ENVIRONMENTAL MEASUREMENTS LABORATORY
2000 BUSINESS PLAN

December 1999

Environmental Measurements Laboratory
U. S. Department of Energy,
201 Varick Street, 5th Floor
New York, NY 10014-4811

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

This document contains the business plan for the Department of Energy's (DOE) Environmental Measurements Laboratory (EML). This plan establishes the near-term (FY00-01) strategies and tactics that will help EML employees and stakeholders move the organization toward fulfilling its mission. Its purpose is to communicate to:

- EML employees and stakeholders -- EML's business environment, key goals, and performance measures for FY00 and into FY01;

- DOE Chicago Operations Office (CH) -- EML's plans and strategies so that CH can offer advice and counsel, track progress against EML goals, and provide support for EML's plans;

- DOE Office of Environmental Management (EM) -- EML's efforts to help identify opportunities where it can further contribute to EM's environmental cleanup mission and to ensure EML is providing strong stewardship for EM support dollars.

EML provides technical assistance and data quality assurance (QA) for measurements of radiation and radioactivity relating to environmental restoration, global nuclear nonproliferation, and other priority issues for DOE, as well as for other government, national and international organizations. Its primary product/service lines include the following:

> *Environmental QA*: EML develops and implements QA methodology and programs to meet the needs of its DOE customers in instrument and sensor development, and to assess, track, evaluate and improve the nationwide performance of the Department's contractors for environmental analytical services and in field measurements.
>
> *Experts in Sampling and Analysis*: EML develops and promotes to federal and private sector customers environmental sampling and analysis techniques derived from the Laboratory's applied research on low-level environmental radiation and radioactivity measurements. EML places emphasis on techniques that will be useful for EM site closures and long term stewardship at DOE facilities, and for on-site detection of specific radionuclides at remote locations.
>
> *National Security*: EML can quickly respond to the needs of the Department and other federal agencies during emergencies and issues of national security with state-of-the-art monitoring and other methodologies for the detection of radiation and radioactivity.

EML's funding for FY99 was $7.550M. Its current projected revenue for FY00 is expected to be about the same. This funding level is barely adequate to maintain EML's programs and to support its customers' needs. The Laboratory is also in great need of additional funding for capital equipment and infrastructure improvement. Capital equipment funds were only $90K in FY99 while $300K was required. A similar scenario is anticipated for FY00, however, $500K in

equipment funds has been requested from EM through CH for FY01.

EML continues to face a fast-changing business environment seeded with tremendous opportunities and challenges in:

- employee retention, development and recruiting;
- technology innovations, especially in remote sensing and on-site analyses;
- increasing pressure to improve the performance and efficiency of the staff at every level in specific projects and in the management of the whole organization;
- promoting EML's capabilities, especially in QA and in expert advice in sampling and analysis;
- growing requirements for EML's expert technical assistance in Work for Others (WFO) initiatives both inside and outside DOE;
- the federal government's reinvention efforts to privatize or out source noncore processes and activities.

In response to these opportunities and challenges, EML's primary goals for FY00 include:

- creating an increasingly supportive EML environment where environmental scientists can thrive;
- continuing the integration of appropriate EML staff into essential technical and programmatic functions for EM;
- developing additional QA expert advice and consulting assignments within EM and the DOE complex, building on the success and reputation of EML's Quality Assessment Program (QAP) and its International Dosimetry Intercomparison Program;
- investing in field measurements expertise, especially for environmental decontamination and decommissioning investigations.

The strategies, goals and performance criteria in this report were decided upon after an intensive analysis by representatives from EML, EM, CH and a private-sector consultant. Additional information was gathered from selected stakeholders and customers.

The resulting business strategy will enable us to continue to provide DOE and other federal agencies with the in-house capabilities needed to respond quickly to current environmental and related national security issues. EML thanks CH, EM, EML employees, EML customers, and others who have provided guidance, ideas, advice, and support to create this plan for EML's near-term future.

II. OVERVIEW OF EML

(A) Mission - EML's current mission is threefold:

- Conducts scientific investigations and develops technologies related to environmental restoration, site and facility characterization, and environmental surveillance and monitoring.

- Provides DOE and other federal agencies with an unbiased and responsive technical capability to assure quality in sampling, measurements and analyses, and risk assessments of human exposure to radioactivity and other energy-related pollutants.

- Provides DOE and other federal agencies with an in-house, high-quality scientific capability to address important issues related to national security such as nonproliferation.

(B) History - EML is a distinguished government-owned and government-operated (GOGO) federal laboratory with a rich history in environmental applied research. A small group of scientists involved in industrial hygiene activities associated with the Manhattan Project began the Laboratory at the end of World War II. It was established in 1947 as the Medical Division, a small laboratory of the U.S. Atomic Energy Commission (AEC). In 1949, the name of the Laboratory was changed to the Health and Safety Division and in 1953 it became the Health and Safety Laboratory (HASL). When the AEC was abolished in 1975, HASL became part of the Energy Research and Development Administration (ERDA). In 1977, ERDA was absorbed by DOE and the Laboratory changed its name to the Environmental Measurements Laboratory (EML).

In May 1996, a memorandum of agreement (MOA) delineating the transfer of the overall management and financial responsibilities of EML from ER to EM was signed by M. A. Krebs, T. P. Grumbly and D. W. Pearman, Jr. The MOA was approved after a thorough review of the Laboratory resulted in a consensus among its customers regarding the value of EML to DOE, to the nation and the international community, and a finding that many of the Laboratory's activities were inherently governmental functions.

In 1999, the Laboratory was selected by the U. S. Delegation to the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty (CTBT) Organization, Vienna, Austria, as the U. S. radionuclide laboratory to be incorporated into the International Monitoring System (IMS). Also in 1999, the Department's National Analytical Management Program (NAMP) signed a Memorandum of Agreement with EML and the Radiation and Environmental Sciences Laboratory (RESL) designating the two facilities as reference laboratories for the DOE Radiological Traceability Program. EML's selection was made based on its long and distinguished 51 year history as an internationally recognized laboratory for environmental radiation measurements and monitoring systems, and because of its experience in international laboratory quality assurance programs in nuclear measurements.

