OAK RIDGE NATIONAL LABORATORY
FY 2001 ENVIRONMENTAL, SAFETY, HEALTH, QUALITY, AND INFRASTRUCTURE (ESHQ&I) BUDGET FORMULATION PLAN

FACILITY ESHQ&I NARRATIVE SUMMARY

March 23, 1999

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I. Background

The environmental, safety, and health (ES&H) mission of the Oak Ridge National Laboratory (ORNL) is to conduct research and development (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. ORNL is operated by the Lockheed Martin Energy Research (LMER) Corporation under Department of Energy-LMER Management Contract DE-AC05-96OR22464.

ORNL's Fiscal Year (FY) 2001 ESHQ&I Budget Formulation Plan was developed in accordance with guidance in the Department of Energy (DOE) Guidance Document for the Environment, Safety, and Health Fiscal Year 2001 Budget Formulation and Execution, dated January 1999. It identifies the ESHQ&I activities considered necessary at ORNL 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 planning for ORNL infrastructure needs which support R&D as well as ESH&Q. This plan was 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.

The Plan has been derived from the various levels and systems of ORNL's organizational structure. ORNL's self-assessment programs and external assessments were key in identifying and characterizing ESHQ&I issues documented herein and on the submitted Activity Data Sheets (ADSs). The risk-based prioritization methodology used to develop this Plan has been adopted by ORNL to prioritize overhead activities, landlord capital requirements, and ESHQ&I programmatic activities. Except for constraints associated with the various funding sources for ORNL activities, that priority-setting methodology is the basis for work planning and scheduling decisions for the site.

The ORNL Capital Assets Manager is responsible for the development and maintenance of a continuous integrated approach to ESHQ&I planning to ensure that risks and compliance requirements are recognized and considered in the planning and execution of all activities designed to carry out ORNL's missions.

II. Summary

The FY 2001 integrated ESHQ&I Budget Formulation Plan identifies the following summary data of project/activity information.

ES&H/Both (ES&H and Infrastructure)	343		
Core ADSs		133	
Compliance ADSs		29	
Funded			5
Unfunded			24
Improvement ADSs		181	
Funded			12
Unfunded			169
Indirect ADSs		228	
Funded			130
Unfunded			98
Direct ADSs		115	
Funded			20
Unfunded			95
Infrastructure Only	126		
Core ADSs		37	
Compliance ADSs		0	
Funded			0
Unfunded			0
Improvement ADSs		89	
Funded			20
Unfunded			69
Indirect ADSs		60	
Funded			37
Unfunded			23
Direct ADSs		66	
Funded			20
Unfunded			46
Total Open ADSs	469		

Total Funding Request (Open ADSs, OE-Operating Expense, CE-Capital Expense/General Plant Equipment, LI-Line Item)

ES&H and Both

	OE*	CE	GPP	LI	Total
FY 1999	87,360	1,818	2,440	6,808	8,426
FY 2000	115,695	5,299	8,000	357	129,351
FY 2001	119,343	5,181	7,575	6,627	138,726
FY 2002	84,242	4,225	8,350	12,500	109,317
FY 2003	84,242	2,060	14,595	12,316	113,213
FY 2004	84,242	2,900	3,425	0	90,567
FY 2005	84,242	1,850	3,475	7,000	96,567
Total	$659,366	$23,333	$47,860	$45,608	$776,167

Infrastructure Only

	OE*	CE	GPP	LI	Total
FY 1999	18,780	1,548	2,050	0	22,378
FY 2000	19,132	2,379	1,900	0	23,411
FY 2001	19,482	2,686	4,150	0	26,318
FY 2002	18,832	2,040	1,200	0	22,072
FY 2003	18,832	260	2,500	0	21,592
FY 2004	18,832	0	0	0	18,832
FY 2005	18,832	0	0	0	18,832
Total	$132,722	$8,913	$11,800	0	$153,435

*Includes OE requests from Field Work Proposals (FWPs).

III. ESHQ&I Management Plan and Budget Formulation Plan Process

ORNL is in the process of implementing an Integrated Safety Management System (ISMS) which is scheduled for Phase I Verification beginning March 1999. An ISMS Implementation Committee has been appointed and chartered by the ORNL Executive Committee to provide guidance and oversight of implementation. The ISMS Implementation Committee membership is comprised of senior management from each ORNL directorate and the DOE-ORNL Site Office. In support of the establishment of an ISMS, a single ESHQ&I Management Plan process has been developed and implemented to provide a means for ORNL to document, prioritize, and report ESHQ&I budget information.

The integrated ESHQ&I Management Plan provides the capability to identify and track ESHQ&I projects and activities and their associated milestones and accomplishments. The Plan documents identified risks, their impacts, and/or benefits. These risks and impacts provide the basis for the evaluation of projects and activities for resource allocation decisions. The Plan is in a database format which provides essential data reporting capabilities.

Request for projects and activities with their estimated resource requirements, justifications based on risk and/or benefits, and proposed milestones are documented in the following systems for input into the ESHQ&I Management Plan Information System.

A. Laboratory Overhead Budget Request

The Laboratory Overhead Budget request is submitted annually by overhead offices and divisions through the Program Management Tracking System (PMTS) and is currently processed through the Corporate Information System. These requests are for funding which is allocated from an assessed overhead rate from programmatic funds (DOE Projects) and work-for-others projects. The PMTS entries are designated as either requests for ESH&Q funding, infrastructure funding, both ESH&Q and infrastructure, or not applicable. Although all projects are processed through the ORNL Risk Ranking Board, only those requests which were identified as ESH&Q, infrastructure, or both are transferred to the ESHQ&I Management Plan Information System.

B. Landlord Capital Funding Request

ORNL divisions/offices/programs request Landlord Capital funds by submitting an ADS through the WEB-based ESHQ&I Management Plan Information System. These requests are for general-purpose equipment (GPE), general plant projects (GPPs), and line item (LI) projects. Each request is designated as "infrastructure" or "both" if the activity is ESHQ&I related. The ORNL Risk Ranking Board evaluates each ADS and determines a risk ranking for funding allocation decisions. Landlord Capital requests are submitted through two Field Work Proposals (ERKCL01, "General Purpose Equipment," and ERKCL02, "General Plant Projects") and Line Item Construction Project Data Sheets (CPDSs). Allocated funding (funded projects) is identified in the execution years with backlog projects identified as unfunded in either execution years or out-years.

C. ESHQ&I Field Work Proposals

ORNL divisions/offices/programs may request direct funding from the DOE ORNL Landlord (Office of Basic Energy Sciences) for noncapital-related ESH&Q expense funding requirements. These requests are submitted on Field Work Proposals (FWPs) in PMTS, designated as ESHQ&I related, and transferred to the ESHQ&I Management Plan Information System. Each request is risk ranked by the ORNL Risk Ranking Board for resource allocation decisions. Alternative funding sources are considered in the event of situations where noncapital- related compliance requests are identified on an FWP.

IV. Risk Ranking and Funding Allocation Process

A formal process is established to evaluate risk associated with designated Laboratory overhead, landlord capital requirements, line items, and other landlord FWP expense projects/ activities. Each project/activity receives a risk score which is then submitted to management for further evaluation and adjustment, if required, of risk scores. These scores are used as a factor in determining the allocation of available resources.

The risk ranking process flow includes:
- submittal of funding request documents,
- preliminary risk and scoring verification,

- risk scores by the Risk Ranking Board,
- funding and prioritization analysis,
- management review and adjustments,
- ORNL Operating Committee or Overhead Committee review and concurrence,
- ORNL Executive Committee approval, and
- DOE review and adjustments.

V. FY 1999 ESHQ&I Commitments Progress Report

A. Major Planning Assumptions

Organizational structure and business planning processes are now undergoing review and change at ORNL as a result of reengineering activities. However, this Plan is based on the continuing operation of ORNL with the focus on integrating ESHQ&I within the core competencies of ORNL. The following core competencies are the planned future building blocks of ORNL:

- Energy Production and End-Use Technologies,
- Biological and Environmental Sciences and Technologies,
- Advanced Materials Synthesis Processing and Characterization,
- Neutron-Based Science and Technology,
- Emerging Competency of Oak Ridge Manufacturing Technologies,
- Emerging Competency of Computer Science and Advanced Computerization,
- Institutional Competency of Development and Operation of a National Research Facility,
- Institutional Competency of R&D Integration and Partnership,
- Institutional Competency of Technology Transfer, and
- Institutional Competency of Science Education.

A significant effort is being made to “reengineer” ORNL’s operations and services to enhance operational efficiency and promote the mission of ORNL. A list of specific standards for operation of ORNL facilities was developed as a function of “Work Smart Standards” identified under the necessary and sufficient (N&S) closure process. The N&S process was based on the process defined in Chapters I and II of the Department of Energy Closure Process for Necessary and Sufficient Sets of Standards (DOE M 450.3-1). The standards developed for ORNL facilities are referenced in the DOE-LMER contract, Section H.15(c).

B. Core ADS Milestones and Success Indicators

Currently performed ESHQ&I activities considered necessary by ORNL management to maintain current levels of ESHQ&I compliance or to prevent increases in current levels of ESHQ&I risks have been identified as “core” activities. Two primary sets of core activities have been identified. The first set includes core activities within the ORNL ESHQ&I overhead divisions with a Pool Identification (ID) of OH. The second set include core activities within ORNL programmatic organizations (e.g., R&D divisions) directly funded by programmatic sponsors. All core activities are targeted functions at ORNL and have received funding within this Plan to maintain their current level of compliance.

