SECTION C - STATEMENT OF WORK rev. 1; 6Mar02

TITLE - TASK ORDER CONTRACT, ENGINEERING SUPPORT (TOCES)

C.1.0 SCOPE.

C.1.1 BACKGROUND.

C.1.1.1 The U.S. Army Edgewood Chemical Biological Center (ECBC), with its headquarters at the Edgewood Area, Aberdeen Proving Ground, Maryland (APG-EA) is a subordinate activity of the U.S. Army Materiel Command (AMC). The center is primarily responsible for the conduct and management of research, development and life cycle engineering of chemical and biological defensive systems such as chemical/biological agent detection and protective measures.

C.1.1.2 Engineering Directorate conducts basic and applied research and engineering for defense against Chemical and Biological (CB) attack, for deterrent capability against such attack, and in smokes and obscurants. It is the source of chemistry, biology, toxicology, and aerosol physics expertise for CB solutions. The Engineering Directorate couples basic science with engineering to identify technology for future development.

C.1.2 Objective. The objective of this contract is to provide the ECBC Engineering Directorate with engineering, research, development, technical management, and administrative support for the execution of its assigned programs in basic research and exploratory development. Other SBCCOM elements, as well as other government agencies supporting the mission of SBCCOM, may at times have a need to use this contract.

C.2.0 APPLICABLE DOCUMENTS. Per Delivery Order.

C.3.O REQUIREMENTS.

C.3.1 The Contractor, as an independent Contractor and not as an agent of the Government, shall provide the personnel and materials (except those furnished by the Government) needed to accomplish tasks of the type set forth below. Since the work requires specialized facilities, equipment and procedures, Contractor personnel may be required to work on-site at the Edgewood Chemical Biological Center (ECBC), Aberdeen Proving Ground, for extended periods of time or on a full-time basis.

C.3.1.1 In situations where Contractor personnel are working on-site at ECBC, the Contractor shall appoint a Program Manager, who will be provided an office on-site and who shall have authority over, and responsibility for, these Contractor personnel. In the absence of the Program Manager, an Alternate shall be appointed by the Contractor to serve as Program Manager.

C.3.1.2 The Contractor shall, in some cases, identify supplies and equipment needed for the conduct of Contractor work, but the authority to order the supplies and equipment will rest with the Government. Supplies and equipment, such as surety personnel protective clothing and equipment, purchased with funds allotted to this contract shall become the property of the Government.

C.3.1.3 The Contractor shall ensure that Contractor personnel are familiar with, and observe all ECBC safety regulations and Standard Operating Procedures established to cover work within the laboratory and that such personnel take part in any safety training required by Engineering Directorate or ECBC in accordance with ECBCR 385-15.

C.3.1.4 The Contractor shall perform searches of the technical literature, and participate in development of research scopes of work, as needed in planning and prosecution of engineering projects, and may be expected to provide support documents and document translation from a foreign language.

C.3.1.5 In situations where the Contractor is required to work on-site, a part of ECBC laboratory space will be identified prior to award of delivery order. Where practicable, Contractor staff shall also have equipment and facilities dedicated to their use only.

C.3.2 Tasks. The contractor, as an independent contractor and not as an agent of the Government, shall furnish the necessary resources (except for those delineated in the separate task orders as Government furnished property or assistance) to accomplish the types of task efforts set forth below.

C.3.2 Scientific Research. The contractor shall, as required by individual delivery orders.

C.3.2.1 Survey technology to seek new materials or methods to detect, monitor, or identify Chemical or biological (CB) agents, to provide protection against CB agents, to decontaminate CB agents, to produce and disseminate obscuring or riot control substances, or to simulate CB agents, decontamination materials, smoke or riot control substances.
C.3.2.2 Determine and identify the physical, chemical, biological, toxicological, physiological, physicochemical, environmental, or life cycle phenomena associated with standard or candidate CB agents, detection materials, decontamination materials, smoke producing materials, or simulants. Determine and identify the precursors, the breakdown reaction products, the mechanism of reaction and the effects variables have on reactions and mechanisms involving standard or candidate CB agents, detection materials, decontamination materials, smoke producing materials, riot control substances or simulants.

