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MIL-HDBK-284-1
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MILITARY HANDBOOK

INTERACTIVE COURSEWARE (ICW) FOR MILITARY TRAINING, MANAGER'S GUIDE FOR DEVELOPMENT, ACQUISITION, AND MANAGEMENT OF

(PART 1 OF 3 PARTS)

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FOREWORD

1. This military handbook is approved for use by all Departments and Agencies of the Department of Defense.

2. Beneficial comments, recommendations, additions, deletions, and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 55Z3, Department of the Navy, Washington DC 20362-5101 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

3. Guidance provided in this document is not intended to supplement or duplicate policies and procedures in existing Federal, DoD, and Military Service regulations. Should conflict arise between this handbook and any of the previously mentioned regulations, the regulations take precedence.

4. This handbook on ICW development, acquisition and management was developed within the DoD with the assistance of military departments through the Joint Services Action Group (JSAG) to Develop Interactive Courseware (ICW) Data Item Descriptions (DIDs). It is designed to assist prospective DoD program managers and training system users in understanding acquisition and management requirements for the procurement of ICW using MIL-STD-1379, Military Training Programs. Information and guidance is provided to personnel responsible for the definition of operational training requirements and the development, acquisition, implementation and life cycle support of ICW. The handbook also supports the structuring of contract requirements using the task descriptions and data item descriptions prescribed by MIL-STD-1379 to achieve effective and efficient ICW acquisition within the DoD.

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INTERACTIVE COURSEWARE (ICW) CATALOGING AND REPORTING SYSTEMS

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1. SCOPE

1.1 <u>Scope</u>. This handbook describes all phases of ICW analysis, design, development, implementation, and logistic and life cycle support through the application of MIL-STD-1379 task descriptions and associated data item descriptions to appropriate contract vehicles. It is for guidance only.

1.2 <u>Application guidance.</u> This handbook takes a systems approach to the design, development, acquisition and management of ICW training materials. The program manager plays a critical role in each phase of the overall system. The handbook recommends a sequence of task performance and data delivery to acquire ICW training materials. It provides additional guidance on the application, tailoring and acceptance of MIL-STD-1379 task descriptions and deliverable data associated with training requirements analysis. ICW training programs should achieve a balance between operational need and total training costs. This handbook addresses several functional areas that relate directly to establishing and maintaining this balance.

1.2.1 <u>How to use this handbook.</u> This handbook provides information and guidance to new acquisition, program, contract, logistics support and training program managers on a wide range of subjects about training analysis, design, development, acquisition, and management of ICW for military training. The handbook describes issues which apply to many functional communities involved in each of these areas. This information and guidance applies to any ICW program acquisition. It applies to ICW included in the weapons system or training system acquisition. It also applies to ICW developed or contracted, and managed as a stand-alone training product. The information in Section 4, General Guidance, is used by anyone who defines ICW training program requirements. The Detailed Guidance in Section 5 focuses on acquisition and management of ICW training materials. The handbook appendixes contain information and guidance that supplements Sections 4 and 5.

1.2.1.1 <u>Appendix A, Front-end Analysis (FEA)</u>. This appendix discusses FEA requirements in terms of MIL-STD-1379 task process and data product criteria unique to and required to support the design, development and implementation of training and training materials in military training programs.

1.2.1.2 <u>Appendix B, ICW Design, Developmental, and Implementation</u>. The information and guidance contained in this appendix is intended to assist acquisition managers in defining contract requirements for inclusion in an ICW design, development and implementation (DD/I) acquisition package statement of work.

1.2.1.3 <u>Appendix C, Integrated Logistic Support</u>. The information and guidance contained in this appendix is intended to assist acquisition and program managers in defining contract requirements for inclusion in an interactive courseware (ICW) integrated logistics support (ILS)--ICW maintenance--acquisition package statement of work.

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1.2.1.4 <u>Appendix D, Interactive Courseware (ICW) Cataloging and Reporting Systems</u>. This appendix is reserved for future development of information and guidance on ICW cataloging and reporting systems. The appendix will include information on the Defense Automated Visual Information System (DAVIS) and the Defense Instructional Technology Information System (DITIS).

1.3 <u>Parts</u>. MIL-HDBK-284-1 is Part 1 of three parts. Part 2, MIL-HDBK-284-2, Interactive Courseware (ICW) for Military Training, Portability Practices for, is used with MIL-STD-1379 and this handbook to establish and implement standard ICW portability protocols. Part 3, MIL-HDBK-284-3, Interactive Courseware (ICW) for Military Training, Glossary for, contains definitions of all key terms, abbreviations, and acronyms used in MIL-HDBK-284-1 and MIL-HDBK-284-2. Part 3 also contains definitions of other terms related to military training and ICW.

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2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this handbook to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-D-28000	Digital Representation for Communication of Product Data, IGES Application Subsets
MIL-M-28001	Markup Requirements and Generic Style Specifications for Electronic Printed Output and Exchange of Text
MIL-R-28002	Raster Graphics Representation in Binary Format, Requirements for

STANDARDS

MILITARY

MIL-STD-129	Marking For Shipment and Storage
MIL-STD-490	Specification Practices
MIL-STD-961	Military Specifications and Associated Documents, Preparation of
MIL-STD-962	Military Standards, Hand books, and Bulletins, Preparation of
MIL-STD-963	Data Item Descriptions (DIDs), Preparation of
MIL-STD-973	Configuration Management
MIL-STD-1379	Military Training Programs
MIL-STD-1840	Automated Interchange of Technical Information
MIL-STD-2073/1	DOD Materiel Procedures for Development and Application of Packaging Requirements
DOD-STD-2167	Defense System Software Development

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HANDBOOKS

MILITARY

MIL-HDBK-59	Department of Defense Computer Aided Acquisition and Logistics Support (CALS) Program Implementation Guide
MIL-HDBK-245	Preparation of Statement of Work (SOW)
MIL-HDBK-248	Acquisition Streamlining
MIL-HDBK-284-2	Interactive Courseware (ICW) for Military Training, Portability Practices For (Part 2 of 3 Parts)
MIL-HDBK-284-3	Interactive Courseware (ICW) for Military Training, Glossary for (Part 3 of 3 Parts)

(Unless otherwise indicated, copies of military specifications, standards and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 <u>Other Government documents, drawings, and publications.</u> The following other Government documents, drawings, and publications form a part of this document to the extent specified herein.

PUBLICATIONS

FEDERAL

15 U.S.C. 637(a)	Small Business Act
31 U.S.C. 1535	Economy Act
OFPP Letter 79-4	Contracting for Motion Picture Productions and Videotape Productions
FAR	Federal Acquisition Regulation
INDEX	Index of Federal Specifications, Standards, and Commercial Item Descriptions

(Copies of the US Codes (U.S.C.), the Office of Federal Procurement Policy Letter 79-4, and the Federal Acquisition Regulation (FAR) are available from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402-0001. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription

basis by the Superintendent of Documents, US Government Printing Office, Washington, DC 20402-0001.)

DEPARTMENT OF DEFENSE

DFARS	Department of Defense FAR Supplement
DODISS	Department of Defense Index of Specifications and Standards
DOD 5010.12-L	DoD Acquisition Management Systems and Data Requirements Control List (AMSDL)
DoD Instruction 1322.20	Development and Management of Interactive Courseware (ICW) for Military Training
DoD Instruction 5000.2	Defense Acquisition Management Policies and Procedures
DoD Directive 5040.2	Visual Information (VI)
DoD Directive 5230.24	Distribution Statements on Technical Documents

DATA ITEM DESCRIPTIONS (DIDs)

DI-MGMT-80555	Program Progress Report
DI-ILSS-81070	Training Program Development and Management Plan
DI-ILSS-81072	Media Selection Model Report
DI-ILSS-81073	Training Equipment Requirements Document
DI-ILSS-81078	Mission, Collective, Individual, and Occupational Training Task Analysis Report
DI-ILSS-81080	Training Path System Report
DI-ILSS-81083	Learning Analysis Report
DI-ILSS-81084	Media Selection Report
DI-ILSS-81085	Test Package
DI-ILSS-81088	Training System Functional Characteristics Report

DI-ILSS-81091	Instructional Media Design Report
DI-ILSS-81092	Instructional Media Package
DI-ILSS-81093	Instructional Media Data Files
DI-ILSS-81105	Training Evaluation and Validation Report
DI-ILSS-81106	Training Material Change Package

(Copies of DoD Federal Acquisition Regulation Supplement (DFARS) are available from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402-0001. Copies of the DODISS are available on a yearly subscription basis either from the Government Printing Office for hard copy, or microfiche copies are available from the Director, Navy Publications and Printing Service Office, 700 Robbins Avenue, Philadelphia, PA 19111-5093. Copies of DOD 5010.12-L (on a subscription basis), DoD Instruction 1322.20, DoD Instruction 5000.2, DoD Directive 5040.2 and DoD Directive 5230.24 are available from the Navy Aviation Supply Office, Physical Distribution Division, 5801 Tabor Avenue, Philadelphia, PA 19120-5099. Copies of DIDs are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

DEPARTMENT OF THE NAVY

SECNAVINST 4130.2   Department of the Navy Configuration
                           Management Policy

(Copies of the Office of the Secretary of the Navy Instruction (SECNAVINST) are available from the Navy Aviation Supply Office, Physical Distribution Division, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

DEPARTMENT OF THE AIR FORCE

AFR 50-11   Management of Training Systems

(Copies of AFR 50-11 are available from the Air Force Publication Distribution Center, 2800 Eastern Boulevard, Baltimore, MD 21220-12989.)

