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PART I - THE SCHEDULE

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C-1. Introduction

- (a) Oak Ridge National Laboratory is a multi-program Department of Energy (DOE) national laboratory and a Federally Funded Research and Development Center (FFRDC) established in accordance with the Federal Acquisition Regulation Subpart 35. Oak Ridge National Laboratory, subsequently referred to as the Laboratory, is an Office of Science laboratory. The Laboratory performs work for all DOE programs including Science, Energy Efficiency and Renewable Energy, Nuclear Energy Science and Technology, Nonproliferation and National Security, Fossil Energy, Environmental Management, and Defense Programs. The Laboratory mission is to conduct basic and applied research and development (R&D) to advance scientific knowledge, the nation's energy resources, and environmental quality and to strengthen educational foundations and national economic competitiveness. DOE programs are carried out in partnership with academia, the private sector, other DOE national laboratories, the international scientific community, and other government agencies. The Laboratory also performs work consistent with the DOE mission for entities other than DOE. The Contractor will advance the frontiers of science and technology through broad interdisciplinary R&D programs that answer fundamental questions, solve technical problems (locally, regionally, nationally, and internationally), and develop and apply technologies to address societal needs.
- (b) This performance-based management contract reflects the Contractor's responsibility to develop and implement innovative approaches and adopt practices that foster continuous improvement in accomplishing the Laboratory mission. The Contractor will provide integrated line management of this diverse research institution, aligning multiple program scientific and technical missions with the appropriate resources and support to deliver world-class science in a cost effective manner. Integrated line management incorporates integrated safety management, cross organizational teamwork recognizing matrix management, and efficient work practices and applies them to programmatic and operational efforts. Success in partnering with industry and ultimate application of the scientific information and/or technology to solve DOE or broad public issues is essential.

C-2. Statement of Work (SOW)

(a) Research and Development

- (1) In accomplishing the DOE mission, the Contractor shall maintain and advance the R&D capabilities that support all four DOE business lines: *Science and Technology, Energy Resources, Environmental Quality, and National Security.*

Science and Technology - The Contractor shall maintain and enhance critical Laboratory capabilities in materials science and engineering and in neutron science. The Contractor shall manage the High Flux Isotope Reactor (HFIR), the Radiochemical Engineering Development Center and other hot cells, and the Spallation Neutron Source project. These facilities will support user programs in neutron scattering, materials irradiation, and isotope production. Also, the Contractor shall manage Laboratory capabilities in analytical and separations chemistry, computational sciences, environmental (including field experimental facilities) and social sciences, fusion science and technology, genetics, genomics, and biotechnology. The Contractor shall direct Laboratory capabilities in nuclear physics, astrophysics with radioactive ion beams, and solid state physics.

Energy Resources - The Contractor has the responsibility to manage Laboratory capabilities in: 1) biomass renewable energy feedstock and conversion technologies; 2) energy efficient technologies for buildings, industry, transportation, and utility end-use; 3) applied materials in support of energy efficient technologies, vehicle technologies, and fossil fuel use; 4) nuclear technology and safety; and 5) assessing national energy use and projections of future energy supply and demand.

Environmental Quality - The Contractor shall maintain and improve capabilities in environmental technology development, environmental restoration and waste management support, and health and environmental risk assessment. The Contractor shall effectively and efficiently manage the minimization, characterization, and certification of Laboratory generated wastes and other materials.

National Security - The Contractor shall maintain existing materials storage and processing facilities and develop related technologies. The Contractor shall support DOE, through the National Security Program Office (NSPO) at the Y-12 plant, in the development of technologies that promote non-proliferation, international nuclear safety, and safe stockpile stewardship.

- (2) The Contractor shall effectively and efficiently manage all the Laboratories' core competencies. This includes directing research in neutron-based

science and technology; computational science and advanced computing; biological and environmental sciences and technology; and advanced materials synthesis, processing, and characterization. In addition, the Laboratory has core competencies in instrumentation, controls and measurement science and technology, and in energy production and end-use technologies. The Contractor shall ensure the Laboratory conducts basic and applied research, development, and demonstration activities facilitating deployment of technologies both in U.S. and international markets through partnerships with the private sector.

The Contractor will direct these core competencies into creative research projects for DOE in partnership(s) with universities, other federal laboratories and the private sector. Opportunities to transfer technology into useful products and processes should be conducted in close cooperation with private sector sponsors. The Contractor shall make it possible for the private sector to join in development/operation activities with the Laboratory to enhance teamwork and technology transfer.