(C) Core Capabilities - Because of its expertise, EML has made valuable contributions to improving analytical measurements and reducing the risks associated with environmental cleanup and other issues facing the Department. These capabilities include:

- Aerosol Measurements
- Gamma-Ray Spectrometry
- Instrument Design and Fabrication
- Neutron Spectrometry
- Physical Modeling
- Program and Database Management
- Radiochemistry
- Radiological Surveys

(D) Staff and Organization - EML has a current federal employee ceiling of 66 full-time equivalents (FTEs), although the actual on board FTEs is significantly less. These FTEs are assigned to EML through CH. The scientific staff is composed of physical and chemical scientists and engineers. Several key vacancies exist at EML. EML anticipates that a staffing level of 66 is reasonable for the near-term as these key positions are filled. Besides their work on EML programs, staff members participate on scientific review panels and standard-setting organizations, function as journal editors and reviewers, and have been elected fellows of professional organizations.

EML's organization includes a Director's Office and four Divisions — Quality Assurance (QA)/Metrology, Environmental Science, Technical Program Services, and Administration. These Divisions run discrete projects and possess primary customer responsibilities, but much of the project and applied research work takes place through cross-functional teams spanning the divisions.

Laboratory scientists, engineers, technicians and support staff offer a team-oriented approach that brings a unique federal perspective and capability in meeting national needs. The professional staff is diversified with individuals holding degrees, many advanced, in fields such as:

Atmospheric Chemistry	Environmental Science	Physics
Analytical Chemistry	Geology	Public Health
Biology	Health Physics	Radiochemistry
Computer Science	Mathematics	Public Administration
Ecology	Meteorology	Statistics
Electronics Engineering	Mechanical Engineering	
Energy Science	Nuclear Engineering	

(E) Programmatic and Administrative Direction - EML is under the programmatic direction of EM-50 (Office of Science and Technology) and is administered through CH.

(F) Location and Facilities - EML resides in a General Services Administration (GSA) building in lower Manhattan, New York. The Laboratory also operates the "EML Field Performance Testing Area" at Brookhaven National Laboratory (70 miles to the east in Suffolk County on Long Island) that is used for special investigations. EML also maintains an active Internet presence through its Web Site (www.eml.doe.gov).

III. CURRENT (FY00) SITUATION ANALYSIS (MARKET ASSESSMENT)

This section assesses EML's current environment, its existing customers and markets, and business and government trends. It draws conclusions regarding opportunities and challenges in EML's present business environment.

(A) EML's Customers and Stakeholders - EML serves a broad range of federal customers, primarily in DOE but also with other agencies, that require applied research and operational capability in environmental measurements, QA, and environmental applied research. EML's primary near-term strategy for fulfilling its mission and for increasing customer satisfaction and innovation will be to continue to meet the needs of its current customers. EML's current (FY00) federal customers include:

EM -	DOE Office of Environmental Management
SC -	DOE Office of Science (formerly Energy Research)
NN -	DOE Office of Nonproliferation and National Security
AF -	DoD Air Force
DTRA -	DoD Defense Threat Reduction Agency
EPA -	Environmental Protection Agency
NRC -	Nuclear Regulatory Commission

EML's most visible stakeholders include:

U.S. Public
U. S. Congress
U. S. Department of State
DOE analytical service contractors
DOE National Laboratories and Sites
National Institute of Standards and Technology (NIST)
National Aeronautics and Space Administration (NASA)
International community (e.g., International Atomic Energy Agency, IAEA) involved in nonproliferation activities, such as: validation of the CTBT and the Nonproliferation Treaty (NPT)
Scientific community (federal, academic, private)
Instrument Manufacturers

(B) EML's Current Budget - The FY00 budget is anticipated to be $7.245M of which the majority is funded by DOE (EM, SC, NN), and the remainder by WFOs (AF, NRC, DTRA, EPA). A financial summary and projections for FY00-01 are shown in Section VII.

(C) Overview of EML's Products and Services for DOE and WFO Customers -

• **OFFICE OF ENVIRONMENTAL MANAGEMENT (EM)**. EML's main mission is to support EM's site closure and cleanup completions through its: (1) technical assistance to the DOE field offices, (2) activities in the development and deployment of radiological field characterization and monitoring technologies, and (3) performance testing programs which provide external oversight of the quality of data used in the DOE cleanup activities. Specific examples of EML support to EM include:

- S EML provides support to EM and its contractor staff in planning and conducting surveys to characterize radioactive contamination and to certify that release criteria have been met. As a non-contractor DOE Laboratory, EML serves as an important technical interface between DOE site personnel and the contractors who are engaged in survey programs.

- S EML contributes its technical expertise to EM by assessing proposals, monitoring project progress, evaluating project products, and coordinating the implementation of the technology among the contractor, regulator and program office.

- S EML supports EM as federal technical experts in the Characterization, Monitoring and Sensor Technology Crosscutting Program (CMST-CP) activities as Project Facilitators and as the Focus Area Lead for Deactivation and Decommissioning.

- S EML represents EM as the Technical Program Manager for the Site Characterization and Contaminant Transport Focus Area of the Joint Coordinating Committee on Environmental Management (JCCEM) collaboratively studying with Russian and American scientists contaminant migration in groundwater.

- S EML utilizes or provides specialized calibration facilities for environmental radiation and radioactivity measuring instruments including:

    - beam and panoramic irradiators for TLDs;

    - a calibration bench providing a precise geometry for shadow shielding and angular response measurements of pressurized ionization chambers (PICs), and for energy and angular response measurements of *in situ* germanium detectors;

    - an environmental chamber for testing air samplers; including radon/thoron measurement devices; and

    - a low background vault for testing detectors or storing dosimeters.

- EML's designation as a DOE reference laboratory, sponsored by the National Analytical Management Program (NAMP), under the implementation of the ANSI Standard 42.23.

