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MILITARY HANDBOOK

PREPARATION OF STATEMENT OF WORK (SOW)

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DEPARTMENT OF DEFENSE
Washington, D.C. 20360

MIL-HDBK-245B
Preparation of Statement of Work (SOW)
1 June 1983

1. This standardization handbook was developed by a joint services committee chaired by the Naval Electronic Systems Command in accordance with established procedures.

2. This publication was approved on 1 June 1983 for printing and inclusion in the military standardization handbook series.

3. This document covers the preparation of five types of Statements of Work (SOW) for inclusion in Department of Defense solicitation and contract documents.

4. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Electronic Systems Command, Attn: ELEX 81111, Washington, D.C. 20363 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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FOREWORD

This handbook is written to provide guidance to the requiring activity to obtain a conclusive contract Statement of Work (SOW) for application to any life-cycle phase of material acquisition. It also covers the SOW preparation for nonpersonal services contracts.

The handbook is organized so that the SOW writer need only concern himself with Section 4, General Policy, and that portion of Section 5, Detailed Requirements, that pertains to the type SOW under preparation once the intent of the SOW is understood. Each portion of Section 5 has detailed instructions on the specific requirements for each type of SOW identified to specific needs. The specific instructions provide techniques for defining task elements and a method for organizing these elements into a comprehensive SOW. Sample outlines and significant DO's and DONT's are provided for each type of SOW addressed.

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1. SCOPE

1.1 Scope. This handbook covers the preparation of five types of Statements of Work (SOW) as identified in FIGURE 1 and discussed in a through e for inclusion in Department of Defense (DoD) solicitation and contract documents. This handbook will serve as the preparation guidance document for DoD personnel engaged in the planning, defining, and acquiring defense material.

a. Concept exploration, Type I. Type I is required when the technical requirements are defined in the SOW because efforts in this phase are inevitably stated in terms of objectives or goals rather than quantitative or qualitative tasks included in specifications. Technical data or technical reports resulting from work tasks defined in the SOW are also discussed and ordered within this SOW because the nature of this type effort normally results in a technical report.

b. Demonstration and validation, Type II. Type II is required when the technical work tasks are expressed objectively or as goal attainment. Technical data requirements are established by using the CDRL because normally there is a requirement to deliver some defense material; for example, a prototype or Advanced Development Model (ADM), and computer software or both, and when defense material is delivered, the CDRL must be used to order data.

c. Full-scale development, Type III. Type III is required when a purchase description (hereinafter referred to as contract specification) is used to define qualitative and quantitative technical requirements including the respective quality provisions. In addition to the contract specification, a SOW is used concurrently with the specification to indicate the need for various system effectiveness program tasks, publications, training, integrated logistic support requirements, configuration management requirements, management systems, supply support tasks (provisioning), quality program requirements, metrology and contractor services. Technical data is ordered in this phase as in the previous phase with the CDRL.

d. Production and deployment, Type IV. Type IV is required when fulfilling the need for the production and deployment phase consummating the end efforts of the research and development (R&D) phases, the contract specification is converted to a military specification and this SOW is used to order the same type nonqualitative and nonquantitative elements as in previous phases now scoped to minimal needs serving this contract phase. Technical data is ordered using the CDRL as in the previous phases.

e. Nonpersonal services contracts, Type V. Type V is required when the need for contractor support is identified independent of defense material procurement. Frequently, these requirements result from a need for a deliverable product required in managing a program or a need to accomplish specific tasks in support of a program when the expertise is not available in-house. See DAR 22-102.2 for additional criteria for recognizing personal services.

1.2 Background. The Defense Acquisition Regulation (DAR) discusses the essentiality of the Statement of Work (SOW) for sound contracting. While the DAR does not cover the total procedures for numerous applications and details, it does identify the SOW and establish the fundamental baseline for its use. The responsibility for work planning within the DoD rests with those offices responsible for work accomplishment; namely the project manager, program manager, development manager and acquisition manager. This assignment of responsibility has come about mainly with the issuance of DoD D 5000.1. In consonance with this direction, more detailed planning is required at the project and program level. One important facet of planning is the preparation of the SOW which is used to define work effort required from contractors and DoD support activities to support DoD programs. This handbook has been developed to provide a framework within which the responsible manager can work to ensure a consistent, orderly and complete description of the effort required. Also, the consistent approach to SOW development by all DoD managers will simplify upper management review procedures, cost data extraction and contract administration.

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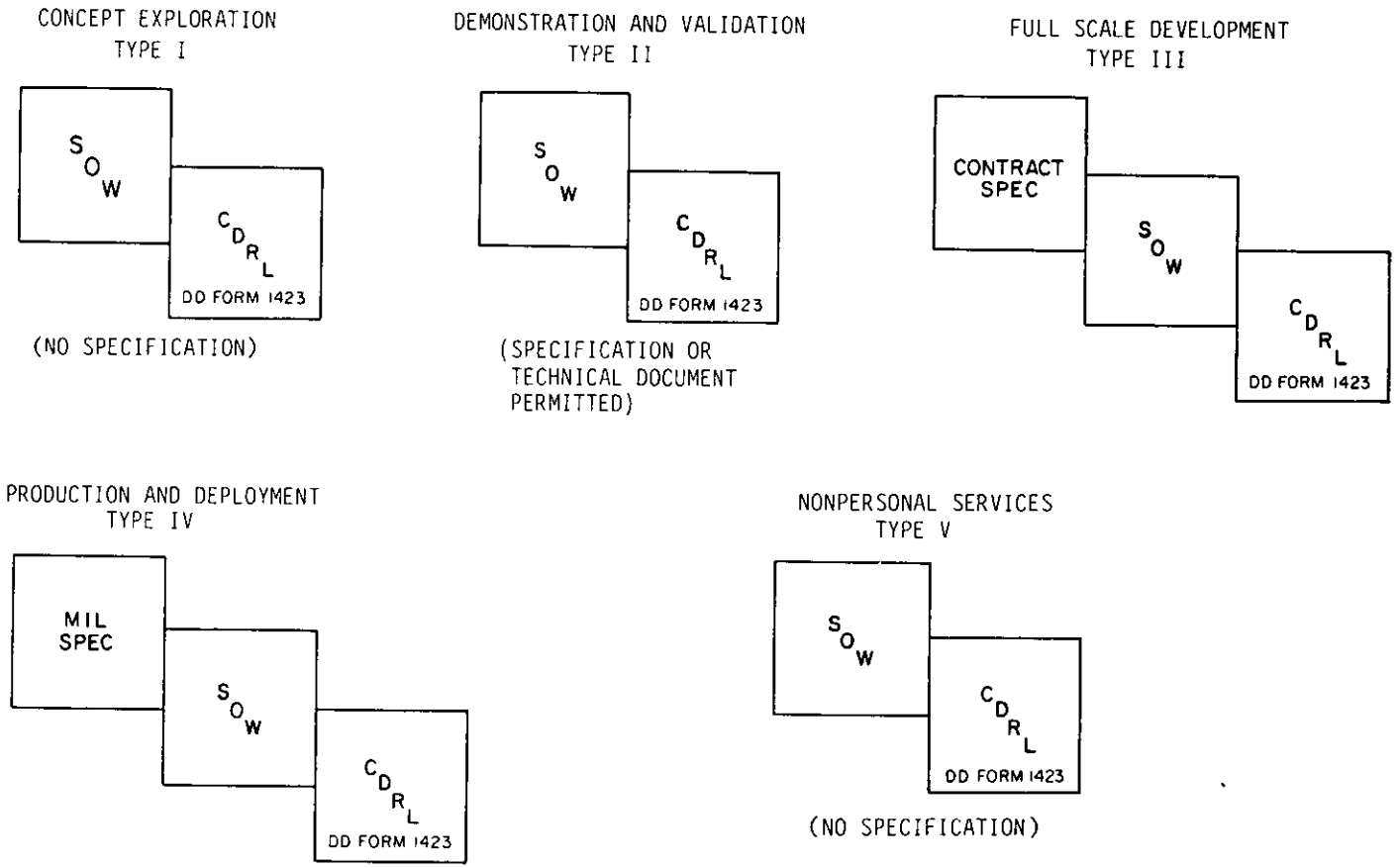

FIGURE 1. SOW types and associated contract documents.

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2. REFERENCE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbook. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

DoD-D-1000	Drawings, Engineering And Associated Lists
MIL-S-83490	Specifications, Types And Forms

STANDARDS

MILITARY

MIL-STD-470	Maintainability Program Requirements For Systems And Equipment
MIL-STD-490	Specification Practices
MIL-STD-499	Engineering Management
MIL-STD-785	Reliability Program For Systems and Equipment Development and Production
MIL-STD-881	Work Breakdown Structures For Defense Material Items
MIL-STD-961	Military Specification and Associated Documents, Preparation Of
MIL-STD-1388/1	Logistic Support Analysis

HANDBOOK

MILITARY

MIL-HDBK-237	Electromagnetic Compatibility Management Guide For Platforms, Systems, and Equipment

2.1.2 Other Government documents, drawings, and publications. The following Government documents form a part of this specification to the extent specified herein.

REGULATION

DEFENSE ACQUISITION REGULATION

DAR 22-102	Service Contracts; Personal Services and Nonpersonal Services.

MANUAL

DEPARTMENT OF DEFENSE

DoD 5000.19-L, VOL. II	Acquisition Management Systems and Data Requirements Control List (AMSDL)

DIRECTIVES

DEPARTMENT OF DEFENSE

DoDD 4100.35	Development of Integrated Logistic Support for Systems and Equipment
DoDD 4105.62	Selection of Contractural Sources for Major Defense Systems
DoDD 4120.21	Application of Specifications, Standards, and Related Documents in the Acquisition Process

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INSTRUCTIONS

DEPARTMENT OF DEFENSE

DoDI 5010.12	Management of Technical Data

FORMS

DEPARTMENT OF DEFENSE

DD Form 254	Contract Security Classification Specification
DD Form 1423	Contract Data Requirements List (CDRL)
DD Form 1664	Data Item Description (DID)

(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

3. DEFINITIONS OF TERMS AND ACRONYMS

3.1 Terms.

3.1.1 Life cycle. All phases of system life from basic research through retirement from service use.

3.2 Acronyms.

ADM	Advanced Development Model
AMSDL	Acquisition Management Systems and Data Requirements Control List
CDRL	Contract Data Requirements List
CM	Configuration Management
DAR	Defense Acquisition Regulations
DDT&E	Design, Development, Test and Evaluation
DID	Data Item Description
DP	Development Proposal
DRRB	Data Requirements Review Board
DoD	Department of Defense
DSARC	Defense Systems Acquisition Review Council
ECP	Engineering Change Proposals
EMI/EMC	Electromagnetic Interference/Electromagnetic Compatibility
ERT	Equipment Repair Time
IFB	Invitation for Bid
ILS	Integrated Logistics Support
JMSNS	Justification of Major System New Starts
LSAR	Logistic Support Analysis Record
LSA	Logistic Support Analysis
MTBF	Mean-Time-Between-Failure
MTTR	Mean-Time-To-Repair
OT&E	Operational Test and Evaluation
OR	Operational Requirement
PMP	Program Management Plan
PMS	Planned Maintenance Subsystem
R&D	Research and Development
RDT&E	Research, Development, Test, and Evaluation
SCP	System Concept Paper
SOW	Statement of Work
SPEC	Specification
SSRB	Source Selection Review Board
WBS	Work Breakdown Structure

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4. GENERAL POLICY

4.1 Introduction. A clear statement of contract requirements is a prerequisite for defining and achieving program goals. The SOW provides the basic framework for this effort. As such, the SOW must be carefully prepared to specify basic responsibilities and minimum program requirements. This handbook provides guidance for personnel involved in the preparation of SOW's. The SOW is a dynamic document established to tailor cost drivers based upon the needs and limitations of each acquisition. The SOW writer must ensure that the technical requirements are equated to those minimal needs.

