

PART I—THE SCHEDULE

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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, Electrical Delivery and Energy Reliability, Energy Efficiency and Renewable Energy, Nuclear Energy, Fossil Energy, Environmental Management, and the National Nuclear Security Administration. The Laboratory supports the DOE's strategic themes in energy security, nuclear security, scientific discovery and innovation, environmental responsibility, and management excellence, in accomplishing the Department's mission. The Laboratory mission is to conduct basic and applied research and development (R&D) to advance scientific knowledge, the nation's energy resources, national security, 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, integrated safeguard and security 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 scientific information and/or technology to solve DOE or broad public issues is essential.

C-2 The Laboratory Vision

Consistent with the Department's, Office of Science's and other applicable program office's strategic plans, the Contractor shall develop and maintain a compelling long range vision and supporting strategic and business plans for the Laboratory. The vision and the associated laboratory plans shall be communicated to and reviewed by the Department via such planning processes as are established by the Office of Science. The Performance Evaluation and Measurement Plan, as called for within the clause entitled, "Standards of Contractor Performance Evaluation," identifies standardized Office of Science goals, objectives and specific measures, which are updated and agreed upon by the Parties annually, as standards against which the Contractor's overall performance of scientific, technical, operational, and/or managerial obligations under this contract shall be assessed.

C-3 Performance Goals, Objectives, and Notable Outcomes

DOE has substantial expectations of the Contractor in eight specific performance areas under two major categories: 1) Science and Technology and 2) Management and Operations. The specific areas under the Science and Technology Category are: a) Mission Accomplishment; b) Design, Fabrication, Construction and Operations of Facilities; and c) Science and Technology Research Project/Program Management. Goals under the Management and Operations category include: a) Leadership and Stewardship of the Laboratory; b) Integrated Safety, Health and Environmental Protection; c) Business Systems; d) Operating, Maintaining, and Renewing Facility and Infrastructure Portfolio; and e) Integrated Safeguards and Security Management and Emergency Management Systems. The Performance Evaluation and Measurement Plan is provided in Section J, Appendix G of the contract. This common set of performance areas has been put in place at all Office of Science laboratories as the basic structure for annual performance plans.

C-4 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 five DOE strategic themes: Energy Security, Nuclear Security, Scientific Discovery and Innovation, Environmental Responsibility and Management Excellence.

Energy Security—The Department's strategic theme is to promote America's energy security through reliable, clean, and affordable energy. 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, electrical transmission and distribution, energy storage, renewables, 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.

Nuclear Security—The Department’s strategic theme is to ensure America’s nuclear security. The Contractor shall maintain existing materials storage and processing facilities and develop related technologies. The Contractor shall support DOE in the development of technologies that promote non-proliferation, international nuclear safety, enhanced national security, and safe stockpile stewardship.

Scientific Discovery and Innovation—The Department’s strategic theme is to strengthen U.S. scientific discovery, economic competitiveness, and quality of life through innovations in 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, the Center for Nanophase Materials Sciences (CNMS), and the Spallation Neutron Source (SNS). These facilities 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.

Environmental Responsibility—The Department’s strategic theme is to protect the environment by providing a responsible solution to the legacy of nuclear weapons production. The Contractor shall maintain and improve capabilities in environmental technology development, environmental restoration, decontamination and decommissioning and waste management support, and health and environmental risk assessment. Waste minimization, pollution prevention, and energy consumption through green or renewable resources are a challenge and require initiatives to support greenhouse gas reduction efforts. The Contractor shall effectively and efficiently manage the minimization, characterization, and certification of Laboratory generated wastes and other materials, and the treatment, storage and disposal of newly generated waste as directed by DOE.

Management Excellence – The Department’s strategic theme is to enable the mission through sound management. The Contractor shall continue initiatives to improve efficiencies; reduce the cost of doing business; and, in the laboratory planning process, focus on these initiatives to ensure highly efficient and effective business, technical, and facility operations are achieved.

- (2) The Contractor shall effectively and efficiently manage all of the Laboratories’ core capabilities. This includes directing research in particle physics, accelerator science, plasma and fusion energy science, condensed matter physics and materials science, chemical and molecular science, climate change science, biological systems science, geological systems science, applied mathematics, advanced computer science, visualization, and data, computational science, applied nuclear science and technology, applied materials science and engineering, chemical engineering, systems engineering and integration, and large scale user facilities/advanced instrumentation. 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 capabilities into creative research projects for DOE in partnership(s) with universities, other federal laboratories and agencies, 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 11 National User Facilities supporting diverse DOE mission areas and in FY 2009 had over 2,400 users representing over 560 organizations. The 11 National User Facilities are: the Buildings Technology Research and Integration Center, the Center for Nanophase Materials Sciences, the Center for Computational Sciences, the Center for Structural Molecular Biology, the High Flux Isotope Reactor, the High Temperature Materials Laboratory, the Holifield Radioactive Ion Beam Facility, the National Transportation Research Center, the Safeguards Laboratory, the Shared Research Equipment Program, and the Spallation Neutron Source Experimental Facility.

The Contractor is responsible for accommodating over 4,000 visiting scientists and 800 students that are guests of the Laboratory every year, and maintaining over 700 agreements to engage the 11 National 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. 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 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 user facilities that pose a significant challenge in planning and scheduling experiments. For example, the world class Spallation Neutron Source (SNS) is estimated to have up to 2,000 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.

- (6) The Contractor shall manage and maintain government-owned buildings and facilities at the Laboratory site, together with the utilities and appurtenances thereto. The Contractor is also responsible for certain buildings at the Y-12 Plant, and shall also operate the American Museum of Science and Energy as directed by DOE. The DOE Oak Ridge Office's other prime contractors manage some of the facilities at the Laboratory.
- (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 and to promote world leadership prominence in areas as mandated by the Office of

Science. 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
- (1) 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; and continued implementation of integrated safeguards and security management systems and policies to provide a safe and secure work environment. The Contractor shall ensure that cost reduction and efficiency efforts are fully compatible with ES&H performance.
 - (2) 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.
 - (3) 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 all 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. Specifically, the Contractor is expected to achieve all project deliverables associated with scientific facility upgrades, modernization projects including the those projects within the Science Laboratories Infrastructure program and the challenging United States contributions to ITER Project in accordance with DOE directives and requirements.

(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, privately funded technology transfer, 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. Neutrons for science, biological systems science, advanced energy and materials, isotope production and advanced 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. The contractor shall develop and implement programs that utilize laboratory resources in collaboration and cooperation with other academic and research institutions in order to advance science education opportunities and to improve the quality of science, mathematics, computing, and technology education in the United States.

(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 and natural resource management for the DOE Oak Ridge Reservation, which consists of over 30,000 acres of federally-owned land. The Contractor's responsibilities are land and facility planning for the Laboratory site, coordinating and conducting research and its associated operational and maintenance activities within the National Environmental Research Park (NERP).
- (3) The Contractor shall assist DOE through direct participation and other support in achieving DOE's energy efficiency goals and objectives in electricity, water, and thermal consumption, conservation, and savings, including goals and objectives contained in Executive Order 13423, *Strengthening Federal Environmental, Energy and Transportation Management*, and Executive Order 13514, *Federal Leadership in Environmental, Energy and Economic Performance*. The Contractor shall maintain and update, as appropriate, its Infrastructure/Mission Readiness Plans and supporting Site Plans (as required elsewhere in the contract) to include detailed plans and milestones for achieving site-specific energy efficiency goals and objectives.
- (4) 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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