2.2 Non-Government publications. The following document forms a part of this document to the extent specified herein.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3951   Packaging, Commercial

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(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1137.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

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3. DEFINITIONS

3.1 Key terms. Key terms used in this handbook are defined in Section 3 of MIL-HDBK-284-3.

3.2 Related terms. Additional terms related to ICW and military training, but not used as key terms in this handbook, are also defined in Section 3 of MIL-HDBK-284-3.

3.3 Abbreviations and acronyms. Abbreviations and acronyms used throughout this handbook are defined in Section 4 of MIL-HDBK-284-3.

4. GENERAL GUIDANCE

4.1 Introduction. Managers achieve successful ICW design, development, acquisition, and management when they become involved with the requiring activities as soon as ICW requirements are identified. An accurate definition of ICW requirements and efficient management of ICW training programs requires the cooperative involvement of all principles involved in defining program requirements.

a. This handbook supports the acquisition of ICW training programs using MIL-STD-1379, Military Training Programs. It describes the application of MIL-STD-963 to develop Type III DIDs, and of MIL-STD-1840 to define the structure of data delivered in a digital form. Information and guidance sequentially leads new acquisition, training, and program managers through the complete ICW acquisition and management process. The process begins with a description of front-end analysis (FEA) done using MIL-STD-1379 task descriptions. The handbook describes FEA requirements critical to successful ICW design, development and implementation effort.

b. The handbook describes the critical and complex process of defining capabilities and performance requirements. It describes the requirements and considerations for the formal acquisition process, contract management, and final test and acceptance of the contractor's work.

c. Three types of training program-related acquisitions are described: Front-end analysis (FEA); ICW Design, development and implementation (DD/I); and ICW Integrated logistic support (ILS) (Courseware maintenance). The manager who is involved in a training program acquisition, or design and development effort which may include ICW must realize that these efforts are inter-related with each other. The requirements and considerations of each type should be addressed in a successful ICW acquisition.

4.1.1 ICW development and acquisition staff. A successful ICW design and development, or acquisition effort requires team members with skills in FEA, ICW design and development, and ICW implementation. The program manager and subject matter experts should receive training in ICW design and development and ICW program management, respectively. Formal training is available through either the Army or the Air Force. You can get quota allocation and other information about these courses by contacting the following agencies.

a. Army: COMMANDER
             U.S. Army Training Support Center
             ATTN: ATIC-ETM-C
             Fort Eustis, VA 23604-5168

b. Air Force: 3300 TCHTG/TTOC
               Keesler AFB, MS 39534-5000

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4.2 Acquisition system overview. This handbook describes a systematic approach to define requirements for, and to design, develop, acquire, and maintain ICW training program materials over their life cycle. This approach includes requirements definition and analysis processes, procurement processes, design and development processes, and life cycle support processes. The handbook includes information relating to procurement requirements to gain understanding of the overall acquisition system. You should consult with your contracting officer whenever specific and factual procurement information is needed because this information is subject to frequent change.

4.2.1 Procurement official responsibilities. Civilian and military procurement officials should conduct themselves in a manner maintaining the integrity of the procurement. This applies during the procurement process and for specified periods after award, amendment, and extension of a contract. To assure procurement officials are aware of their individual responsibilities, they should complete various certificates which become a permanent part of the procurement record. Procurement official applies to any civilian or military official or employee who has participated significantly in the conduct of the procurement. This includes all officials and employees who are responsible for reviewing or approving the procurement. This includes any civilian or military official who has participated significantly in the following activities:

    a.   Development of acquisition plans;

    b.   Specification, statement of work, or purchase description/request development;

    c.   Development of solicitation or contractual provisions;

    c.   Evaluation or selection of a contractor; or,

    e.   Negotiation or award of a contract, or modification or extension to a contract.

4.2.2 Protected information. Manufacturer's proprietary information provided in vendor proposals, and information dealing with the Government's source selection process and decisions, should be protected. Protected information includes: listings of offerors and prices, list of bidders prior to opening sealed bids, source selection plans, technical evaluation plans, technical evaluations of competing proposals, competitive range determinations, vendor proposal rankings in negotiated contracts, source selection board reports and evaluations, and source selection advisory board recommendations.

    a.   Source selection and proprietary information should be protected and appropriately marked.

    b.   Source selection and proprietary information should be protected once a procurement begins. A procurement is considered to have begun when one or more of the following actions have taken place:

        (1)   Convening of a formal acquisition strategy meeting;

(2)   Development of an acquisition plan;

(3)   Development of a statement of work;

(4)   Development of specifications specifically for instant procurement; or,

(5)   Publication of the agency's intent to develop or acquire systems, subsystems, supplies or services.

4.2.3 Acquisition planning overview. Figure 1 shows the typical ICW acquisition process using a negotiated procurement. The acquisition process begins when an activity defines a training need or requirement and determines the need should be met through a contracting effort. The process ends when the final training product has been accepted and delivered to the requiring activity, and management control systems have been established. Once a statement of need has been reviewed and validated, actual requirements must be identified and quantified.

4.2.3.1 Requirements definition process overview. The definition of requirements for Section C of the solicitation/contract package is the single, most important aspect of the ICW acquisition process. The accuracy and adequacy of Section C ICW training program requirement descriptions significantly effects an offeror's ability to estimate and cost the work effort required. Because of this, requirements definition is emphasized throughout this handbook. Defining requirements unique to ICW training program design and development begins with the identification of FEA training analysis requirements. These FEA requirements are described to assure that analysis information critical to design and development efforts is identified and documented during the training task analysis and learning analysis. Requirements definition is addressed in 4.3 of this handbook and in handbook Appendixes A, B and C.

4.2.3.2 ICW requirements definition overview. The processes and decisions necessary to determine training analysis are addressed in Appendix A, front-end analysis (FEA) requirements, and Figure A-1. ICW design, development and implementation requirements are described in Appendix B, ICW design, development and implementation requirements, and Figures B-1 and B-2. Appendix C and Figure C-1 address ICW Integrated logistics support requirements. Figures A-1, B-1, B-2, and C-1 are detailed logic diagrams that identify both the MIL-STD-1379 SOW task description requirements, and the documents produced and delivered during performance of those work tasks.

a.   Each appendix and logic diagram identifies critical documents which are required inputs to the processes outlined in later appendixes. For example, the products produced by the work effort described in Appendix A are inputs to Appendix B processes. The output products from Appendixes A and B are inputs to Appendix C requirements.

b.   Appendix A, Figure A-1, FEA requirements definition, describes the up-front processes beginning with the statement of need prepared by the user

community. The process follows the definition of FEA requirements using MIL-STD-1379 task descriptions. Note that Figure A-1 does not include "ICW" in its title or processes. Since this figure deals only with FEA, the appropriate training media has not actually been determined. There are certain program requirements which are not normally analyzed and documented, but which are crucial to completing ICW design and development. These unique requirements are especially critical to ICW simulation and gaming design strategies.

c. Appendix B, Figure B-1, ICW design requirements definition, continues the definition process. Figure B-1 follows the requirements definition process for ICW design tasks. ICW design, development and implementation requirements are addressed separately because there are many variables associated with determining ICW design requirements. The design work addresses all possible applications and implementation scenarios for the completed ICW program.

d. Appendix B, Figure B-2, ICW development and implementation requirements definition, builds upon the analysis and design products identified in Figures A-1 and B-1. It identifies the products necessary to develop and implement ICW training program materials.

e. Appendix C, Figure C-1, ICW ILS requirements definition, identifies life cycle support (courseware maintenance) requirements. This assures adequate logistic support and management is planned and provided for over the life cycle of the ICW system.

f. When the output products and documents identified in Figures A-1, B-1, B-2, and C-1 are not available or are not current, appropriate task descriptions from MIL-STD-1379 are required to produce or update these products and documents. The logic diagrams address this requirement.