4.2 Applications.

4.2.1 Care and skill exercised in the preparation of the SOW can be of great significance by establishing a conclusive baseline upon which proposal evaluation criteria can be constructed. Furthermore, benefits resulting from a definitive SOW should result in conclusive proposals and reduce the time for evaluation by DoD.

4.2.2 In the actual proposal evaluation and contractor selection, the SOW plays a significant role. Failure to describe the scope of work adequately will result in needless delays and extra administrative effort during the source selection process. Although the Source Selection Review Board (SSRB), under provisions of DoD D 4105.62, is responsible for the examination of the SOW requirements for the purpose of eliminating nonessential or unduly restrictive requirements, such examinations may be accomplished in accordance with DoD D 4120.21 by the functional engineering/technical groups during the time the SOW is being developed/prepared, rather than by the review board itself. The ability to clearly define the desired end work product in an exacting manner generally will spell the difference in the type of procurement approach that will be taken and the type contract awarded. A well defined product can be acquired with a fixed price or fixed price incentive-type contract, while the inadequately defined product is usually purchased using a cost-plus type contract.

4.2.3 After the contractor has been selected and the contract awarded, the SOW becomes the standard for measuring the contractor's effectiveness. As the effort progresses, the DoD and the contractor will constantly refer to the SOW to determine their rights and obligation with regard to contractor response. When a question arises concerning an apparent increase in the scope of work to be performed, the SOW is the baseline document which must be used to resolve this question. Language in the SOW defining the scope of outer limits of the contractor's effort is of critical importance at this time. If the limits were poorly established, it will be difficult to determine if or when there has been an increase in scope, with the result that effective negotiations on cost and schedule will be impaired, if not impossible.

4.2.4 It is obvious that the SOW plays an important role in the effective selection and control of contractors needed to perform efforts beyond the capabilities of the DoD. Inadequacies determined in the acquisition documentation under contract can frequently be traced to the language, approach, format, organization, terminology and content of the SOW.

4.3 Purpose of the statement of work (SOW). The SOW is the document by which all nonspecification requirements for contractor efforts must be established and defined either directly or with the use of specific cited documents. To further define allowable SOW content, it first must be understood what requirements are not to be included in specification. MIL-STD-961 limits the content of the specification to DoD's minimal needs by indicating only the qualitative and quantitative design and performance requirements. This precludes, for example, tasking the contractor in the specification with a reliability program, reliability prediction, maintainability program or providing for design reviews. This does not preclude the reliability or maintainability requirements specified in terms of mean-time-between-failures (MTBF) or mean-time-to-repair (MTTR) from being contained in the specification as long as they are expressed qualitatively and quantitatively.

4.3.1 When properly written, the SOW establishes nonspecification tasks and identifies the work effort to be performed expressed as minimal needs. As the contractor performs the effort and completes the tasks, information that may be required for retention will inherently be developed with the work performed (see FIGURE 2). Text of the SOW tasks shall not include the description and delivery requirements for data. The ordering and delivery of data can be legally defined and scheduled only through the use of the CDRL, DD Form 1423, in conjunction with the incorporation of the appropriate Data Item Description (DID), DD Form 1664, for equipment and systems under advanced development, full-scale development and production. It becomes obvious, then, that the role of the SOW is to define those work tasks which cannot be contained in a specification and must never be included in the CDRL or DID. The CDRL is used only to list and order the contract data required while the DID is used to describe the data and prescribe the preparation instructions in terms of format and arrangement.

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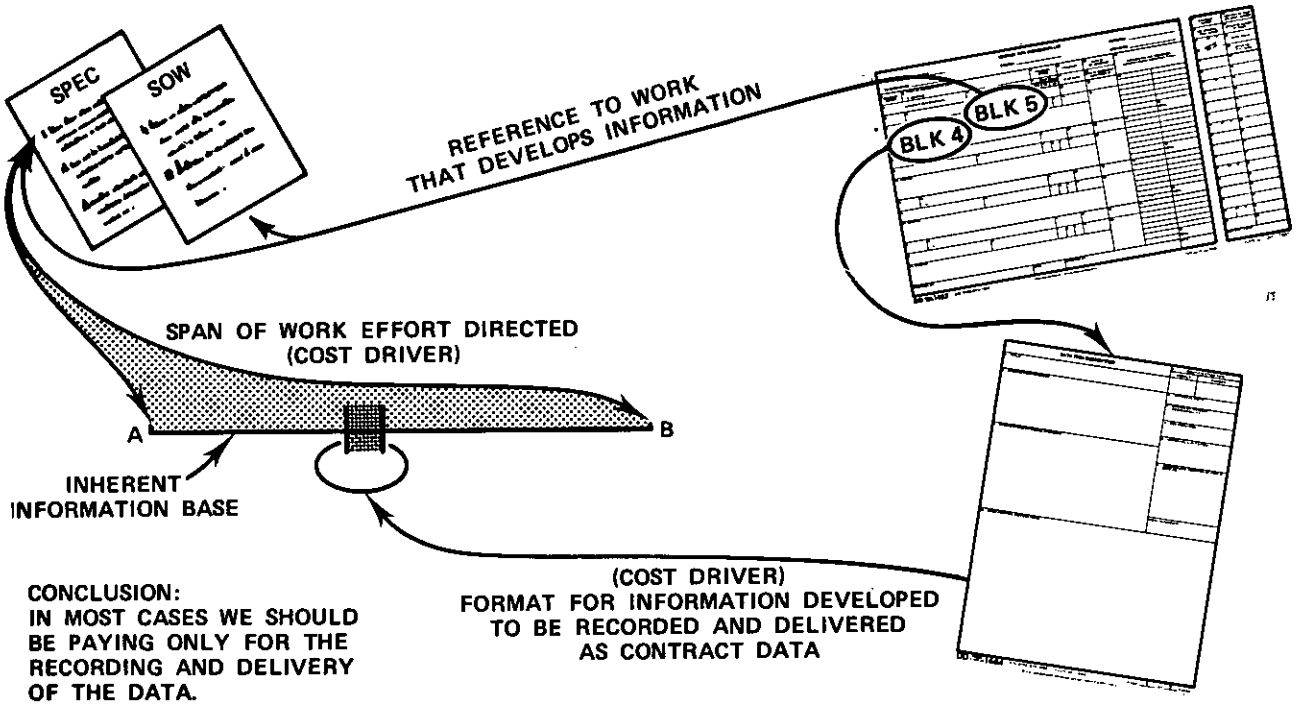

FIGURE 2. Interrelationship of work effort, inherent information base and technical data ordered.

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4.4 Acquisition life cycle phases. The life cycle of a major program normally consists of four phases as described in 4.4.1 through 4.4.4.

4.4.1 Concept exploration phase. After the mission need determination has been accomplished based on a military service Justification of Major System New Starts (JMSNS), the military service is authorized to proceed to the first acquisition phase, the concept exploration phase. The objective of the concept exploration phase is to define and identify alternative system design concepts which may meet the mission needs and program objectives. During this phase, inventions and technological advances, environment, military requirements, time and money are all considered and may be traded off to identify a valid, realistic military requirement as one which is viable and is in the interest of national defense. The results of DoD studies culminate in the preparation of the DP and ultimately in the System Concept Paper (SCP) which defines mission/performance envelopes, preliminary cost and schedule estimates, and major problem areas. Because of the limited ability to define the product desired, the SOW used during this phase must be limited to an expression of the objectives and goals. However, the description of the work should not be so vague and indefinite that the contract cannot be enforced, but neither should it be so restrictive that it ties the hands of the contractor and destroys his initiative. The Type I SOW should incorporate sufficient management review points to provide guidance information to the contractor. Detailed procedures for preparing concept exploration phase (Type I) SOWs are contained in 5.1.2.

4.4.2 Demonstration and validation phase. This phase includes the development of proposals and plans for the full-scale development phase. During the demonstration and validation phase, the detail of performance specifications are defined and identified by the contractor in a manner prescribed to him by type and form of MIL-S-83490. The SOW utilized during this phase to solicit contractor effort will begin to take on a more detailed description of the effort required and more conclusive expression of objectives. During this phase, typical SOW tasks established for the contractor may include, but not be limited to:

a. Develop the type and form of specification as specified in accordance with MIL-S-83490 and MIL-STD-490 for establishment of the functional baseline and for the initial input to the DoD for the development of its contract specification under provisions of MIL-STD-961 for the next contract phase which will establish the allocated baseline.

b. Analyze design for logistics support and identify life cycle support costs (this may be determined by a Logistics Support Analysis (LSA) task under the provisions of MIL-STD-1388/1 as applicably determined by DoD D 4100.35 for considerations limited to advanced development).

c. Implement design review, reporting and monitoring procedures.

d. Establish the design-to-cost goal parameters in conjunction with the life cycle support costs.

e. Simulate systems to optimize parameters and furnish confidence by performing evaluations and verifications, inclusive of system effectiveness task.

f. Devise recovery alternatives to ensure balance of cost, effectiveness and risk recognition. Design-to-cost and progressive findings of the LSA as relates to the projected life cycle cost.

g. Assess performance achieved and note implications on future systems.

h. Establish an effective program for achieving Electromagnetic Compatibility (EMC) with the intended environment. Guidelines for developing this program are provided in MIL-HDBK-237.

4.4.2.1 Data by-products. Typical data by-products to be derived from these tasks and ordered on a CDRL are:

a. System engineering plans (reliability, maintainability, safety, human factors and configuration control).

b. Logistics Support Analysis Record (LSAR).

c. Development specifications (MIL-S-83490).

d. Cost Performance Report, Contractor Cost Data Report, Cost/Schedule Status Report, Design-to-Cost Report, or Contract Funds Status Report (as applicable).

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e. Program Management Plan (PMP).

f. Level 1 engineering drawings (DOD-D-1000).

g. Design review data for input to the revision of SCP for Defense Systems Acquisition Review Council (DSARC) review (Milestone II).

h. EMI Control Plan.

While the above are typical data items normally required by the Government acquisition manager or design engineer, great care should be exercised in tailoring the DIDs to reflect a data need commensurate with the extent of the information output inherent to the degree that the work task was tailored. Detailed procedures for preparing validation or advanced development phase (Type II) SOWs are contained in 5.1.3.

4.4.3 Full-scale development phase. During this phase, the system and all required support equipment are designed, fabricated and tested. The output of this phase is a defense material configured system and the documentation needed to train, operate, maintain, repair and procure the system for DoD use. This phase covers design, development, test and evaluation of the system or subsystem, based on a SOW evolved during the validation or advanced development phase and a contract specification developed to quantify system performance needs. The full-scale development phase SOW may be developed, during the latter part of the demonstration and validation phase. The design-to-cost goal and lowest feasible out year support cost, as determined by the LSA, should be kept within a reasonable balance.