- (3) The Contractor is responsible for operating 15 national user facilities supporting diverse DOE mission areas. The 15 user facilities are: the Atomic Physics EN Tandem Accelerator, the Bioprocessing Research Facility, the Buildings Technology Center, the Californium User Facility, the Computational Center for Industrial Innovation, the High Flux Isotope Reactor, the High Temperature Materials Laboratory, the Holifield Radioactive Ion Beam Facility, the Metals Processing Laboratory, the Oak Ridge Electron Linear Accelerator, the Metrology Research and Development Laboratories, the Shared Research Equipment Program, the Oak Ridge National Environmental Research Park (NERP), the Mouse Genetics Research Facility, and the Surface Modification and Characterization Research Facility. The Contractor shall also operate the American Museum of Science and Energy.

The Contractor is responsible for accommodating over 4,000 visiting scientists that are guests of the Laboratory every year, and maintaining over 500 agreements to engage the 15 user facilities. Agreements are in place with other government agencies, industries, universities, and international participants.

- (4) The Contractor shall effectively, efficiently, and safely operate the HFIR (e.g., produce neutron beams for experiments for at least 90 percent of the time scheduled for experiments each year). HFIR provides state-of-the-art facilities for neutron scattering and materials irradiation and is the world's leading source of elements heavier than plutonium for research, medicine, and industrial applications. HFIR is a light-water cooled and moderated reactor with a design power level of 100 megawatts and a normal operating

power of 85 megawatts. HFIR supports production of radioactive elements that benefit approximately 800 customers in diverse areas like cancer radiation therapy, nondestructive inspection of explosives and aircraft, and as start-up sources for nuclear reactors.

- (5) The Contractor shall maintain effective operations of existing and planned user facilities, other appropriate facilities, and provide effective customer service to user clients. The Contractor shall implement DOE mission objectives to ensure user facilities are user friendly, readily available, and can operate within conditions requested by user clients.

The Contractor is also responsible for new user facilities that pose a significant challenge in planning and scheduling experiments. For example, the Spallation Neutron Source (SNS) project when fully operational is estimated to have 1000-2000 user scientists per year in a wide variety of scientific investigations. A number of other facilities are proposed at the Laboratory during the term of this contract (e.g., the National Transportation Research Center).

- (6) The Contractor shall manage and maintain government-owned buildings and facilities at the Laboratory site and the NERP, together with the utilities and appurtenances thereto. The Contractor is also responsible for certain buildings at the Y-12 Plant which house major facilities and equipment in support of ORNL programs. Some of the facilities at the Laboratory related to the cleanup of the site are managed by the DOE-Oak Ridge Operations (ORO) Environmental Management, Management and Integration prime contractor.
- (7) The Contractor shall manage the resources and capabilities of the Laboratory and provide leadership for this scientific institution. The Contractor will effectively and efficiently direct the day-to-day management of the Laboratory and proficiently link scientific/engineering capabilities to accomplish DOE's objectives. Providing leadership in methods of integrated line management to ensure inter-laboratory team building and intra-laboratory cooperation while supplying a safe working environment is essential. The Contractor is charged with maintaining and enhancing the intellectual resource base in order to avoid erosion of the scientific and engineering foundations at the Laboratory. The Contractor is also responsible for the employment of all personnel engaged in the SOW efforts and for the readiness and training of its personnel.

(b) Protection of Workers, the Public and the Environment

Protection of workers, the public and the environment are fundamental responsibilities of the Contractor and a critically important performance expectation. The Contractor's Environment, Safety and Health (ES&H) program shall be operated as an integral, but visible, part of how the organization conducts business. A key element is continued implementation of the ORNL Integrated Safety Management System (ISMS), including prioritizing work planning and execution, establishing clear ES&H priorities, and allocating the appropriate level of trained and qualified resources to address programmatic and operational considerations. The Contractor shall ensure that cost reduction and efficiency efforts are fully compatible with ES&H performance.

The Contractor shall perform all activities in compliance with applicable health, safety, and environmental laws, orders, regulations, and national consensus standards (contained in ORNL Work Smart Standards); and governing agreements and permits executed with regulatory and oversight government organizations. The Contractor shall take necessary actions to preclude serious injuries and/or fatalities, keep worker exposures and environmental releases as low as reasonably achievable below established limits, minimize the generation of waste, and maintain or increase protection to the environment, public and worker safety and health.