4.2.4 Procurement process overview. The procurement process begins when an activity has determined that a contract vehicle will be used to satisfy the requirements. Figure 1 shows the typical negotiated procurement process and associated procurement milestones. This process is described in the following paragraphs.

4.2.4.1 Planning. Procurement planning is the first and most important step after requirements are defined and options analyzed. Whether a formal acquisition plan or program management plan is required is determined by the total value of the contract and agency directives. The FAR/DFARS, Part 7/207, describes the requirements for a formal acquisition plan. Whether or not a formal acquisition plan is required by the FAR/DFARS, written acquisition plans should be seriously considered that document major planning requirements. The requirements definition phase includes defining capabilities and performance requirements. Background information is gathered to determine and plan an effective and efficient acquisition. The formal acquisition plan required by the FAR/DFARS

is reviewed and approved by an appropriate authority. Plan approval is the first milestone date established in the acquisition plan. Acquisition planning is described in 4.7.

4.2.4.2 <u>Solicitation package preparation.</u> Once the acquisition plan is approved, steps are taken to finalize the solicitation package. Figure 1 shows this action after plan approval. It is, in reality, a concurrent action with plan development. The same team of experts is formed to develop both the acquisition plan and the solicitation package. They will also address many of the same issues. It is, therefore, logical to combine these efforts whenever possible. The solicitation package should be completed before the second milestone date. The solicitation package is described in 4.8.

4.2.4.3 <u>Approval to proceed.</u> Approval to proceed with the acquisition is obtained after the solicitation package is assembled and before the package is sent to the contracting officer for action. Approval to proceed involves: (1) preparing and issuing the purchase request, (2) completing internal reviews and obtaining internal approvals, (3) processing and obtaining justifications and approvals for other than full and open competition, and (4) obtaining funding or the promise of funding from the agency comptroller. Completion of these approval processes is typically the third acquisition plan milestone.

4.2.4.4 <u>Issue synopsis.</u> The contracting officer prepares and issues a synopsis of the Government's requirements and notice of intent to contract for these requirements before issuing a solicitation to industry. The synopsis is published in the Commerce Business Daily (CBD) (FAR, Part 5). When it is determined necessary, the contracting officer schedules a pre-solicitation conference and announces it in the synopsis. The pre-solicitation conference is used to obtain information pertinent to solicitation development.

4.2.4.5 <u>Issue solicitation.</u> After the synopsis has been published and potential vendors have been identified, the contracting officer distributes the solicitation package. When the solicitation includes complex requirements, the contracting officer may elect to conduct a pre-proposal conference. This conference provides potential vendors an opportunity to get clarification of the Government's requirements.

4.2.4.6 <u>Evaluate proposals.</u> Vendor proposals are typically received by the date specified in the solicitation package, plus any extensions due to solicitation amendments. The proposals are evaluated according to the approved source selection plan. If the ICW acquisition includes delivery systems, the evaluation process may include live test demonstrations or first article testing of the offered hardware. The amount of time required to complete this evaluation process varies with the complexity of the requirements. Source selection based upon best value may also require additional evaluation time. If the evaluation team requests clarification of proposal contents, additional time is needed to request, receive and evaluate these clarifications. Once the evaluation of pertinent factors is done, the evaluation results are documented and submitted to the source selection authority (formal source selection) or the contracting officer. Paragraph 4.10 provides more information on proposal evaluation.

4.2.4.7 Negotiations. Once proposals are evaluated, the contracting officer reviews the source selection documents and any additional reports which may have been done. The contracting officer identifies those technically acceptable proposals considered to be in the competitive range and prepares a pre-negotiation objectives memorandum. The memorandum documents the price goals and any other objectives for the negotiation process. The contracting officer then enters into negotiations with those vendors. The negotiations are accomplished by correspondence or during face-to-face meetings with each vendor in the competitive range. The contracting officer may negotiate any part of the vendor's proposal to include technical, management and cost proposal. When the contracting officer has completed negotiations, vendors in the competitive range can be asked to submit a Best and Final Offer (BAFO). When a BAFO is requested, the final offers are re-evaluated. The negotiation process is accurately and thoroughly documented. The negotiation process and selection of the winning proposal is completed on or before Milestone 7. Additional information on negotiations and the contract award process is in 4.11.

4.2.4.8 Prepare, review and clear the contract. The final contract is written to include the final terms and conditions resulting from negotiations with the winning vendor. The contract is then routed for mandatory reviews. Depending on the total value of the contract, the contracting officer may have to submit a report to Congress before the contract can be awarded. The time required to complete this action (Milestone 8) varies considerably based upon the complexity and total value of the contract.

4.2.4.9 Award contract. Contract award (Milestone 9) is the last milestone required by the FAR in the formal acquisition plan. There are, however, many additional actions required to manage the contractor's performance and to accept delivery of the final supplies or services.

4.2.4.10 Contract management planning team and in-process reviews. The contract management planning team meeting (kick-off meeting) is a recommended way to assure you and the contractor get off to the right start. Use this meeting to introduce key Government and contractor program management personnel. The kick-off meeting is a good vehicle for establishing open and effective communication between the key players. It is a convenient time to provide GFI and discuss actual dates and locations for delivery of GFP. IPRs are interim quality assurance measures. IPRs are conducted at critical times during contract performance to assure that the work effort is proceeding according to the contract. IPRs should not be confused with normal contractor progress reports. IPRs afford both the contractor and the Government assurances that contract performance is acceptable and proceeding according to the SOW and delivery schedule. IPR milestones are determined by the type of ICW contract being managed and the data delivery dates established in the CDRL.

4.2.4.11 Acceptance. The final action in the ICW acquisition cycle is evaluation and acceptance of the contracted supplies or services. This action is done to verify that the final goods and services meet the requirements outlined in the SOW. The contractor

provides final copies of all contract deliverables at this time, unless the CDRL provides for a later delivery.

4.3 <u>Program requirements definition process.</u> Requirements definition covers a wide range of actions that identify necessary capabilities and performance requirements. The requirements definition process provides information used to determine that contracting is the best way to satisfy that need. Some activities use contracting to accomplish all or a portion of program requirements definition. The actions accomplished during requirements definition include:

a. Define the basic requirement in terms of the type of training, for example, operations, maintenance or team. Constraints such as money, facilities, personnel and safety must also be identified. The target population is identified and quantified. Whether or not validated instructional materials are available in-house or from other sources is determined. Finally, determination is made regarding the media required by the sponsoring activity - either a specific type or media idea.

b. The reported problem is analyzed to determine or verify that a training solution is needed.

c. Logistic support and configuration management issues are addressed. Decisions appropriate for the specific acquisition are made before completing the requirements definition process. Many of these decisions affect the future supportability and subsequent life cycle of the ICW. Training system acquisition and life cycle costs are affected.

d. Options or trade-offs, probable risks, and costs associated with the acquisition should be determined in order to select the best contract type and approach. Whether or not there are qualified contracting sources available, and how the best source will be selected, should also be decided.

e. The capability and availability of in-house resources to accomplish all or portions of the program requirements should also be considered. Appropriate tasking should be accomplished when in-house resources are capable and available to perform some or all of the required work, such as front-end analysis.

f. Requirements definition includes identifying deliverable data requirements. It includes determining how the contract will be managed. Finally, requirements definition determines how the final product or service will be evaluated to assure that the Government's requirements have been met.

g. When these and several other actions are completed, you are ready to develop the acquisition plan and begin the actual acquisition process. The definition of requirements and options is information that you

include in the acquisition plan under the title "Acquisition Background and Objectives" (see 4.7.2.1).

4.3.1 <u>Information sources.</u> Gathering sufficient information to support an adequate requirements definition is an important step in the requirements definition process. By assuring all available information is gathered and analyzed, unnecessary and redundant requirements and capabilities are identified and eliminated.