4.4.3.1 Typical SOW tasks. Typical SOW tasks established for the full-scale development phase are:

a. Design system to contract specification(s).

b. Analyze results of cost, schedule and performance trade-offs, including results of preliminary LSA and design-to-cost data.

c. Implement a quality program.

d. Determine degree of interim support required during operational test and evaluation (OT&E), based on maintenance philosophy determined during the demonstration and validation phase.

e. Implement a configuration management program tailored to the scope of the program, finalize detailed specifications and exercise configuration control over allocated baseline.

f. Perform ILS tasks, including LSA, scope to meet the needs of this phase in determining a reasonable system cost of ownership with minimal design-to-cost trade-offs.

g. Perform production planning to identify resource requirements for production and to achieve a required level of production readiness.

4.4.3.2 Typical data outputs. Typical data outputs based on need are:

a. Quality program plan

b. Revised LSAR

c. Revised system effectiveness engineering plans

d. Test plans, procedures and reports

e. Product specifications or specification change notices

f. Conclusive design review data and cost data for inputs to revise SCP for DSARC review (Milestone III)

g. Production plan

A complete discussion of Type III SOW preparation for full-scale development phase is contained in 5.1.4.

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4.4.4 Production and deployment phase. The fourth phase is the production phase during which the system is produced, installed, and training conducted for operational use. The primary objective of this phase is to efficiently produce the system or products designed and developed in the previous phases of the acquisition cycle. The evaluation of system engineering change proposals (ECP) and value engineering changes and the preparation for turnover of system operation to the using service are important tasks during this phase. Data developed during the production and deployment phase, for example, are technical operation and maintenance manuals, supply support documents and engineering drawings. The finished system is also tested and approved for DoD use (see 5.2).

4.5 Work breakdown structure (WBS). Any process as complicated as planning for and the accomplishment and control of weapon systems acquisition requires a framework or conceptual scheme which will provide a common thread throughout that process. The WBS is a framework that provides a uniform approach to structuring the program throughout the acquisition life cycle phases. It forms the needed link for efficient planning as the acquisition process progresses through the system life cycle phases. When applied across functional activities, the WBS allows functional specialists in such areas as price or cost analysis, purchasing and contracting to draw effectively on the efforts of each other. The WBS permits a logical arrangement of the elements of the SOW and a tracing of work effort expended under each of the elements. MIL-STD-881 defines the WBS used for system acquisitions within the DoD. Although the complete and total application of the work breakdown system described in MIL-STD-881 may not be required in all programs, the theory can and should be applied. The WBS is useful in structuring the SOW for the validation or advanced development phase because this SOW has all tasks defined in one document. The WBS should be tailored to the minimum levels required for program control.

4.6 Security. Contract Security Classification Specification Form, DD Form 254, may be required for procurement actions based on the specific content of the SOW as compared with the master security classification guide for the individual program. The SOW should include any security constraints or releasability constraints that will have an effect on performance of the tasks defined in the SOW.

4.7 Planning the SOW. The necessary prerequisite for preparing a SOW is a complete understanding of what is wanted or required from the contractor. Understanding the circumstances in which a requirement is born, how and where it is recorded, and more particularly, how it ultimately evolves into a SOW will be of singular value to all members of the work statement preparation team, particularly in their efforts to set apart basic and critical source documents. The search for specificity, and quantification of requirements should begin as early as possible. There is much to be gained by maintaining continuous familiarity during the transition from mission to technical requirements, so as to isolate those parameters that will express clearly and explicitly to a contractor what is required and to measure fairly what he subsequently accomplishes. A SOW prepared in explicit terms will solicit more conclusive proposals, improve proposal evaluation criteria and ultimately will allow easier contractor evaluation after contract award.

4.7.1 Planning procedures. While it is impractical to attempt to provide guidance covering all eventualities in preparation of SOWs, the following will provide general guidance on how to begin. One person should have the responsibility for the entire SOW. The SOW preparer will:

a. Review the requirement and directive documents which authorize the program and define its basic objectives.

b. Review the various DoD policy directives such as threat analyses, OR, DP, and coordinated documents which apply to the type of procurement under consideration with other services. Prepare a bibliography citing all the regulatory material which should be used by the team members in preparing the SOW.

c. Identify potential cost drivers and ensure that only those necessary for proper program operation are included in the resulting SOW and that they are scoped to the minimal needs of the program.

d. Prepare a preliminary WBS as applicable. All functional elements should participate in determining the exact form of the program breakdown structure. Participating personnel should include as a minimum; engineering, cost analysis, scheduling, configuration management, financial management, procurement, contracting, logistics, test, and quality assurance. All personnel use WBSs and, for a given program, should use the same structure; hence the need for early agreement on what is to be the baseline program structure. It may not be mandatory to use MIL-STD-881, but the theory involved will aid in organizing properly.

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INSTRUCTIONS FOR COMPLETING DD FORM 1423

FOR GOVERNMENT PERSONNEL

This form *(or its equivalent adapted for ADPE)* shall be used whenever data is required to be delivered under a contract. The form *(except Items 23 through 26)* shall be completed in accordance with Departmental procedures, and furnished to the contracting officer by the personnel responsible for determining the data requirements of the contract.

FOR THE CONTRACTOR

1. The estimated prices filled-in in Item 26 will not be separately used in evaluation of offers.

2. Each offeror may complete Items 23 and 24 in accordance with the following instructions:

Item 23. Contractor File/Document Number - Enter bidder's or offeror's internal filing or document number, if applicable.

Item 24. Estimated Number of Pages - Enter the estimated number of pages, drawings, etc., for single preparation.

3. Each offeror shall complete Items 25 and 26 in accordance with the following instructions *(this does not apply to advertised contracts or to negotiated contracts under $100,000)*.

Item 25. Price Group - Contractors shall specify one of the four following groups of effort in developing estimated prices for each item of data listed on the DD Form 1423.

a. Group I. Definition - Data which is not otherwise essential to the contractor's performance of the primary contracted effort *(production, development, testing, and administration)* but which is required by DD Form 1423.

Estimated Price - Costs to be considered under Group I are those applicable to preparing and assembling the data item in conformance with Government requirements, and the administrative and other expenses related to reproducing and delivering such data items to the Government.

Example for Group I - A technical manual prepared for military use only. The estimated price of the manual would be noted on the DD Form 1423 exclusive of cost for any of the manual material that had been generated for other purposes *(e.g., drawings used both for production and as illustrations in the manual)*.

b. Group II. Definition - Data which is essential to the performance of the primary contracted effort but the contractor is required to perform additional work to conform to Government requirements with regard to depth of content, format, frequency of submittal, preparation, control or quality of the data item.

Estimated Price - Costs to be considered under Group II are those incurred over and above the cost of the essential data item without conforming to Government requirements, and the administrative and other expenses related to reproducing and delivering such data item to the Government.

Example for Group II - In the case of MIL-D-1000 Form I drawings *(drawings to military standards)*, the estimated price of the data item begins only after the engineering and manufacturing information has been developed and the final form original drawings have been initiated. The estimated price shall not include the cost of configuration control, but shall include any additional quality assurance and control of the drawings but not related to engineering configuration control. Not to be considered is "design effort" expended on layout drawings and other data which serve principally as a medium for developing design and are not used in manufacture, production or test of the end item.

c. Group III. Definition - Data which the contractor must develop for his internal use in performance of the primary contracted effort and does not require any substantial change to conform to Government requirements with regard to depth of content, format, frequency or submittal, preparation, control and quality of data.

Estimated Price - Costs to be considered under Group III are the administrative and other expenses related to reproducing and delivering such data item to the Government.

Example for Group III - A drawing prepared to Form 2 or 3 of MIL-D-1000 *(drawings to company standards)* which had been used in the manufacturer's normal plant activities.

d. Group IV. Definition - Data which is developed by the contractor as part of his normal operating procedures and his effort in supplying these data to the Government is minimal.

Estimated Price - Group IV items should normally be shown on the DD Form 1423 at no cost.

Example for Group IV - A brochure or short manual used in a company's normal commercial business, that is acquired by the Government in such small quantities that cost of determining a charge would not be practical.

Item 26. Estimated Total Price.

a. For each item of data listed, the bidder or offeror shall enter an amount equal to that portion of the total price which is estimated to be attributable to the production or development for the Government of that item of data. These estimated data prices shall be developed only from those costs which will be incurred as a direct result of the requirement to supply the data, over and above those costs which would otherwise be incurred in performance of the contract if no data were required.

b. The estimated data prices shall not include any amount for rights in data. The Government's right to use the data shall be governed by the pertinent provisions of the contract.

FIGURE 3. Data price groups (DAR Appendix F-200.1423).

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e. Identify all organizations and persons that will participate in preparing the SOW. Determine the participants areas of responsibility. Those participating are usually personnel from the program office or the system project management organization, engineering, production management, logistics support, system effectiveness, procurement or comptroller (normally cost analysis specialists); each has a role to play in the total effort. This determination is based largely on the output of a, b, c, and d.

f. Review the list of work words contained in Appendix A and endeavor to use the list properly. Never describe work tasks in terms of data to be delivered. Be explicit as to what the Government's needs are expressed in terms of what work is to be accomplished. For example, do not indicate that the contractor shall prepare X plan as work to be accomplished. The word prepare is accommodated in block 10 of the DID as preparation instructions for data. The word plan in this case connotes the data or the deliverable. The preparer of the SOW must establish the actual work parameters using work words to task the contractor to perform what work is needed. The work inherently generates information that may be identified, recorded and delivered as contract data.

g. Ensure that the SOW specifies what is required; not how it should be accomplished. In addition, all references to other documents, and sub-tier references should be thoroughly reviewed to ensure that unnecessary requirements are not inadvertently imposed.

h. Prepare a detailed list, indicating the numerous items and the selected optional parts of the individual SOW. If more than one person is working on the draft, the list will aid in separating the areas of responsibility and ensuring coverage without overlap.

4.7.2 Development approach. After assessing the significant literature on the subject and obtaining the guidance of the responsible managers, professionals and specialists, the following approaches should be considered:

a. Divide the subject matter to be covered into its logical component parts.

b. Develop an outline of how the subject will be covered.

c. Identify those component tasks required that are already defined in existing military or federal specifications and standards or current practices. Ensure that these documents are contained in the list of reference documents in Section 2 of the SOW and then invoked in the requirements portion. Specify only that portion of the referenced document required to provide the minimal needs of the task. This scoping of the tasks will reduce the cost drivers to an absolute minimum.

d. Isolate those tasks that present technological or design problems and that will necessitate additional research.

e. Single out those functions or aspects of the work that will require special care in presentation within the SOW.

f. Determine those areas where additional help will be required, if target dates are to be met, and seek out the needed assistance without delay.

4.7.3 Preparation responsibilities. Project managers, development managers, acquisition managers and logistic managers will be guided by this handbook in the compilation of the SOW requirements into one document as part of the acquisition package. The incumbent manager is responsible for the scheduling of the SOW preparation. The writer defines the specific program requirements in terms that establish definitive parameters for SOW content and distributes such information as may be necessary to the contributors in accordance with appropriate command instructions. As contributors respond, it is the writers responsibility to ensure that all material included in the SOW is properly presented and correctly edited. Although significant portions of the SOW may be prepared by other activities, the final responsibility for its content and presentation rests with the incumbent manager. As a check point, the SOW writer should take into consideration the guidance established herein for the potential constraints that may be imposed by various review boards that the acquisition documentation may encounter in the course of auditing the data requirements with each associated task that develops the information. The Data Requirements Review Board (DRRB) will ensure that each SOW reviewed conforms to the policy, guidance and procedures contained in this handbook.