- EML's continued administration of the biannual QAP with more than 150 DOE contractor laboratories participating.

- Quality assurance and standards development insure that the vast multitude of sample analyses and field measurements that are performed to support DOE site closures are legally and scientifically defensible and will not lead to costly remediation failures during closeout radiological surveys.

• **SERVICE TO OTHER DOE OFFICES**. As a federal resource laboratory, EML provides DOE offices with a readily available and objective in-house capability in support of their special and unique requirements. EML conducts authoritative and unbiased reviews and evaluations of proposals and provides expert consultation for the Office of Science (SC), the Office of Environment Safety and Health (EH), and the Office of Nonproliferation and National Security (NN).

SC - EML is responsible for creating, annually updating, maintaining and ensuring the quality of a database of all human subjects research currently funded by DOE.

- EML manages the day-to-day operation of the Strategic Environmental Research and Development Program (SERDP), a partnership program (DoD, DOE, and EPA) that addresses the defense-related environmental priorities focusing on cleanup, compliance, conservation and pollution prevention technologies.

NN - NN provides funding for research and development of field and laboratory based advanced analytical instruments and technologies, coupled with current techniques in sample collection and analysis and data reduction, to identify nuclear proliferation threats throughout the world, and for advice and consultation on environmental measurements and signatures.

- EML operates and maintains a global sampling network of more than 140 sampling sites dispersed throughout the world. The EML network is continuously poised to track and communicate findings on any new introduction of radioactivity into the environment anywhere in the world due to the planned, clandestine or accidental detonation of a nuclear weapon, a nuclear reactor accident, a nuclear processing plant accident, a transportation accident involving nuclear materials, or a space satellite accident during a launch or atmospheric reentry involving a nuclear reactor or a radioisotopic power source.

• **WORK FOR OTHER CUSTOMERS (WFO).** EML's longstanding reputation for excellence in environmental measurements has led to its being called upon for assistance and consultation by numerous organizations in the U.S. and around the world. The Laboratory fulfills special needs within the scientific community outside of DOE that relate to the assessment of radiation and radioactivity in the environment. Projects of this nature are a natural extension of the staff's collective expertise and are in keeping with a larger role that a specialized laboratory such as EML plays within the DOE family. EML's WFO customers include the AF, NRC, DTRA, and EPA, who gain from EML's unique strengths. Examples of WFO activities include:

S The AF provides funding to EML for the development, deployment, and maintenance of monitoring instrumentation and for radiochemical analyses to support verification programs under the CTBT.

S EML, under contract to the NRC, developed new radiological survey designs and measurement methods for residual radioactivity that will be used to meet rulemaking decommissioning criteria and clearance issues.

S The DTRA is funding EML to be the U. S. Radionuclide Laboratory for the CTBT. Related to this, the AF is providing funding to EML for the development of monitoring instrumentation to support verification programs under the CTBT.

S EML scientists are invited by the scientific community to participate in consultations and reviews of programs, proposals, reports and other documents. EML has played a major role in the development of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), a cutting-edge effort to rationalize the characterization and sampling requirements across agencies. Originally funded by the NRC, EML now receives funding for MARSSIM through the EPA's National Environmental Training Office (NETO) to provide training to regulators, site personnel, and stakeholders.

S EML scientists provide radiation and radioactivity measurements training courses to federal and state agencies and to international institutes.

A summary of EML's prime functions or business lines and the customers who receive them is shown in Table 1.

TABLE 1

EML BUSINESS LINES AND CUSTOMERS

Business lines	Customers			
	EM	**SC**	**NN**	**WFO**
Environmental measurements	x	x	x	x
Technology Development	x		x	x
QA	x	x	x	x
HQ program coordination	x	x		
National security			x	x

(D) Customer Satisfaction - EML has an active program in Customer Service. The Technical Assistant and Program Coordinator to the Laboratory Director is the EML Customer Focus Advocate and participates in the CH Customer Service Initiative. The most important factors that create satisfaction for EML's customers are: 1) responsiveness, 2) reliability, 3) an unbiased federal response in line with DOE policy, and 4) a high technical level of expertise.

S *Information Summaries*: Customer satisfaction information is available in several forms as described below:

- Anecdotal Information - Anecdotal information is available in a compilation of EML Testimonials (1996) from EML's DOE, WFO and international customers.

- EML Customer Survey Results - In the most recent customer surveys, our customers cited the continuing exceptional performance of the EML staff and the responsiveness of the staff to their needs. They acknowledged the unique services and expertise provided by EML. In FY99, 100% of EML's customers responded as "very satisfied" or "satisfied" with their overall experience working with EML.

- Continuous Improvements - EML is seeking to improve its services through continual outreach. We are continuing to develop and distribute a series of Fact Sheets to highlight our capabilities to our customers and potential customers. The Fact Sheets may also be directly from the Internet at our Homepage: www.eml.doe.gov.

IV. BUSINESS ENVIRONMENTAL ASSESSMENT

The purpose of this section is to evaluate external business trends and the internal dynamics of EML.

(A) External Assessment - Several factors or trends affect EML's business. First, DOE is continuing to change its processes and activities in the funding of environmental cleanup and monitoring. At best, support funding from the EM office will be flat in real terms or possibly even declining. Connected with this flat to declining funding scenario is the greater emphasis throughout the federal government on performance results. The mandates of the Government Performance Results Act and the National Performance Review will continue to have a dramatic effect on ensuring that performance measures are developed for all budgets and activities. However, the public, Congress and other stakeholders continue to demand the cleanup of DOE sites. In effect, DOE will still face a demand for cleanup, with less funding and a greater demand for performance.

A second trend affects EML's relationship with its non-DOE customers. Regulatory oversight of federal activities and facilities is changing, with various federal, state and local agencies vying for regulatory control over sites with radiological and mixed waste contaminants. In addition, the cost of cleanup is coming under closer scrutiny. There may be emerging changes to the Superfund legislation that will clear up the regulatory duplication of efforts, placing more emphasis on performance and reducing litigation costs.