C.3.2.3 Analyze and define the reactions, reaction mechanisms, and effects on materials, chemical systems, and biological systems by CB agents, detection materials, decontamination materials, smoke producing materials, riot control substances, or simulants.

C.3.2.4 Identify and test the performance of material against CB agents, detection materials, decontamination materials, smoke producing materials, riot control substances, or simu!ants.

C.3.2.5 Analyze and identify the reactions, mechanisms and dynamics which impact upon material design; and seek materials which are compatible with CB agents, detection materials, decontamination material, smoke producing material, riot control substances or simulants.

C.3.2.6 Perform comprehensive systems analyses to identify alternative concepts and solutions for CB defense requirements. Collect and analyze performance data to develop and verify engineering models of CB defense equipment. Conduct statistical analyses of experimental data to determine significance of measured effects and associated confidence levels. Apply state-of-the art analytical techniques to theoretical and empirical data to develop, refine, and verify detection and identification algorithms for chemical and biological detection equipment and systems.

C.3.3 Engineering Design. The contractor shall, as required by individual delivery orders:

C.3.3.1 Assess the operational performance requirements for material and develop the formulation or design of material to meet these requirements.

C.3.3.2 Develop, in government specified format, the engineering drawings, specification, quality assurance requirements, operational documentation, maintenance documentation, training documentation, safety documentation, environmental documentation or engineering change proposals for specified material.

C.3.3.2.1 Conduct Reliability and Maintainability (R&M) assessments; identify failure modes, reliability growth or operational effectiveness of material.

C.3.3.2.2 Prepare system safety hazard analysis reports. Prepare material safety data sheets and hazardous component safety data sheets. Identify and document safety risks associated with material and establish safety design criteria and define ways to reduce safety risks.

C.3.3.2.4 Provisioning - Prepare or update provisioning plans to identify provisioning objectives and actions to achieve essential provisioning management. Perform initial provisioning actions to identify repair and spare parts. Screen the DOD repository of National Stock Numbers through Defense Logistics Service Centers (DLSC) to identify NSN's. Perform post-provisioning actions to review repair and spare part usage and adjust for future stockage level of those parts.

C.3.3.2.5 Acquisition Logistics Support (ALS). The contractor shall establish and conduct a logistics program to address the elements of ILS to include maintenance

planning; manpower and personnel; supply support; support equipment including test, measurement and diagnostic equipment (TMDE); technical data (Government publications i.e. technical manuals, Modification Work Orders); training and training support; computer resources support; facilities; packaging, handling, storage and transportation; system interface; and peacetime disposal.

C.3.3.2.5.1 Logistic Support Analysis (LSA). The contractor shall perform LSA for all developed and modified hardware and software interfaces and components down to the piece part level for a Government system/equipment.

C.3.3.2.5.2 Logistics Management Information (LMI). The contractor shall generate, develop, document, maintain, and continually update LMI for a Government system/equipment.

C.3.3.2.5.3 Provisioning and Supply Support. The contractor shall prepare Provisioning Parts Lists (PPLs) for a Government system/equipment IAW with MIL-PRF-49506.

C.3.3.2.5.4 Technical Publications. The contractor shall prepare Department of the Army (DA) and Command technical Equipment Publications in accordance with applicable Military Standards, Regulations, and Handbooks. These include but are not limited to Technical Manuals, Depot Maintenance Work Requirements, and Modification Work Orders. Prepare various types of illustration such as line art, digital photographs, half-tone, or continuous tone illustrations to support these Equipment Publications. Prepare various Technical Manual plans to support scheduling, developing, validating, and verifying Equipment Publications

C.3.3.2.5.5 Training and Training Support. The contractor shall develop and conduct a training program to include New Equipment Training (NET) services, instructional materials, devices, accessories, aids, equipment and parts used to facilitate instructions through which personnel will acquire sufficient concepts, skills and aptitudes to operate and maintain a Government system/equipment with maximum efficiency.

