PART I – The Schedule

Section C

Description/Specifications/Work Statement

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C-1 Introduction

This Performance-Based Management Contract (PBMC) is for the management and operation of the Pacific Northwest National Laboratory (the Laboratory). Battelle Memorial Institute (the Contractor) shall, in accordance with the provisions of this Contract, accomplish the missions and programs assigned by the U.S. Department of Energy (DOE) and manage and operate the Laboratory. The Laboratory is one of the DOE's Office of Science (SC) multi-program laboratories. The Laboratory is a Federally Funded Research and Development Center (FFRDC) established in accordance with Federal Acquisition Regulation Part 35 and operated under this management and operating (M&O) contract, as defined in FAR 17.6 and DEAR 917.6.

This Contract reflects the Department's effort to enable the Contractor to achieve more highly effective and efficient management of the Laboratory, resulting in a safe and secure environment, outstanding science and technology results, more cost effective operations, and enhanced Contractor accountability. Toward this end, this Contract establishes a process for minimizing the use of unnecessary DOE orders by tailoring existing and new orders that will enable the Contractor to propose alternate standards, which rely primarily on state and federal laws and regulations, and management processes based on national standards, certified systems and best business practices. Contractor managers shall be held more accountable for maintaining risk mitigation as laboratory processes and assurance models change.

This Contract reflects the application of performance-based contracting approaches and techniques which emphasize results/outcomes and minimize "how to" performance descriptions. The Contractor has the responsibility for total performance under the Contract, including determining the specific methods for accomplishing the work effort, performing quality control, and assuming accountability for accomplishing the work under the Contract. Accordingly, this PBMC provides flexibility, within the terms and conditions of the Contract, to the Contractor in managing and operating the Laboratory.

Desired results of this Contract include improved Contractor operational efficiencies, allocations of Contractor oversight resources to direct mission work, and streamlined and more effective federal line management focused on a system-based approach to federal oversight with increased reliance on the results obtained from certified, nationally recognized experts and other independent reviewers. Moreover, science and technology have improved peer review metrics, stretch goals, and incentives to achieve extraordinary results.

Under this PBMC, it is the Contractor's responsibility to develop and implement innovative approaches and adopt practices that foster continuous improvement in accomplishing the mission of the Laboratory. DOE expects the Contractor to

produce effective and efficient management structures, systems, and operations that maintain high levels of quality and safety in accomplishing the work required under this Contract, and that to the extent practicable and appropriate, rely on national, commercial, and industrial standards and can be verified and certified by independent, nationally recognized experts and other independent reviewers. The Contractor shall conduct all work in a manner that optimizes productivity, minimizes waste, and fully complies with all applicable laws, regulations, and terms and conditions of the Contract.

To the maximum extent practical, this PBMC shall:

(a) Describe the requirements in terms of outcomes or results required rather than the methods of performance of the work;

(b) Use a limited number of systems-based measurable performance standards (*i.e.*, terms of quality, timeliness, quantity, etc.) to drive improved performance and increased effective and efficient management of the Laboratory;

(c) Provide for appropriate financial incentives (e.g., fee) when performance standards and contract requirements are achieved;

(d) Specify procedures for reduction of fee when services are not performed or do not meet Contract requirements; and

(e) Include non-financial performance incentives where appropriate.

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 a compelling five (5) year vision for the Laboratory, along with a description (work plan) on how they will accomplish the vision. Upon approval by the Department, the vision statement, mission description, and program work activity to accomplish the vision shall be captured within the Institutional Plan as provided in the Institutional Planning Instructions issued by the DOE Office of Science and shall be updated yearly as part of the ongoing Institutional Planning process, as called for within the Clause entitled "Long-Range Planning, Program Development, And Budgetary Administration". The Performance Evaluation and Measurement Plan, as called for within the Clause entitled "Standards of Contractor Performance Evaluation", identifies performance outcomes and indicators, 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 Expectations, Objectives, and Measures

3.1 Core Expectations

3.1.1 General

The relationship between DOE and its national laboratory management and operating contractors is designed to bring best practices for research and development to bear on the Department's missions. Through application of these best practices, the Department seeks to assure both outstanding programmatic and operational performance of today's research programs and the long-term quality, relevance, and productivity of the laboratories against tomorrow's needs. Accordingly, DOE has substantial expectations of the Contractor in the areas of: program delivery and mission accomplishment; laboratory stewardship; and excellence in laboratory operations and financial management.