Overhead core functions have been identified either as functional area ADSs or specific ADSs for overhead functions. The following is a summary of the core functional areas.

Functional Area Health - funded activities for medical health include emergency health, physical/mental evaluations, medical treatment and triage, rehabilitation, medical records, and activities required by contract standards at ORNL.

Functional Area Environmental - funded activities provide environmental compliance and environmental sampling. ORNL is obligated to comply with all applicable federal, state, and local environmental laws and regulations, and selected DOE Orders. This functional area has specific environmental oversight responsibilities for the DOE Oak Ridge Reservation area outside the site boundaries of the three developed sites.

Functional Area Radiation Protection - funded activities protect the ORNL site population from radiation and related contamination hazards that exist in the work environment. Major responsibilities include operation of an effective and efficient dose assessment program; health physics support for overhead divisions during off-shift hours and in emergencies; and oversight of health physics instruments, sealed sources, and X-ray–generating devices.

Functional Area Industrial Safety Programs - funded activities are specifically for the Office of Safety and Health Protection to conduct periodic Occupational Safety and Health Administration (OSHA)-type inspections and provide consultation and guidance to all divisions in meeting OSHA regulations while maintaining a focus group knowledgeable in highly visible OSHA programs, provide direct day-to-day contact with research and service division personnel for hazard evaluation and planning, provide project-specific site characterization and support for construction and service contract activities, provide technical service support such as instrumentation and reporting, and provide hazardous materials management support.

Functional Area Emergency Preparedness and Fire Protection - funded activities are specifically for the Office of Laboratory Protection to provide shift operations management support, emergency management, fire protection, nuclear materials control and accountability, and visitor services.

Functional Area Transportation - funded activities are to provide a central point for interpretation and application of federal, state, and local regulations, and DOE Orders concerning transportation of radioactive and hazardous materials.

Functional Area Nuclear Safety - funded activities are specifically for the Office of Nuclear Safety to provide oversight of ORNL nuclear facility activities and operations and to ensure that requirements of federal laws and applicable DOE Orders are complied with to protect the public, the workers, and the environment.

Functional Area Quality Services - funded activities are to provide quality assurance, quality engineering, and inspection services to support the overall mission of ORNL in accordance with the direction provided in DOE Order 5700.6C and 10 CFR 830.120 for Quality Assurance.

Other ongoing overhead-funded activities include administration of the agreement-in-principles between the state of Tennessee and DOE (e.g., Tennessee Oversight Agreement/Health Studies Agreement), administration of the ESHQ&I overhead division services for engineering and maintenance, waste management operations, infrastructure-based maintenance operations, and other administrative support services..

The “Core” ADS identified as being funded from Pool DA identifies and documents division administration ESHQ&I functions and services within programmatic-funded organizations. The FY 2001 ESHQ&I Budget Formulation Plan identifies those programmatic organizations where pooled internal division overhead is used to provide ESHQ&I services for the divisions. Examples include the activities of a Division Safety Officer, Environmental Protection Officer, Waste Certification Officer, etc. Internal division administration may also include activities such as maintenance functions for general, division-"owned" facilities. Additionally, an ADS is submitted to provide accounting of funding and ESHQ&I services for the High Flux Isotope Reactor (HFIR) and is listed under Research Reactors (RR) as a Pool ID. The purpose of the ESHQ&I support from internal division pooled resources is to provide (1) a safe environment for the public and employees and (2) division resource control to ensure compliance with regulatory requirements.

C. Target Compliance Milestones and Success Indicators (FY 1999 Commitments Progress)

Funded compliance ADSs are those that identify additional corrective actions, activities, or programs over and above the current Core ESHQ&I programs and that are required to improve facilities' state of compliance with all applicable ESHQ&I laws, regulations, agreements, and DOE Orders. After compliance has been achieved by activities identified in the funded compliance ADSs, continuing activities and resources to maintain compliance will then be included in core ESHQ&I functions at ORNL.

The current Secretarial Office responsible for Landlord activities at ORNL is Office of Science, Office of Basic Energy Sciences (Budget and Reporting Code KC00000/Resource Structure Code YA0801). Prior to FY 1996, the Office of Multiprogram Energy Laboratories - Facilities Support (Budget and Reporting Code KG00000/Resource Structure Code YA091) was responsible for Landlord activities. This Plan includes carry-over activities funded through previous KG allocations. KG continues to fund line item Landlord projects for ORNL. However, requests for FY 1999 and out-years for Landlord programmatic operating expense, capital equipment, and general plant projects are being submitted for KC funding allocations. The following is a summary of the funded compliance ADSs for milestone accomplishments, listed in total, adjusted, descending score order with a current status assessment.

C97D0071 Fire Protection systems Upgrade (KC-GPP)
The following projects/tasks are in support of the ORNL fire protection systems:
(1) replace two aged and failure-prone automatic preaction sprinkler system deluge valves with highly reliable automatic wet-pipe sprinkler system alarm valves in the High Voltage Accelerator Laboratory (5500). Interface modifications between the sprinkler systems and fire alarm system in this 52,000-sq-ft building will also be conducted;
FY 99 GPP

(2) replace one aged and failure-prone automatic preaction sprinkler system deluge valve with a highly reliable automatic wet-pipe sprinkler system alarm valve that protects portions of the High-Level Radiochemical Laboratory Building (4501)
FY 99 GPP

(3) replace five aged and maintenance-intensive automatic dry-pipe sprinkler systems with more reliable/effective automatic wet-pipe sprinkler systems in the 45,000-sq-ft General Stores/Shipping and Receiving Complex (7001 and 7002);
FY 99 GPP

(4) upgrade the 4500N Wing 5 alarm system and connect it to the 4500N alarm system.
FY 99 GPP

(5) replace the antiquated fire alarm system at the High Flux Isotope Reactor (HFIR). The HFIR fire alarm system is over 30 years old and is not capable of being further modified to perform all monitoring functions necessary to support continuing changes at the HFIR complex. Replacement parts are no longer available for many critical components. Additionally, fire alarm control and announcement equipment is located deep inside the HFIR complex and may not be accessible to fire department personnel during a fire event. This project would replace the HFIR fire alarm system with state-of-the-art equipment capable of performing all necessary alarm and supervisory monitoring functions, alarm zone annunciation at the building entrance and in the control room, and be expandable to accept future changes at the complex;
FY 99 AIP/HFIR

(6) upgrade various antiquated fire alarm panels/systems in ORNL research and support facilities. (1505, 1506, 2010, 2519, 3019A, 3525, 4508, 5505, 6010, 6025, 7900, 7910, 7920, and 7930.

(7) replace fire doors in 4500N between the wings and main corridors.

(8) provide adequate sprinkler protection in 4500S Graphic Arts area. LIDS Issue No. I35458.

(9) change out sprinkler heads in systems 50 years old.

(10) add sprinkler protection to Room C-110, Building 6000. LIDS Issue No. I35507 and sprinkler protection for 7920 hot cells.

Status: $750K has been funded in FY 1999 to (1) upgrade the 4500N Wing 5 alarm system and connect it to the 4500N alarm system, (2) replace five dry pipe sprinkler systems in the 7001 complex with wet pipe systems, (3) replace two deluge valves in 5500 and make modifications between the sprinkler systems and fire door systems, and (4) replace a deluge valve that protects portions of Buildings 4501 and 4505. Although the systems are aging and becoming more failure prone, they are on a rigid inspection, testing, and maintenance schedule. Failure rates and types are recorded and accumulated. Should failure rates reach a "critical" level where negative impacts

on people and property appear imminent, direct contact will be made with upper management to get funds for immediate action on an emergency basis. Routine fire protection engineering assessments, monthly building inspections, and frequency of alarms are other methods utilized to monitor systems reliability.

P98D0035 ORNL Subtitle I UST Compliance (KG)
The purpose of the Underground Storage Tank (UST) Management Program is to provide activities to ensure ORNL compliance with RCRA Subtitle I requirements by FY 1998. The program costs reflect the minimum regulatory requirements to implement UST tightness testing, inventory management, monitoring, upgrade/replacement or closure, and site remediation. There are approximately nine USTs and their interconnecting piping that remain to be addressed. Activities will be initiated based or assessed risk. Activities scheduled through FY 2000 include initiation of tank integrity, transfer pipeline analysis, tank removal, site assessment, and site remediation. Funding activities are requested through ORNL landlord funds. Capital equipment funds will be provided from KG01.

Status: Carryover funding in the amount of $62K has been allocated for UST closeout activities in FY 1999. Compliance activities associated with the scope of this project were completed during CY 1998. Current activities are being utilized for project management, soils and rinsate disposition, and site monitoring. Field work is complete and closure of all sites is currently pending with the State of Tennessee.

C97D0125 CFC Phaseout - Clean Air Act Compliance (KC)
Replace air conditioning equipment which uses Class I ozone-depleting refrigerants [chlorofluorocarbons (CFCs)]. CFC refrigerants are recovered from the machines as they are replaced and reused in remaining operating units. Job scope includes removal and replacement of old units, electrical starters, and related electrical and piping tie-ins.

Status: Prior to FY 1999, nine major chillers and four smaller CFC units have been replaced. The 3025 and 7900 chillers are nearing completion, and a contract has been awarded for the replacement of the 1505 Chillers 1 and 2, the last major chillers planned for replacement. Due to their location, the CFC chillers in the basement of 4500N, which are used as standby chillers, will not be replaced. Funding is planned in FY 2000 and FY 2001 to complete replacement of smaller CFC units.