A third trend is the increased oversight of funding supported by U.S. and international agencies. Again, though there is a strong demand for environmental services, international agency funding will likely face the same scrutiny as EM funding. In the international arena, this may be mitigated by the need to maintain effective monitoring of environmental releases from foreign sites.

Within this reduced-funding business environment and the greater emphasis being placed on environmental cleanup, EML will need to form partnerships and alliances with other organizations (universities, other DOE laboratories, other federal laboratories, nonprofit associations, etc.) in which to provide the best total solution to its customers and that result in lower costs. Commercial firms frequently form alliances with companies or educational institutions to provide a better product at lower prices. How all this affects EML can be summarized in three ways:

- EML needs to identify, target, and promote how its technical expertise can help DOE and other federal sites meet their cleanup objectives at the lowest cost. However, federal clients and contractors will not respond to general information about EML's value. EML must meet specific, project-based needs of DOE and other agencies (e.g., *in situ* measuring and sampling advice at DOE's Fernald facility and Brookhaven National Laboratory).

- EML needs to be attentive to how and/or where it can partner with other organizations to be part of a total package to meet cleanup objectives at reduced cost.

- EML needs to improve its presence as a high quality and responsive organization that provides "best-in-class" services to its customers. By doing this, EML will be identified as both a high-value service provider and a desired partner for the monitoring and environmental cleanup work.

(B) Internal Assessment

Recent trends and actions with sponsors and customers are:

- EML reports to the Assistant Secretary for Environmental Management (EM-1). This reporting is delegated to the Deputy Assistant Secretary for Science and Technology (EM-50). The newly established Laboratory Management Board has been selected by EM-50 to provide effective liaison on programmatic issues. This reporting relationship is being reexamined as part of a larger DOE reorganization wherein EML is designated as one of four EM laboratories. EM is designated as the Cognizant Secretarial Officer (CSO) for EML. Implementation of EM's laboratory management function is evolving. EML and EM are negotiating a Memorandum of Understanding (MOU) to delineate roles and responsibilities under the new DOE organization.

- EML continues to receive funding from the SC for FY00 and beyond for maintaining the Human Subjects Research Database, coordination of the Strategic Environmental Research Development Program (SERDP) and departmental representation to the Interagency Arctic Research Policy Committee (IARPC).

- EML's relationships within DoD are stable with some significant opportunities for increase.

- Due to continued downsizing and restructuring, DOE Headquarters Offices will require increased programmatic support from their federal field elements, including EML, concerning technical advice related to program development and implementation, preparation of policy papers, and representation at meetings and workshops. EML has responded to increased pressure to modify its traditional approach to funded applied research and QA to include greater involvement in the programmatic activities of its DOE offices, particularly EM.

(C) External Assessment:

Recent trends and actions with sponsors and customers are:

- Despite the outcome of efforts to dismantle or restructure DOE, the federal government will continue to have focused needs for an independent assessment of the accuracy and uncertainty of environmental measurements and data. EML, as a federal facility without

vested interests, will have an important role in addressing critical issues in QA for several of its customers including long-term stewardship of EM sites.

- Assessment of environmental contamination will increasingly require the development and deployment of infield techniques for real-time data gathering to expedite decision making. EML's capability to respond quickly and effectively to high visibility problem areas will likely lead to greater recognition. Work in this area may require new funding sources and put EML in the position of focusing on new skills, especially the ability to respond to changing perceived needs quickly.

- The federal government will increasingly need to evaluate and estimate risk to human life and well-being as part of federally funded programs. EML has an opportunity to address risk assessment, where appropriate, as part of its ongoing research programs and to provide data to DOE organizations and other federal agencies that conduct risk assessments related to site remediation.

- The recognition by several of EML's customers of the value of the EML global worldwide environmental monitoring networks for measuring a variety of atmospheric pollutants is increasing. This may give EML an opportunity to expand and redirect its radioactivity monitoring network at some of its sites, and to implement a QA program in environmental monitoring that will span the world.

- Validation of the CTBT and the NPT will require a network of aerosol collection and real time analysis systems. EML can provide both field (remote atmospheric measurements systems, RAMS) and *in situ* instrumentation to measure radioactive aerosols in the atmosphere and the isotopes in surface deposition. In addition, EML can provide QA programs for the CTBT and the IAEA NPT networks. Perhaps most important, EML's vast experience in deploying remote sensing instrumentation provides the CTBT and NPT community with a valuable resource for site selection, survey, installation, and certification criteria.

V. COMPETITIVE ANALYSIS

The purpose of this section is to evaluate EML's primary competitors in the federal sector, and to determine opportunities where the Laboratory may prosper in a competitive environment.

Federal Competitors - There may be some governmental competitors that can contend for specific pieces of EML's products, services and programs. However, EML has several advantages which include:

- Long-term, unique, customer and alliance relationships (e.g., SC, EM, DoD customers and RAMP-location alliances).

- A reputation for quality and reliability within DOE and other federal agency customers.

- An independent, authoritative position as an "in-house" (i.e., federal) measurement and testing laboratory, especially in programs with sensitive, national security connections.

- Some environmental measurement "proprietary" technologies, and EML's broad base of DOE and other federal clients.

VI. CONTINUOUS IMPROVEMENT: PRIMARY STRATEGIES AND PERFORMANCE METRICS

(A) Performance Expectations - In the successful conduct of its business as a scientific and technical resource to DOE for improving environmental measurements, while providing a technical basis for regulations and standards, reducing the risks and costs of environmental activities, and, thus, improving the quality of life, EML will continue to undergo a process of "reinvention" and "refocusing" that will enable it to:

- expand its recognition as a unique, internationally renowned environmental research facility, integrating the physical and chemical sciences, that conducts multidisciplinary investigations at local to global scales of current and anticipated concerns to the DOE and other federal agencies;

- grow in its function as an authoritative QA laboratory for different DOE Secretarial Offices in the management and execution of environmental measurements, sampling and analyses;

- be identified as an innovative developer of science and technology for measurements of environmental contaminants and physical phenomena, and be an active promoter for the adoption of this technology by government and industry;

- enhance its ability to conduct multidisciplinary studies to understand better, at the local and global level, the effects of contaminants on the environment and human health;

- attain wide recognition as an in-house federal center of scientific excellence providing objective advice on, and rapid response capability for, critical environmental and related national security issues; and

- institute excellence in the quality of all operations with special emphasis upon environment, safety and health issues, establishing conditions that exceed basic compliance with all federal, state and local regulations.