3.1.2 Program Development and Mission Accomplishment

The Contractor is expected to provide effective planning, management, and execution of assigned research and development programs. The Contractor is expected to execute assigned programs so as to strive for the greatest possible impact on achieving DOE's mission objectives, to aggressively manage the Laboratory's science and technology capabilities and intellectual property to meet these objectives, and to bring forward innovative concepts and research proposals that are well-aligned with DOE missions. The Contractor shall propose work that is aligned with, and likely to advance, DOE's mission objectives, and that is well matched to Laboratory capabilities. The Contractor shall strive to meet the highest standards of scientific quality and productivity, "on-time, on budget, as-promised" delivery of program deliverables, and first-rate service to the research community through user facility operation.

The Contractor is expected to demonstrate benefit to the nation from R&D investments by transferring technology to the private sector and supporting excellence in science and mathematics education to the extent such activities are consistent with achieving continuous progress towards DOE's core missions.

3.1.3 Laboratory Stewardship

The Contractor is expected to be an active partner with DOE in assuring that the Laboratory is renewed and enhanced to meet

future mission needs. Within the constraints of available resources and other Contract requirements, the Contractor, in partnership with DOE, shall:

(a) Maintain a Laboratory vision and long-term strategic plan that addresses the evolution of Laboratory capabilities to meet anticipated DOE and national needs.

(b) Attract, develop, and retain an outstanding work force, with the skills and capabilities to meet DOE's evolving mission needs.

(c) Renew and enhance research facilities and equipment so that the Laboratory remains at the state-of-the-art over time and is well-positioned to meet future DOE needs.

(d) Build and maintain a financially viable portfolio of research programs that generates the resources required to renew and enhance Laboratory research capabilities over time.

(e) Maintain a positive relationship with the broader research community, to enhance the intellectual vitality and research relevance of the Laboratory, and to bring the best possible capabilities to bear on DOE mission needs through partnerships.

(f) Build a positive, supportive relationship founded on openness and trust with the community and region in which the Laboratory is located.

3.1.4 Operational and Financial Management Excellence

The Contractor is expected to effectively and efficiently manage and operate the Laboratory through best-in class management practices designed to enable research while assuring the protection and proper maintenance of DOE research and information assets, the health and safety of Laboratory staff and the public, and the environment. The Contractor is expected to operate the Laboratory so as to meet all applicable laws, regulations, and requirements. The Contractor is expected to manage the Laboratory cost-effectively, striving to provide the greatest possible research output per dollar of research investment, and, accordingly, to develop and deploy management systems and practices that are designed to enhance research productivity and mission accomplishment consistent with meeting operational requirements.

3.2 Performance Evaluation Expectations

The performance expectations of this Contract are broadly set forth in this Section and reflect the DOE's minimum needs and expectations for Contractor performance. Specific performance work statements, performance standards (measures applied to results/outputs), acceptable performance levels (performance expectations), acceptable quality levels (permissible deviations from performance expectations), and related incentives shall be established annually, or at other such intervals determined by the DOE to be appropriate. The related incentives may be monetary, or where monetary incentives are not desirable or considered effective, the Contractor's performance may be used as a factor which directly affects the past performance report card, or a factor in a decision to reduce or increase DOE oversight or Contractor reporting, as appropriate.

In performance under this Contract, the Contractor shall be evaluated within the following general performance goals and expectations:

(a) Quality of Science and Technology: Produce original, creative scientific output that advances science and technology while achieving sustained scientific progress and impact that is recognized by the technical community.

(b) Relevance to DOE Missions and National Needs: Conduct quality scientific research that advances the missions of DOE and other national programs and contributes to U.S. leadership in international scientific and technical communities.