C.3.3.2.5.6 Maintainability. The contractor shall perform a Failure Modes, Effects, and Criticality Analysis (FMECA) on a Government system/equipment. The contractor shall perform Reliability-Centered Maintenance (RCM) analysis on a Government system/equipment. The contractor shall conduct a Logistics and Maintainability Demonstration on a Government system/equipment.

C.3.3.2.5.7 Support Equipment and Tests, Measurement, and Diagnostic Equipment (TMDE). The contractor shall identify common support equipment needed to maintain a Government system/equipment.

C.3.3.2.5.8 Human Systems Integration (HSI). The contractor shall coordinate and integrate all activities related to HSI (manpower, personnel, training, human factors,

and system safety, and health factors), identify design and performance issues, and develop and implement solutions.

C.3.3.2.6 Maintenance - Perform maintainability programming and analysis. Prepare maintenance plans based on data derived from SA and LMI or as provided by the government. Identify and document requirements for support equipment and Test, Measurement and Diagnostic Equipment (TMDE). Conduct reliability centered Maintenance (RCM) studies and prepare preventive maintenance checks and services (PMCS) tables based on the results derived. Prepare depot maintenance studies. Prepare and update System Support Package Component Listing (SSPCL's) using either LMI data, or other documentation.

C.3.3.2.7 Training - Prepare training outlines, curriculum outlines, instructor guides, lesson guides, hands-on training system packets, audiovisual aids, or student training course guides. Conduct new equipment training programs.

C.3.3.3 Evaluate system design in relation to operational use and performance requirements. Identify changes to design to improve operation and performance of the system.

C.3.3.4 Develop processes for chemical or biological compounds, antibody synthesis and refinement, detection material, decontamination material, smoke producing material, riot control material or simulants.

C.3.3.5 Develop process equipment, flow, piping, and instrumentation designs; material and energy balances for pilot production facilities and equipment.

C.3.3.6 Prove out process equipment, flow, piping and instrumentation through synthesize of materials.

C.3.3.7 Assess manufacturing and production methods for chemical, biological, and smoke systems. Identify improvements in manufacturing methods by use of such things as alternate processes, materials, dimensioning methods, inspection or testing methods. Seek and identify alternate configurations to maximize the use of modular hardware, standard and interchangeable parts; identify and assess the benefits of alternate processes, sources, material, item configurations.

C.3.3.8 Develop and prove out inspection and acceptance testing plans, procedures, or equipment for CB agents, detection materials, decontamination material, smoke producing material, riot control substances or simulants for manufacturing or to assess the reliability of stocked items and components throughout the life cycle.

C.3.3.9 Provide analyses of Engineering Change Proposals.

C.3.4 Fabrication. The contractor shall, as required by individual delivery orders,:

C.3.4.1 Fabricate new or modify existing prototype hardware in support of research or development efforts set forth in C.3.2 and C.3.3.

C.3.4.2 Perform inspections and acceptance testing on fabricated material or prepare Acceptance Test Reports Certification Data/Reports.

C.3.4.3. Modify fielded Army equipment or material in accordance with approved Modification Work Orders.

C.3.5 Testing. The contractor shall, as required by individual delivery orders:

C.3.5.1 Design tests, prepare Test Plans, prepare test support documentation, document test results and evaluations, or prepare Test Reports.

C.3.5.2 Test the performance and operational characteristics of material; conduct operational, developmental, environmental, reliability, human factors, logistical teardown, maintainability demonstration, or demonstration tests on material.

C.3.5.2.1 Perform tests on human subjects IAW AR 70-25, DHHS Reg 45 CFR (Part 46), DOD Directive 3216.2 and Office of Surgeon General Reg 15-2.

C.3.5.3. Provide test support by providing maintenance and logistical support for development hardware undergoing Government or contractor testing.

C.3.5.4 Perform deprocessing tasks, such as inventory, inspection, or performance testing of production hardware, conduct or observe initial service upon receipt of material during fielding of Army equipment.

C.3.5.5 Conduct inspections or testing to assess the reliability of stocked items and components throughout the life cycle.