(B) Primary Goals and Strategies (FY99-00) - Based upon the major activities of the Laboratory, its customers, market assessment and associated barriers, and mitigating strategies, metrics of success have been identified for the horizon of this 2000 business plan. These goals and their associated challenges and strategies for overcoming the challenges are shown below.

Strategic Management Goal: EML will be structured, and its technical programs oriented, to take advantage of opportunities to contribute to DOE, EM and CH missions and strategic plans.

- Challenges: a) In era of shrinking budgets, EML requires sufficient funding not only to operate the institution but also to maintain its infrastructure; especially for capital equipment and facility maintenance. b) EML management and staff have made the

changes necessary for the Laboratory to provide EM Headquarters with critically required assistance for program management. c) Political and scientific conditions often change rapidly which can affect strategic decisions.

- Strategies: a) EML will continue to develop new customers and investigate potential customers for additional funding for capital equipment and infrastructure. b) EML will develop internal processes, including the utilization of teams, and external customer relationships that effectively integrate its programs and skills into DOE headquarters and field needs in environmental monitoring and QA. c) EML's business plan will be kept current and updated. d) The culture of the Laboratory will be modified through training and motivation to continually strive for increased efficiency and to accept change as a positive and constructive feature in the EML's operations.

Technical Project Execution Goal - Environmental Measurements QA and Innovative Research and Technology: EML will be recognized as a key federal resource in addressing critical issues in environmental measurements for DOE and other national and international organizations. This will include strong technical, operational and QA roles in field measurements for environmental contamination investigations, decontamination and decommissioning programs, emergency response, and matters relating to nuclear treaty monitoring. Innovative research and technology development will be required to maintain state-of-the-art skills.

- Challenges: a) EML's current capabilities in field radiation measurements are not well known by all field site offices. b) Improved awareness of EML's expertise in QA for field measurements among current customers and with other potential federal customers where needs exist. c) EML QA programs must be supported by relevant research programs to maintain state-of-the-art capabilities which may not be the focus of the customer. d) There is a changing, unfocused HQ interest in QA. EM QA has in FY00 been reassigned to EM5 as part of Environmental Health and Safety. e) There is also an evolving scientific and standard's organization perspective on analytical QA with an emphasis on traceability and accreditation. f) In the event of an atmospheric nuclear detonation, nuclear reactor accident or other kinds of accidents that release large quantities of radioactivity into the environment, it is in the best interest of the U.S. to have rapid and accurate data on the levels and transport patterns of the radioactivity at locations worldwide. Some geographical areas of the world are not adequately covered in EML's current environmental monitoring network, and some of EML's current sampling sites have dated technology. g) EML's current capabilities in non-nuclear analytical measurements do not sufficiently address real-time measurements and other new innovative technologies that are emerging as high priorities in environmental characterization.

- Strategies: a) Where possible, position current EML staff and fill vacant personnel slots with staff able to improve the Laboratory's competencies in areas useful to EM's , e.g., continuous emission monitoring, field characterization and monitoring. b) To meet the needs of the EM, we shall improve the Laboratory's capabilities for performance

verification of proposed field techniques or new *in situ* sensors (e.g., tritium monitors/ detectors); expand participation in technical proposal reviews and other evaluations; and provide appropriate EML personnel to aid/facilitate program management and/or the overview of projects (performance, QA, timeliness). c) Align work to address goals to the EM 'Path To Closure" document. As part of this, we shall strive for maximum utilization of the entire EML staff. d) Develop and implement a plan to improve the image, visibility and added value of EML's QA expertise to DOE and other national and international organizations. d) Develop and implement a plan to identify, target and develop EML's expertise and recognition in appropriate areas. e) Include a funded research component in all QA programs. f) Increase EML's participation in, and public relations about, demonstration projects, short-course training at universities and professional society meetings, workshops/conferences of professional and nonprofessional groups. g) Develop a plan to address more effective use of staff, cross training, transition to new job assignments and alternate sources of personnel (i.e., graduate students, interns, contractors, etc.) h) Develop and implement a continuing, multiagency targeted plan to ensure an awareness/recognition of the current nuclear threat to the world, and to find funding to maintain the efficiency of EML's global network to meet national needs.

Supportive and Safe EML Environment Goal: EML will continue to maintain a safe employment environment and establish a supportive and rewarding work atmosphere that will attract, retain and motivate the staff to fulfill the scientific, technical, and administrative goals and responsibilities of the Laboratory.

- Challenges: a) Work assignments must conform to the requirements of the Department and the Laboratory's customers. b) An increase in administrative and communications requirements have caused the workload on scientists and support staff to increase. c) The staff is not always aware of, or recognize the advancement potential in, the opportunities to become experts in new or current technologies. d) The staff may not be readily aware of the communication channels available to request/suggest changes in EML's operations to improve efficiencies and morale.

- Strategies: a) Managers will use every opportunity to recognize and reward superior job performance, develop new skills through formal and on-the-job training, and investigate opportunities for advancement. b) EML will develop a plan for the reassignment and retraining of personnel that emphasizes new job assignments, including program management, as a positive and ongoing feature of Laboratory operations and culture. c) Management will keep the staff informed of changes in administrative requirements, the needs of the Laboratory's customers, and the resulting need for changes in scientific directions and work assignments. d) The staff will be encouraged to enlist the support of mentors (internal and external to EML) to foster their development as managers and/or in promising areas of technology. e) The staff will be encouraged to provide suggestions/feedback on Laboratory operations and performance through supervisors, Division meetings, "open-door policies" and "Town Meetings." f) EML will also provide policy, support and resources to foster a productive workplace by providing: a safe

workplace with appropriate resources (e.g., tools, computers, ergonomic work space, instruments, appropriate lighting and temperature, etc.). This includes the Integrated Safety Management Plan (ISM) description, issued in January 1999, which gives guidelines for work planning and execution to perform all work safely, in a manner that strives for the highest degree of protection for employees, contractors, visitors, the public, and the environment. g) EML will also offer opportunities for professional development to allow all members of the staff to contribute to the Laboratory's mission.