(c) Success in Constructing and Operating Research Facilities & Equipment: Provide quality strategic planning for facilities/equipment needed to insure the Laboratory can meet its S&T missions today and in the future, while effectively and efficiently maintaining current S&T facilities and equipment and providing effective, efficient operation of user facilities (EMSL/ARM).

(d) Effectiveness and Efficiency of Research Program Management: Provide for effective capability stewardship, expert delivery, and success in relationship and risk management.

Furthermore "Mission Stretch Goals," as specified within Section J, Appendix H, have been identified as incentives for the Contractor to exceed expectations within the science and technology arena. Incentives for the accomplishment of these mission stretch goals shall be awarded as

called for within the Contract clause entitled "Determining Total Available Mission Stretch Goal(s) Incentive Fee and Fee Earned," and "Appendix H."

3.3 Performance Objectives and Measures

The results-oriented performance objectives of this Contract are stated in the Performance Evaluation and Measurement Plan, and/or in the Work Authorization Directives issued annually in accordance with the special clause entitled "Long-Range Planning, Program Development And Budgetary Administration." The Contractor shall develop a 5-year Institutional Plan for the overall direction of the Laboratory and for the accomplishment of these objectives. The Plan shall be actively maintained and annually updated in accordance with Institutional Planning instructions issued by the Office of Science. The objectives shall be accomplished within an overall framework of management and operational performance requirements and standards contained elsewhere in this Contract. To the maximum extent practicable, these requirements and standards have also been structured to reflect performance-based contracting concepts, including the clause entitled "Application of DOE Contractor Requirements Documents," which permits the Contractor to propose to the Contracting Officer alternative and/or tailored approaches based on national, commercial or industrial standards and best business practices to meet the outcomes desired by the Government.

DOE's Quality Assurance/Surveillance Plan (QASP) for evaluating the Contractor's performance under the Contract shall consist primarily of the Performance Evaluation and Measurement Plan (PEMP) as called for within the Section I Contract clause entitled "Total Available Fee: Base Fee Amount and Performance Fee Amount." The QASP establishes the process DOE shall use to ensure that the Contractor has performed in accordance with the performance standards and expectations. The QASP shall summarize the performance standards, expectations and acceptable quality levels for each task; describe how performance will be monitored and measured; describe how the results will be evaluated; and state how the results will affect Contract payment.

The Contractor shall develop and implement a Laboratory assurance process, acceptable to the Contracting Officer, which provides reasonable assurance that the objectives of the Contractor's management systems are being accomplished and that the systems and controls will be effective and efficient. The Contractor's assurance process shall reflect an understanding of the risks, maintain mechanisms for eliminating or

mitigating the risks, and maintain a process to ensure that the management systems and their attendant assurance process(es) meet Contract requirements.

C-4 Statement of Work

4.1 General

The Contractor shall furnish the necessary personnel, facilities, equipment, materials, supplies, and services (except those provided by the Government) to accomplish the statement of work. The statement of work under this PBMC is comprehensive in that the Contractor is expected to perform all necessary technical, operational, and management functions to manage and operate the Laboratory and perform the DOE missions assigned to the Laboratory. This statement of work encompasses all on-going objectives of the Laboratory, as well as those objectives that may be assigned during the term of the Contract, and includes, but is not limited to: all infrastructure management and maintenance; human resources management; environmental management; health, safety, and security; and purchasing, financial, and other administrative systems.

4.2 Mission

The Laboratory's research and development missions and programs support the overarching national security mission of the DOE through efforts in fundamental science, energy and environmental sciences and technologies, and national security. The Laboratory shall continue to provide highly skilled staff who support multi-disciplinary efforts to rapidly translate scientific discoveries into applications in physical, computational, and environmental sciences, and on special facilities, including the Environmental Molecular Sciences Laboratory (EMSL). The Laboratory shall support the President's commitment to sustain and nurture the nation's science and technology enterprise, to support national goals in security, energy, environmental quality, human health and economic growth, and to provide a significant resource for scientists world-wide to engage with Laboratory staff in accelerating the nation's progress towards these goals.