C.3.6 Translation. The contractor shall furnish translation services for technical documents. The contractor shall have, as a minimum, the capability to translate technical documents from the languages of Chinese, Czech, French, German, Italian, Japanese, Polish, Farsi, and Russian to English.

C.3.7 Environmental. The contractor shall prepare environmental documents required to support the research, development, and engineering activities of ERDEC.

C.3.8 The contractor shall design packaging for ERDEC developed items.

C.3.9 Computer Programming Support

C.3.9.1 The contractor shall perform independent validation and verification (IV&V) testing of hardware and sol--are systems and components. The contractor shall review IV&V plans, software test plans, software test description, and software test reports.

C.3.9.2 The contractor shall witness software testing performed by a system developer.

C.3.9.3 The contractor shall develop IV&V test support tools and shall validate test support facilities.

C.3.9.4 The contractor shall develop software and documentation in support of CB equipment. This software can support developmental items and items that are fielded.

C.3.9.5 Document Assessment. The contractor shall assess documentation developed by a system developer. The contractor shall review documents similar to Software Requirements Specification, Interface Requirements Specification, Soft:ware Design Documents, Interface Design Document, and Software Product Specification to determine if the contents meet the requirements of the specific program goals.

C.3.9.6 The contractor shall develop and maintain computer programs and information data bases for administration, chemical/biological projects and treaty verification; perform necessary parameter estimation for these programs and databases; survey and assess information contained in U.S. Government agency and contractor maintained databases to generate new expand existing databases; and perform system evaluation and characterizations for CB projects, smoke projects, treaty verification work and alternate technologies work.

C.3.10.1 Prepare a Standard Operating Procedure (SOP) LAW CRDECR 385-15 for all hazardous operations to include (but not limited to) toxic chemicals, microbiologicals (pathogenic and non-pathogenic), toxins, radioactive materials, explosives/pyrotechnics, lasers, x-rays devices or any other substance or equipment which is hazardous.

C.3.10.2 The contractor will submit an experimental protocol to the ER.DEC Safety Office for all recombinant DNA operations. The ERDEC Safety Office will review (within 30 day's DADO) and submit to the National Institutes of Health (NIH) and the CBDCOM Biosafety Committee for approval. Recombinant DNA operations cannot begin until completion of the Safety Office review.

C.3.10.3 The contractor shall comply with the requirements contained in 32 CFR 626 and 627, Biological Defense Program.

C.3.10.4 The contractor will comply with ANSI Z136.1-1993 for all operations involving lasers or high intensity optical sources.

C.3.10.5 The contractor will comply with 10 CFR 19 and 20 (et al), AR 385,11 and provisions of applicable Nuclear Regulatory Commission (NRC) licenses for use of radioactive material or machine produced ionizing radiation.

C.3.10.6 The contractor will not use radioactive material or equipment which generates

ionizing radiation unless approved by the ERDEC Radiation Protection Officer (Mr. Peter Spaeth, 671-2472)

C.3.11 Management Studies.

C.3.11.1 The Contractor shall perform studies and make recommendations in report form on management-related areas requested by the Government for analysis and review. The Contractor shall conduct studies within the framework of ECBC's team-based organization and the Army's reinvention laboratory concepts. Topics will include (but are not limited to) effective team management, optimal organization, correlation of Engineering Directorate missions and assets, performance criteria, and empowerment of the workforce.

C.3.11.2 The contractor shall organize workshops, seminars, symposia, and meetings. The contractor shall provide advance planning and read-ahead packages. The contractor shall also conduct workshops or presentations. The contractor shall be a facilitator at the workshops, seminars, symposia, and meetings

C.3.11.3 Taskers. The contractor shall collect data and prepare, review and revise responses for higher headquarters' taskers.

C.3.11.4 The Contractor shall provide program management support for (but not limited to) seventy-two hour responses to technical reviews of programs; and reparation for reviews, symposia, and technical meetings for the Engineering Directorate. The Contractor shall produce briefing and audio-visual aids in support of mission programs; and prepare handouts, technical reports, and other written materials relating to Engineering Directorate subject matter.