Administrative Goal: EML will improve administrative efficiency to support the technical and scientific staff in fulfilling the Laboratory's mission in a timely and productive manner.

- Challenges: a) Work assignments must conform to the requirements of the Department and civil service directives. b) We are faced with "doing more" with reduced staff in a climate of shrinking resources. Changes in scientific programs and an increase in administrative requirements have caused the workload on administrative support staff to increase. c) The administrative staff may not fully be aware of, or recognize the potential productivity of, improvements through implementation of new office-related technologies in communications and computer technologies/office automation. d) The staff may not be fully aware of the communication channels available to request/suggest changes in operations to improve administrative efficiencies. e)Staff lost to attrition have not been replaced. f) Half-time job assignments are becoming more frequent, but how to efficiently operate in this new work structure may not be addressed and may present problems to some employees.

- Strategies: a) EML will develop a plan to improve administrative efficiency that will include consideration of implementing the use of new communications, and office automation technologies. b) EML will develop a plan for the reassignment and retraining of administrative personnel that emphasizes the evaluation of work assignments for increasing efficiency.

(C) FY00-01 Performance Goals, Strategies and Metrics - Table 2 summarizes the metrics and accomplishments to date for each of the areas previously discussed in Section VI (B) above. Consistent with the planning efforts of CH, EML has incorporated appropriate CH Operations Plan Goals into Table 2. The letters A-G, correspond with the following list of CH goals.

CH OPERATIONS PLAN GOALS - 1/99

GOAL A: Deploy best management practices to achieve quality facility and laboratory management.

GOAL B: Enhance existing technical and administrative capabilities, skills and experiences, and prepare staff for changes in DOE's mission and programs.

GOAL C: Increase customer and stakeholder satisfaction and enhance community and public trust.

GOAL D: Effective and efficient execution of financial stewardship responsibilities to help ensure optimum use of taxpayers' dollars and protection of the departments' assets against fraud, waste and abuse.

GOAL E: Implement the principles and practices of an institutionalized integrated safety management process at facilities, laboratories and during program implementation in a cost-effective, environmentally acceptable manner.

GOAL F: Deploy best management practices to achieve program and procurement excellence.

GOAL G: Facilitate high quality research and development.

TABLE 2 - EML PERFORMANCE GOALS AND METRICS					
Performance Management Areas	Performance Target (FY99)	Completed Actions and Status (FY99)	Performance Target (FY00)	Actions/Goals (FY00/01)	CH Plan Goals
Strategic Management Goals					
Operating budget allows EML to perform its mission.	$7.3M Funds adequate to maintain EML Programs and support customer needs.	Successful: Funds = $7.3M - barely adequate to maintain EML programs and support customer needs.	$7.6M -- Funds adequate to maintain EML programs and support customer needs	Discussions and interactions with EM, other customers, and CH to maintain necessary funding. Continue to develop new customers. Development of new cost-sharing between EML & sites.	Goal G
Capital budget adequate for meeting capital equipment and infrastructure needs.	$300K for equipment ant infrastructure improvements to maintain EML's capabilities.	Unsuccessful: Funds = $90K from NN only.	$300K for equipment and infrastructure improvements to maintain EML's capabilities.	Investigate potential customers for $ for equipment and infrastructure needs.	Goal G
Appropriate HQ and field oversight of operations occurs.	17 visits from EML to HQ 4 visits from HQ staff to EML 1 visit by EM-HQ senior management to EML.	Successful: - 26 visits from EML to HQ - 7 visits from HQ staff to EML - 2 visits by EM-HQ senior management to EML.	- 20 visits from EML to HQ - 5 visits from HQ staff to EML - 1 visit by EM-HQ senior management to EML.	Continue to meet HQ expectations. In person contact, written reports, voice and electronic communications with HQ, CH and appropriate field points of contact.	Goal A
EML's DOE customers are maintained.	Maintains EML's DOE customers 3 Customers (EM, SC, NN)	Successful: Customer base maintained.	Maintain EML's current DOE customers and add to them if possible.	Visits/presenta-tions for every major customer and prospective organizations. Replace or reestablish work with EH, e.g., Office of Civilian Radioactive Waste Management.	Goal G

TABLE 2 (Continued) - EML PERFORMANCE GOALS AND METRICS					
Performance Management Areas	Performance Target (FY99)	Completed Actions and Status (FY99)	Performance Target (FY00)	Actions/Goals (FY00/01)	CH Plan Goals
Strategic Management Goal (Continued)					
EML's work for others (WFO) customers is maintained.	Maintain EML's WFO customers: AF, EPA, DTRA, NRC	Successful WFO customer base maintained. NASA completed DTRA added.	Maintain EML's WFO customer base. Increase support from existing WFO customers and add to them if possible.	Ongoing - Visits/presenta-tions for every major WFO customer and prospective organization.	Goal G
Customer satisfaction	Customer satisfaction Survey indicates overall rating of 100% very satisfied or satisfied.	Successful: FY99 Survey showed overall rating of 100% very satisfied or satisfied, but there is room for improvement.	Overall rating of 100% very satisfied or satisfied.	Continue to refine survey and customer list as necessary.	Goal C
Project Management Structure	Structures meet customer expectations.	Successful: Met customer expectations for project management structure.	Management structure continue to meet customer expectations.	Continue evaluation of structure effectiveness by management to ensure that customer needs are met. Additional training as necessary.	Goal A
Project Management: - Project planning and operation. - 100% of projects have written project plans, identified performance factors.	Review 6 major projects in detail.	Successful: 8 major projects were reviewed in detail.	Review 6 major projects in detail.	All major projects are reviewed by a management team on a biannual basis.	Goal A

