AA1D0066) (OIP-OE)

This project facilitates the transition of ORNL nuclear facilities to the Laboratory’s new facility management model. This transition requires an Operations Plan to be completed by FY 2003. OIP funding will provide the support to develop the plan and to address other issues related to nuclear facility ownership, maintenance, and operation.

C Disposal of Special Nuclear Materials (ADS AA1D0085) (OIP-OE)

This project provides for the shipment of surplus Special Nuclear Materials to other designated sites, the relocation of nonsurplus nuclear materials to Building 7930, and the shutdown of Building 3027, the Nuclear Materials Storage Vault. This will save approximately \$2.7M in operating costs (based on a 20-year operation) and allow closure of a Category II nuclear facility in the central complex of the Laboratory.

C Reserve for Combined Nuclear Facility Operations Improvement Project (AA2D0008) (OIP-OE)

Reserve funding for the four projects listed above.

Standards-Based Management System Deployment (ADS AA1D0064) (OIP-OE)

This project provides the design and implementation of the Standards-Based Management System (SBMS), which establishes the framework to support business planning, management, and assessment. SBMS translates applicable internal and external requirements into electronic, user-friendly, effective procedures and guidelines. SBMS also provides the infrastructure for integration of all management systems and activities.

Facility Environmental Vulnerability Assessment Recommendations for Improvement (FEVARI) (ADS AA1D0064) (OIP-OE)

This project provides support in the development and implementation of responses to the Facility Environmental Vulnerability Assessment (FEVA) which was completed and issued in June 2001. The primary goal of FEVA was to establish an environmental vulnerability baseline that could be used to support the Laboratory planning process and place environmental liabilities in perspective. The information developed by FEVA provided the basis for management to identify and initiate immediate, near-term, and long-term actions to respond to the identified vulnerabilities. Although no immediate “stop work” actions were identified, a number of near-term and long-term actions and initiatives were identified to address the FEVA recommendations. Two initiatives which FEVARI will fund in FY 2002 include the development of a Strategic Facilities Upgrade Plan and a Strategic Plan for the Minimization of Single-Pass Cooling Water. Current and planned line item (LI) projects, general plant projects (GPPs), and general-purpose equipment (GPE) projects that support FEVA recommendations are currently in the Laboratory’s *Environment, Safety, Health, Quality, and Infrastructure (ESHQ&I) Budget Formulation Plan*. As planning documents are developed, ADSs will be submitted to ensure that appropriate projects are identified and submitted for funding prioritization.

2002 Full Participation Emergency Response Exercise (AA1D0086) (OIP-OE)

This project provides funding to implement a series of emergency response activities concluding with a full participation exercise with local and state agencies designed to improve and enhance ORNL’s response capabilities and ensure effective and efficient response and mitigation to emergency events. The exercise is responsive to DOE Order 151.1A, “Comprehensive Emergency Management System,” and the Oak Ridge Operations (ORO) Reservation Emergency Plan.

Chemical Management Center Operations (AA1D0073) (OIP-OE)

This project provides for funding to continue to transfer non-used chemicals from operating areas to the Chemical Management Center and then to place the chemicals within the Laboratory where they can be used, sold, returned to the manufacturer, or donated to other research organizations.

Y-12 9210 Facility Transition Initiative (AA1D0083) (OIP-OE)

This project will provide funding to relocate the colony of special mutant mice currently housed at Y-12 in Building 9210 (Mouse House) to ORNL in an efficient and cost-effective manner, while maintaining the level of experimental productivity at a standard acceptable to sponsors. It is imperative to the federal sponsors and multidivisional researchers that transition from Y-12 to ORNL proceeds with minimal impact to research.

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8. UNFUNDED COMPLIANCE ACTIVITIES

NOTE: This section contains current planning for the FY 2004 ESHQ&I Budget Formulation Submission. Additional details will be submitted in the March 2002 planning document.

The following are unfunded compliance tasks that have been identified for funding in the out-years. Significant changes to the compliance ADSs are expected in the FY 2004 Budget Formulation Document, which will be submitted March 2002. Therefore, these ADSs may not remain as the top unfunded ADSs for the out-years.