The Laboratory's mission statement is documented annually and updated as necessary in the Institutional Plan. As a multi-program national laboratory, the Laboratory's mission is to create new knowledge and deliver solutions to science and technology challenges in DOE's core missions. The Laboratory envisions being DOE's best-in-class multi-program laboratory known for breakthrough science and for rapidly translating discoveries into applications that solve critical challenges and benefit our nation and society. Over the term of this Contract, the

Contractor shall conduct a broad spectrum of research and development programs in DOE's science, national security, environmental quality, and energy missions as assigned by DOE. The Contractor shall make its government-funded scientific and technical research results broadly available to the public. The Contractor shall continue to use its multidisciplinary capabilities and apply its expertise to conduct research for the government and the private sector. The Contractor shall also provide technical advice and guidance to DOE in support of policy development, program planning, and other DOE activities as requested by DOE, and shall bring forward recommendations for new research and development programs designed to achieve DOE mission goals.

In keeping with its overall role as a multi-program national laboratory, the specific research programs conducted and the overall mix of research at the Laboratory will change, as needed, over the Contract period in keeping with DOE's changing mission needs, advances in science and technology, and other drivers. Accordingly, this statement of work is not intended to be all-inclusive or restrictive, but is intended to provide a broad framework and general scope of the work to be performed at the Laboratory. This statement of work does not represent a commitment to, or imply funding for, specific projects or programs.

As a multi-program laboratory, work under this Contract includes scientific and technical programs sponsored by major DOE organizations. Primary DOE sponsors include:

- Office of Science
- Environmental Management
- Nuclear Energy Science and Technology
- Energy Efficiency and Renewable Energy
- Fossil Energy
- National Nuclear Security Administration
- Office of Intelligence
- Office of Counterintelligence

Additionally, the Contractor shall engage in other DOE and non-DOE science and technology initiatives that derive from the Laboratory's missions and utilize the Laboratory's core competencies. A summary of current Laboratory programs supporting DOE's mission areas follows. Descriptions of major programs are updated annually in the Laboratory's Institutional Plan.

4.2.1 Science mission role

In the science mission, the Contractor shall deliver the scientific knowledge and discoveries for DOE's applied missions; advance the frontiers of the physical sciences and areas of the biological, environmental and computational sciences; and provide world-class research facilities and essential scientific human capital to the nation's overall science enterprise. Areas of research shall include conducting research under DOE's Biological and Environmental Research programs, including biomolecular science and microbiology, environmental science (atmospheric science, climate research, and subsurface science), and computational modeling. The Contractor shall also conduct research programs in chemistry, chemical physics, materials science, nuclear science and technology, and computer and information science as part of DOE's Basic Energy Sciences and Advanced Scientific Computing Research programs.

Specifically the Contractor shall operate the William R. Wiley Environmental Molecular Sciences Laboratory (EMSL), a user facility that provides a broad range of advanced experimental and computational tools for advanced research in the environmental, biological, chemical, and materials sciences, and other user facilities as designated by or constructed by DOE.

4.2.2 National Security mission role

In the national security mission, the Contractor shall support DOE efforts to strengthen United States security through the application of nuclear science and by reducing the global threat from weapons of mass destruction. The Contractor shall also support DOE efforts in arms control and nonproliferation, intelligence analysis, and counterintelligence. In particular, the Contractor shall provide science, technology, and engineered systems to monitor nuclear treaties and agreements, to prevent the proliferation of weapons of mass destruction, and to counter terrorism, including threats from chemical and biological agents. The Contractor shall provide technical expertise for the United States' international efforts to improve the safety of nuclear power generation and the management and safeguarding of nuclear materials. Other areas of emphasis shall include cyber security, homeland security, and infrastructure protection. The Contractor shall also provide selected support for DOE's stockpile stewardship.