P98D0034 Electrical OSHA Noncompliances (KG)
This project provides carryover KG funding for correction of current RAC 3 electrical noncompliances.

Status: Funding in the amount of $35K has been allocated for additional corrective actions in FY 1999.

C98D0020 Replacement of Valve Test Stand (KC)
Teledyne Ferris safety valve test stand. This equipment replaces existing equipment (approximately 30 years old) at ORNL. The Safety Surveillance Inspection function is funded by

Laboratory overhead. ASME (NBIC) code requires periodic testing of safety valves to ensure their operability. Current practice does not allow testing liquid service valves with liquid as specified by the code. The demand for these testing services will remain with the Laboratory and will not diminish with time. The existing machine has only pneumatic capabilities and is frequently down for repair. Replacement of a 30-year-old piece of test equipment, a machine without the required capabilities, is considered essential for continued, safe relief valve testing at ORNL.

Status: The safety valve test stand has been received and will be installed in FY 1999.

D. Unfunded Compliance Liabilities with Identified Mitigated Actions

The following ADSs have unfunded compliance requirements associated with them. Actions to mitigate risk are noted for each ADS.

P98D0019 ORNL S&H - Building Electrical System Upgrade (KC-OE)
ORNL Facilities' Condition Assessment Survey identified legacy vulnerabilities from fire and electrical shock hazards principally due to aging facilities and installations which do not meet the National Electrical Code. Many of these were categorized as Urgency Repair Code #1 - asset condition critical, Urgency Repair Code #2 - asset condition serious, or Urgency Repair Code #3 - asset condition degrades. Money is not available to address large electrical safety infrastructure issues under current funding programs. Therefore, a building electrical system upgrade proposal is logical and cost effective. It is essential that these needs be identified within the budgeting process. The primary areas requiring this enhanced support are (1) wiring and panel board replacement, (2) circuit identification and removal of abandoned services, (3) upgrade of wiring to meet the National Electrical Code, and (4) motor control center upgrades.

Mitigating Actions: Electrical workers will follow safety-related work practices when performing electrical work on aging or potentially defective equipment. Facility maintenance personnel recognize that much of the electrical system and associated electrical apparatus located at the Laboratory is old and requires a higher level of care. Employees working on the equipment do so with a heightened sense of awareness and look for problems they would not normally be concerned with on newer equipment. Deficiencies found to be immediately dangerous to safety and health or property will be corrected with available maintenance funds.

C97D0081 Eyewash, Safety Shower, and Water System Upgrades (KC-GPP)
The scope of this activity includes the upgrade of water supply systems and encompasses the following:

1. Install safety showers and eye washes with potable water supply.
2. Replace piping and associated components used to supply and remove process water.
3. Replace piping and associated components used for heating.

This project includes the removal and replacement of any existing eyewash stations and safety showers in the laboratories and corridors of Wings 2 and 3 of the Central Research and Administration Building, 4500N, and safety showers and eyewash stations in 4501 and 4505. To meet OSHA standards, potable water headers will be installed to supply the water for the safety shower and eyewash stations.

Mitigating Actions: Portable eyewashes are being installed in these facilities until GPP funding becomes available for the new eyewash and safety shower systems.

A99D0018 Fire Protection Systems Upgrade (LI)
The mission of this project is to provide the Oak Ridge National Laboratory (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 the 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:

a. Replace antiquated fire alarm systems in seven major research buildings:
- Isotope Technology Building, 3047
- Instrumentation and Controls Building, 3500
- Central Research and Administration Building, 4500N
- Radiochemical Laboratory Building, 4501
- Experimental Engineering, Building 4505
- Metals and Ceramics Laboratory, Building 4505

b. Add sprinkler protection in offices and corridors of Wings 1 - 4 in the Central Research and Administrative Building, 4500N.

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

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

Mitigating Actions: Although the systems are aging and becoming more failure prone, they are on a rigid inspection, testing, and maintenance schedule. Failure rates and types are recorded and accumulated. Should failure rates reach a "critical" level where negative impacts on people and property appear imminent, direct contact will be made with upper management to get funds for

immediate action on an emergency basis. Routine fire protection engineering assessments, monthly building inspections, and frequency of alarms are other methods utilized to monitor systems reliability.

C97D0080 Asbestos Abatement, ORNL at Y-12 - ERKCL51 (KC-OE)
Asbestos abatement includes removing asbestos from piping and equipment, as well as replacing asbestos ceiling panels, deteriorated asbestos ceiling plaster, etc. All these items increase the cost of maintenance if repairs are required. Some rooms/areas where asbestos lines or ceiling panels have fallen (steam/water leaks) are totally closed off where HVAC units and controls are located.

Mitigating Actions: As maintenance jobs are worked that require removal of asbestos insulation and ceiling tiles, the repairs include going back with nonasbestos material. Several major problem areas are being administratively controlled with tagging and sealing off to limit access.

P98D0013 Remove Asbestos from Controlled Areas (KC-OE)
Asbestos controlled areas are areas where friable asbestos-containing insulation has become deteriorated and presents a potential health hazard (employee exposure) to employees entering these areas. Personal protective equipment is required to enter these area. Work includes the removal of friable asbestos-containing insulation via high-powered vacuum system (super sucker) and via insulation encapsulation. The targeted controlled areas are as follows: (1) Building 2000 attic, (2) Building 2001 attic, (3) Building 3550 attic, and (4) Building 2517 crawl space.

Mitigating Actions: These controlled areas have limited access from the general plant population. Workers entering these areas are required to have asbestos awareness training prior to performing any work in the area. A periodic walk-through, by a representative of the Asbestos Management Group, identifies areas needing additional attention.

P98D0007 ORNL H&S-Radiological/Toxicological Sabotage (KC-OE)
DOE Notice 5630.3A, "Protection of Departmental Facilities Against Radiological and Toxicological Sabotage," dated 6-28-93, was made applicable to ORNL by inclusion of Oak Ridge Order 151.1 Rev. 1, dated 9-30-96, into the baseline. It requires contractors to perform graded assessments of the risk due to sabotage with the level of hazards present in their facilities.
Mitigating Actions: At facilities where there are plans to modify current operations or significantly change the inventory of nuclear or hazardous materials that could cause potential adverse public health and safety impacts due to sabotage, we are requiring the facility/program manager to provide funding for a radiological/toxicological sabotage assessment as part of his planning process. FWP ERKCL25 is submitted annually to request funding for this activity.

C98D0167 Cooling Tower Maintenance - ERKCL30 (KC-OE)
Cooling Towers 2026, 3525, 4511, and 6001 are critically degraded due to age and inadequate maintenance. GPP Funding is being requested to replace 4511 and 6001 towers; however, until the towers are replaced, extensive maintenance is required to preserve their operability and ensure the safety of personnel required to periodically clean the towers and maintain fans and gearboxes. (1) Building 4511 is currently unusable and cannot be placed in operation until underground crosstie valves (connecting its basin to 4510 tower) are replaced. The wooden structure is

deteriorating at a rapid rate under dry conditions and becomes increasingly hazardous to maintain. The stagnant basin provides fertile conditions for legionella bacteria. (2) Building 6001 has undergone numerous structural repairs in the last two years and currently is in need of fan control upgrades along with system and basin cleaning to improve bacteria control and operating efficiency. (3) Building 3525 tower is operated for a potentially surplus facility but is unsafe to access. Tower basin and piping leaks are also creating risk for unpermitted chlorine discharges to nearby storm drains. (4) Building 2026 requires a redesign of piping to eliminate overflows to the roof drain during bypass operation. Overflows increase risks for NPDES permit violations and frequently shut down building cooling operations.

Mitigating Actions: Towers with structural deficiencies are inspected and repaired as necessary to minimize safety problems for maintenance workers and operators working on or around the towers. Operation of the towers (i.e., starting fans and pumps, water treatment controls) requires routine testing and monitoring by the operators and refrigeration mechanics. These towers are equipped with annunciated alarms in their respective control rooms. The 3025 cooling tower, which is in good condition, is being eliminated by the installation of a new air cooled chiller. This tower will be relocated to Building 3525 when funding is allocated for this work.

C98D0169 Supplemental Roof Maintenance and Emergency Repairs - ERKCL30 (KC-OE)
Leaks in roofing are causing structural failures and unsafe working conditions for the general plant population and visitors. Additional funding would permit the reduction of roof repair backlog and would permit predictive and programmed maintenance of ORNL roofing.

Mitigating Actions: Plant and Equipment (P&E) Division inspects 100% of the ORNL roofs each year, and the results are communicated back to the facility managers within 45 days following the inspection. The roof inspections and communicated deficiencies are included in the Life Cycle Asset Management (LCAM) performance measures for Operations and Maintenance. Roof replacement needs have been prioritized (based on asset condition and mission importance), and many of the roofs are scheduled to be replaced in FY 1999 and FY 2000 under the Landlord reroofing line item.

C98D0181 Fire Systems Upgrade, ORNL at Y-12 - ERKCL51 (KC-OE)
Fire systems upgrade includes replacing and repairing identified fire protection issues: exit and emergency lights for egress, stairwell fire wall penetration repairs, fire doors replacement or repair, sprinkler systems installed, replacement of ceiling panels to comply with fire protection standards, etc. All facilities have identified findings currently in the ORNL LIDS System that require addressing.