C.3.11.5 The Contractor shall review, analyze, or propose changes to risk analysis and environmental documentation, including documentation of comments on permits as required by the various federal, state, and local agencies associated with research and material transportation, handling, processing, and disposal; which may include compliance inspections, reviews, and reviews for technical accuracy and completeness.

C.3.11.6 The Contractor shall prepare standing operating procedures or equipment operational test manuals which meet current local health, safety, security and environmental regulatory standards and policies.

C.3.11. 7 The Contractor shall determine through examination of records or physical inspections, the usage of accountable and project property and provide recommendations for disposition of those items under utilized. The Contractor shall prepare appropriate documentation indicating the acquisition cost, serviceability, and other data necessary for disposal or transfer. The Contractor shall establish inventory control and management procedures for the use of material, equipment and hand tools.

C.3.11.8 The Contractor shall prepare, edit, and finalize technical reports, manuscripts, annual reports, and other technical documents, including oral reporting, and briefing materials.

C.12 Homeland Defense.

C.12.1 The contractor shall support Homeland Defense missions to include integrating Interagency, Service and command-level requirements, performing studies and analyses, project/program planning, providing organizational support, reporting and preparing documentation, developing and providing Weapons of Mass Destruction (WMD) training and exercises, developing simulations of WMD incidents and emergency response functions, providing expert technical assistance in application of NBC technology to military/other federal agencies/commercial customers, and developing databases.

C.12.2 The contractor shall possess knowledge of WMD materials (physical properties, safety precautions, environmental behavior, operational use); Chemical and Biological defense systems (research, development, operation, maintenance, logistics); emergency planning, preparedness, training, exercises, and response; information management (analysis, databasing, modeling, simulation, software development); and program management (cost/schedule/performance analysis, financial accounting systems, strategic planning, business planning, market research, and public outreach).

C.3.13 Assignment of Task Orders. The Contractor shall commence work upon assignment of specific delivery orders by the Contracting Officer.

C.3.13.1 Task orders will be assigned by the Contracting Officer (CO) only. The Contractor shall accept task orders from no other individual. The Contracting Officer will forward the proposed task order for Contractor evaluation. Within fifteen (15) calendar days (unless otherwise specified) of receipt of the proposed task order, the Contractor shall submit a proposal to the contracting officer, in writing, containing as a minimum, the estimated level of performance, materials, travel requirements, estimated cost, and period of performance or completion date.

C.3.13.2 Commencing Work. The Contracting Officer will initiate and conclude negotiations, and authorize the Contractor to proceed with the task by issuance of a delivery order to the contract, or by a letter followed by a written delivery order. The Contractor shall commence work upon assignment of the specific delivery order by the Contracting Officer. The assignment of task orders by the Contracting Officer will be made with due consideration given to previously assigned and uncompleted tasks.

C.3.13.3 Urgent Tasks. This method of delivery order assignment will only be used for urgent needs, and when the value of which is less than $50,000. The Contracting Officer may forward a proposed task via fax or electronic mail. Within 48 hours of receipt, the Contractor shall submit a preliminary proposal. If the proposal is realistic, reasonable, and responsive, the Contracting Officer will initiate a delivery order to

commence work. A final proposal and negotiations will be conducted and concluded, and a modification to the delivery order shall be made.

C.3.14 Performance of Tasks.

C.3.14.1 The Contractor shall identify all correspondence, reports, drawings, and other pertinent papers furnished under the contract with the contract number and appropriate delivery order number.

C.3.14.2 Modifications to tasks shall be made by the Contracting Officer only. The Contractor shall not modify tasks at the direction of any individual other than the Contracting Officer.

C.3.14.3 The Contractor shall segregate, account for, and voucher cost by individual task order (delivery order).

C.3.15 Administration.

C.3.15.1 Each task assigned to the Contractor will have specific identified contract deliverables on the Contract Data Requirements List (CDRL). As a minimum each delivery order will require the Contractor to prepare and submit monthly progress reports, monthly funds and man-hour expenditure reports, and a final comprehensive report detailing all the efforts conducted and results.