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4.8 Format and composition. Standardized format and composition serves to:

a. Provide an orderly approach for SOW development, and eliminate omissions

b. Provide essential program elements

c. Simplify preparation and review

d. Enhance utilization by the contractor

e. Minimize risks of potential claims against the Government by a contractor

f. Minimize risks of losing claims filed against a contractor by the Government

g. Simplify resultant proposal review

h. Reduce contract administration problems and costs

4.8.1 Standard format. The basic structure of the standard format for the SOW is as follows (subject to variations specified in Section 5 for various types of SOWs):

Section	Title
1	SCOPE
2	APPLICABLE DOCUMENTS
3	REQUIREMENTS

Normally, the flexibility available for arranging subsets of information within each section will satisfy the needs for program variations. Deviations from the standard format may be made by the writer when necessary to accommodate overriding program needs. Additional information and exceptions related to the standard format are as follows.

4.8.1.1 Title page and table of contents. A title page or cover should be provided for all SOWs. It should identify the SOW title, date preparation completed and organizational identity. See FIGURE 4 for typical title page layout and content. A table of contents should be used when the SOW exceeds five pages. The table of contents should follow the title page and have a format similar to that depicted in FIGURE 5.

4.8.1.2 Section 1 - Scope. This section includes a brief statement of what the SOW covers. It may include an introduction and background. In some cases pertaining to the Type I SOW, the use of an introduction or background (or both) is preferred. Separate indentures under this section are used in SOWs to accommodate complex acquisitions requiring lengthy discussions of background information. A discussion of background information should be limited to only that information needed to acquaint the proposer/contractor with the scenario. Directions to the contractor to perform work tasks or a discussion of data requirements or deliverable products shall never be included in this section.

4.8.1.3 Section 2 - Applicable documents. Applicable documents invoked by specific reference in the text of the SOW must be identified and listed in Section 2 of the SOW. Conversely, the applicability of all referenced documents listed in Section 2 of the SOW shall be specified to the extent necessary in Section 3 of the SOW to identify only that portion that is needed to solicit the effort required. This will enable the proposer/contractor to determine the documents that must be obtained to fully understand what has been specifically invoked in the requirements section. References shall normally be confined to documents currently available at the time of issuance of the SOW or solicitation, and will include identification number and title of each referenced document. Section 2 should not be prepared until the draft of Section 3 is completed in order to ensure that only the documents actually referenced in the requirements section are listed. The listing of applicable documents only in Section 2 without invoking them in the requirements section does not create an impacting condition upon the contractor. Improper reference to applicable documents has been a major cost driver due to interpretations that a document listed in Section 2 was required to be complied with in total if not specifically delineated in Section 3. Never use guidance documents on the SOW. Only contractually applicable tailored standards and so forth shall be used in a SOW. Guidance documents may be conveyed to the contractor in the Instructions for Bidders (IFB).

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31 MARCH 1983

STATEMENT OF WORK
FOR
COLD CATHODE DEVELOPMENT

Prepared by

NAVAL SEA SYSTEMS COMMAND
CODE 404C01

FIGURE 4. Sample title page.

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Table of Contents

Section/Para		Page
1	Scope	1
2.	Applicable documents	3
2.1	Military specification	3
2.2	Military standards	4
2.3	Other publications	6
3.	Requirements	7
3.1	General	7
3.2	Technical Objectives and Goals (as applied to Type I and II SOW)	7
3.3	Contractor Services	9
3.4	Integrated Logistic Support	10
3.5	Management Systems Requirements	11
3.6	Production Planning for Phase II	13
3.7	Reliability Program Requirements	14
3.8	Maintainability Program Requirements	15

FIGURE 5. Sample table of contents.

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4.8.1.4 Section 3 - Requirements. The arrangement of the subsets of information that define the work or task efforts is determined by program needs. The writer must ensure that the arrangement of the content of Section 3 is systematic and logical to facilitate accomplishing the desired effort. All work or task eforts to be performed in an acquisition which invokes MIL-STD-881 are identified and defined within the basic framework of the WBS. The WBS permits a logical arrangement of the elements of the SOW, and a tracing of work effort expended under each of the elements. Requirements may be mandatory, desirable, optional or may have alternatives. In preparing this section of the SOW, the category of each requirement specified should be designated along with the proper language of shall, should, or may respectively as with mandatory, desirable, or alternatives. In addition, all tasks should be listed in chronological order to the degree possible and in a manner and sequence to facilitate contract administration. In all cases and for all types of SOWs, the work to be accomplished must be expressed in work words (see Appendix A). Data requirements and references to DIDs shall not be contained in this section or in any section of the SOW.

4.8.1.5 The management system utilized by the contractor shall provide for the capability to plan and control organization, schedule, cost, technical performance, accurate progress reporting procedures and forecast potential results of alternate program actions. For monitoring purposes, the acquiring activity will require only summarized information, and when necessary, supporting data to provide visibility and traceability to lower levels.

4.8.2 Paragraph numbering and identification. Each paragraph and subparagraph shall be numbered consecutively within each section of the SOW, using a period to separate the number representing each breakdown. Paragraph numbering shall be limited to the third sublevel, if possible, as shown in the following example for Section 3 of a SOW:

Requirements	3
1st Sublevel	3.1
2nd Sublevel	3.1.1
3rd Sublevel	3.1.1.1

Paragraph breakdowns should be kept to the minimum necessary to clearly define the task efforts the contractor is required to perform. Each paragraph and subparagraph shall be given a subject title identification.

4.8.3 Abbreviations and acronyms. In all cases, the first time an abbreviation or acronym is used, give the items full title identification and follow that with the abbreviation or acronym in parentheses.

4.8.4 Language style. SOW requirements, objectives and goals should be clearly written in ordinary language. Essential technical language should be used sparingly. Avoid wording that allows more than one interpretation. Use simple words and concise sentences. Use "shall" whenever a provision is mandatory. "Will" may be used to express a declaration of purpose or where simple futurity is intended, for example, "Power for the equipment will be supplied by the ship". Use active rather than passive voice, for example, "The contractor shall establish a program", instead of "A program shall be established by the contractor". Use verbs that identify work effort and task performance (work words, see Appendix A) and not those used to identify data deliverables (data words). A clear, concise SOW will contribute to attaining the contract objectives by minimizing misunderstandings, administrative problems, and costs. Refer to MIL-STD-961 for further discussion of language style.

4.8.5 SOW check points. The following check points for SOWs provide some of the considerations which the writers must recognize:

a. Is the SOW specific enough to permit the writer to estimate the probable cost and the proposer to determine the levels of expertise, manpower and other resources needed to accomplish the tasks?

b. Are specific duties of the contractor stated in such a way that he knows what is required and the contract administration office representative who signs the acceptance report can tell whether the contractor complied?

c. Are sentences written so that there is no question of whether the contractor is obligated (that is, the contractor shall do this work, not this work will be required)?

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d. Is the proper reference document shown? Is it really pertinent to the task? Is it scoped and selectively invoked only to the level required to satisfy the minimal need? Is it properly cited? Can the limitations as expressed be identified as a reduction to the overall cost drivers of the document involved?

e. Are any military specifications or standards applicable? In whole or in part? If in part, are they selectively invoked and tailored to minimal needs? Are they scoped downward with expressed limitations to the cost drivers? If in whole, do you need every discussion point of each and every task involved as total cost drivers?

f. Is general information separated from direction so that background information and suggested procedures are clearly distinguishable from contractor responsibilities? Is the Scope and Background information in Section 1 only? Are task requirements established with work words in Section 3 only?

g. Have the paragraph headings been checked for meaningful application? Are subheadings comparable? Is the text compatible with the title? Are the work tasks presented in chronological order - first things first and last things last?

4.8.6 The optimum SOW.

a. List of prohibitions.

1. Does not order data

2. Does not describe data

3. Does not discuss data

4. Does not invoke, cite or discuss a DID

5. Does not discuss a CDRL

6. Must not be used to amend the equipment/system acquisition contract specification. (However, specifications and standards, as referenced documents, may be selectively invoked, tailored and discussed for established SOW requirements).

7. Does not specify design control parameters or the performance of hardware except in Type II SOWs for advanced development when required. (Qualitative and quantitative elements are a function of the equipment/system specification.) (see FIGURE 1).

8. Does not specify technical proposal criteria or evaluation factors. The SOW should never indicate that the proposer shall discuss...). The SOW contains work requirements to be performed under contract. The requirements or criteria for proposal must be separate documentation and must reference the SOW insofar as how the proposer intends to meet the requirements as established.

9. Does not establish a delivery schedule but may include, for clarity, significant milestones.

10. Does not invoke entire military standards or military specifications unless all facets of the referenced documents are required to meet minimal needs.

11. Does not invoke in-house management instructions, for example, DoD or Departmental Instructions, in a SOW as applied to equipment or systems acquisitions. (Exception: Type V SOWs may invoke in-house management instructions in connection with work to be accomplished by a nonpersonal services contractor.)

12. Does not use data words or identify the deliverable data to describe the work tasks to be accomplished (see Appendix A).

b. A list of applications.

1. Does specifically define the limitations of the appropriate parts of military standards or military specifications that are invoked to meet minimal needs that clearly reflect the reduction of cost drivers.

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2. Does clearly define all nonspecification requirements and task efforts (applicable to all SOWs except SOWs for advance development (Type II) where conclusive design or performance limitations may be expressed for needs beyond the objectives and goals.

3. Does employ work words to describe explicitly and in exacting terms what tasks shall be accomplished (see Appendix A).

4. Does comply with the intent of this SOW handbook.

5. Does provide a priceable or cost estimatable set of tasks to fulfill the SOW requirements.

c. Do not over specify. The ideal situation is to specify what is required and let the contractor find the best method of getting there. In any case, he should not be told exactly how to do it and then made responsible for the results. To support the most favorable type of contract, describe clearly and fully what is required to satisfy the contract.

d. Application of specifications and standards. Within the SOW the writer shall begin with a zero base situation insofar as military specifications and military standards are concerned. The incorporation of any such specifications and standards shall be thoroughly justified before being placed in the Applicable Documents Section and text. When imposed, the application shall be selected and tailored in accordance with DoD policy expressed in DoDD 4120.21. Tailoring shall not be a more extensive application but shall be an adjustment to meet minimal needs. Emphasis shall be given to the use of individual sentences or paragraph titles only of any particular referenced specification and as an additional means of precluding excessive application of requirements and excessive costs.

5. DETAILED REQUIREMENTS

5.1 RDT&E statements of work (SOW Types I, II and III). Research, development, test, and evaluation (RDT&E) projects are somewhat intangible and subject to change; therefore, SOWs must be broad and flexible. A SOW that is written to rigid limitations may unwisely restrict the efforts of the contractor, and frequent supplemental agreements may have to be written to allow for changes. On the other hand, a SOW may be written too broadly to be priced. Unlike supply procurement actions, which demand definable physical or performance characteristics of end products, R&D SOWs which unduly restrict a contractor's approach are undesirable. However, the SOW must still be definite in its descriptions of desired objectives and required goals. The writer should keep in mind that a SOW is one of the key elements of the contractual document. It must be definitive to protect the Government's interest, yet broad to allow for the contractor's creative effort to enhance the program. As the acquisition life cycle moves into the full-scale development phase, much of the generalized technical work tasks and risk assessment connected with the conceptual and advanced development phases has been completed and now must be quantified and placed in the contract specification in accordance with the preparation procedures of MIL-STD-961. Although many of the same technical tasks are ongoing during full-scale development, they have reached a stage of completeness that will allow them to be stated, at least in part, in quantifiable terms and this quantification must be identified and placed in the contract specification.