Mitigating Actions: Fire system upgrades include replacing and repairing identified fire protection issues (e.g., exit and emergency lights for egress, stairwell fire wall penetration repairs, fire door replacement or repair, sprinkler system installation, replacement of ceiling panels to comply with fire protection standards, etc.). Exit and emergency lights are checked quarterly and are replaced

if required on overhead funds as part of the preventive maintenance program. Combustibles in unprotected areas are relocated by building personnel. Fire doors are repaired on building maintenance overhead funding as part of normal building maintenance. All fire protection issues are being evaluated to address the risk to building personnel. Administrative controls are in place where appropriate to limit access to areas with fire protection concerns.

A99D0031 Transformer Bonding, ORNL at Y-12
During routine electrical inspections in some of the Y-12 facilities, a problem was identified in several transformers. The transformers were building transformers which have a neutral on the secondary side. In accordance with the National Electrical Code the transformer shall have a bonding jumper between the neutral and the grounding electrode conductor, which is also bonded to the equipment enclosure. The transformers did not have the required bonding jumper. Scope of work would include having electricians walk down facilities and correct any transformer bonding issues found. This would include at least buildings 9201-3, 9204-1, 9204-3, 9210, and 9201-2. The transformers support both research projects and building maintenance activities.

Mitigating Action: This ADS covers corrections for a potential shock hazard found on some transformers, which were identified during routine electrical inspections. The transformers were building transformers which have a neutral on the secondary side. In accordance with the National Electrical Code, the transformer shall have a bonding jumper between the neutral and the grounding electrode conductor, which is also bonded to the equipment enclosure. The transformers did not have the required bonding jumper. Scope of work would include having electricians walk down facilities and correct any transformer bonding issues found. Electrical personnel have met to discuss the risks and costs associated with these transformers. A letter has been issued to all the ORNL@Y-12 facilities managers indicating this issue could become a RED ALERT and identifying the required corrective actions.

S97D0058 Lockheed Martin Transportation and Packaging Management Facility (KC-GPP)
The new Lockheed Martin Transportation and Packaging Management (LMTPM) Organization facility is to be utilized by all LMTPM employees at ORNL. LMTPM personnel are located in three facilities: Building 3036 in Isotope Circle houses packaging engineers, chemical operators, and a material assistant; Building 7001 houses primarily traffic and shipping personnel, but also has packaging and Quality Assurance employees; and Building 6026G houses transportation management, packaging engineers, and compliance personnel. Besides improving the effectiveness and efficiency of the entire LMTPM operation at ORNL, the primary need for the new LMTPM facility is to relocate LMTPM personnel in Building 3036 and return Building 3036 to the Chemical Technology Division (CTD). Building 3036 contains areas of fixed radiological contamination.

Mitigating Action: LMTPM follows ES&H standards and procedures in ensuring compliance in relation to fixed-contamination controls. Such controls include, but are not limited to, conducting weekly health physics surveys for operations and office areas, green-tagging operational items (i.e., containers, equipment) before entering the facility, and conducting an annual integrity survey for wearing/thinning paint.

P99D0001 Beryllium Survey
This task is necessary due to the increasing concern focused by the DOE on occupational exposure to beryllium. DOE Notice 440.1, "Interim Chronic Beryllium Disease Prevention Program," issued on July 15, 1997 enhances and supplements other worker protection programs with hazard-specific provisions designed to manage and control beryllium exposure hazards in the workplace. This interim Notice was issued to direct immediate action for protecting workers while rulemaking efforts continue. The provisions in Notice 440.1 necessitate a program directed at determining the location of beryllium and assessing the hazard potential.

Mitigating Action: Verification of the ORNL Baseline Beryllium Inventory will be conducted. Any additional information gathered during the verification process will be added to the baseline inventory. This information will be used to identify exposed and potentially exposed workers by location, gather exposure assessment information, and develop sampling protocols.

A98D0009 Water System Upgrades, 1000 AREA
This project will provide a needed infrastructure upgrade for the potable water system in the west end of the ORNL complex. This area is supplied by a single feed of 6- and 8-in. water mains. This project will install approximately 3000 ft of 16-in. main to the west end of the ORNL complex along with the associated pressure reducing valves, isolation valves, fittings, hydrants, and valve pits and will provide a looped feed to this area of the Laboratory.

Mitigating Action: Though provided by a single line, fire protection water for the facilities located in the 1000 Area is adequate. Any impairment on supply lines will be repaired as quickly and efficiently as possible while fire protection personnel stand by on fire watch at the affected facilities.

A98D0010 Water System Upgrades, 7600 AREA
This project will provide a needed infrastructure upgrade for the potable water system in the east end of the ORNL complex. This project will install approximately 9000 ft of 16-in. main to the 7600 Area at the far east end of the ORNL complex along with the associated isolation valves, fittings, hydrants, and valve pits and will provide a looped system to this area of the Laboratory.

Mitigating Action: The dead end water supply system to the 7600 area currently maintains a steady minimal discharge to mitigate depletion of chlorine in the lines.

A98D0016 Cooling Tower Replacement - 4511
Cooling Tower 4511 is critically degraded due to age, in extremely poor condition, and cannot be used. GPP funding is being requested to replace 4511.

Mitigating Action: Cooling towers 4510 and 4521 have excess capacity for the projected peak cooling level. However, 4521 would be inadequate for the peak load. Cooling tower 4510 was replaced in FY 1997 and is considered highly reliable. Should either tower fail during peak load periods, a load shedding program would be initiated to reduce the load to below available capacity in the event of the failure of either tower.

P98D0021 ORNL Safety and Health - OSHA Regulatory Compliance (KC-OE)
LMER's 1998 goal of identifying and correcting all serious OSHA noncompliances (RAC 1s and 2s), and 100% of all previous other-than-serious noncompliances (RAC 3s) has resulted in compliance funding requirements beyond that which current programs can fund. Money is not available to address large OSHA noncompliance issues that meet the above demands. Therefore, an OSHA Regulatory Compliance proposal is logical and cost effective. It is essential that these needs be identified within the budgeting process. This activity is proposed to upgrade ORNL facilities and programs to achieve compliance with OSHA standards. The primary areas requiring this enhanced support are (1) continued assessment of OSHA noncompliances to evaluate and select compliance alternatives and define and prioritize abatement plans and (2) corrective actions for noncompliances with emphasis on serious- and medium-risk noncompliances (RAC 1s, 2s, 3s). Continued inspections have been made to identify industrial hygiene and industrial safety noncompliances. The results of these inspections and recent surveys have specifically identified and quantified many noncompliances by sub-part. Additional out-year expense and capital funding will be required to provide for upgrades of ORNL facilities and programs to a level of worker health and safety equivalent to OSHA requirements. In addition, programs will be established to ensure the maintenance of this level of worker safety and health protection.

Mitigating Actions: All serious noncompliances (RAC 1s and 2s) are corrected within 24 hours. All other than serious noncompliances (RAC 3s) are corrected within 90 days, or administrative controls are implemented to ensure that employees are safe. Access to attic areas in the 4500 complex has been restricted to only those personnel who have been trained regarding hazards associated with unguarded machinery. Overhead funding in the amount of $75K has been allocated for OSHA electrical upgrades in FY 1999.

P98D0026 ORNL Facility Asbestos Survey (KC-OE)
Approximately 60% of the facilities located at ORNL have been surveyed for the identification of asbestos. This program will provide funding to complete the asbestos survey for the remaining 40% of the buildings within the ORNL facility.

Mitigating Actions: The only records from the previous surveys are located in the Asbestos Program office. This information is contained in about 90 spiral-bound volumes. Requests for new work require a visit to the area and sampling by a member of the Asbestos Management Group. These samples are recorded in the program office for future reference.

C97D0069 Upgrade Electrical systems, 3019, 3025, 3500 (KC-GPP)
This project will replace obsolete and inadequate switchgear and transformers at the main electrical service entrances to these buildings. These electrical devices are the control points for the main electrical systems in each of these facilities. Much of this equipment has been in service for 50 years and must be replaced to ensure reliable electrical service to the customers and provide a safe environment for building occupants, system operators, and maintenance personnel.

Mitigating Actions: Electrical service is provided to these facilities through 50-year-old service entrances and other aged equipment. In most facilities, this equipment is serviceable and will

remain reliable as long as it is properly maintained. All new loads on facility electrical systems are reviewed for possible impacts on these older services. Facility maintenance personnel recognize that many of the electrical systems are old and require a higher level of care. Special precautions are taken by maintenance personnel when working on these systems.

C97D0070 Upgrade Electrical Systems, 6000 and 7000 Areas (KC-GPP)
This project will replace obsolete and inadequate switchgear, transformers, and motor control centers at the main electrical service entrances to these buildings. These electrical devices are the control points for the main electrical systems in each of these facilities. Much of this equipment has been in service for 50 years and must be replaced to ensure reliable electrical service to the customers and provide a safe environment for building occupants, system operators, and maintenance personnel.

Mitigating Actions: Electrical service is provided to these facilities through 50-year-old service entrances and other aged equipment. In most facilities, this equipment is serviceable and will remain reliable as long as it is properly maintained. All new loads on facility electrical systems are reviewed for possible impacts on these older services. Facility maintenance personnel recognize that many of the electrical systems are old and require a higher level of care. Special precautions are taken by maintenance personnel when working on these systems.

S97D0036 Electrical Upgrade, ORNL at Y-12 - ERKCL51 (KC-OE)
Electrical upgrades include (1) replacing lighting center, (2) restoring 480V electrical systems, (3) replacing crane feed rails, (4) upgrading switchgear areas, and (5) upgrading intercom/radio system.