Update Nuclear Facility Drawings (AA0D0042) (OE)

This activity provides for the update of nuclear facility drawings required to define the design bases for safety. "As-built" drawings are required by the facility authorization basis documentation. Difficulties in controlling "as-built" drawings could have a serious operational impact on the facility operations, with the potential for a reportable occurrence. A coordinated program for periodic update of required drawings for these facilities is necessary to assure compliance with approved facility safety basis.

Mitigative Actions: Nuclear facility drawings are controlled by "red lining" changes/modifications to drawings. The red-lined drawings are maintained until "as-built" drawings are completed.

Eyewash, Safety Shower, Water Systems Upgrade (C97D0081) (GPP)

The scope of this activity includes the upgrade of water supply systems and encompasses the following: (1) installation of safety showers and eyewashes with potable water supply, (2) replacement of piping and associated components used to supply and remove process water, and (3) replacement of piping and associated components used for heating.

This project includes (1) the removal and replacement of any existing eyewash stations and safety showers in the laboratories and corridors of 4501 and 4505 (to meet OSHA standards, potable water headers will be installed to supply the water for the safety shower and eyewash stations) and (2) the upgrade of safety shower and eyewash stations in 4500N and 4500S to meet standards during the line item renovations proposed in the FY 2000 *ORNL Strategic Facilities Plan*.

Mitigative Actions: The safety showers and eyewash stations in Buildings 4501, 4505, 4500N, and 4500S are supplied with process water. Portable eyewash stations have been installed at selected locations as an interim measure. Piping modifications are required to supply these safety showers and eyewash stations with potable water.

1503/1506 Greenhouse Renovation/Seismic (A00D0043) (GPP)

This GPP is intended as a preferred alternative to two other GPP requests: Seismic Upgrades, 1506 (ADS A99D0055) and Renovation 1506 Greenhouses (ADS S97D0005). In response to a seismic

evaluation driven by Executive Order 12941, it was found that Building 1506 was in the "Definitely Needing Repair (DNR)" category. This was based on the conclusion that a possible failure scenario has been postulated because of a lack of roof diaphragm action. The lack of a topping slab to ensure diaphragm action in the roof is the primary contributor to this postulation.

There are currently four greenhouses that are attached to the 1506 structure. They are nearly unusable as functional greenhouses, which makes it difficult to respond to recent sponsor research needs across several DOE Offices.

Given the seismic risk and the current conditions of greenhouses, this GPP request is aimed at moving all activities from 1506 to 1503, where modern laboratory space would be created, the existing spaces would be renovated to create a head house, and new greenhouse structures would replace the existing ones (the existing greenhouses at 1503 are no longer functional either).

The following tasks/activities are covered by this GPP request:

- A. Renovate 1503 conference room to accommodate two large laboratories currently in 1506. This will include construction of a new wall, electrical upgrades, installation of bench space, laboratory sinks, fume hoods, eyewash/shower units, etc.
- B. Modify other rooms in 1503 to accommodate activities currently housed in multiple 1506 instrument rooms.
- C. Convert the current maintenance shop in 1503 into a head house to support greenhouse operations.
- D. Demolish existing 1503 greenhouses and construct replacement units on existing foundations.
- E. Construct an addition to the south end of 1503 to house new environmental growth chambers and move select growth chambers from 1506 into modified spaces in 1505.
- F. Erect a large pre-engineered storage building in the lot south of 1503 to accommodate Environmental Sciences Division sample and equipment storage needs.
- G. Move equipment essential to programmatic research needs from 1506 to the renovated 1503.

Mitigative Actions: All continuing operations which require full-time occupancy by personnel have been relocated to other facilities. The building is currently used for storage and interim process applications which do not require full-time personnel occupancy.

Replace HEPA Filters - Category 2, Building 3047 (AA1D0063) (Programmatic GPE)

This project would replace HEPA filters in 5733 and 5734, treating glove box off gas, and 5750 and 5751 cell off-gas filters, all of which are in Building 3047. The work would be basically routine standard bag out changes as far as labor is concerned, with possible concerns with radiation