5.1.1 RDT&E life cycle phases. The RDT&E life cycle phases begin with the establishment of an OR and continue through the completion of full-scale development. During this period, the system is formulated, designed, tested and made ready to be produced on a full scale. During these phases, the SOW is the primary contractual communication media. However, the content of the SOW changes as the program progresses through the RDT&E phases. FIGURE 6 illustrates the changing modes for use of the SOW, specifications and the CDRL as the life cycle phases proceed to production.

5.1.2 Concept exploration phase SOW, Type I. The precision with which operational goals or technical objectives can be defined will impact directly on the ability of the Government and the contractor to estimate costs and the degree of risk to be assumed. Definition of the functions or performance required will, consequently, play a major role in the SOW. In the majority of research programs, including preliminary explorations and studies, the work to be performed cannot be described precisely. Hence, proposals for cost-plus-fixed-fee or cost-sharing contracts, are to be expected. When preliminary exploration and studies have indicated a high degree of probability that the development is feasible and a more definitive SOW can be drawn, fixed-priced-type and cost-plus-type contracts are considered in that order of preference.

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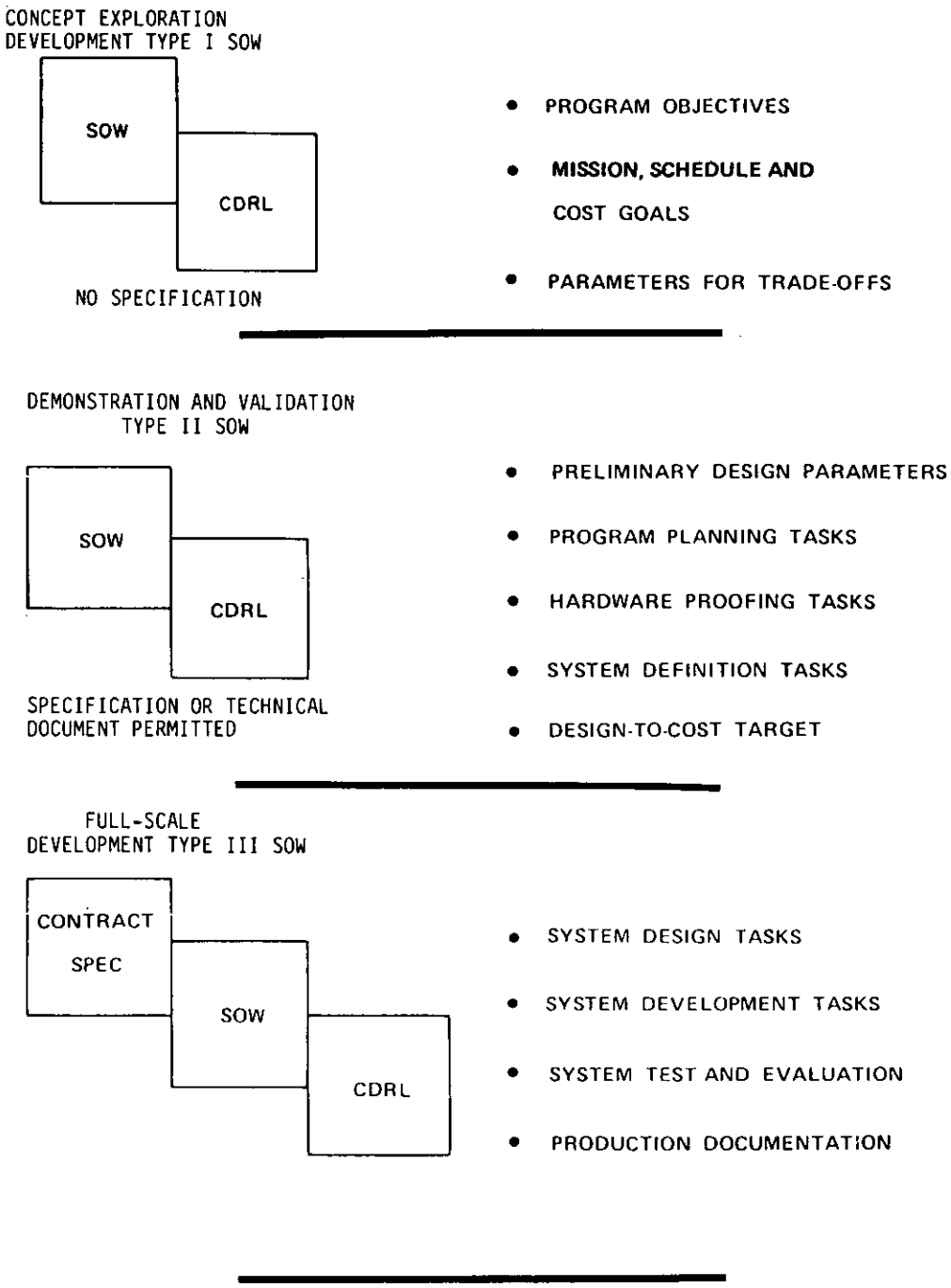

FIGURE 6. Content of RDT&E contract documents.

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5.1.2.1 Although the SOW is considered primarily a vehicle for defining contractor effort, the principles involved can and will be applied when tasking a laboratory or field activity to perform RDT&E tasks. Independent of who will perform the effort, the requirements and directions must be passed on and the SOW is the tool to be used for this purpose.

5.1.2.2 Due to uncertainties that characterize research and exploratory development, it is essential that SOWs differentiate between firm requirements versus goals on which the work performer must use his best effort. In the cost-plus-fixed-fee contract so frequently used in research and early development, the best effort provision characterizes the conduct of much of the work.

5.1.2.3 The time-honored word research has, over the years, expanded its original meaning through wider use in more and more fields of human endeavor. Once it was thought that only the highest type of creative work in the physical sciences, such as chemistry, mathematics, metallurgy and physics, constituted basic research. Now the term research has been broadened to include all effort directed toward increased knowledge of natural phenomena, the environment and efforts directed toward solving problems in the physical, behavioral and social sciences that have no clear, direct military application. It includes all basic research and, in addition, that applied research directed toward expanding knowledge in various scientific areas.

5.1.2.4 Whether the exploratory development to be contracted for contemplates applied research, component development, feasibility evaluation, preliminary systems analysis or cost/effectiveness studies, the most important portion of the request for proposals will be the SOW. The SOW will be difficult to draft because of the indefinite nature of many of the tasks, particularly those that may be categorized as applied research. However, every effort to describe the work with some degree of precision should be made so that the parties will not only have an understanding of what is expected, but the contract itself will not be rendered invalid for vagueness. At the same time, a description which is too rigid may discourage initiative and the exercise of a reasonable latitude and inventiveness that are essential for the success of this type of effort. The SOW writer should establish a middle course between these two extremes. There should be an insistence that, subject to the limitations on definition inherent in exploratory development, the SOW says exactly what the DoD wants and that all vagueness and obscurity of expression be avoided. If the job to be done cannot be expressed in adequate work words (see Appendix A), it is probable that there is no real or apparent meeting of the minds necessary to bind the parties to a contract, but only a vague understanding which would never stand a test in a court of claims based on a defaulted action. If the preparer of the SOW cannot express the requirement in simple work words, then the preparer does not have a comprehension of the need and is not ready to establish contract documentation.

5.1.2.5 In many DoD research and development projects and tasks, there can obviously be no tight compartmentalization that will clearly separate research from exploratory development. Therefore, many of the applied research efforts that are embraced in the definition of exploratory development partake of the nature of the fundamental research. Thus, the problems associated with organizing such applied research SOWs and managing the results can be expected to be similar whether they are classified as research or exploratory development. Likewise, where minor development, component or subsystem development is undertaken under exploratory development funding, the SOW will not be dissimilar in overall format and approach from those of advanced development.

5.1.2.6 However, where preliminary studies involving systems analyses, preliminary cost/effectiveness of trade-off studies are to be contracted, there are certain distinctive elements of information that should be included in the SOW. These can be included in the introduction or background of the R&D SOW as part of the Scope in Section 1. These areas are as follows:

a. Statement of the problem(s). A brief description and background of the problem(s) to be solved, together with a succinct discussion of the need giving rise to this requirement.

b. System description. A short functional description of the overall system proposed. If practicable, a pictorial presentation, should be considered and presented as FIGURE 1 of the SOW, of a typical situation that will quickly orient the reader to the desired system and the proposed use.

c. Major milestones. A graphic display of the major milestones of the program in time sequence should be included in the background information of the scope for the information of prospective proposers.

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5.1.2.7 The Section 3 paragraph will establish what the contractor shall do and may properly contain discussions of the following requirements and conditions:

a. Component and subsystem relationships. A functional flow diagram, explaining what is visualized as possible or practical at this time, showing each subsystem (or major component) and each associated system.

b. Alternative courses of development. A summation of the known alteratives for development as they are visualized at this time, pointing up the possible differences in operational effectiveness in terms of performance, reliability, maintainability and operability. The SOW should clearly indicate the basis of comparison, that is, previous experience or extrapolations.

c. Phasing. Where the studies to be accomplished are divisible into time phases or into other separable areas of work, the SOW should spell out these requirements.

d. Reporting requirements. The deliverable product of the study effort will be the technical report. The SOW should specify, so far as practicable, qualitative standards for the document. The format of the report should also be described in the SOW.

5.1.2.8 To aid in understanding the role of the SOW during this phase and assist in preparing an effective SOW, a sample SOW for the conceptual phase is provided in FIGURE 7. The sample is intentionally kept brief but the general style and format are exemplory of that required.

5.1.3 Demonstration and validation phase SOW, Type II. Three groups of tasks may be included in demonstration and validation phase SOWs. These are system and program definition, defense material proofing and prototype demonstrations through the Advance Development Model (ADM).

a. System and program definition. System and program definition refines and defines to a lower level the detail of performance specifications (functional and allocated baseline) by the competing contractors. The system engineering efforts of the contractors are described in MIL-STD-499 and development of the system type specification by the contractor when required is described in MIL-S-83490 and MIL-STD-490. During this phase, the contractor also conducts program definition and develops the required program plans. As a part of planning the validation or advance development phase sequence of events, where prototyping or defense material proofing is being accomplished to reduce risks, it may be appropriate to withhold those tasks related to the development of the allocated baseline and the full-scale development phase proposal until the risks can be adequately assessed.

b. Defense material proofing. This is an intermediate state between concept studies and prototyping. It is concerned with constructing defense material and testing it to reduce risks, before definition of the functional and allocated baseline and the full-scale development proposals. This effort is normally less extensive than prototyping and applies to risk reduction for configuration items which are less complex than system segments. Following defense material proofing, the risk reduction will be assessed, with the results feeding into the functional and allocated baseline.

c. Prototype demonstration or ADM. A prototype is a model suitable for the evaluation of design, performance and production potential. Prototypes may be developed to test new or critical concepts, or to reduce technological uncertainty (risk reduction). The degree of prototyping and the number of system segments/subsystems components to be prototyped should be defined in the SOW for the demonstration and validation phase. Following the prototype demonstration, an assessment should be made of the risk reduction, with the results feeding into the allocated baseline.