Mitigating Actions: This ADS includes (1) replacing lighting centers, (2) restoring 480V electrical systems, (3) replacing crane feed rails, (4) upgrading switchgear areas, and (5) upgrading intercom/radios. Preventive maintenance will continue to be performed on breakers to avoid damage to the equipment as part of the building maintenance program.

P98D0003 Nuclear Criticality Safety Program: 0 420.1 Upgrade (KC-OE)
Section 4.3 of DOE Order O 420.1 has been adopted as the principal Nuclear Criticality Safety (NCS) Work Smart Standard requirement for LMER. This proposal requests the additional funding, above that provided to base LMER NCS Program, that is required to bring LMER into compliance with O 420.1.

Mitigating Actions: A revised O 420.1 Section 4.3 Implementation Plan was submitted to DOE-ORO by LMER 1/13/99. It points out that Field Work Proposal ERKCL10 has been submitted to fund developing a program to detect accumulations of fissionable material and to improve the surveillance of facilities with fissionable materials as required by 4.3.3.i.

A99D0029 Upgrading 480V Breakers, ORNL at Y-12 Facilities (ERKCL51)
The scope of this work involves upgrading and performing overdue preventive maintenance on aged 480 V breakers in several ORNL at Y-12 facilities. The average pass due preventive maintenance is between 5 - 20 years. Because of the age of the existing breakers, they need to upgraded with full function solid-state trip units . The preventive maintenance should also include cleaning , tightening and testing of the switchgear. Buildings with these breakers include 9201-3, 9207, 9210, and 9201-2. The breakers support both research projects and building maintenance activities.

Mitigating Action: This ADS includes upgrading and performing overdue preventive maintenance on aged 480V Breakers in several ORNL at Y-12 facilities. Because of their age, these breakers need to be upgraded with full function solid-state trip units. The preventive maintenance will include cleaning, tightening, and testing of the switchgear. During FY 1998 and FY 1999, a total of $125K from building overhead funds was allocated to replace and perform preventive maintenance on deteriorated 480V breakers. Preventive maintenance will continue to be performed on breakers to avoid damage to the equipment as part of the building maintenance program.

A99D0030 Replace Building 9401-1 Switchgear 322 (ERKCL51)
The scope of this work involves replacing an aged and deteriorated switchgear servicing offices and research areas, in Building 9401-1, Engineering Technology Division, Motor Testing Facility. Job scope includes removal, disposal, and replacement of old switchgear and replacing it with a drawout type switchgear with solid-state trip elements.

Mitigating Action: This ADS includes replacing an aged and deteriorated switchgear that services offices and research areas in Building 9401-1, Engineering Technology Division, Motor Testing Facility. The job scope involves removal, disposal, and replacement of old switchgear and replacement with a drawout type switchgear with solid-state trip elements. During FY 1999 a total of $8K from building overhead funds has been allocated to replace and perform preventive maintenance on deteriorated 480V breakers in this facility. Preventive maintenance will continue to be performed on breakers to avoid damage to the equipment as part of the building maintenance program.

A98D0119 HVAC HCFC 50 Pound Replacements
Replace deteriorated air conditioning equipment normally containing more than 50 lb of refrigerant and subject to leaks which exceed the allowable 15% leak rate. Since Class I ozone-depleting refrigerants [chlorofluorocarbons (CFCs)] are being replaced under a separate ADS, this category will be geared to replace older Class II refrigerant systems [hydro chlorofluorocarbons (HCFCs)]. HCFC refrigerants are recovered from the machines as they are replaced and reused in operating units. Job scope includes removal and replacement of old units, electrical starters, and subsequent electrical, piping, and sheet-metal tie-ins. 7910 chiller is currently unusable due to the ruptured tower water line from 7902.

Mitigating Action: P&E will continue to repair refrigerant leaks to remain in compliance. The EPA rule for leak repairs (>15%) requires that the leaks be repaired within 30 days of discovery

of the leak or 30 days from when the leak should have been discovered. Parts for old and obsolete machines are frequently not off-the-shelf items. If the leaks cannot be repaired within 30 days: (1) a Retirement Plan must be filed with EPA granting a one-year replacement period or (2) the unit must have the refrigerant removed and taken out of service.

E. FY 1999 Planned ESHQ&I Abatement Activities

The following activities are those planned FY 1999 capital project activities which have significant ESHQ&I abatement opportunities.

C97D0071 Fire Protection systems Upgrade (KC-GPP)
The following projects/tasks are in support of the ORNL fire protection systems:

(1) replace two aged and failure-prone automatic preaction sprinkler system deluge valves with highly reliable automatic wet-pipe sprinkler system alarm valves in the High Voltage Accelerator Laboratory (5500). Interface modifications between the sprinkler systems and fire alarm system in this 52,000-sq-ft building will also be conducted;
FY 99 GPP

(2) replace one aged and failure-prone automatic preaction sprinkler system deluge valve with a highly reliable automatic wet-pipe sprinkler system alarm valve that protects portions of the High-Level Radiochemical Laboratory Building (4501)
FY 99 GPP

(3) replace five aged and maintenance-intensive automatic dry-pipe sprinkler systems with more reliable/effective automatic wet-pipe sprinkler systems in the 45,000-sq-ft General Stores/Shipping and Receiving Complex (7001 and 7002);
FY 99 GPP

(4) upgrade the 4500N Wing 5 alarm system and connect it to the 4500N alarm system.
FY 99 GPP

(5) replace the antiquated fire alarm system at the High Flux Isotope Reactor (HFIR). The HFIR fire alarm system is over 30 years old and is not capable of being further modified to perform all monitoring functions necessary to support continuing changes at the HFIR complex. Replacement parts are no longer available for many critical components. Additionally, fire alarm control and announcement equipment is located deep inside the HFIR complex and may not be accessible to fire department personnel during a fire event. This project would replace the HFIR fire alarm system with state-of-the-art equipment capable of performing all necessary alarm and supervisory monitoring functions, alarm zone annunciation at the building entrance and in the control room, and be expandable to accept future changes at the complex;
FY 99 AIP/HFIR

(6) upgrade various antiquated fire alarm panels/systems in ORNL research and support facilities. (1505, 1506, 2010, 2519, 3019A, 3525, 4508, 5505, 6010, 6025, 7900, 7910, 7920, and 7930.

(7) replace fire doors in 4500N between the wings and main corridors.

(8) provide adequate sprinkler protection in 4500S Graphic Arts area. LIDS Issue No. I35458.

(9) Change out sprinkler heads in systems 50 years old.

(10) Add sprinkler protection to Room C-110, Building 6000. LIDS Issue No. I35507 and sprinkler protection for 7920 hot cells.

Status: $750K has been funded in FY 1999 to (1) upgrade the 4500N Wing 5 alarm system and connect it to the 4500N alarm system, (2) replace five dry pipe sprinkler systems in the 7001 complex with wet pipe systems, (3) replace two deluge valves in 5500 and make modifications between the sprinkler systems and fire door systems, and (4) replace a deluge valve that protects portions of Buildings 4501 and 4505. Although the systems are aging and becoming more failure prone, they are on a rigid inspection, testing, and maintenance schedule. Failure rates and types are recorded and accumulated. Should failure rates reach a "critical" level where negative impacts on people and property appear imminent, direct contact will be made with upper management to get funds for immediate action on an emergency basis. Routine fire protection engineering assessments, monthly building inspections, and frequency of alarms are other methods utilized to monitor systems reliability.

S97D0032 West End Steam Upgrade Completion (GPP)

This project will perform those activities necessary to complete the West End Steam System Upgrade. Included in the work will be the completion of concrete trench duct, installation of steam piping, compressed air piping, condensate return piping, insulation of this piping, and final tie-ins to existing buildings. Design work has been completed and materials for completion of these tasks are on hand.

Status: Work on this project has been completed.

S97D0055 250,000-Gallon Steel Fuel Oil Storage Tank (GPP)
Construct a 250,000-gal prefabricated steel storage tank and secondary containment structure adjacent to the ORNL Steam Plant. This tank will be used to store fuel oil, which is used as an emergency fuel source for the generation of steam at the facility. Associated fuel oil transfer lines and pumps used to move the fuel from the tank into the steam plant will be included in the project as will a fire suppression system for the tank and its equipment.

Status: A preliminary proposal is being prepared to request authorization of funding for this project in FY 1999.

S97D0017 Steam Plant Upgrade Boiler Addition (LI)
This project will construct additional 100,000-lb/hour boiler capacity at the ORNL Steam Plant. The new boiler will be capable of burning either natural gas or fuel oil using modern boiler technology. Also included in the project will be those boiler auxiliaries (pumps, fans, tanks, etc.)

necessary to support plant operations.

Status: The boiler house foundation and second floor have been completed. The boiler has been placed on the second floor in its final location. Construction should be completed in FY 1999.

C98D0177 Upgrade the Condensate Return System (GPP)
Included in this project is the evaluation of the existing system to determine whether to repair or replace the various components of the system, purchase and install components needing replacement, and repair the repairable ones.

Status: A study of the condensate return system has been completed, and recommended upgrades have been specifically identified. Currently awaiting bid for completion of upgrades.

S97D0010 3000 SCFM Air Compressor - Building 2519 (GPP)
This project will provide for the purchase and installation of a new 3000-scfm rotary screw turbine-type oil-less air compressor to replace two aging units at Building 2519. Clean, oil-free compressed air is used throughout the Laboratory to control equipment, systems, and processes and is a critical utility in the operation and maintenance of the Laboratory.

Status: Installation of this compressor is underway.

S97D0029 Roofing Replacement, ORNL (LI)
The project described 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; because of deterioration, they have developed many leaks. In many instances, these leaks have adversely affected equipment, records, and research as well as health and safety of personnel working with 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.