TABLE 2 (Continued) - EML PERFORMANCE GOALS AND METRICS					
Performance Management Areas	Performance Target (FY99)	Completed Actions and Status (FY99)	Performance Target (FY00)	Actions/Goals (FY00/01)	CH Plan Goals
Strategic Management Goal (Continued)					
Increase Staff Efficiency.	Develop a plan for the redeployment of staff to ensure an improved matching of "labor" with needs.	Partially Successful: Plan for the redeployment of staff to ensure an improved matching of "labor" with needs completed for 1 division, others in progress.	Complete the plan for all divisions.	Begin implementation of the plan.	Goal A
QA at EML focuses on implementing an overall "quality system" resulting in an internal institutional "quality culture." A system to ensure that internal QA culture within EML has been implemented that will result in improved quality of performance by all EML teams.	The system is reexamined and readjusted as necessary.	Successful: The system to ensure an internal QA culture within EML has been significantly revamped and implemented.	The system is reexamined and readjusted as necessary.	Revise system as required.	Goal F
Technical Project Execution					
Existing QA/QAP customer relationships maintained.	Maintained prime QA/QAP customer.	Successful: Maintained prime QA/QAP customer.	Ongoing: Maintain prime QA/QAP customer.	Conduct presentations to existing and new potential customer(s) so that they better understand the benefits of participating in the QAP.	Goal F

TABLE 2 (Continued) - EML PERFORMANCE GOALS AND METRICS					
Performance Management Areas	Performance Target (FY99)	Completed Actions and Status (FY99)	Performance Target (FY00)	Actions/Goals (FY00/01)	CH Plan Goals
Technical Project Execution (Continued)					
Develop a broader QA customer base within DOE, in other federal agencies, and in WFO related to low-level radioactivity and radiation measurements.	Implement a plan to improve the image, visibility and added value of EML's QA capabilities.	Successful: Plan implemented. QA related fact sheets, poster boards and panel displays produced and disseminated to increase EML's visibility.	Continue to implement plan.	Continue to implement plan.	Goal B
Expand EML's participation in appropriate EM HQ Programs. Including special efforts in EM field characterization (FC) and decontamination and decommissioning (D&D) programs.	Expansion of EML's participation in the operation of management of FC and D&D programs. EML to become involved at additional EM field sites and other EM wide HQ projects.	Successful: EML added the BGRR, West Valley and Hanford, Program(s), and increased its involvement with BNL, ANL and Ames National Laboratories.	Continue to expand participation in appropriate EM HQ Programs. Continue to provide support to sites as needed. Increase match funding with sites.	Continue to provide support to sites as needed. Increase match funding with sites. EML core expertise is fully utilized by EM.	Goal B
Examine the operation and utility of EML's global networks and remote monitoring operations for additional and/or other DOE and WFO customers.	Continue dialogue with NN about new network measurements. Expand dialogue to other potential customers. Modify network operations as appropriate.	Partially Successful: Network streamlined based upon needs of customers. Dialogue with NN customer not continued. Expanded dialogue to other customers.	Evaluate Network sites as additional CTBT sites come on line. Continue to look for new applications for the Network.	Explore use of selected sites for CTBT QA.	Goal F
Develop patents based upon innovative research for field measurements for environmental contamination investigations and D&D.	Evaluate EML's research activities for R&D awards. Submit patent applications to CH.	Successful: Submit 2 patent applications to U.S. Patent Office.	Evaluate EML research activities for R&D awards. Submit other patent applications, including software.	Evaluate each EML project for additional patent potential or award potential including software development.	Goal G

TABLE 2 (Continued) - EML PERFORMANCE GOALS AND METRICS					
Performance Management Areas	Performance Target (FY99)	Completed Actions and Status (FY99)	Performance Target (FY00)	Actions/Goals (FY00/01)	CH Plan Goals
Supportive and Safe EML Environment Goal					
EML Human Resources Management.	Continue to institute changes identified through the CH-SAP (i.e., improving internal and external communications), providing training opportunities, developing a "Human Resources Plan," and conducting ongoing employee satisfaction surveys.	Successful: New HR plan developed. Attrition rate reduced, but we can do better. Morale improved in FY99 due to promotions and new hires.	Implement new HR plan. Bring in additional staff and investigate promotional opportunities. Continue to bring on additional staff.	Management efforts to improve morale and acquire new staff.	Goal B
Internal Communication	Open and positive communications continue between management & staff.	Contributions to EML are acknowledged by direct communications to staff by Laboratory Director and by Laboratory Management. Information availability continues to improve.	Contributions to EML continue to be acknowledged by direct communications to staff by Laboratory Director and by Laboratory Management; e.g., EML weekly highlights, success stories and lab-wide e-mail.	Management efforts to improve communication continues.	Goal B
Employee training is provided according to CH guidelines.	Employees complete training activities and IDPs are updated as required.	Partly Successful: Most employees completed their training. Some IDPs were updated as required.	Majority of employees complete needed training activities and IDPs are updated as required.	Employees receive training as required.	Goal F
Awards and Recognition System	Revised Awards and Recognition System developed according to CH guidelines.	Successful: Implemented according to CH.	Evaluate and modify system as needed.	Recognize and award employees under the plan guidelines.	Goal A