4.2.3 Energy Resources mission role

In the energy resources mission, the Contractor shall increase global energy security, maintain energy affordability and reduce adverse environmental impacts associated with energy production, distribution, and use by developing and promoting advanced energy technologies, policies and practices that efficiently increase domestic energy supply, diversity, productivity, and reliability. The Contractor shall be a major asset to DOE and the nation in providing a balanced portfolio of secure, clean, and affordable energy systems compatible with achieving a sustainable energy future. The Contractor shall provide science and engineering for developing clean, affordable technologies for transportation, energy generation, and energy efficient buildings and industrial processing. Particular areas of emphasis include development of low-cost, high performance, solid oxide fuel cells, hybrid fuel cell systems, energy storage systems, bio-based products, and essential technology for a hydrogen economy. Tools shall also be developed for transforming the energy grid into a secure and dynamically predictable transmission and distribution system. Other areas of emphasis include leadership in climate modeling, integrated assessment, and CO_2 capture and sequestration science and technology, establishing a sound basis for the geologic and terrestrial sequestration that enables the nation to effectively manage the risks posed by climate change. The Contractor shall also provide unique capabilities in advanced materials, processes and diagnostics critical to the development of next-generation nuclear reactors and securing a safe and viable nuclear energy option.

4.2.4 Environmental Quality mission role

In the environmental quality mission, the Contractor shall provide science and technology support to DOE's effort to aggressively clean up the environmental legacy of nuclear weapons and civilian nuclear research and development programs, permanently dispose of the Nation's radioactive wastes, minimize the social and economic impacts to individual workers and their communities resulting from departmental activities, and ensure the health and safety of DOE workers, the public and protection of the environment. The Contractor shall provide science and technology contributions that substantially reduce the cost, time, and risk associated with DOE's cleanup, and enable site cleanup and closure decisions to have a sound, scientific basis. The Contractor shall support DOE's waste characterization, waste disposal, cleanup, and land restoration programs, both nationally and at the Hanford Site. The Contractor shall utilize advanced computational capabilities that enable the design of bio-chemical remediation processes that target specific distributed contaminants, optimize the facilities that will be used to treat large quantities of concentrated contaminants, and provide sub-surface

contaminant behavior models that satisfy stakeholder needs for decision and informational tools. Areas of emphasis include solving tank waste problems at DOE sites, vitrification and processing technologies for waste treatment and immobilization, fate and transport modeling, environmental measurements and monitoring, ecological studies, and technology for groundwater cleanup. The tools and technologies developed by the Contractor for cleanup shall be expanded to help address the region's and Nation's most challenging natural resource issues - water stewardship, carbon management, and ecosystem protection.

4.2.5 Technology Transfer Programs

The Contractor shall contribute to U.S. technological competitiveness through research and development partnerships with industry that capitalize on the Laboratory's expertise and facilities. Principal mechanisms to effect such contributions are: cooperative research and development, access to user facilities, reimbursable work for non-DOE activities, personnel exchanges, and licenses.

The Contractor shall cooperate with industrial organizations to assist in increasing U.S. industrial competitiveness, by assisting in the application of energy science and technology. Such cooperation may include an early transfer of information to industry by arranging for the active participation by industrial representatives in the Laboratory's programs. Cooperation with industrial partners may include long-term strategic partnerships aimed at commercialization of inventions or the improvement of industrial products. The Contractor shall respond to specific near-term technological needs of industrial companies with special consideration given to working with small, small disadvantaged and women-owned businesses as well as regional and local companies through special assistance programs targeting such organizations. The Contractor shall develop productive relationships/partnerships with regional and local companies, Governments and universities through forums such as conferences, workshops, and traveling presentations. It is anticipated that these organizations will be particularly effective participants in the Laboratory's technology transfer activities in promoting a mutually beneficial relationship between DOE, the Contractor and the communities surrounding the Laboratory.

Cooperation may also include use by industrial organizations of Laboratory facilities and other assistance as may be authorized, in writing, by the Contracting Officer.