Status: It has been projected that almost twice as much roofing can be replaced as planned in the original scope of this project. To date, 494,000 sq ft of roofing replacement has been completed. Another 349,000 sq ft is in progress, and an additional 397,000 sq ft is planned if the project is fully funded.

F. Significant Funding Changes

Actual funding for FY 1998 and planned funding for FY 1999 were reported in the FY 1999 ESHQ&I Management Plan (ORNL/M6616), dated November 1998. The planned funding base in the ESHQ&I Management Plan was submitted prior to the submittal of current year FWPs and final allocations of overhead funds. Therefore, this submittal has FY 1999 planned funding and FY 1999 to-date-funding which have differences due to funding reallocations and reductions in the

overhead funding and landlord programmatic funding changes.

Laboratory Overhead:

This submittal has a funded overhead target of $60,441. The FY 1999 ESHQ&I Management Plan submittal reported $36,320. The difference is the reported Laboratory administrative functions which were risk scored for the first time by the ORNL Risk Ranking Board and ESHQ&I functional areas which reflect total funding [e.g., Office of Laboratory Protection for emergency preparedness and fire protection ($1.4M) versus their total budget of $11.8M]. The following overhead ADSs were originally compliance issues which were reevaluated and were funded or partially funded.

P98D0081 Pressure Vessel/Dikes/Steam Distribution
This unfunded compliance ADS was deleted. Compliance components of this task were added to the Steam Distribution account in the Plant and Equipment Division. The funding will begin a program for changeout and testing of pressure values. ($30K, FY 1999)

P98D0279 ORNL Facility Asbestos Survey
This unfunded compliance ADS was partially funded to initiate a service subcontract for a program to begin the survey of ORNL facilities not previously surveyed. ($100K, FY 1999)

P98D0498 Inspection Test and Maintenance
This unfunded compliance ADS was partially funded to begin a program of inspection and testing of fire equipment. ($100K, FY 1999)

P98D0463 Fire Department Equipment
This unfunded compliance ADS was deleted. Necessary compliance equipment requested by this ADS will be funded through the overhead funds allocated for ES&H improvements for the Laboratory. ($62K, FY 1999)

P99D0007 Emergency Management Hazards Assessments
This unfunded compliance ADS was partially funded to initiate assessments. ($50K, FY 1999)

General Plant Projects:

The ORNL Capital Asset Management manager and the ORNL Operating Committee members analyze the risk ranking and prioritization of proposed GPPs. Funding and project needs are continually evaluated using the risk ranking and prioritization to recommend changes in allocations of project initiation and scope to the ORNL Executive Committee. The following General Plant Project activities involved reallocation of funding or received new funding. The differences are between funding reported in the FY 1999 ESHQ&I Management Plan and funding being reported in this submittal.

The 5-Teraflops Computer Facility ($2,250K, FY 1999) was deleted from the FY 1999 planned activities. Funding from this project was reallocated to other projects as indicated below.

C98D0120 Environmental and Life Sciences Laboratory
Current FY 1999 Budget $2,000K
Planned FY1999 Budget $1,550K

C97D0071 Fire Protection Systems Upgrade
Current FY 1999 Budget $750K
Planned FY 1999 Budget $490K

S97D0055 250,000-Gallon Steel Fuel Oil Storage Tank
Current FY 1999 Budget $1,000K
Not included in the ESHQ&I Management Plan for FY 1999 funding

C98D0177 Upgrade the Condensate Return System
Current FY 1999 Budget $300K
Planned FY 1999 Budget $0K

S97D0042 HVAC Upgrades - GPP - Target (REDC Cooling Tower)
Current FY 1999 Budget $100K
Planned FY 1999 Budget $0K

S97D0032 West End Steam Lines
Current FY 1999 Budget $40K
Planned FY 1999 Budget $0K

S97D0001 Neutron Sciences Support Building
Current FY 1999 Budget $50K
Planned FY 1999 Budget $0K

S97D0010 3000 Scfm Air Compressor
Current FY 1999 Budget $250K (Carryover funding - not listed on FWP submittal)
Planned FY 1999 Budget $0K

VI. FY 1999 ESHQ&I Key Management Issues

The purpose of an ESHQ&I issues management process is to ensure that potentially significant issues are recognized, that summary-level information is communicated to the decision-making level, that expectations are established and assigned for resolution, and that issues are resolved in a complete and timely manner.

The Department of Energy issued DOE P 450.4, *Safety Management System Policy*, which requires both DOE and its contractors to systematically integrate ES&H protection into work planning and execution at all levels. The requirement for implementation of this policy is specified

in the DEAR clause. This clause requires that contractors establish and document for DOE approval an ISMS consistent with the policy.

The ISMS is a comprehensive standards-based safety system used to address both work and business processes. ISMS is being institutionalized through DOE policy and contracts. DOE P 450.4 states that "The Department and contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment."

On July 14, 1997, Draft DOE G 450.4-1, *Integrated Safety Management System Guide,* was issued to provide information on expectations associated with implementation of the policy. The implementation guide provides the link to DOE's expectations for ISMS. The guide also provides information on the preparation, content, review, and approval of ISMS documentation.

The following activities associated with ISMS implementation were either completed or are scheduled for completion.

- An ISMS Policy Statement was developed and issued (January 1998).
- An ISMS Implementation Committee was appointed and charted (January 1998).
- An ISMS Director's Workshop was presented to members of the ORNL Executive Committee and division, program, and office directors (April 1998).
- An ISMS Program Description was developed and issued (June 1998).
- ISMS Plans (34) were developed and submitted to DOE (October 1998).
- An ISMS GAP Analysis was completed and submitted to DOE (December 1998).
- An ISMS Phase I Verification Workshop was conducted to develop an understanding of management expectations (January 1999)
- Letter issued to DOE stating readiness for an ISMS Phase I Verification (February 1999).
- An ISMS Phase II Verification Workshop will be conducted during July 1999 to develop an understanding of management expectations.
- Letter to be issued to DOE stating readiness for an ISMS Phase II Verification (August 1999)

The ORNL GAPS Analysis identified a set of high-level issues that represent strategic or high-level tactical concerns as key risk management issues. They are as follows:

- mechanisms to maintain the integrity of the Work Smart Standards Set are not yet complete,
- the ORNL-level Assessment Program is not fully meeting the objective of evaluating the divisional self-assessment programs,
- mechanisms to ensure the applicability of ISMS to subcontractors need to be strengthened,
- mechanisms to promote sharing Lessons Learned (information on effective solutions, not just identified problems) among organizations need to be strengthened,
- development of procedures required by individual organizations to implement the ORNL ESH&Q Directives set is not complete,
- a program to ensure worker involvement in work planning, adjustment during execution, and evaluation needs to be developed,
- awareness of the ISM approach and implementation by all workers is not complete, and mechanisms to assist workers in obtaining information and assistance need to be improved,
- the ESH&Q Responsibilities Matrices between R&D organizations and the ESH&Q support organizations are not yet complete,
- systems to identify training-need profiles for individual workers and to deliver that training effectively need to be strengthened, and
- improved precursor metrics are needed to evaluate and trend performance.

The status of the Key Management Issues will be reported on in the FY 1999 ESHQ&I Management Plan to be issued sixty days following the end of FY 1999.

VII. Budget Analysis Support Information

A. Major Planning Assumptions

Planning assumptions are based on direct guidance from the Secretarial Office funding programmatic activities at ORNL. In addition, DOE-ORO funding guidance is followed to ensure consistency of FWPs, ADSs, Capital Equipment Requests, General Plant Project Requests, and Line Item Requests. All overhead planning assumptions are based on a prioritization of risks to the mission of ORNL, personnel safety and health, environmental issues, and public issues. ORNL is dedicated to ensuring that all regulatory requirements are met or exceeded. Reductions in funding may impact some of the requirements of DOE Orders and may severely impact best management practices (BMPs).

B. Funding Bases

The Secretarial Office responsible for landlord activities at ORNL is Office of Science (SC), Office of Basic Energy Sciences (BES). Office of Science (SC), Laboratory Infrastructure Division (SC82) is responsible for funding Landlord line item projects. 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 SC and other programs as a result of the ESHQ&I Management Planning efforts are recognized through ADS updates. 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.

ORNL ESHQ&I activities are either direct (Program) funded or 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), division-specific overhead pools (DA), 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 offices (e.g., Office of Environmental Compliance and Documentation) recognize their cost of operation through Target ADSs for which costs correspond directly with ORNL overhead budget documents. Unfunded activities which should appropriately be funded through the ORNL overhead budget are recognized as "Supplemental." Direct programmatic funding requests by the ORNL ESHQ&I organizations are submitted through FWPs. The FWP submittals working in concert with the ADS submittals allow both overhead and programmatic organizations to request landlord direct funding for ESHQ&I activities.

ESHQ&I overhead funding targets were developed as part of the FY 1998 ORNL Site overhead budgeting process. Following risk prioritization of activities, recommendations are made to ORNL management for funding of targets and consideration for funding of supplemental requests. ORNL management then allocates available target funding to ESHQ&I organizations for their activities. Overhead funding is reviewed by the DOE Site personnel for concurrence. Following adjustments, ESHQ&I organizations are 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.