4.3.1.1 <u>Requiring user.</u> The requiring user activity is usually the best source of information about program requirements. This activity is contacted to gather detailed information about what is needed and what is available to satisfy all or part of their training program needs. They are also the best source of technical information about the requirement. Much of the information you obtain from the requiring activity is input data to support accomplishing the work required by MIL-STD-1379 task descriptions. If this information is not available, additional contract work requirements are necessary to develop that information. The using activity should provide the following kinds of information relevant to the specific training program requirements.

a. Target population information to include data on the occupational skill areas and specific skill levels of the personnel who require the training, where these people are located (geographically), how many personnel require training in each occupational skill and skill level, the required proficiency level for each occupational skill level, and the entry-level knowledge and skills each skill level possesses.

b. The type of training required (such as, operations, maintenance, team) for each occupational skill area, and the operational and maintenance concepts affecting the depth and detail of training.

c. Constraints impacting media selection, acquisition strategies and planning. Some constraining factors might include available funding, available facilities, job performance and training environment/ conditions, personnel availability, and safety factors. Other constraints to consider are the desire for a specific type of ICW media, desire for a specific instructional approach, a requirement to use or be compatible with an existing ICW device, courseware portability across two or more ICW devices, and other factors which could affect ICW analysis, design, development, implementation, procurement and management decisions.

d. Availability (in-house or from another agency) of validated instructional materials and ICW devices supporting training on a similar system, equipment or subject. Information on similar training systems includes available course control documentation that is provided to the contractor as GFI. This GFI reduces the overall level of effort necessary to accomplish contract work requirements.

e.   Whether or not the user activity has the capability and resources to perform any portion of the analysis, design or development effort.

f.   Recommended validation and evaluation sites and the availability of qualified personnel to serve as subject matter experts to assist in evaluating vendor proposals and contractor performance.

4.3.1.2 <u>Similar training courses and equipment.</u> When the user activity identifies that training courses and equipment supporting training on similar systems, equipments or subjects is available, available course control documentation should be obtained. This is especially true when the training materials include ICW. Every effort should be given to obtaining copies of all analysis, design, development and configuration management documentation for each similar course. Personnel and other resource support requirements, schedules and any other information about the conduct, cost and support requirements of these similar training programs should be obtained if possible.

4.3.1.3 <u>ICW data search.</u> Before starting to acquire ICW, the acquisition manager should check external information sources for existing ICW materials that may satisfy all or part of the training requirement. This search is documented, to include specific checks accomplished. Two cataloging systems are used within the DoD to document ICW that is available or in development. The Defense Audio/Visual Information System (DAVIS) is used to catalog ICW visual information. The Defense Instructional Technology Information System (DITIS) currently being developed by the DoD is used to catalog the ICW training program once DITIS becomes operational (see 5.6.3). Commercial courseware may also satisfy Government requirements. Any potential source of ICW is explored before deciding to develop the courseware in-house or through contract.

4.3.1.3.1 <u>DoD courseware search.</u> ICW and video resources which may be applicable to your particular training requirement are cataloged in either DAVIS or DITIS systems, as described in the preceding paragraph. Each of these reporting and cataloging systems is addressed in 5.6.3.

4.3.1.3.2 <u>Commercial ICW.</u> Locating commercial ICW to meet the Government's training requirements is not straight-forward. There is no central catalog system to check. However, several commercial sources are available. Vendors have negotiated both ICW purchase and library contracts with the General Services Administration (GSA). There are professional ICW courseware and hardware organizations that may provide you other possible information sources. Two such organizations are the Society for Applied Learning Technology (SALT), 50 Culpepper Street, Warrenton, VA 22186, telephone (703) 347-0055, and the Interactive Multimedia Association (IMA), 3 Church Circle, Suite 800, Annapolis, MD 21401-1933, telephone (410) 626-1380.

4.3.2 <u>Training program requirements.</u> Identify training program requirements using the processes and guidance in Appendixes A, B and C of this handbook. There are factors associated with ICW training program requirements which may not be readily apparent to acquisition managers who lack ICW experience. These ICW-related considerations can

significantly impact the overall efficiency and cost of ICW. The appendixes describe these considerations in conjunction with the MIL-STD-1379 task descriptions and DIDs affected by these ICW program factors. How each factor affects and is applied is determined by specific program requirements.

4.3.3 Logistics support requirements. Logistics support planning is an important part of any acquisition, whether it is a major weapons system or a logistics element such as training. Logistic support is an integral part of ICW acquisition and operation. It is essential to provide a composite of all elements necessary to assure its effective and economical life cycle support. Areas addressed during logistics planning, and required elements of the formal acquisition planning process (FAR/DFARS, Part 7/207), include:

a. The assumptions used to determine if contractor or agency logistic support will be used, both initially and over the ICW training program life cycle,

b. Reliability and maintainability (R&M) and quality assurance requirements, including the planned use of warranties,

c. Requirements for contractor data (including repurchase data) and data rights, their estimated cost, and the intended use of the data (a very important consideration in an ICW acquisition),

d. Standardization concepts including the need to designate the item as a standard in accordance with agency procedures, or technical equipment (the ICW delivery system) as a standard so that future purchases of compatible equipment or from the same source can be made, and

e. The extent that the DoD Computer-aided Acquisition and Logistics Support (CALS) program will be implemented. CALS requirements and capabilities are in MIL-STD-1840 and MIL-HDBK-59.

4.3.3.1 Support and maintenance requirements. Decisions about who will maintain critical ICW documentation, establish necessary configuration controls and maintain the finished courseware are often left up to the user organization. This organization is often tasked without adequate definition of what support and maintenance actions are necessary. ICW management requirements are described in 5.6.

a. Prior to developing or procuring vast amounts of ICW training materials, an activity should be identified to manage and maintain the finished ICW materials. Normally, this would be the using activity. However, when the ICW will be implemented in several different activities, assigning maintenance and management responsibilities is not clear-cut.

b. When the ICW supports an emerging system or equipment, you should consider how dynamic the emerging system or equipment configuration is in terms of future modifications and changes. History indicates that

production models undergo several major modifications and changes within the first couple of years after deployment. You may want to include provisions for ICW program maintenance in the initial development contract. The expected cause for change and the probable complexity of those changes are important considerations. Regardless of how courseware maintenance requirements are met, it is determined up front.

4.3.3.2 Life cycle support. The cost of operating and maintaining a system or equipment over its useful life is substantial. It can be greater than the acquisition cost, especially for ICW program materials. Because ICW can have a great impact on life cycle support costs, life cycle support requirements and its associated costs are carefully considered during design, development and acquisition planning. ICW life cycle support issues are identified and carefully considered during the requirements definition and acquisition planning phases. Critical factors are integrated into the source selection criteria. Life cycle costs are evaluated during source selection in accordance with the DFARS, Part 207.

4.3.3.2.1 ICW life cycle support. ICW ILS issues and requirements are described in Appendix B in conjunction with MIL-STD-1379 task descriptions and DIDs relating to ILS requirements. Appendix C, ILS requirements definition, describes life cycle support in terms of courseware maintenance. The acquisition, storage, and maintenance of ICW training program analysis, design, development and implementation documents is critical to a sustained support capability. In addition to courseware life cycle support considerations, there are several considerations affecting life cycle support of the delivery system.

a. Initial support items. Initial support items to consider include component spares and consumable item source of supply over the system's expected life cycle. When the device will be a non-developmental, commercial off the shelf system, provisions are included in the contract to require vendor support of spares and system-unique consumables for the expected life cycle of the device.

b. Support equipment. Items such as special tools and test equipment. The acquisition and maintenance/calibration of these items should be considered.

c. Known or expected upgrade and enhancement requirements. ICW delivery systems are often acquired based upon a specific set of capability requirements. Systems are often configured with the intent of enhancing system capabilities at some point in the future to support emerging technologies and instructional designs. For example: adding Compact Disk drives, expanding the RAM, converting to the POSIX operating system, upgrading the video and graphics board and monitor, or adding additional storage devices (WORM drives, hard disk drives). These future planning considerations are defined and documented during the logistics planning effort to assure: (a) the hardware is capable of supporting the intended enhancements, (b) the manufacturer intends or will be contractually required

to support the future upgrade requirement, (c) the authoring system or language version employed will support the enhancements, and (d) the hardware ROM-BIOS and operating system will support the enhancement. Failure to adequately address each of these areas can result in ICW delivery systems that are not adaptable or upgradable to support future training requirements, or new technologies and instructional designs.

d. Utilization or repurposing of existing delivery systems. The ICW can be delivered on an existing hardware suite, or existing hardware can be upgraded or repurposed to support the new ICW requirement. Each of the hardware upgrade issues described in (c) is evaluated concerning the existing systems. The evaluation addresses the feasibility and practicality of this action, and defines initial logistics support needs. If the actions indicated in (c) were accomplished and properly documented during system acquisition, this evaluation is relatively simple.

