

## SECTION C DESCRIPTIONS AND SPECIFICATIONS

## Item 0001 – System Assessment and Vulnerability

During the period of 01 October 2005 through 30 September 2006, the Contractor shall make available and employ its facilities, personnel at the level of effort specified in Section F, services of others, and materials and shall use its best efforts to perform the following:

## a. Reentry Body Vulnerability and Performance

The Contractor shall update the intelligence based threat definition of hostile environments for current and future reentry systems. Hostile environments based on existing and updated threat models, to be considered are nuclear weapon, Electromagnetic Radiation (EMR), Kinetic Energy Weapon (KEW), and Directed Energy Weapon (DEW) environments. The Contractor shall perform calculations of both natural (trapped protons and electrons, solar flares) and hostile environments and shall assess the vulnerability of reentry systems to these environments. The mechanical vulnerability assessments shall be supported with a validated finite element model. The Contractor shall develop and/or improve finite element models based on available data. The Contractor shall perform the necessary analyses for developing hostile environment specifications for current and future reentry systems. The Contractor shall participate in planning, pretest predictions, and post-test analysis of vulnerability testing. The Contractor shall determine Reentry Body (RB) performance, to include target area accuracy perturbations, in hostile environments. On the basis of the vulnerability assessments, performance calculations, and surveillance data, the Contractor shall identify and evaluate technical concerns and provide recommended solutions for current and future reentry systems. The Contractor shall calculate system fratricide nuclear environments and stayout contours and shall perform system effectiveness tradeoffs using both defense and non defense scenarios. The Contractor shall monitor Air Force, DTRA, and DOE vulnerability activities, including above-ground test (AGT) simulator technology and development.

## b. Systems Analysis and Effectiveness

The Contractor shall evaluate deployed and future system options including ballistic and non-ballistic, strategic and tactical, nuclear and conventional reentry systems. These evaluations shall include assessments of the survivability, military utility and effectiveness, and dynamics of these systems and concepts in normal, abnormal and hostile environments against the full spectrum of targets. The Contractor shall participate in requirements analyses and definition, design tradeoffs and system integration reviews. The Contractor shall produce and/or coordinate requirements documents including Military Characteristics (MCs), Stockpile-to-Target Sequences (STSSs), and Technical Objectives and Guidelines (TOCs). In addition, the Contractor shall assess the impact of surveillance program findings on system requirements and performance.

## c. Nuclear Surety

The Contractor shall provide support in the areas of Safety, Security, Control, and Reliability. The Contractor shall participate in Nuclear Weapon Systems Safety Groups, special safety studies and other such studies as needed to ensure nuclear surety. The Contractor shall identify potential accident initiators and develop and evaluate credible accident scenarios. The Contractor shall assist in determining weapon system response to the resulting environments (thermal, mechanical, and combined) and identify operational, procedural, and design options to reduce risk. The contractor shall assess new or altered hardware to ensure it meets nuclear surety requirements and is safe for use with SLBM systems. The Contractor shall perform statistical modeling of risk factors and shall produce full-scale Probabilistic Risk Assessments (PRAs) to enhance the safety management of nuclear weapons during storage, maintenance, transport, and testing. The Contractor shall provide guidance on implications of Congressional and other high-level direction on nuclear weapons safety.

## d. Radiological Health and Radiation Control

The Contractor shall assess biological effects of radiation from plutonium, tritium and uranium including the effects of alpha particles, beta particles, gamma rays, and neutrons. The Contractor shall analyze the effects of postulated radiological events. The Contractor shall advise SSP on the impact of Department of Defense (DOD), Department of Energy (DOE), Nuclear Regulatory Commission (NRC), Code of Federal Regulations (CFR), Navy, state, and local radiological regulations affecting nuclear weapons. In order to ensure personnel safety on submarines and at the facilities, the Contractor shall provide assessments of the

i. Support for Mutual US/UK Reentry Body Activities

The Contractor shall support joint United States/United Kingdom (US/UK) Reentry Body activities that have been deemed to be of 'mutual benefit'. This support shall include performing technical studies, preparing presentations, recording proceedings, giving classification guidance, publishing minutes, and coordinating and maintaining status of action item responses. The Contractor shall also provide technical liaison with DOE warhead laboratories related to UK Reentry Body Activities.

j. Program Support

The Contractor shall support the MK4, MK4A and MK5 reentry system Project Officer Groups (and any future study groups) and the associated subcommittees and working groups as a principal member, coordinator and secretary. The Contractor shall help define and coordinate processes for joint DOD/DOE activities. This task includes performing technical studies, preparing presentations, recording proceedings, coordinating and publishing minutes, coordinating and maintaining status of action item responses, and other related tasks. The Contractor shall provide support to SSP in all phases of weapon system development, design, production, and operational support and shall assist the SP28 Branch with technical responses for SSP management, NWC, DOD, DOE, and Congress. The Contractor shall conduct technical liaison with the DOE and DOD laboratories and agencies. The Contractor shall provide programmatic and technical assistance to support SSP program requirements and objectives. The Contractor shall maintain a program archive.

k. Planning, Programming & Budgeting Management Support \*

Contractor shall provide technical and management support in the planning, programming and budgeting of projects within the Reentry Systems Branch. This support includes

(a) Assisting in the preparation, maintenance, and control of budget packages.

(b) Assisting in the monitoring of commitments, obligations, and expenditures of appropriated funds.

Contractor will provide presentation material, periodic reports, and supporting documentation related to budget packages and appropriations in a format consistent with the SSP budgeting and financial management processes.

\*NOTE: Awardee may not perform this effort for any future competitive procurements for which the awardee of this contract effort will be a potential bidder (See FAR 9.5).

l. Project Management Support

Contractor shall provide technical and management support in the Project Management of projects within the Reentry Systems Branch. This support includes:

(a) Assisting in the preparation, maintenance, and control of project Integrated Master Plans, Integrated Master Schedules, and Technical Management Plans that defines all aspects of the technical effort.

Contractor shall assist in defining technical activities, milestones and entry/exit criteria for key or critical activities/milestones.

(b) Assisting in the preparation, maintenance, and control of metrics used to provide the periodic assessment of the health and status of Reentry System projects. This effort includes assisting in the tracking of technical characteristics, project cost & schedule progress, and systems engineering activities.

(c) Assisting in coordination, integration, and monitoring of Reentry Branch integrated plans, schedules, and metrics. This effort includes preparation, maintenance, and control of short-term metrics, long-term metrics, and status charts used in presenting project status to the Director, Strategic Systems Programs at Monday Morning Status Meetings.

(d) Assisting in responding to internal and external inquiries related to Reentry Branch projects. This effort includes maintaining action items lists, suspense files, monitoring due dates, coordinating timely response, and preparing and/or coordinating draft action item responses.

Contractor will provide presentation material, periodic reports, and supporting documentation related to project planning and monitoring in a format consistent with SSP planning and monitoring processes.

m. Acquisition & Procurement Management Support \*

Contractor shall provide technical and management support in the acquisition of hardware / software