C. FY 1999 ESHQ&I Indirect Budget Summary

ESH&I Indirect	FY 1999 Indirect Budget
Office of Environmental Protection CA - Protection of Air Quality CW- Protection of Water Quality HW- Solid and Hazardous Waste (Oversight Only) CS - Control of Toxic Substances MR - Environmental Management, Oversight, and Reporting PP - Pollution Prevention Oversight	$5,172K
Health Division MS - Occupational Medical Services	2,471K
Office of Laboratory Protection EP - Emergency Preparedness FP - Fire Protection	11,806K
Office of Safety and Health Protection & Office of Nuclear Safety IS- Industrial Safety IH - Industrial Safety NS - Nuclear Safety TS - Transportation Safety MO - Management and Oversight	5,183K
Office of Quality Services MR - Environmental Management, Oversight, and Reporting MO - Safety Management and Oversight	1,784K
Office of Radiation Protection RP - Radiation Protection	3,805K
Sanitary/Industrial Waste Management Operations Other Overhead	560K
Transportation Operations	189K
Plant and Equipment Division	14,697K
Low Value Equipment (LVE)	396K

OSHA/ES&H Corrective Actions	235K
- OSHA Compliance, RAC 3 Nonelectrical	
- OSHA Compliance, RAC 3 Electrical	
- OSHA Compliance, Machine Guarding	
- General ES&H	
Other Laboratory Administration	14,143K
Total	$60,441K

D. ESHQ&I Direct Budget Summary

1. Summary Direct Budget

The following is a listing of planned FY 1999 direct costs and revised funding targets following reconciliation of FWPs and ADSs.

DA Activities[1]		$ 6,362K
DI Activities[2]		13,084K
HFIR Safety[3]		12,196K
KG Program	(ES&H/Both)	6,905K
KG Program	(Infrastructure Only)	0K
KC Program	(ES&H/Both)	4,258K
KC Program	(Infrastructure Only)	3,598K
Total		$46,403K

[1]From the direct target ADSs in the FY 2001 Budget Formulation Plan submittal, DA is designated spending by R&D divisions and programs from their division programmatic funds in support of ES&H needs. These activities included support for internal division personnel with dedicated ES&H roles (e.g., division safety officer) and other expense activities such as the correction of safety shower and eyewash station deficiencies. In addition, direct target funds reported were from expected funding to support projects and activities with an identifiable percentage for ES&H support as well as infrastructure support Direct unfunded ADSs will be identified in the FY 2000 ES&H Management Plan (Execution). Unfunded items are continually being reviewed to determine if funding allocations need to be adjusted to allow for completion of these activities.

[2]From the direct target ADS C97D0148 in the FY 1999 Budget Formulation Plan submittal, DI is designated as planned distributed cost incurred for ES&H services procured by other ORNL divisions/offices/programs.

[3]HFIR operating cost is the total operating cost of $12,196K on ADS E93D0021, "High Flux Isotope Reactor Operation." This funding recognizes costs for ES&H-related activities which are funded through the Basic Energy Sciences Program activities.

2. Line Item Summary

Net Score	ADS No.	ADS Title	FY 1999	FY 2000
212	C97D0106	Electrical Systems Upgrade		357K*
163	S97D0017	Steam Plant Upgrade (Boiler Addition)	1,900K	
17	S97D0029	Roofing Replacement	4,908K	
		Total	6,808K	357K

*It is anticipated that Multiprogram Energy Laboratory Facilities Support (MELFS) Program Line Item funding will be provided in FY 2000 for this project.

3. General Plant Equipment

Net Score	ADS No.	ADS Title	FY 1999	FY 2000
189	C98D0004	Computing Systems for SAP	800K	
174	A98D0015	Engineering Equipment Replacement		300K
171	A98D0105	Secure Network Remote Access/Firewall	100K	
149	A98D0106	Enterprise GIGABIT Ethernet Switches	55K	55K
149	A98D0108	Network Video/Audio Broadcast System	55K	
75	C98D0063	Electronic Heat Sealer	41K	
67	A99D0021	Field Emission Scanning Microscope		700K
45	A99D0033	Primary Substation SF6 Breakers		490K
36	C97D0125	CFC Phaseout- Clean Air Act Compliance	1,125K	1,000K
34	C98D0179	Replace Steam Plant Economizers	350K	350K
34	C98D0121	Replace Fleet Vehicles	323K	300K
34	C98D0182	LDRD General Purpose Equipment		260K
34	A99D0009	LDRD Robotic Fluid Handling System	65K	
34	A99D0010	LDRD Fluorescence Imaging Station	50K	
34	A99D0011	LDRD Centrifuge	42K	
34	A99D0012	LDRD Computer Work Station	43K	
34	A99D0013	LDRD Mask Alligner	105K	
34	A99D0014	LDRD Semiconductor I-V Equipment	45K	
33	A98D0014	Mailmobile Replacement 4500N	37K	
28	A98D0115	Transformer for 4000 Electrical Substation		134K
27	A99D0019	Building 4515 HVAC System Controllers	110K	
25	A98D0104	400 KW Generator		310K
25	A98D0110	Upgrade East End Feedwater System B-2519		510K
21	A99D0027	Flow Monitoring Stations		30K
20	C98D0044	Oil/Grease Separator		123K
19	C98D0020	Replacement Valve Test Stand	20K	
18	C98D0094	Road Grader		140K
17	A99D0050	Replace Building 9401-1 Switchgear 322		252K
17	A98D0111	Motor Control Center 5A		160K
16	A98D0112	Motor Control Center 5B		126K
15	A98D0119	HVAC 50 Pound Replacements		380K
13	C98D0060	ALPHA 2100 Computer System		65K
12	F93D0029	ORNL Occupational Medical Program		114K
11	C97D0083	HVAC Upgrades		500K

Net Score	ADS No.	ADS Title	FY 1999	FY 2000
10	C98D0109	Radioactive Materials Shipping Cask		760K
8	C98D0005	Distilled Water Makers, 4500N and 4500S		135K
8	S97D0018	Replacement of Air compressors - Bldg. 7603		300K
8	A98D0116	Transformer for 2632 Electrical Substation		134K
0	A99D0038	Continuous Air Monitor Replacement, 3525		50K
		Total FWP ERKCL01	3,366K	7,678K

4. General Plant Projects

Net Score	ADS No.	ADS Title	FY 1999	FY 2000
415	S97D0021	Repair #1 Reservoir		1,600K
311	C98D0120	Environmental and Life Sciences Laboratory	2,000K	
199	C97D0071	Fire Protection Systems Upgrade	750K	500K
166	S97D0032	West End Steam Upgrade Completion	40K	
163	S97D0055	250,000-Gallon Steel Fuel Oil Tank	1,000K	
158	C97D0081	Eyewash, Safety Shower, Water System Upgr		1,900K
150	S97D0001	Neutron Sciences Support Building	50K	
150	C98D0177	Upgrade Condensate Return System	300K	
149	C98D0123	Child Care and Fitness Center (Design)		300K
148	S97D0059	Security Perimeter Configuration (Ph I)		400K
67	A99D0020	Center for Nanotechnology		1,200K
57	C97D0089	Maintenance Shop Addition 4509		1,000K
32	S97D0058	LM Transportation & Packaging Mgt. Facility		500K
29	A99D0042	Lambert Quarry Signage and Fencing		85K
24	A98D0009	Water System Upgrades, 1000 Area		500K
23	A98D0016	4511 Cooling Tower Replacement		1,400K
11	S97D0042	HVAC Upgrades (REDC Cooling Tower)	100K	
11	C97D0104	Road and Parking Lot Paving - ORNL		515K
		FWP ERKL02 Total	4,240K	9,900K
1	S97D0010	3000 SCFM Air Compressor (Carryover)	250K	
		Uncommitted Contingency	210K	
		Total FWP, Carryover, and Contingency	4,700K	9,900K

5. ESHQ&I Field Work Proposals for Expense Funding

Net Score	ADS No.	ADS Title	FY 1999	FY 2000
176	P98D0028	Chlorine Removal From Storm Drains		783K
175	P98D0019	ORNL S&H Bldg. Electrical System Upgrade		1,484K
163	P98D0027	Rehabilitate ORNL Potable/Fire Protection		1,970K
149	P98D0035	ORNL Subtitle I UST Compliance	62K	
100	P99D0013	ORNL Waste Management		470K
85	P98D0013	Remove Asbestos From Controlled Areas		533K
85	C97D0080	Asbestos Abatement, ORNL at Y-12		944K

Net Score	ADS No.	ADS Title	FY 1999	FY 2000
74	P98D0007	ORNL H&S Radiological/Toxicological		478K
41	P98D0005	Compliance With Revised NPDES Limits		491K
40	C98D0167	Cooling Tower Maintenance		204K
40	C98D0169	Roof Preventative Maintenance		312K
37	C98D0181	Fire Systems Upgrade, ORNL at Y-12		393K
36	A99D0031	Transformer Bonding, ORNL at Y-12 Facilities		43K
30	P98D0008	Baseline Support for Building 2026		1,254K
26	P99D0001	Beryllium Survey		146K
22	P98D0021	ORNL S&H - OSHA Compliance		2,758K
22	P98D0034	Electrical OSHA Noncompliances	35K	
21	P98D0026	ORNL Facility Asbestos Survey		414K
21	C98D0180	Update Precipitator Electrical Controls		102K
20	S97D0036	Electrical Upgrades		775K
19	P98D0003	Nuclear Criticality Upgrade (420.1)		421K
17	A99D0029	Upgrade 480V Breakers, ORNL at Y-12 Facilities		541K
17	P98D0023	Upgrade Backflow Preventer Valve Stations		214K
14	P98D0017	Lead Shop Pilot Project		210K
14	P98D0025	ORNL Surplus/Inactive Facilities Program		10,623K
10	P98D0011	LCAM Compliance		414K
10	C97D0079	Wooden Window Repair, ORNL at Y-12		128K
2	P98D0015	Road and Parking Lot Repair		834K
1	P98D0009	Asbestos Survey Data Retrieval System		71K
1	S97D0035	Piping Upgrade, ORNL at Y-12		153K
0	S97D0033	Grounds Improvement, ORNL at Y-12		133K
0	S97D0034	Renovate Facilities, ORNL at Y-12		112K
0	S97D0037	Exterior Upgrades, ORNL at Y-12		1,653K
0	S97D0039	Interior Upgrades, ORNL at Y-12		123K
0	P98D0016	Heavy Metal Survey and Assessment		301K
0	P98D0022	Fire Sprinkler Piping Maintenance		21K
0	P98D0014	Grounds Improvement		241K
0	P98D0031	Nuclear Criticality Upgrade (DNFSB)		338K
0	C98D0171	Demolish 2061 Masonry Chimney		300K
0	C98D0172	Paint the 7600 Reactor Dome		300K
		Total ESHQ&I FWPs	97K	30,685K

6. Programmatic Infrastructure Improvements

The following ADS descriptions identify major programmatic requirements at ORNL. Inclusion of these ADSs was requested by SC-82, Laboratory Infrastructure Division. These “infrastructure only” ADSs will ONLY be included in the Office of Science submission.