4.2.6 Science and Mathematics Education Programs and Cooperation with Universities and Other Research Institutions

The Contractor shall develop partnerships with colleges and universities, including Minority-Serving Institutions, and manage programs to enhance science and mathematics and technology education at all levels. The Contractor shall encourage participation by a diverse group of faculty and students in Laboratory programs bringing their talents to bear on important research problems and contributing to the education of future scientists and engineers. The Contractor shall conduct programs for pre-college students and faculty to enrich science and mathematics and technology education including programs to encourage members of under-represented societal groups to enter careers in the science and engineering fields.

The Contractor shall manage and operate programs for cooperation with academic and nonprofit research institutions to integrate research and education in scientific and technical fields underlying DOE's programs, as well as facilitate partnerships between the Laboratory and other research and educational institutions. This cooperation may include, but is not limited to, such activities as: (i) joint experimental programs with colleges, universities, and nonprofit research institutions; (ii) exchange of college and university faculty and Laboratory staff; (iii) student/teacher educational research programs at the pre-collegiate and collegiate level; (iv) post-doctoral programs; (v) arrangement of and participation in regional, national, or international professional meetings or symposia; (vi) use of special Laboratory facilities by colleges, universities, and nonprofit research institutes; or (vii) provision of unique experimental materials to colleges, universities, or nonprofit research institutions or to qualified members of their staffs.

4.2.7 International Research Collaboration

In accordance with established DOE policies, the Contractor will maintain a broad program of international research collaboration in areas of research of interest to the DOE. This collaboration will be both in areas where DOE has formal international cooperation agreements which assign the Contractor a specific role, as well as in areas of general interest to DOE's research programs.

This collaboration may include, but is not limited to, such activities as: (i) participation in assigned aspects of formal international agreements; (ii) maintenance of liaison with peer groups in the international R&D community; (iii) participation in programs of international scientific organizations; (iv) developing and proposing to DOE, joint experimental programs and/or work for others from international sponsors; or (v)

participation in programs involving visits, assignments, or exchanges of staff/students.

4.2.8 Other Related Work and Operation of the Laboratory

The Contractor shall plan, manage and execute other research and development programs as directed or approved by DOE. In addition, the Contractor shall support local and regional economic development and apply existing Laboratory assets in the execution of such support.

The Contractor shall also manage, operate, protect, maintain and enhance the Laboratory's ability to function as a DOE multi-program national laboratory, provide the infrastructure and support activities, support the accomplishment of the Laboratory's missions and provide the accountability to the DOE under the results-oriented, performance-based provisions of this Contract.

4.3 Operating Envelope

4.3.1 Operating Principles

This section summarizes the overall operating envelope for the Laboratory. Specific provisions of this Contract regarding management and operational requirements have been established so as to be consistent with this intended operating envelope, and assignment of programs with operating requirements outside the range established here may require review and modification of relevant Contract terms.

The operating envelope generally consists of environmental, safety, health and quality (ESH&Q), facility management, and safeguards and security requirements that bound the operation of facilities and activities (work). These requirements are captured by the Laboratory's Standards Based Management Systems and deployed to facilities, staff and "the bench top" through a series of electronic tools (e.g. IOPS, EPR, FUAs). The requirements flow shall be managed through a disciplined interface between DOE and the Contractor. Requirements shall be graded and tailored to the risks inherent in the conduct of work, and work shall be authorized using the guiding principles and core values of integrated safety management. Requirements at the contractual level shall be set forth in accordance with the clause in Section H, entitled "Application of DOE Contractor Requirements Documents."

The Requirements Integration Tailoring (RIT) process as described in the Standards Based Management System may be used as the approved

process to identify appropriate standards. When such a process is used, it shall be based on the following criteria:

(a) For Laboratory standards, the DOE site management and Contractor management participate in and agree on the process, including extent of stakeholder involvement and confirmation of standards.

(b) Standards are based on the work, the environment in which the work is performed, and the hazards or risks (operational and administrative) associated with the work.

(c) Laboratory processes include robust mechanisms for establishing and maintaining standards that govern the conduct of work.

(d) People qualified by knowledge, experience, and training select or develop and confirm the standards.