4.3.3.3 Integrated logistics support plan (ILSP). Whether or not you will have to develop a formal ILSP for your ICW acquisition depends on agency directives. However, consider the potential impact of ILSP areas during the requirements definition process. Failure to adequately address logistics support issues can lead to support problems in the future and considerably greater life cycle costs. Logistics planning and the ILSP address maintenance planning, technical data, personnel requirements and training, contractor Engineering and Technical Services support and life cycle support. The contractor can develop the ILSP under the provisions of MIL-STD-1379 Task 102. The plan is prepared in accordance with DI-ILSS-81070, Training Program Development and Management Plan.

4.3.3.3.1 Maintenance. Maintenance planning should address all aspects of logistics support including reliability and maintainability (R&M), safety and human factors.

a. Equipment (ICW delivery systems) maintenance considerations include the maintenance concept (contractor or agency maintenance, maintenance levels, remove and replace) to be used and support equipment required for agency maintenance support. Maintenance of commercial off the shelf devices should address spares and unique consumables, as described earlier.

b. Courseware maintenance considerations are important for ICW programs that support an evolving weapon system or equipment. Evolving systems and equipment are usually subject to more frequent upgrade and modification actions which affect the validity of the courseware and drive courseware maintenance actions. ICW maintenance issues include: (1) the authoring system or language and version, (2) graphics software used to develop graphic screens and version, (3) acquisition and storage of the resource video materials used to develop applicable interactive videodisc(s) and graphic screens, (4) acquisition and storage of spare videodiscs if applicable, (5) acquisition and storage of ICW design documents to include

Media and format, and (6) acquisition and maintenance of the
uncompiled source and object code for Instructional Media Data Files
prepared in accordance with DI-ILSS-81093.

4.3.3.3.2 <u>Technical data.</u> Technical data requirements must be addressed both from
the standpoint of defining deliverable data requirements and maintenance. Depending
upon the planned maintenance concept, it may be necessary to obtain technical data on
the ICW hardware to include: (1) a parts catalog, (2) applicable commercial manuals, (3)
"as-built"/"as-installed" and maintenance drawings on integrated and networked systems,
and (4) user documentation. There are technical data requirements associated with each
of the courseware maintenance issues noted above.

4.3.3.3.3 <u>Personnel staffing.</u> Staffing considerations address any manpower
requirements associated with operating and maintaining the hardware system and
courseware after implementation. Life cycle personnel requirements are included. When
these requirements are met through another contract, that contracting effort is described
in the logistics support plan.

4.3.3.3.4 <u>Training.</u> Training requirements associated with implementation and life
cycle support of the ICW and delivery systems should be included in the plan. Three
training categories are considered: instructor, maintenance, and software
programmer/analyst training. Instructor training may be required on the complete and
proper use of the courseware and delivery system. This is especially important on
networked systems that include provisions for instructor intervention in individual student
lessons, or modification of lesson content. Programmer/analyst and courseware
maintenance personnel training may be required for limited software modifications,
especially when the contractor developing the courseware will develop support software.
Training documentation requirements are also included.

4.3.3.3.5 <u>Configuration management.</u> Interactive courseware, hardware and software
configuration management requirements are included in the ILSP to assure adequate
consideration of all configuration management and control requirements. Detailed ICW
configuration management requirements are addressed in 5.6.2. These detailed
requirements are reviewed during ILSP requirements definition.

4.3.3.3.6 <u>ILSP for ICW systems.</u> Logistics support planning for ICW systems should
address each of the support are as described above. Figure 2 provides a sample outline of
an ILSP for ICW systems. The outline provides broad guidance on ILSP content
requirements. You should use this ILSP as a guide to develop an ILSP for your ICW
acquisition.

4.3.4 <u>Contract management requirements.</u> The acquisition process does not end with
award of the contract. Contractor performance is tracked and managed to assure the final
product or service is delivered on time. The purpose of contract management planning is
to define the methods and procedures used to monitor contractor performance from
contract award until final test and acceptance of the ICW. The following paragraphs

discuss management processes used to manage contractor performance. Specific recommendations for planning and conducting management reviews are provided in Appendixes A, B and C.

4.3.4.1 Progress reports. Periodic contractor progress reports indicate the current status of work performance as of the close-out date of the report.

a. Progress reports provide a means to track completion of contract requirements and identify potential problems in meeting performance and delivery schedules. Progress reporting requirements are identified in the SOW, Section 4, and should be tied to contract management needs rather than to simply require weekly/monthly reporting.

b. DoD policy is to let the contractor determine how to manage. Progress reports are only required at intervals necessary to track performance of the primary SOW efforts. The specific report due date and report content is determined by work performance status being reported in relation to the SOW performance schedule, such as, major performance milestones. You may consider linking progress reports to the start or completion of specific work tasks rather than to a number of work days after award. The key determinant of progress report due dates is what information is needed, when is it needed, and whether or not you intend to do anything about the information (good or bad) when you get it. If you plan to initiate management actions based on receiving a particular deliverable by a certain date, set that date as the report due date. To prevent unnecessary reporting, consider including a provision that the report is not required if a specific CDRL item is delivered and accepted before that date.

c. This report scheduling approach reduces contractor workload and Government costs. Reports are received when you need them and intend to act on performance problems. Progress reports become routine and unused when the report frequency results in questionable information.

4.3.4.2 Relationship to deliverable data. Certain ICW deliverable data keys Government review and approval procedures outlined in the contract. These deliverable review and approval processes are good management indicators. They indicate how well the contractor is performing when correlated to the contract delivery schedule. The review and approval of deliverable data may be conducted as part of an in-process review. This review would provide both quantitative and qualitative contractor work performance information. Contract management reports, in-process reviews and data delivery schedules are viewed as a collective management process that is most efficient when all reporting, review and delivery requirements are coordinated.

4.3.4.3 Contract management planning team (Kick-off) meeting. The "kick-off" or initial meeting between the Government's and the contractor's key personnel is beneficial

from the standpoint of establishing communications. If your contract management strategy includes a kick-off meeting, meeting responsibilities and requirements are included in the contract package. Be sure to specifically indicate who is to attend by their position in the Government's and contractor's management structure. Management planning meetings provide you the opportunity to address several management and contract administration subjects.

a. The media for original and reproducible copies of the deliverables is clarified at this time. You might prefer, for example, that the reproducible copies be delivered on computer disk in a particular word processing program format. Because of the large volume of deliverable data generated in ICW design and development, you should consider deferring delivery of all final copies of reports, analyses, flow diagrams, script-storyboards and other documentation until after final acceptance of the courseware. Then, have these deferred deliverables updated to reflect the approved ICW and consolidated on a large capacity digital medium, such as a Compact Disk (CD). If a storage medium like CD will be requested, be sure to indicate the media format standard (such as, High Sierra CD standard) required.

b. Define actual dates and locations for delivery of GFP or contractor access to Government facilities and personnel.

c. When payments to the contractor are determined by specified deliverables, the kick-off meeting is a good time to make sure the contractor understands the specific requirements to be met before payment will be approved, and the documents required.

d. The kick-off meeting is an appropriate vehicle for you and the contractor to review and discuss the final contract package. Several changes are incorporated into the solicitation/ contract package through the negotiation process; this is a good time to make sure everyone understands them. The SOW and CDRL should receive specific attention.

e. The kick-off meeting gives you an opportunity to identify persons assigned to key contractor and Government contract management positions. Key individuals can meet and know each other - definite communications enhancement.