5.1.3.1 SOW requirements. The SOW for the demonstration and validation phase should be correlated with selected elements of the full-scale development phase preliminary program WBS elements that are applicable. In case there is no defense material proofing or prototype demonstration tasks needed, the SOW will contain only preliminary design and the program planning tasks of the WBS.

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STATEMENT OF WORK

TYPE I SOW

1. Scope. A statement defining what this SOW covers is all that is required in this section. However, in most research procurements, it is necessary to provide information on the background and alternate approaches that have been investigated. Because the results required are expressed as objectives or goal attainments in this type SOW, extra care must be exercised to ensure that work tasking and deliverable products are not discussed in this paragraph. Discuss only what the SOW covers and possibly some whys of this particular approach expressed as an introduction or background, or both.

2. Applicable Documents. All documents invoked in the requirements section of the SOW must be listed by document number and title. These documents may include standards, specifications, and other reference documents needed to identify and clarify the work task or deliverable product. However, DoD and Departmental instructions are promulgated to control in-house work effort and shall not be invoked in the SOW to control contractor effort. Also, any document listed in this section must be invoked and selectively tailored to meet minimal needs of the planned procurement.

3. Requirements. Various approaches are used in defining tasks in the SOW to meet particular program needs for research efforts. Task breakout or task phasing methods are used to simplify accomplishment and control of the effort in complex acquisitions. Requirements may be segregated into general tasks that have application to the overall program requirements.

3.1 General. General task statements may be included in the SOW to satisfy overall research program requirements and for planning the use of the results of the acquisition.

3.2 Detail. The contractor shall perform the following tasks:

a. Develop .....

b. Organize .....

c. Study .....

d. Accomplish milestone and cost planning in accordance with MIL-M-23127.

FIGURE 7. Sample Type I SOW for concept exploration phase.

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5.1.3.1.1 The approved planning documents are the basis for the demonstration and validation development phase SOW. The SOW should contain discrete detail to enable the bidders, and subsenquently the contractor, to expand the program requirements into an effective program plan and the system requirements into the system type specification, or system segment specification and the Part I configuration item specifications. Essentially, the demonstration and validation phase SOW is limited in scope to the efforts required to conduct the defense material proofing or prototyping, assess the results and then define the system performance requirements to the end-item level in a type specification in accordance with MIL-S-83490 and a predetermined form in accordance with MIL-STD-490. Efforts include system engineering, construction of test hardware (if appropriate), practical trade-offs, cost trade-offs, risks assessment and program planning that will effectively recognize the meeting of compromises of design-to-cost goals as opposed to the lowest feasible out-year support costs consideration within the full-scale development phase. During the demonstration and validation phase, the full-scale development phase SOW should be planned to consider those needs as they are developed.

a. A demonstration and validation phase SOW identified the requirements and rules to be followed in the preformance of tasks. The contractors response during the demonstration and validation phase coupled with in-house planning will produce data in order that the DoD manager can prepare a contract specification for full-scale development, and draft a SOW which will include all nonspecification requirements limited to the full-scale development phase.[1/] The contract specification must be prepared in a similar format and content to a military specification in accordance with MIL-STD-961. This requirement is necessary because later in the program the contract specification may be converted to a military specification by the incumbent manager for the production phase of the equipment. In order to provide a contract document for those tasks that cannot be included in the specification according to MIL-STD-961, the SOW was established and subsequently this handbook was developed to ensure the purity of the specification and provide one viable document to embrace all other associated tasks for the acquisition.

b. Specific attention should be given to concurrent time-phasing of the demonstration and validation phase Request for Proposal (RFPs) for the different system segment contractors as may be required so that, to the maximum extent practicable, the system definition effort is (1) conducted by all contractors to the same system ground rules and requirements and (2) completed by all participating contractors in the same time period to permit evaluations on as nearly total a system basis as possible.

c. When the need for the recording of information and the ordering of data resulting from a work task has been determined, special attention should be given to the careful selection of the DID to ensure that all required information generated is delivered in the proper format. The DID, DD Form 1664, describing the data elements should be reviewed to ensure that all information prescribed for their content is generated as a result of the work task. If certain elements of the DID format are not needed, the DID must be tailored downward noting the deletions in Block 16 of the CDRL. The DID shall not be relied upon to force the generation of information not specifically required in the work task of the SOW. The DID must not task the contractor to perform work. The DID is limited to only preparation instructions and prescribed format and data elements for the recording and delivery of data stemming from information generated as a result of the work task (refer to FIGURE 2 illustrating work task/information/ data relationship).

5.1.3.2 Data management. Data submissions can be very expensive if not properly drafted and scheduled. Improperly phased data requirements result in premature submittals, unsatisfactory product and a duplication of effort. This waste of resources can be minimized by careful planning to eliminate the non-essential and require submissions appropriately timed during the contract performance when the contents are meaningful for use.

[1/] Office of the Assistant Secretary of Defense, 15 MAR 1973, Relationship of Proposed New Military Standards Being Developed Under MISC Projects 0851, 0852, 0853 to MIL-STD-490 and MIL-S-83490. This established the standards for the preparation of a specification (MIL-STD-961) by the DoD incumbent manager stemming from the deliverable data received from the contractor as the specification prepared by him under provisions of MIL-STD-490 or MIL-S-83490. The DoD manager must then convert the MIL-S-83490 product to a MIL-STD-961 specification applicable for use in the full-scale development contract phase as a contract specification.

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5.1.3.3 Sample demonstration and validation phase SOW. The content and format of the demonstration and validation phase SOW is illustrated in FIGURE 8.

5.1.4 Full-scale development phase SOW, Type III. Much of the introductory material contained in 5.1.3 is applicable to this paragraph and should be reviewed by the writer before formulating a SOW for full-scale development. During this phase, the selected contractor performs design, development, test and evaluation (DDT&E) of the system based on the functional and allocated baseline which is a product of the system definition. The system includes the prime mission defense material and all of the items necessary for its support. The intended output of the full-scale development phase is a defense material configured system and the documentation needed to produce that system for DoD use. Because the system has progressed to the point that the contractor is ready to design and develop hardware, much of the generalized technical work tasks of the demonstration and validation SOW must now be quantified and placed in the contract specification. Although many of the same technical type tasks are ongoing by this stage, they have become quantifiable and must be removed from the SOW and stated in a qualitative and quantitative manner in the contract specification. This is the first phase in which the SOW is used with a specification and great care must be excerised to ensure that all technical requirements that are identified quantitatively or qualitatively are established in the specification together with their associated quality provisions. An essential activity of the full-scale development phase is test and evaluation conducted by the contractors and the DoD. Technical and engineering problems, with related program oriented risk assessments will need to be continuously addressed with a view towards possible trade-offs with stated operational requirements, cost and operational readiness data. The SOW should ensure that contractor system engineering management activities are oriented toward minimal needs and further contain only those nonspecification tasks that must be fulfilled during this phase.

5.1.4.1 When management data are expected to result from a task, the description should be detailed to the extent of the work required to cause the generation of all desired information without reliance on the DID to serve as a forcing function on the task. Tasks requiring generation of cost information during the full-scale development phase should be correlated with similar tasks specified in the demonstration and validation phase contract. When financial information is required by SOW tasks, the source of such information should be considered as originating from the contractor's own internal cost/schedule control system. Any new management system task requirements for the development of cost information may give rise to a complete over and above cost of that acquired data. A sample SOW for full-scale development is contained in FIGURE 9.

5.2 Production phase SOW, Type IV. During this phase, the contractor accomplishes production and production related operations. All tasks which were deferred until the production phase will be readdressed and action initiated for their completion. These include efforts defered in the support areas, for example, supply support (provisioning), technical publications and training. Systems engineering management will complete design efforts; ensure on a continuing basis that design is feasible and sound; and initiate, evaluate and integrate engineering changes throughout the production phase. The need for continued system effectiveness work and configuration management will be limited to the impact caused by engineering changes only. Refer to FIGURE 1 for an understanding of the relationship of the production phase SOW to other production phase procurement documents. A typical production phase SOW is contained in FIGURE 10.

5.2.1 The primary procurement control document during the production phase is the specification as the product baseline. However, in accordance with MIL-STD-961, the content of the specification is limited to requirements intended to control design and establish performance of the purchased product. Therefore, the SOW is used as a requirement document not to conflict with what the specification was established to cover. The following typical SOW requirements which should be scoped to the minimal needs for the production phase are ILS, configuration management, technical manuals and publications, training, supply support, engineering drawings, quality program requirements, level or repair, calibration and instrumentation, reliability, maintainability, human factors, safety, planned maintenance subsystem (PMS) and other contractor provided services needed in conjunction with the production buy (for example, installation services concurrent within the production contract). Many of these areas have already been addressed during the development phases and should now be well defined and documentated. As an example, the reliability program has been established and the reliability program plans have been approved and the production phase requires the continuance of the program to function on any technical changes introduced into the system design. Therefore, some SOW tasks are no longer required while others require continued effort or the introduction of new tasks compatible with the production phase. Many of the other areas have similar situations and should be reviewed carefully when moving from the RDT&E phases to the production phase of procurement.

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STATEMENT OF WORK

TYPE II SOW

1. Scope. Include a statement about what this SOW covers. In some cases, some background information may be helpful to clarify the needs of the procurement.

1.1 Background. DO NOT DISCUSS work tasks in Section 1.

2. Applicable Documents. All documents invoked in the requirements section of the SOW must be listed in this section by document number and title. These documents may include Standards, Specifications and other reference documents needed to identify and clarify the work task or deliverable product. However, DoD and Departmental Instructions are promulgated to control in-house work effort and shall not be invoked in the SOW to control contractor effort. Also, any document listed in this section must be invoked and selectively tailored to meet minimal needs of the planned procurement in the requirements section.

2.1 Military specifications.

2.2 Military standards.

2.3 Other military documents.

2.4 Industry documents.

3. Requirements. The arrangement of technical tasks and subtasks within the Requirements section will be dictated by program requirements. If a WBS is being used in the program, tasks should be arranged in accordance with that work breakdown structure. As in the Type I SOW, it may be helpful to have a general task to orientate the planning and use of the subsequent subtasks. The following outline is a generalization and in no way reflects the ultimate SOW arrangement or requirements.

Since there is no specification governing the advance development technical requirements, the SOW must contain all technical requirements, for example, technical objectives and goals as well as all broad technical program requirements such as a TEMPEST Program and EMI/EMC Program requirements. General design specifications normally are not invoked in the demonstration and validation phase SOW.

3.1 General.

3.2 Detail tasks.

3.2.1 System engineering.

a. Technical studies - including life cycle costs.

b. System effectiveness planning, for example, reliability, maintainability, and human factors.

3.2.2 Electromagnetic compatibility (EMC) program.

3.2.3 TEMPEST control program.

FIGURE 8. Sample Type II SOW for demonstration and validation phase.

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3.2.4 Design-to-cost goal.