Incorporating integrated line management, the Contractor shall put in place a system that clearly communicates the roles, responsibilities, and authorities of line managers. The Contractor shall hold line managers, including direct reports accountable for implementing necessary controls for safe performance of work in their respective area of responsibility. The Contractor shall establish effective management systems to identify deficiencies, resolve them in a timely manner, ensure that corrective actions are implemented, (addressing the extent of conditions, root causes, and measures to prevent recurrence) and prioritize and track commitments and actions. The Contractor shall, as appropriate, consider ES&H performance in selection of its subcontractors and incorporate ES&H requirements into subcontracts.

(c) Project Management

The Contractor shall manage facility engineering and construction efforts in a manner that allows completion of project objectives in a safe and environmentally sound manner within the planned schedule, cost, and technical baselines.

The Contractor is expected to achieve all project deliverables associated with the SNS project. The National Environmental Policy Act (NEPA) determination is expected during 1999 with the preferred site in Oak Ridge. Construction is expected to be initiated during FY 2000. Project activities will continue until the facility has successfully completed startup (including commissioning), and is ready for operation which is currently planned during 2005. Construction of the SNS within the established schedule, cost, and technical baseline is required.

The HFIR upgrade project includes the development of a cold source of neutrons, new neutron scattering instruments, new thermal guides, and replacement of the beryllium reflector. The upgrade began in FY 1996 and is to be completed by mid-FY 2002. The Contractor shall complete this project on the established schedule within budget.

(d) Mission Related Partnerships

The Contractor shall maintain and enhance existing partnerships and develop new technology partnership activities in support of the DOE mission. Mechanisms for partnerships include cooperative research and development agreements, direct assistance programs, employee loan programs, user facility agreements, memoranda of cooperation, memoranda of understanding, memoranda of agreement, license agreements, and other arrangements as approved by DOE in which research and development resources are leveraged with private sector partners. Efforts to develop broad based partnerships with academic research institutions, other agencies, other DOE laboratories, the international scientific community, and with the private sector are essential to the long term viability of the Laboratory. Accomplishments in creating these partnerships may expand beyond the more classical cooperative research and development agreements as approved by DOE. Neutron science, isotope production, functional genomics, and computational research programs provide opportunities for partnerships with the private sector, universities, and other national laboratories to advance scientific frontiers and enhance technology development. Facilities and instrumentation may be developed with applications in the pharmaceutical industry, clinical medicine, environmental remediation, and other areas.

(e) Other Activities

- (1) The Contractor shall manage facilities and resources to optimize the effectiveness of operations in support of the DOE mission. The Contractor shall maintain critical skill mixes and resources at the Laboratory. The Contractor should perform make/buy analyses on work functions that may be inefficient and determine options for improvement. The Contractor shall examine Laboratory operations to consolidate work efforts, eliminate duplication of scientific effort, identify underutilized facilities, and reduce operational costs. Site planning activities shall be conducted by the Contractor proactively addressing concerns of DOE, regulatory agencies, and stakeholder groups.
- (2) The Contractor shall support DOE/ORO in its responsibilities for land use planning and land management activities for the DOE Oak Ridge Reservation, which consists of 34,545 acres of federally-owned land. The Contractor's responsibilities, as directed by DOE and as identified in the DOE/ORO Reservation Management Plan and the Facility Information

Management System (FIMS) database, include land and facility planning for the Laboratory site, conducting research and operational and maintenance activities within the NERP, and integrating reservation activities among contractors and other parties to support DOE's management responsibility.

- (3) In addition to the services specifically described in other provisions of this SOW, the Contractor shall perform services as DOE and the Contractor shall agree in writing that will be performed from time to time under this contract at Oak Ridge or elsewhere, as follows:
 - (i) Services incidental or related to the services described in other provisions of this SOW.
 - (ii) Services, using existing facilities and capabilities, for other federal agencies and nonfederal entities in accordance with policies and procedures established by DOE.
 - (iii) Services, using existing or enhanced facilities and capabilities, for the Nuclear Regulatory Commission (NRC), under agency agreements between NRC and DOE.
 - (iv) Services in support of ORO programs when the work involved has been determined by DOE to be within the unique capabilities of the Contractor or when the work involved has been determined by DOE to be within the special scientific and technical capabilities of the Contractor and the urgent need for the services precludes acquiring them from another source.

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