4.3.4.4 In-process reviews (IPR). Joint Government and contractor IPR of critical analysis, and ICW design, development, implementation, and management documents provide excellent opportunities for the acquisition manager to understand and discuss contractor progress. IPRs may take the form of Preliminary and Critical Design Reviews (PDR/CDR) when the IPR will concern critical documents and deliverable data. Specific IPR recommendations are included in handbook appendixes.

a. Schedule ICW IPRs with established contract milestones and delivery dates for critical documents like the Instructional Media Design Report, DI-ILSS-81091. Schedule IPRs to review design documents for groups of lessons or instructional modules.

b. Select participants in ICW IPRs for their specific, relevant expertise. Retain IPR members throughout the contract term whenever possible.

c. Use IPRs judiciously. They require a considerable expense in both personnel time and travel costs. When an IPR is scheduled, consider excluding any scheduled progress report due at the same time. This is redundant management, and wastes both time and money. Limit IPRs to only those essential to contract management, and critical ICW design and development points.

4.3.5 Performance and delivery schedule requirements. Acquisition schedules vary depending upon many factors. Several of these factors have been described. Acquisition scheduling includes delivery and performance schedules identified in Section F of the solicitation package. It also includes data delivery schedules in the CDRL.

4.3.5.1 Scheduling considerations. The time of delivery or performance is an essential element of the contract. Clearly state delivery times in the solicitation. It is important that delivery schedules be realistic and allow adequate time for performance within the needs of the acquisition. Unreasonable scheduling restricts competition, discourages small business participation, and can result in higher contract prices. Give specific attention to ICW training objectives that require higher categories of interactivity (for example, gaming). Training objectives that require highly interactive design strategies also require more time to design and develop.

4.3.5.2 Scheduling factors. Delivery and performance schedules are expressed as specific calendar dates or periods from the date of contract award. Consider the following factors when establishing ICW acquisition and delivery schedules.

4.3.5.2.1 Urgency of need. This is a factor when the requiring agency has identified and justified a short acquisition lead time due to a critical mission requirement. When the urgency constrains the delivery schedule, fewer vendors are capable of contract performance because of the increased number of ICW-qualified instructional designers and developers required. Short lead time requirements may result in increased costs because additional skilled personnel are hired at above normal salaries.

4.3.5.2.2 Production time. Realistic delivery schedules are needed for the length of time allowed for work performance. Realistic schedules eliminate or reduce the need to hire additional personnel. The category of interactivity required to meet more complex ICW training objectives also needs more production time. Gaming simulations require more time than is needed to design and develop a drill and practice, or simple process simulation.

4.3.5.2.3 Market conditions. A strong market could result in qualified contractors not bidding on a time restrictive contract. A strong market could also restrict the availability of ICW-qualified design and development personnel.

4.3.5.2.4 Transportation time. The geographical separation between you and the contractor's facilities directly affects normal mail and transportation services time. If the contractor is located across country from you, it is unrealistic to set up schedules that allow only one or two days mail or transportation time. It can be done, but with increased cost. Consider transportation and mailing lead times when setting up delivery schedules, especially when setting up review and return schedules for deliverable data. Identify potential offerors during acquisition planning and evaluate the effects of transportation times on your schedules. Another option is to have the vendors give delivery schedules as part of their proposal.

4.3.5.2.5 Industry practices. Standard industry practices are considered since these practices may require more time to complete ICW contract work requirements than experience with more traditional training medias would indicate. Standard industry practices may also accomplish the necessary work in less time. Some vendors may have developed more efficient methods for accomplishing the work requirements. Improved ICW design and development techniques are continuously developed and implemented in this highly competitive industry.

4.3.5.2.6 Capabilities of small business concerns. Unrealistic delivery and performance schedules can place small business concerns at a competitive disadvantage. While this factor is not a major concern when addressing urgent requirements, it is valid for meeting your activity's established small business support goals. The small business advocacy office can help evaluate the impact of short lead time schedules on small business and small disadvantaged business concerns.

4.3.5.2.7 Solicitation and contract award administrative time. You must provide vendors adequate time to prepare good, responsive proposals. The Government also needs enough time to evaluate proposals, and complete the negotiation and award processes. This factor is important for ICW programs with a large amount of highly interactive materials. Allow enough time for vendor proposal preparation and Government evaluation in the acquisition schedule. Restrictive schedules may reduce the quality of vendor proposals. Hurried Government proposal evaluations may not select the best proposal for contract award.

4.3.5.2.8 Prior contractor actions. When the contract requires the contractor to complete some preliminary tasks before beginning actual contract work, allow enough time to perform those tasks. The SOW might, for example, require the contractor to verify the adequacy of GFI before beginning work. A schedule that requires simultaneous work using that GFI is unrealistic.

4.3.5.2.9 Government obligations to the contractor. When the contract requires the Government to provide decisions and approvals, or other actions impacting contractor

work performance, allow enough time in the schedule for the Government to complete these actions. IPRs and approval of critical design documents is required in ICW contracts. Be sure you give enough time to complete them. This is especially important when the Government must approve a report or document before the contractor may proceed. Government-induced delays give the contractor a valid basis for requesting additional funding.

4.3.6 <u>Specifications. standards and handbooks.</u> There may be specifications, standards and handbooks applicable to your ICW program requirements that you want to include in the solicitation/contract package. There are, however, requirements to consider when selecting and applying these documents.

4.3.6.1 <u>Application of specifications and standards.</u> Justify the use of specifications and standards before you include them in the Applicable Documents section of the SOW. These documents are major cost drivers. It is DoD policy to select, apply, and tailor military standardization documents only as needed to meet agency requirements (see DoD Instruction 5000.2 (Part 10, Section C). The format, tone and content of these documents is important to their cost effective use in acquisitions (DFARS, Part 210). Requirements that are not mandatory by law or DoD policy, or needed to assure the operational effectiveness and suitability of the training system are tailored out of the standard or specification. Requirements that do not contribute to effective management, operation or support should also be tailored out.

a. When you cite a specification or standard in the SOW, select and tailor the application in accordance with DoD Instruction 5000.2 (Part 10, Section C), and MIL-HDBK-248. Tailoring cannot add requirements to the actual specification or standard to create an extended application. When a specification or standard does not include all valid requirements, the additional requirement specifications are included in Section C of the solicitation/contract package.

b. Specifications and standards provide designers and users with the data and descriptions essential to the selection and application of items, equipment, material, and processes in the development and production of services and material for the military. Standards establish and define levels of quality and reliability equal to the needs of the military. They are intended to identify and limit the selection of items and equipment to those designated as preferred or standard. This constrains the proliferation of material in the inventory.

c. The acquisition of ICW includes a tailored version of MIL-STD-1379. Guidance for tailoring MIL-STD-1379 is provided in Appendix A of the standard and in the appendixes to this handbook. You will find additional SOW tasking and tailored task descriptions suggested in the handbook appendixes because MIL-STD-1379 task descriptions are not always detailed enough to support ICW requirements. These SOW tasks and tailored task descriptions are included in Section C of the contract package as explained in a, above.

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d. Additional requirements and guidance on preparing the SOW are provided in DFARS, Part 210. ICW acquisition managers should familiarize themselves with the DFARS requirements before developing the SOW.

4.3.6.1.1 <u>Tailoring specifications and standards.</u> Tailor specifications and standards to meet the minimum requirements of the acquisition. Each specification and standard includes guidance on how to tailor it. Each person who uses a MIL-SPEC or MIL-STD in an acquisition should carefully rate each of its requirements. Rating determines whether or not the requirement is valid for the specific acquisition being worked. All requirements that exceed the needs of the acquisition are deleted to minimize overall contract costs. Valid requirements that are not provided for in the specification or standard are included in Section C of the solicitation/contract package.

4.3.6.1.2 <u>Tailoring MIL-STD-1379.</u> MIL-STD-1379 task statements are intentionally broad to include the unique requirements of each of the services. Review the task statements and corresponding DIDs carefully to determine exact requirements and tailor out all unnecessary requirements. Additionally, each service has provided guidance to service-unique or required work tasks in Appendix A of the Standard. Detailed information and guidance on tailoring MIL-STD-1379 requirements for ICW acquisitions is provided in Appendixes A, B, and C of this handbook.

4.3.6.2 <u>Application of handbooks.</u> Handbooks are guidance documents containing information or guidelines. They are used to present general information, procedural and technical use data, or design information related to "commodities, processes, practices, and services." Handbooks are also included to provide applicable reference material. Since a handbook is for guidance only, it does not include any mandatory provisions (MIL-STD-962). Using handbooks as references within an acquisition is optional. They are not referenced for compliance within the SOW. Handbooks providing pertinent information and guidance are conveyed to the contractor in the Instructions for Bidders acquisition documents as explained in MIL-HDBK-245. They are also provided to the contractor as GFI after contract award.