3.2.5 Configuration management (CM) program.

3.2.6 Safety and hazard engineering.

3.2.7 Quality program.

3.2.8 Integrated logistics support (LIS) program. Requirements including Logistic Support Analysis (LSA).

3.2.9 Design, fabricate and test ADM.

DATA REQUIRED AS A RESULT OF THIS PROCUREMENT, MUST BE IDENTIFIED AND ORDERED ON FORM 1423.

FIGURE 8. Sample Type II SOW for demonstration and validation phase. (Continued)

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STATEMENT OF WORK

TYPE III SOW

1. Scope. The Scope, Section 1, identifies by a brief statement, what the SOW covers for full-scale development phase. By this point in the acquisition life cycle, introductory and background information are no longer needed and should be omitted.

2. Applicable documents. All documents invoked in the Requirements Section of the SOW must be listed in this section by document number and title. These documents may include standards, specifications and other reference documents needed to identify and clarify the work task or deliverable product. However, DoD and Departmental Instructions are promulgated to control in-house work effort and shall not be invoked in the SOW to control contractor effort. Also, any document listed in this section must be invoked and selectively tailored to meet minimal needs in the Requirements Section.

2.1 Military specifications.

2.2 Military standards.

2.3 Other publications.

3. Requirements. The arrangement of tasks and subtasks within the Requirements Section will be dictated by program requirements. If a WBS is being used in the program, tasks should be arranged in accordance with the WBS. A general paragraph, if applicable, to discuss requirements that have general overall application or that will enhance the utility of the SOW may be included.

The SOW does not implement, invoke or modify an equipment specification nor does it require the delivery of equipment. The equipment specification must control design and indicate performance of the equipment. Related nonspecification requirements must be included in the SOW.

The SOW should include program requirements tasks for the continued planning and development of the contractor's design efforts. Care should be exercised to scope the program tasks to meet only the minimal needs for this phase.

3.1 Quality program. The specifics of the quality program requirements specification MIL-Q-9858A which apply to the particular acquisition will depend on the type and complexity of the particular system under acquisition. The SOW will include the specifics that meet minimum needs.

Other subparagraphs of quality program requirements tasks may be included in the SOW to fit the needs of the particular acquisition. The SOW must not order delivery of quality program plans but the appropriate paragraph number of the SOW must be referenced in Block 5 of the CDRL that orders the quality program plans (see FIGURE 2).

3.2 Configuration management (CM) program. Requirements for configuration identification, control, audit and status accounting must be expressed in terms of work effort. The SOW must not order delivery of plans and reports, a DD 1423 is to be used for ordering data. Subparagraphs used under this program requirement may be tailored to elaborate on the details of the work effort to the degree required by the type and complexity of the acquisition.

FIGURE 9. Sample Type III SOW for full-scale development phase.

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3.3 Human engineering program. Invoke the specifics of MIL-H-46855 that apply to the full-scale development in terms of work effort to meet minimal DoD needs. Elaborate to the degree necessary to define the work effort for this phase within determined limitations. The SOW must not discuss or order the delivery of plans and reports.

3.4 Calibration and metrology information requirements. This element of the SOW must define requirements in terms of work effort for the development of required information. The writer may define requirements related to the desired organizational capabilities which give the contractor a basis for developing test techniques, procedures and associated equipment.

The SOW elaborates on requirements for the development of test/node point information, calibration, metrology, technical manual relationship, special tools and test equipment only in terms of work effort to be accomplished. The CDRL will identify and order the delivery of the data associated with these tasks.

The SOW tasks in terms of work effort and not in terms of format, content and delivery of data.

3.5 Contractor services concurrent with full-scale development. The SOW must elaborate on the particulars of the required effort to the degree necessary to provide the contractor a clear understanding of the work to be performed including information concerning government or contractor furnished parts, supplies, tools or test equipment. The CDRL must be used to order required data deliverables resulting from engineering services, for example, test and evaluation, repair facility and installation.

3.6 Installation and checkout parts identification. The contractor is tasked to determine a range and depth of repair parts to be used to support the installation and operation of the systems during the test and evaluation period. The parts must be identified for the purposes of testing and evaluating the system over a specified period of time including the ON and OFF periods of operation.

3.7 Reliability program. The specifics of MIL-STD-785 are selected to meet the minimal needs of the particular acquisition for the phase. The quantitative reliability design requirements are included in the specification. Provisions for reliability demonstration tests are established in Section 4 of the specification. The SOW may include requirements for reliability program planning, development of predictions, calculations and procedures. The SOW does not describe format and content of reliability plans and reports that are provided by the DID. The CDRL is used to order delivery of required reliability data.

3.8 Maintainability program. Subparagraphs may be developed for this SOW task to elaborate on the work effort required for maintainability planning, prediction and analysis of MIL-STD-470. Equipment repair time (ERT) or meantime-to-repair requirements must be included in Section 3 of the specification. Maintainability demonstration tests are established in Section 4 of the specification. The SOW does not describe format and content of maintainability plans and reports. The CDRL is used to order delivery of required maintainability data.

3.9 Integrated logistics support (ILS) requirements. The specific ILS efforts required should be tasked either by specific narrative statements or by invoking specific parts of the referenced ILS documents. The SOW should identify LSA requirements for the verification of each determined ILS element to the extent necessary to permit formal evaluation of the logistic support analysis record. The provision of MIL-STD-1388/1 must be scrutinized to determine the elements that are applicable to the particular system being acquired. Care must be exercised to exclude invoking within a SOW instructions which were intended to govern the performances of DoD managers in their interpretation of contract needs.

FIGURE 9. Sample Type III SOW for full-scale development phase. (Continued)

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3.10 Technical manuals and publications. Identification of the required content and format specifications is necessary to ensure the development of the desired manuals. Subparagraphs must be developed for this task to elaborate on the type and kind of documentation required to support the defense material being procured. Minimal needs for the full-scale development phase may vary from full specification requirements to merely the assembly of preliminary documentation for the support of test and evaluation of the system.

3.11 Training requirements. Elaborate on the type and kind of training elements that must be determined in support of the defense material being procured. Areas to be addressed in this paragraph are training concept, level and type, training procedures, schedule, training equipment required and facilities to be used. This task may include the specific development of courses and in addition may task the contractor to conduct the courses of training for a given number of personnel over a given period of time at an identified facility.

3.12 Safety program. A safety program shall be developed in accordance with MIL-STD-882.

ALL DATA REQUIRED IN SUPPORT OF THE ACQUISITION MUST BE ORDERED ON A CDRL WITH REFERENCE TO APPROVED DIDS INCORPORATED (See DoD Manual 5000.19-L, VOL II).

FIGURE 9. Sample Type III SOW for full-scale development phase. (Continued)

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STATEMENT OF WORK

TYPE IV SOW

1. Scope. The Scope, Section 1, identifies the general work areas covered in the Requirements Section. The Scope should reveal a quick overview of WHAT the SOW covers. There should be no need for introductory or background information in a production procurement and therefore they should not be included.

2. Applicable documents. All documents invoked in the Requirements Section of the SOW must be listed in this section by document number and title. These documents may include standards, specifications and other reference documents needed to identify and clarify the work tasks or deliverable products. However, DoD and Departmental instructions are promulgated to control in-house work effort and shall not be invoked in the SOW to control contractor effort. Also, any document listed in this section must be invoked and selectively tailored to meet minimal needs in the Requirements Section.

2.1 Performance specification.

2.2 Military specifications

2.3 Military standards.

3. Requirements. The SOW does not implement, invoke or modify an equipment specification nor does it order delivery of equipment. The specification must control design and indicate performance of the equipment. Related nonspecification requirements must be included in the SOW in support of the acquisition.

The content of the SOW will be significantly different if the procurement is a state-of-the-art buy versus a buy that has gone through development of the three previous phases. The SOW for a state-of-the-art buy may require all the headings in the previous SOWs but always tailored to the needs of the particular buy. For a state-of-the-art acquisition, review the previous phase SOWs, as well as the following minimal outline.

3.1 Quality program.

3.2 Configuration management program.

3.3 Integrated logistic support (ILS) requirements.

3.4 Level of repair program.

3.5 Planned maintenance subsystem.

3.6 Training program.

3.7 Supply support (provisioning).

3.8 Technical manuals and publications.

3.9 Calibration and metrology.

3.10 Drawings.

3.11 Contractor services.

3.12 Safety program.

DON'T PRESCRIBE SOMETHING NOT NEEDED. OMIT THOSE REQUIREMENTS IN INVOKED REFERENCED STANDARDS AND SPECIFICATIONS WHEN NOT NEEDED. HOWEVER, MAKE SURE YOU HAVE IDENTIFIED EVERYTHING YOU NEED.

All data shall be ordered on Form 1423 with identification of the Data Item Description, DD Form 1664.

FIGURE 10. Sample Type IV SOW for production.

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5.2.2 When production of the state-of-the-art equipment is undertaken, all of the RDT&E phases are omitted but some of the elements of these phases will still be needed in support of the final product. A thorough review of the RDT&E elements must be conducted and those areas needed should be included in the production buy. State-of-the-art equipment and systems are normally procured using a specification except for purely off-the-shelf equipment which may be procured with a brand name or equivalent purchase description. Because of the state-of-the-art status of the equipment or system, there is a risk factor that the awardee will not meet the qualitative and quantitative technical requirements for the equipment. For example, the design qualitative and quantitative requirements for state-of-the-art equipment in the specification for the MTBF and MTTR must be warranted by the severity of the indicated program tasks for reliability and maintainability of MIL-STD-785 and MIL-STD-470, respectively, which are placed in the SOW.

5.3 Nonpersonal services SOW, Type V. The need for nonpersonal services may occur during any of the life cycle phases or at any time a requirement may be identified. Also, the services required may range from a pure research project, major component or system installation to painting or cleaning a building. This wide variety of requirements causes the nonpersonal services contract to take many forms and types. However, in all applications, two factors are of prime importance to ensure that the services purchased are indeed nonpersonal. These factors are: (a) the SOW must establish explicitly what work is to be done and require the delivery of a product other than periodic progress reports and (b) the contractor's employees must not be supervised by the Government during the execution of the work and production of the product. This impels the SOW writer to be explicit, inclusive and comprehensive in prescribing the requirements thus ensuring that the contractor will consummate a deliverable product without the threat of Government intervention or supervision. If every SOW defining nonpersonal services recognizes these two criteria, at least the beginning steps toward a proper contract have been taken. Only the beginning steps have been taken though because the contract must be administered to ensure that at least these two concepts are carried out throughout the life of the contract. However, the concern of this handbook is the preparation of the SOW and therefore the discussion will be limited to that facet. For a more complete discussion of what constitutes a personal versus a nonpersonal services contract, refer to DAR 22-102 and DoDI 5010.12. Annotated outline of typical nonpersonal services SOW is provided in FIGURE 12.

5.3.1 Nonpersonal services work and deliverable products. The product of a nonpersonal services SOW is the result of some work task being performed. Therefore, the requirements that establish the work must be defined in terms of work words and not in terms of product words (see Appendix A for definitions of work words and FIGURE 11 for product words). If the work to be performed is painting a building, the task must define what is to be painted and to what standards, such as kind of paint, number of coats and colors basic structure and trim. The product of such a contract is obviously a building painted in the prescribed manner and completed by a prescribed time. If the SOW is prepared in this way, the contractor can be left entirely on his own to go about the job anyway he sees fit as long as he finishes the building on time and uses the materials prescribed and in the fashion set forth. If the contract is then administered following these ground rules and the contractor is left to his own devices, this then would appear to be a proper nonpersonal services contract. The Government is then left with the requirement to inspect the product and either accept or reject it based on the contractors conformance to the prescribed work requirement.