TABLE 2 (Continued) - EML PERFORMANCE GOALS AND METRICS					
Performance Management Areas	Performance Target (FY99)	Completed Actions and Status (FY99)	Performance Target (FY00)	Actions/Goals (FY00/01)	CH Plan Goals
Supportive and Safe EML Environment Goal (Continued)					
Assure that 100% of ES&H documents are up to date and accessible to EML staff.	Revise EML Safety Manual; hold appropriate ES&H briefings. Incorporate the Integrated Safety Management Plan (ISM) into the EML Safety Manual.	Successful: ISM Plan implementation on schedule.	Review and or revise EML Safety Manual; hold appropriate ES&H briefings. Incorporate the ISM Plan into the EML Safety Manual. Complete necessary ISM requirements.	Continue to keep ISM on schedule.	Goal E
Assure that necessary ES&H training is given to appropriate staff to ensure that all protocols are understood and followed.	Ongoing - appropriate ES&H training to be provided.	Successful: All tasks completed.	Ongoing - appropriate ES&H training to be provided including ISM implementation.	Ongoing - appropriate ES&H training to be provided in a timely manner.	Goal E
Increase staff efficiency through improved allocation of resources.	Implement a plan for the reassignment and retraining of admin. personnel that emphasizes cross-work assignments for increasing efficiency.	Successful: Plan implemented.	Reassess and modify plan as required.	Reassess and modify as required.	Goal A
Leverage administrative costs through subcontracting, transferring and other strategies.	Implement a plan to evaluate the merit of transferring appropriate admin. functions of current EML staff to CH, the private sector or other outside providers.	Successful: All options explored and feasible alternatives implemented.	Complete: No action.	Complete: No action.	Goal F

TABLE 2 (Continued) - EML PERFORMANCE GOALS AND METRICS					
Performance Management Areas	Performance Target (FY99)	Completed Actions and Status (FY99)	Performance Target (FY00)	Actions/Goals (FY00/01)	CH Plan Goals
Administrative Goal					
Evaluate needs of and priorities for administrative services. Realign administrative services to meet current needs of the laboratory.	Develop the plan.	Successful - Plan developed.	Implement the plan.	Reassess and modify as required.	Goal B

VII. FINANCIAL SUMMARY AND PROJECTIONS

(as of November 9, 1999)

	FY99 (K)	FY00* (K)	FY01 (K)
Direct Obligations			
Full Time Permanent	$3,550	$3,700	$3,852
Other Than Full Time Permanent	36	32	34
Other Personnel Obligations	76	78	80
Special Personnel Services Payments	0	0	0
Total Personnel Commitment	**$3,676**	**$3,810**	**$3,966**
Civilian Personnel Benefits	$757	$852	$887
Benefits for Former Personnel	0	0	0
Travel & Transportation of Persons	233	239	245
Transportation of Things	53	19	20
Rental Payment to GSA	1,670	1,725	1,770
Rental Payments to Others	0	0	0
Comm. Utilities and Misc. Charges	115	118	120
ADP Support	0	0	0
Printing & Reproduction	42	43	44
Advisory & Assistance Services	60	25	26
Other Services	122	125	128
Goods & Services From Other Agencies	193	197	201
Medical Care	18	19	20
Operation & Maintenance of Equip.	260	238	244
Equipment	200	300	500
Subtotal Direct Obligations	$7,338	$7,580	$8,171
Reimbursable Program	$0	$0	$0
Total Obligations	**$7,338**	**$7,580**	**$8,572**
Recovery of Prior Year Obligations	$0	$0	$0
Unob. Bal. Avail. Start of Year	0	0	0
Unob. Bal. Avail. End of Year	0	0	0
Budget Authority EM	5,273	5,150	5.361
Budget Authority SC	375	400	400
Budget Authority NN	409	345	354
Work For Others Income	1,164	1,225	1,227
Miscellaneous	131	150	180
Total Income	**$6,585**	**$7,260**	**$7,552**

*Additional carryover funding from FY99 is available that will help mitigate some of the funding shortfall.

VIII. EML REWARDS PLAN

CH-wide funding for performance and incentive awards will be finalized each year by the CH Continuous Improvement Committee (CIC) based upon recommendations of its Resource Committee. This funding is determined as a percentage of the composite salaries of all federal employees in each CH Business Group. Each business group then has some discretion as to how these amounts will be distributed among its employees each year.

(A) Business Plan Achievements and Rewards - Performance awards for this rating period will be aligned with EML's Business Plan's accomplishments and goals for FY00. However, based upon the November 4, 1999 Memorandum of Robert San Martin, Manager CH, "funding for Employee Awards is being reviewed and assessed by the CIC. The funds available will likely be lower than last year's amounts and payment of business plan awards will likely be delayed."

(B) Incentive Awards - If funding is available, incentive awards for special acts/achievements will be distributed throughout FY00 to provide timely recognition of individual or team accomplishments that have demonstrated significant contributions to EML's goals and objectives. These awards may be time-off, quality step increases, or on the spot cash. Employees and/or teams may be nominated through the Rewards and Recognition System. In addition to supervisors nominating employees, employees may nominate other employees for awards, with the exception of performance awards. Supervisors must concur and the Laboratory Director must approve these awards.

XI. RECENT EML ACCOMPLISHMENTS AND ACTIVITIES

All of EML's customers gain from the Laboratory's strengths in monitoring, analytical QA, and measurement innovations. EML's Fiscal Year 1999 Accomplishments and Activities are available through the EML Homepage www.eml.doe.gov. Among the highlights discussed are those for the EM Office of Science and Technology (OST) Systems including the Characterization, Monitoring, and Sensor Technology - Crosscutting Program (CMST-CP), the Subsurface Contaminants Focus Area (SCFA) and Supporting EM Activities at DOE Field Offices and National Programs/Centers of Excellence (National Analytical Management Program - NAMP, National Environmental Training Office - NETO, and Center for Risk Excellence - CRE).

The report also summarizes EML's accomplishments and activities for the DOE-SC Office of Biological and Environmental Research (Protecting Human Subjects Program, Health Effects Research Program, Strategic Environmental Research and Development Program - SERDP, Interagency Arctic Research Policy Committee - IARPC), DOE-NN Office of Research and Development and DOE-EH Offices of Nuclear Safety Policy and Standards and Environmental Policy and Compliance/Air, Water and Radiation Division. Highlights and activities for EML's Work for Others (WFO) are also described including those for the AF, NASA, NRC, and EPA.