4.4 <u>Requirement descriptions, specifications, and work statements.</u> Before any action is taken to analyze and define contract requirements, define the specific needs of the Government through descriptions, specifications and standards, and work statements. This definition of work requirements is called the SOW, and is part of the solicitation package. The SOW is part of Section C of the package. The handbook appendixes provide process flow diagrams in Figures A-1, B-1, B-2, and C-1 to help define ICW work requirements. Work performed under MIL-STD-1379 Task 208, Training System Functional Requirements, and Task 104, Training Equipment Requirements Identification develop ICW device specifications. These tasks produce the Training System Functional Characteristics Report (DI-ILSS-81088) and the Training Equipment Requirements Document (DI-ILSS-81085) used to develop equipment specifications.

4.4.1 <u>Statement of Work (SOW).</u> A clear, concise statement of contract requirements is a prerequisite for achieving acquisition goals. The SOW provides the basic framework for this effort. To do this, carefully prepare the SOW to specify basic responsibilities and minimum program requirements. The SOW is a dynamic document developed to tailor cost drivers. You tailor cost drivers through the definition of technical and work effort requirements based upon the needs and limitations of each ICW acquisition.

a. Prepare to develop an effective SOW by taking the time to study two very useful documents: MIL-HDBK-245, Preparation of Statement of Work (SOW), and MIL-HDBK-248, Acquisition Streamlining. These handbooks provide excellent information and guidance on writing SOWs: SOWs that correctly define your acquisition needs and communicate those needs to potential vendors.

b. MIL-HDBK-248 addresses requirements definition and gives guidance on preparing the solicitation/contract schedule (Part I of the contract package). It describes how to determine contractual requirements, and provides methods for applying and tailoring specifications, standards, management systems, and technical data requirements. MIL-HDBK-248 describes Government-owned, automated acquisition streamlining tools available to help you develop contract documents. The activity responsible for each automated tool, the computer requirements to run the programs, and procedures for ordering these automated tools are identified.

c. Care and skill exercised in the preparation of the SOW will set up a conclusive baseline for the construction of proposal evaluation criteria. A definitive SOW will result in conclusive proposals and reduce the time for evaluation of those proposals.

d. The SOW plays a significant role in the evaluation of proposals and in the contract award process. A poorly written SOW can result in schedule delays and cause extra administrative work to answer vendor questions. SOWs that need several changes before the proposal due date and during the source selection process cause schedule slippage. Your ability to clearly and concisely define the end work product affects decisions about the procurement approach and the type of contract awarded.

e. The SOW plays an important role in the effective selection and control of contractors needed to perform work beyond the capabilities of the DoD. Persons responsible for preparing a SOW should develop acquisition documents that are adequate in language, approach, format, organization, terminology and content. This is done using the guidance on developing SOWs in MIL-HDBK-245.

4.4.1.1 <u>General SOW requirements.</u> The SOW defines all non-specification requirements for contractor effort either directly or with the use of specific cited

documents. Take care to assure the SOW does not include requirements already stated in a specification or that belong in a data item description.

a.   To understand what is allowable SOW content, you should first understand what is not allowed in a specification. MIL-STD-961 limits the content of a specification to only those qualitative and quantitative design and performance requirements necessary to meet minimum DoD needs. Specifications do not task the contractor to perform work such as conduct an analysis, provide design reviews, or perform an ICW evaluation.

b.   The SOW tasks should not include any description of or delivery requirements for data. When properly written, the SOW defines non-specification tasks and identifies the performance work effort. As the contractor performs the work and completes the task, information required for retention is inherently developed throughout the task process. This information is legally defined and scheduled for delivery only through the use of the CDRL, DD Form 1423, and the correct DIDs, DD Forms 1664 (see 4.4.2 and 4.4.3).

c.   The role of the SOW is to define those work tasks which are not contained in a specification. Work tasks are never included in the CDRL or DIDs invoked by the CDRL.

4.4.1.2 Preparing the SOW. The essential prerequisite in preparing a SOW is a complete understanding of what is required from the contractor. Effective communication and coordination between all members of the work statement preparation team will achieve the level of understanding necessary to define those requirements.

a.   Each member of the SOW team should know their responsibilities, and the requirements and procedures guidance in MIL-HDBK-245. They should also know the background and circumstances of the contract requirement.

b.   The flexibility available for arranging subsets of information within each section of the SOW will normally satisfy the need for program variations. Sections 4 and 5 of MIL-HDBK-245 outline information and exceptions to the standard SOW format. Additional information on preparing SOWs to purchase FEA and ICW DD/I is provided in Appendixes A, B and C.

c.   You can vary the standard SOW format depending upon the type of SOW you need. The non-personal services SOW described in MIL-HDBK-245 (Type V SOW) includes SOWs for analysis, and ICW design and development. Although MIL-HDBK-245 defines this standard format for a Type V SOW, you may deviate from this format to accommodate program needs. The Type V SOW for non-personal services contains the following sections:

Section	Title
1	SCOPE
2	APPLICABLE DOCUMENTS
3	REQUIREMENTS
4	PROGRESS REPORTS

4.4.1.2.1 <u>Scope</u>. The scope section of the SOW should clearly and succinctly describe the work accomplished by the contractor. The scope section may also include an introduction and background subsection if the writer determines these will help the potential vendor understand a complex requirement. How the work requirements are described in this part of the SOW can impact on vendor proposals and on future interpretations of contract requirements: what is or is not within the scope of the contract.

4.4.1.2.1.1 <u>Introduction.</u> When required, the introduction provides a brief overview of the work required of the contractor.

4.4.1.2.1.2 <u>Background.</u> The purpose of the background subsection is to acquaint potential vendors with the principle factors behind the SOW requirements. It describes the overall situation the acquisition addresses. The background information provides an overview of the conditions causing the need for the acquisition, such as installing a new item of equipment in a weapons system through a modification program. If there is formal training support for the replaced equipment, indicate whether or not a course upgrade is planned. If the resulting training program supports OJT programs through exportable ICW, describe the OJT environment in the background information.

4.4.1.2.2 <u>Applicable documents.</u> This section of the SOW identifies those specifications, standards and other requirements documents invoked by the SOW. ICW contracts would, for example, invoke MIL-STD-1379. Each standard task description includes a paragraph outlining all inputs required for task performance. Many of these inputs are reports and documents that are outputs from other tasks. Some are regulations and other agency-unique documents that describe a required methodology. As you identify the MIL-STD-1379 tasks to be performed, pay attention to the input requirements. Note each input document you will provide to the contractor for compliance. List these documents in this section of the SOW. Also identify each document within the applicable SOW task statement. Identify documents you will provide with the contract package as contract exhibits in Section J of the solicitation/contract package.

4.4.1.2.3 <u>Requirements.</u> The Scope and Applicable Documents sections of ICW SOWs provide potential vendors an idea of how much work is required to perform the contract. The requirements portion of the SOW provides the detail necessary to understand the contract level of effort. Arrange the SOW information subsets in a systematic, logical order to be most effective. The ICW DD/I and ILS (when courseware maintenance includes adding new job tasks) SOW will have to prescribe your requirements for allowable student control. The amount or degree of student control over instructional

paths, and the training objective category of interactivity information allows prospective vendors to gauge work requirements and provide realistic cost estimates.

a. Appendixes A, B, and C describe SOW requirements in more detail. The SOW addresses work the contractor will perform. It will not address any ICW delivery device included in the contract. The device functional characteristics become an appropriate hardware specification.

b. Equipment specifications development uses the Training Equipment Requirements and Training System Functional Requirements report outputs from Tasks 104 and 208 of MIL-STD-1379. When your activity performs the training device definition work, documents similar to the MIL-STD-1379 outputs should result. These documents provide your engineering (or, possibly, logistics) support activity the information needed for the device specifications. The equipment specification is used to procure the training device, either through the ICW contract or through a separate device contract.

c. Separate contract line item numbers identify the device in the courseware contract. The equipment specification details the required training equipment operational characteristics.

4.4.1.3 Progress reports. Section 4 of the SOW identifies your progress report requirements. Progress reports are a normal contract management activity. The SOW describes exactly what information reporting is needed to manage and monitor the contractor's performance of SOW requirements. The report requirements are also included in Section G, Contract Administration Data, of the solicitation/contract package. You must set up the report frequency (see 4.3.4.1). DI-MGMT-80555 contains the content and format requirements for Program Progress Reports.