5.3.1.1 As the product becomes more involved and technical in nature, the ability to define what is needed in adequate detail to allow a contractor to produce the product independently, becomes increasingly more difficult. However, the increased difficulty does not excuse the SOW writer from his obligation to provide the necessary work details in order for the contractor to be wholly compliant. Therefore, under each task in the requirements section of the SOW, Section 3, the work must be defined explicitly and in exacting terms. IF THE JOB IS AN ANALYSIS, THE TASK MUST SAY PRECISELY WHAT IS TO BE ANALYZED TOGETHER WITH THE CRITERIA FOR PERFORMING THE ANALYSIS INCLUDING ANY PARTICULAR ELEMENTS TO BE CONSIDERED. If some conclusion is to be drawn as a result of the analysis, be precise about what the DoD needs to obtain as a result of this analytic work. If it is important how or in what sequence the analysis is conducted, spell it out. In other words, do not leave anything to the contractor's imagination as to the specific needs that can be defined at the time of SOW preparation.

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Although all nonpersonal services contracts do not result in data as a deliverable product, a large portion do. This list of product words is provided to assist in identifying those products in a singular fashion.

agenda	lists
books	manuals
cards	manuscript
certificates	pamphlets
charts	plans
data	procedures
decks	publications
disc-magnetic	recommendations
documentation	records
drafts	recordings
drawings	reproducibles
drums-magnetic	reports
equipment	requests
files	sheets
findings	specifications
guides	standards
graphics	systems
handbooks	tapes
illustrations	transparencies

FIGURE 11. List of product words.

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STATEMENT OF WORK

TYPE V SOW

1. Scope. Included a statement of WHAT the SOW covers. Because of the all inclusive nature of the Type V SOW and the wide range of services ordered with the Type V SOW, there may be a need to include background and introductory information for the procurement. These additional topics should be included only when there is a need to provide information to a proposer or contractor that will not be coupled to a given task.

2. Applicable documents. All documents invoked in the Requirements Section of the SOW must be listed in this section by document number and title. These documents may include standards, specifications and other reference documents needed to identify and clarify the work tasks and deliverable products. DoD and Departmental instructions are promulgated to control in-house work effort but may be invoked in the SOW to control contractor effort only for nonpersonal services acquisitions. Also, any document listed in this section must be invoked and selectively tailored to meet minimal needs in the Requirements Section.

3. Requirements.

3.1 TASK A. Explain precisely what work is to be performed in clear understandable terms in accordance with provisions of DoDI 5010.12. Set forth exactly what the Government needs and wants. Define the nature of the work explicitly with work words (Appendix A).

4. Progress reports. Describe exactly what is needed to monitor the contract progress. The desired format and content should be completely detailed including specific topics to be covered. Also, the frequency of the report must be established.

FIGURE 12. Sample Type V SOW for nonpersonal services.

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5.3.1.2 One of the ordinary pit-falls in expressing and defining the task is to use the words, assist, as required, as necessary and as directed. Don't use any of these words or combinations thereof. The following is the rationale for precluding the use:

a. Assist. Assist connotes personal services. It infers working side-by-side being subject to supervision. The word is totally undefined as to the identification of the work and its range and depth to be performed. Spell out explicitly what the contractor is to perform for the DoD.

b. As required. The application of this approach is a work condition undefined. It has no expressed limitations. It places the DoD in a position of not expressing its minimal needs. It could lead to a debatable condition as to the contractor's compliance with the contract or order. The SOW must be declarative as to its minimal needs.

c. As applicable. See d.

d. As necessary. If the DoD does not know what is necessary or applicable, it must not leave the unsettled question as to the minimal needs of its requirements to the contractor. The SOW should state, forthright, the requirements and the contractor will comply with the requirement with his best efforts and expertise to accomplish the needs. Do not leave the door open to a contest as to what is as necessary or applicable in stating the work requirement (see b).

e. As directed. This condition, as a part of a work task in a SOW, connotes a personal services situation. The contractor will place himself under supervision on the work directions at large and individuals may be prone to continue directing the work generally without benefit of task orders to be written as part of the contract provisions. Task orders, however, must not be written that change the scope and intent of the kind of work operations prescribed by the SOW in the contract.

5.3.1.3 Another area of concern in establishing the SOW for nonpersonal services is the overburdened use of the words and phrases of support and engineering and technical services.

5.3.1.3.1 The term support is understood in the general expression of need for contractor support to the DoD but without an explicit explanation and direction to the contractor of exactly what support is needed, the term is ambiguous.

5.3.1.3.2 The identification of engineering and technical services as a parameter of need points generally to a broad area of the nature of the expertise required for the DoD support. However, this identification alone does not scope the given areas of need categorically as was recognized initially by the requiring authority. The SOW must recognize and state the minimal needs even if it must broaden the expressed work limitations to cover anticipated and conceivable work tasks. It may include some examples of typical work to be done.

5.3.1.3.2.1 The service condition of indicating the contractor shall be on call is in itself inconclusive unless expressed in terms of on call for what kind of work that is to be accomplished. While it cannot predict a specific technical breakdown of a system, the SOW should circumscribe the nature of the work to be performed on what systems.

5.3.1.4 Avoid loopholes. Perhaps one of the most vexing problems in contracting is the problem of loopholes. Contractors and inspectors go by the letter of the contract SOW. In one instance, an engineer intended to have a damaged roof edge repaired and repainted. He wrote "match existing", but did not specify "repaint". The contractor who did the work matched the existing metal flashing strip but refused to paint the new flashing. The inspector could only agree with the contractor, since the engineer had not adequately described what was intended. The writer and all levels of review have a responsibiliy to ensure that loopholes do not exist in the final SOW.

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5.3.1.5 Unlike previous SOWs, that is, Type I through Type IV, for defense material; Departmental instructions or other policy documents may be referenced or invoked in the SOW to define to a nonpersonal services contractor a method of work performance. Departmental policies and procedures used to control similar in-house work effort must be thoroughly understood by the SOW writer and those rules defined for the contractors guidance.

5.3.2 Progress reports. The requirement for the contractor to report progress on a periodic basis can never be considered the deliverable product. This requirement is part of normal contract management if required. The SOW writer should describe exactly what is needed to monitor the contract progress under Section 4 of the SOW. Format and arrangement should be completely detailed. Elements to be included, such as work accomplished, problems encountered, problems solved, cost information and funds expended should be identified and ordered. Finally, the frequency of the report must be established, that is, monthly, bi-monthly or semi-monthly.

Custodians:
Army - CR
Navy - EC
Air Force - 90

Review activities:
Army - AT
Navy - SH, AS, MC
Air Force - 13

User activities:
Army - SC
Navy - YD

Preparing activity:
NAVY-EC
(Project Number MISC-ND-98)

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APPENDIX A

Work Words 1/

10.0 Scope. One problem continuously encountered by writers is the choice of the most appropriate words to convey the precise thought in establishing work tasks and products. The word list provided in this appendix is not complete but is provided to stimulate the thinking of the SOW writer by pointing out the critical differences in the meaning of work word versus the product words identified in connection with deliverable data.

10.1 Work words. The following sample list contains words which have the inherent value of work. In other words, answer the questions, what are the work requirements? and what are the words that express this need explicitly?. This list is offered as a reminder of the various shades of meaning conveyed by choice of words. Be selective in the choice of words.

analyze	(solve by analysis)
annotate	(provide with comments)
ascertain	(find out with certainty)
attend	(be present at)
audit	(officially examine)
build	(make by putting together)
calculate	(find out by computation)
consider	(think about, to decide)
construct	(put together; build)
control	(direct; regulate)
contribute	(give along with others)
compare	(find out likeness or differences)
create	(cause to be; make)
determine	(resolve; settle; decide)
differentiate	(make a distinction between)
develop	(bring into being or activity)
define	(make clear; settle the limits)
design	(perform an original act)
evolve	(develop gradually, work out)
examine	(look at closely; test quality of)
explore	(examine for discovery)
extract	(take out; deduce, select)
erect	(put together; set upright)
establish	(set up; settle; prove beyond dispute)
estimate	(approximate an opinion of)
evaluate	(find or fix the value of)
fabricate	(build; manufacture, invent)
form	(give shape to; establish)
formulate	(to put together and express)
generate	(produce, cause to be)
install	(place; put into position)

(CON'T)

1/ A note of CAUTION. When selecting the key work word that properly expresses the degree of contractor involvement, the SOW writer must define explicitly the total nature of the work requirement as to WHAT is to be done. In some cases, the WHY or the APPLICATION of the results of the requirement may be stated IF it contributes to the clarity of need. Collectively, the requirement for the WHAT with the optional WHY or APPLICATION becomes the OBJECTIVE NEED.

It is not enough to include the needs with merely the work word. The SOW writer must identify the OBJECTIVE NEED together with the work CRITERIA identifying the influencing elements that are to be evaluated that may impact upon the OBJECTIVE NEED. In addition, the CRITERIA for the performance of the analysis, investigation, study or review, must be clearly established and identified in terms of, for example, specific INDICIES, governing STANDARDS, special PROVISIONS, promulgated DIRECTIVES (INSTRUCTIONS) or present and future CONDITIONS all of which prevail for consideration by the contractor in accomplishing his work task as designated.

The SOW writer must be mindful of his work closure in SOW preparation enabling the contractor to subsequently perform a NONPERSONAL SERVICE delivering an acceptable PRODUCT without supervision by the Government during his performance.

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inspect	(examine carefully or officially)
institute	(set up; establish, begin)
interpret	(explain the meaning of)
inquire	(ask, make a search of)
integrate	(to add parts to make whole)
investigate	(search into; examine closely)
judge	(decide; form an estimate of)
make	(cause to come into being)
manufacture	(fabricate from raw materials)
notice	(comment upon, review)
observe	(inspect, watch)
originate	(initiate, to give rise to)
organize	(integrate, arrange in a coherent unit)
perform	(do, carry out, accomplish)
plan	(devise a scheme for doing, making, arranging activities to achieve objectives)
probe	(investigate thoroughly)
produce	(give birth or rise to)
pursue	(seek, obtain or accomplish)
reason	(think, influence another's actions)
resolve	(reduce by analysis, clear up)
record	(set down in writing or act of electronic reproduction of communications)
recommend	(advise, attract favor of)
review	(inspection, examination or evaluation)
study	(careful examination or analysis)
seek	(try to discover; make an attempt)
search	(examine to find something)
scan	(look through hastily, examine intently)
solve	(find an answer)
trace	(to copy or find by searching)
track	(observe or plot the path of)

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(TO DETACH THIS FORM, CUT ALONG THIS LINE.)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER: MIL-HDBK-245B

2. DOCUMENT TITLE: Preparation of Statement of Work (SOW)

3a. NAME OF SUBMITTING ORGANIZATION

b. ADDRESS *(Street, City, State, ZIP Code)*

4. TYPE OF ORGANIZATION *(Mark one)*

- ☐ VENDOR
- ☐ USER
- ☐ MANUFACTURER
- ☐ OTHER *(Specify)*: _____

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional

b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional

c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional

8. DATE OF SUBMISSION *(YYMMDD)*

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