S97D0043 Laboratory for Comparative and Functional Genomics
The Laboratory for Comparative and Functional Genomics (LCFG) will provide a modern gene function research facility and protection for the genetic mutant mouse lines created during the past

50 years and will support the Department of Energy's research programs. Replacing the deteriorated facility at the Y-12 Weapons Plant on the ORNL Life Sciences Complex will meet these programmatic needs. This line item funding request is for the animal facility.

A98D0097 HFIR Cooling Tower
This Line Item project will provide for design and construction of a new induced draft, unilite composite structure cooling tower for the continued secondary cooling water needs of the HFIR. The new cooling composite structure will be Factory Mutual approved and therefore does not require a sprinkler system. The system will have a 35-40 year useful life.

S97D0044 HFIR Thermal Neutron Guide Hall
The scope of this project is to provide a facility with as many as five shielded neutron guides and an initial complement of neutron scattering instruments. The Guide Hall will include a structure approximately 23 m by 46 m (75 ft by 150 ft) that consists of a Guide Hall on the ground floor that is coincident with the ground floor of the High Flux Isotope Reactor (HFIR) building and a second floor that includes office space, conference facilities, and computer terminals for staff and users. The Guide Hall is attached to the HFIR building by interconnecting doors and vestibules to maintain confinement; neutron beams pass from the HB-2 position in the HFIR biological shield through shielded guides to the Guide Hall and thence to the neutron instruments.

S97D0046 Spallation Neutron Source
The Spallation Neutron Source is a new experimental facility planned to meet the national need for neutron scattering and related research. The facility will be available to scientists from universities, from industry, and from other federal laboratories. The facility will be equipped with an initial complement of advanced instruments for neutron beam research. The facility will be built around a spallation neutron source. Combining the higher source power with improved experimental facilities will create a useful neutron flux significantly higher than is now available at any facility in the world. There will be beam lines for neutron scattering instruments or other neutron research equipment in the experimental hall. The potential also exists for the development of entirely new lines of scientific research based on the enhanced capabilities that will be available in the facilities.

S97D0047 Advanced Materials Characterization Laboratory
The Advanced Materials characterization Laboratory is a new facility planned to provide the high-quality environment required to optimize performance of sophisticated characterization equipment essential for the next generation of advanced materials R&D and the centralization of advanced materials structural characterization equipment.

S97D0053 HFIR Remote Handling Facility
This project will provide remote handling capability at the HFIR in the form of a new hot cell and telemanipulators over or near the reactor pool. Availability of hot cells in ORNL to new scientific endeavors has become limited.

S97D0061 HFIR Cold Source
This project will provide a liquid hydrogen cold neutron source in HB-4.

A98D0005 HFIR-Accelerator/Reactor Improvement Modifications
This FWP describes the HFIR's continuing need for Accelerator and Reactor Improvement and Modifications (ARIMs) funds to replace outdated reactor systems and equipment to help ensure continued safe and reliable operation. This will be the continuation of a series of safety improvement projects started in FY 1990. To be most effective, this funding is needed on a continuing basis to replace 30-year old systems and equipment, which have exceeded design and useful life. Many of these systems and much of the equipment are safety-related, and spare parts are no longer available. The success of the HFIR mission is dependent upon adequate system and equipment replacement. Reactor availability and productivity for neutron scattering research, isotope production, neutron activation analysis, and materials irradiation are dependent upon continued HFIR operation at the highest efficiency. HFIR operation ARIMs requirements have been prioritized for FY 1999 and FY 2000. Should the funding levels not meet projected requirements, then projects not funded will be considered in subsequent fiscal years.

A99D0008 National Center for Crystal Growth
ORNL proposes to establish a National Center for Crystal Growth. The center will serve the crystal-growth R&D needs of U.S. government and university programs in the physical, chemical, engineering, and biological sciences; it will also replace capabilities lost in the downsizing of industrial R&D programs. Programmatic elements include (1) a comprehensive pure and applied research effort on oxide single-crystal growth, semiconductors, metals and alloys, proteins and other biological crystals, substrate crystals and film growth, and application of materials characterization capabilities; (2) a national user program; (3) an education component (undergraduate traineeships, graduate research fellowships, post-doctoral research fellowships, faculty participation contracts and travel support); (4) a crystal-growth information center; and (5) a national archive of well-characterized, high-quality single crystals, available to U.S. investigators through loans or on a cost-recovery basis.

Physical elements include (1) a dedicated state-of-the-art laboratory building; (2) modern crystal-growth equipment for every major crystal-growth method; (3) a crystal-growth information system; and (4) an archive of single crystals with properties keyed to a database.

A99D0043 Radioactive Ion Beam Upgrade, ORIC
This project will provide for improvement of the Oak Ridge Isochronous Cyclotron (ORIC). The proposed project will be located in the Holifield Radioactive Ion Beam Facility (HRIBF), Building 6000, at the Oak Ridge National Laboratory.

ORIC has a crucial role in the Holifield Radioactive Ion Beam Facility. ORIC's light-ion primary beams will be used to produce radioactive atoms from fusion reactions in thick targets on a Radioactive Ion Beam (RIB) injector. The ions from the RIB injector will be mass analyzed, accelerated with the 25-MV tandem, and used for the RIB experimental program. The RIB intensity will be proportional to the ORIC light-ion beam intensity and the number of hours of beam-on-target per year will be impacted by accelerator reliability and component activation.

Major ORIC improvements are needed to reduce activation and radiation exposure to operations personnel and to assure reliable, high-intensity operation. Expected benefits include increased

upper limits on ORIC beam intensity, reduced ORIC activation, improved ability to handle activated components consistent with ALARA principles, improved operation efficiency, reduced down time, and reduced operating costs.

E. Impact of Potential Budget Reductions

Significant reductions in funding for labor, materials, and services affecting ORNL ESHQ&I programs have occurred during the past several years. Further reductions are likely and could result in the elimination or reduction in scope of various ES&H programs and activities. The most significant impacts will likely be on the ADSs associated with the lowest ranked activities and programs to which target overhead funding has been allocated in the plan.

It is anticipated that potential initial budget reductions would likely result in deferral or reduction in the scope of activities. More significant budget reductions would begin to affect core ES&H programs (indirect funded) necessary to accomplish ORNL's missions and maintain current levels of regulatory compliance.

The following programs were risk ranked lowest of funded indirect projects which could be impacted:

Environmental Program Management Oversight - Activities in this function provide regulatory analysis and interpretation of environmental issues. They further provide for the development and maintenance of environmental information systems.

Data Transfer to Oak Ridge Operations Office Environmental Information System (OREIS) Database - Activities in this function compile and prepare environmental sampling data for transfer to the OREIS database.

Intercomparison Studies - These programs have been implemented as a recommendation of ANSI N13.30, "Performance Criteria for Radiobioassay": in vitro urinalysis program, the external QC program for in vitro bioassay (urinalysis); in vitro fecal program, the external QC program for in vitro bioassay (fecal analysis); in vivo program, the external QC program for in vivo bioassay.

Assessment Program Functional Support - This activity facilitates implementation of the Laboratory Assessment Program Plan through the functional disciplines embodied in three groups: the Technical Audit Group (TAG), the Corrective Action Support Staff (CASS), and the Audit Logistics Group.

ORNL Assessment Program - This activity provides for the development of a coordinated and integrated system of continuous improvement that encompasses all activities at ORNL.

ORNL Audit Center - This activity facilitates implementation of the Laboratory Assessment Program Plan through operation of an audit center. All logistics details pertaining to support of an external or internal assessment team are within the purview of the audit center manager.

VIII. Conclusions

ORNL strives for ESHQ&I excellence by properly planning and performing work activities so that ESHQ&I considerations are integrally a part of the R&D activities and supporting operations. Involvement of workers in a positive environment ensures adequate input for work planning, hazard recognition and minimization, development of clear lines of ownership and responsibility, and establishment of a balanced understanding of goals and requirements for the allocation of limited resources.

This plan reflects activities pursued at ORNL to identify and balance on-going activities against requirements. The ISMS is structured to systematically integrate ESH&Q objectives and infrastructure needs into management and work practices.