(e) The process is documented and the adequacy of the standards selected is justified; justification is not required for standards not selected.

(f) The selected standards are accepted by all as the basis for the performance of work and oversight.

(g) To the extent possible, standards are outcome-based (i.e., establish the "what" versus the "how").

(h) Preference is given to external laws and regulations, consensus standards or generally accepted standards. If consensus or generally accepted standards are not sufficient, site-specific standards based on DOE Directives are developed.

(i) Process efficiencies are sought through multi-site benchmarking and collaboration in the selection of standards for similar work.

To accommodate the broad range of work at the Laboratory, and to assure proper control of classified and high hazard work without imposing unnecessarily burdensome requirements on low risk activities or facilities, the Contractor shall apply a graded approach to establishing work requirements and overseeing project work.

4.3.2 Facilities

The Laboratory's facilities include those located in Richland, Washington, the Hanford Reservation, and may include those located in Sequim,

Washington, Seattle, Washington, Portland, Oregon, Washington D.C., and other sites as may be designated by the Contractor upon approval of the DOE Contracting Officer.

Over the course of this Contract, the Contractor shall conduct work involving nuclear and radiological materials in non-nuclear facilities and manage at least one Category II nuclear facility.

This Contract will enable the establishment of the Laboratory "Nuclear Island" concept. The nuclear island(s) shall be operated consistent with the requirements set forth within a DOE-approved Authorization Agreement. The nuclear island(s) include those work activities at the Laboratory that are conducted within Hazard Category 1, 2, or 3 DOE nuclear facilities, as designated in accordance with DOE-STD-1027-92, "Hazard Categorization and Accident Analysis Techniques for compliance with DOE Order 5480.23, Nuclear Safety Analysis," and 10 CFR 830. Currently, the "Nuclear Island" at the Laboratory consists of the work and facilities associated with the Radiochemical Processing Laboratory (RPL). More simply, the current nuclear island can be defined as the RPL and immediately adjacent ancillary areas, as defined in both the Documented Safety Analysis (DSA) and Facility Use Agreement (FUA).

The Contractor shall initiate and continually improve facility and waste management practices that implement the "Start Clean - Stay Clean" principles whereby research projects and facility operations are planned so that wastes will be minimized at the end of the project or the life of the facility.

4.3.3 Hazards

The Contractor shall conduct biological research, including animal studies. Research conducted shall not utilize agents that exceed biohazard level III without DOE approval.

The Contractor shall conduct research utilizing a broad range of nuclear, radiological, and chemical quantities and shall maintain individual facility chemical inventories below Threshold Planning Quantities. The Contractor shall conduct research involving non-ionizing radiation hazards including but not limited to infrared sources, lasers, magnetic fields, radio frequency fields, microwave fields, electric fields and ultraviolet light sources. Over the course of this Contract the Contractor shall conduct work involving physical hazards including but not limited to electrical, pressure systems, work at heights (e.g. roofs and ladders), noise greater than 85dBA, thermal hazards, and other energy hazards. The Contractor shall also conduct research involving equipment or hazards including but not limited to the following: aircraft, boats, firearms, underwater diving,

confined space, facility construction and modification, forklifts, cranes, hoists, and off-road motor vehicle use.

4.3.4 Security

Over the term of this Contract, the Contractor shall conduct work with a broad range of information security protections, including cyber security and export controls, ranging from open research intended for broad public dissemination, to classified research. In particular, the Contractor shall conduct a significant volume of classified work in support of DOE's national security mission. The Contractor shall therefore maintain appropriately controlled space, including Special Compartmentalized Information Facility (SCIF) space.

Over the course of this Contract, Contractor staff may participate in international programs likely involving short-term and long-term staff deployments to foreign countries, including sensitive countries.

4.3.5 External Regulation

Over the term of this Contract, DOE may evaluate the potential of moving all or parts of the Laboratory to external regulation (OSHA, NRC.). The Contractor shall support DOE in evaluating the benefits and costs of external regulation, and in execution of a pilot program or transition if a decision to proceed is made.