4.4.1.4 Common deficiencies in the preparation of ICW SOWs. Common contract Descriptions, Specifications and Work Statement (Section C of the schedule) preparation errors involve prescribing deliverables.

a. Defining required deliverables in the SOW when there is no applicable DID. This is one of the more common errors made during SOW preparation. This error is more prevalent in ICW contracts because the available DIDs do not, necessarily, include service-unique data requirements. This is due to the newness of ICW data requirements. Regardless, do not prescribe deliverable data in the contract SOW. If a suitable DID is not available, discuss using a one time DID with your Data Manager. Your agency should act to convert one time DIDs to a Type I or II DID when the data requirement is recurring.

b. Improperly tailoring specifications, standards, and DIDs. Improper tailoring of standard documents is another common error. The more frequent error is

to tailor unwanted information from the standard document, then redefine the desired information within the SOW. For example: tailoring out a specific document paragraph and adding a replacement in the SOW. This is done with a SOW task, such as "Delete paragraph 10.3.3 in DID DI-ILSS-81080 and replace it with the following." Inadequate DIDs normally cause this type of tailoring. This approach to the problem is incorrect.

c. <u>Adding requirements to specifications, standards, and DIDs.</u> Although less frequent, another incorrect tailoring action is to physically re-accomplish a page from a standard document to add the desired requirements.

4.4.2 <u>Contract Data Requirements List (CDRL), DD Form 1423.</u> The CDRL, or its ADPE equivalent, is the only legal way to get data from the contractor with the exception of certain data, generated by clauses contained in the Subpart 52.2 of the FAR and DFARS. It is an integral part of the solicitation and contract, and is listed in Section J of the uniform contract format as an exhibit. Any data generated and delivered to the Government through contract performance must be identified in the CDRL. The acquisition or program manager is responsible for providing the contracting officer information needed to prepare the CDRL. Managers should, therefore, understand the purpose of the CDRL and its information requirements.

4.4.2.1 <u>Purpose of the CDRL.</u> The CDRL prescribes all data the contractor delivers to the Government during contract performance. It refers to the SOW task that generates the data, and cites the DID needed for data content and format. The CDRL states necessary DID tailoring actions, sets the number of deliverable copies and who receives them, and prescribes the delivery media. It also shows the data delivery schedule.

4.4.2.2 <u>CDRL preparation.</u> Preparation of the CDRL should be in accordance with departmental procedures. The current DD Form 1423 is available in three versions (space for one, two, or four data items). Figure 3 shows an example of an ADPE-formatted version of the CDRL with space for two data items. Figure 3 also shows DID tailoring instructions in Block 16. A detachable portion of the printed forms contains Blocks 17 and 18. These blocks are used to collect data cost estimates when required by the DFARS, Part 215. The contracting officer prepares the CDRL using the data, delivery media, copies and distribution, and schedule information you provide. The completed CDRLs should contain the following information:

a. Blocks A through F at the top of the CDRL provide basic contract information. The blocks include (A) the Contract Line Item Number (CLIN) associated with the CDRL, (B) the exhibit identifier assigned to the CDRL, (C) the category of data listed, (D) the system/item/project designator or name, (E) the Contract or Purchase Request (PR) number, and (F) the contractor's name.

b. Block 1 contains the Exhibit Line Item Number (ELIN) in accordance with DFARS 204.7106.

c. Block 2 contains the title of the DID cited in Block 4. When the DD Form 1423 is used to acquire technical manuals, the title of the specific type of technical manual acquired is entered in Block 2.

d. Block 3. If the title in Block 2 requires further identification, a subtitle is entered in this block.

e. Block 4 identifies the DID number, or, when the DD Form 1423 is used to acquire technical manuals, the specific number of the applicable military specification or standard which provides the data preparation instructions.

f. Block 5 contains the specific paragraph number of the Statement of Work (SOW), specification, standard, or other applicable document which contains the tasking which generates a requirement for the data item.

g. Block 6 identifies the technical office responsible for ensuring the adequacy of the data.

h. Block 7, DD 250 Req, includes the applicable code, designating the requirements for inspection and acceptance of the data. The codes are prescribed in the departmental procedures for preparation of the CDRL. For example, a two digit code is used to indicate the inspecting activity (first digit) and accepting activity (second digit). An "S" is used to indicate inspection or acceptance at the source (contractor's facility). A "D" indicated inspection or acceptance at the destination. The most common code is "LT." It means submit the data by letter of transmittal without a DD Form 250. The code "XX" is used to indicate that inspection and acceptance requirements are specified somewhere else in the contract.

i. Block 8 contains either an "A" to show "approval required" or is blank. An "A" requires formal approval of the deliverable before going final.

j. Block 9 identifies the code letter (A,B,C,D,E,F, or X) corresponding to the distribution statement to be marked on the data item by the contractor in accordance with DoD Directive 5230.24.

k. Block 10 of the CDRL gives the frequency of the data delivery. Block 11 contains the as of date for the deliverable information. Block 12 indicates when the first delivery is due, and Block 13 tells the contractor the date or event identification for subsequent submissions.

l. Block 14 lists the data distribution requirements. It lists each agency that gets the data, and the number of regular and reproducible copies each agency receives. Then the deliverable must be approved (Block 8), Block 14 lists the approval/office first.

  (1) The regular copies are normally paper-based. The reproducible copy media is any media required for reproduction, including digital media.

  (2) Because of the vast amounts of data resulting from ICW design and development, consider having all final copies of design and development data delivered in a digital form such as CD-ROM. This will greatly simplify data storage.

(3) Identify the reproducible copy media in Block 16 or an appropriate paragraph in Section F of the solicitation/contract.

m. Block 15 shows the total number of regular and reproducible copies required.

n. Block 16 contains any additional remarks about the deliverable data. It could include review and acceptance/rejection criteria, or additional submission instructions. When Block 14 indicates a requirement for reproducible copies, this block should indicate the required media. Otherwise, refer the contractor to the applicable paragraph in Section F of the solicitation/contract package. Block 16 also includes tailoring instructions for the DID listed in Block 4.

o. Block 17, Price Group (not shown in Figure 3), identifies the appropriate price group (Group I, II, III or IV) as defined by the departmental procedures.

p. Block 18, Estimated Total Price (not shown in Figure 3), identifies for each data item, 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.

NOTE: Blocks 17 and 18 are completed by the bidder or offeror, as required by the contracting officer.

q. Blocks G through J at the bottom of the CDRL include (G) the name and signature of the CDRL preparer, (H) the date the CDRL was prepared, (I) the name and signature of the individual responsible for approving the CDRL, and (J) the date the CDRL was approved.

4.4.2.3 Delivery schedules. The delivery schedule considerations and factors described in 4.3.5 apply to delivery of data. The delivery date in CDRL Block 12 must be realistic to agency needs and the work effort needed to generate the data. Develop delivery schedules based upon the overall contract completion date. When the contractor delivers the Training Program Development and Management Plan, DI-ILSS-81070, consider including a provision in the contract and CDRL to set data due dates based on approval of the plan. This eliminates guesswork about the contractor's ability to produce a specific deliverable by a specific date. Also include provisions to adjust delivery dates when the Government does not meet its review and approval responsibilities.

4.4.2.4 Delivery media. Training design and development documents and instructional materials are traditionally delivered in paper form. ICW documentation and instructional materials delivered in this media are bulky. Because of this bulk, course control documents needed for courseware maintenance are not stored and maintained. These documents and instructional materials lend themselves to delivery in a digital form more suitable for storage. MIL-STD-1379, Appendix C includes provisions for taking delivery of training documents in digital form using the provisions of MIL-STD-1840.

a. ICW design and development documents, and the ICW instructional materials are prime candidates for delivery in a digital format. Much of the courseware is already in a digital form. For example: lesson data files, support software, and graphics screens. The acquisition manager should consider taking final delivery of most deliverables in a digital form.

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b.   The Computer-aided Acquisition and Logistic Support (CALS) program supports delivery of data in a digital form. DoD policy requires that acquisition managers describe the extent of CALS implementation in formal acquisition plans (see 4.7). The RFP should also include provisions for obtaining cost and schedule proposals for specific CALS implementation strategies. Whether or not this policy affects your acquisition depends upon the size of the total acquisition package and your agency's requirements. If you need help determining if CALS applies to your acquisition, Appendix A of MIL-HDBK-59 includes a listing of CALS points of contact.

c.   MIL-HDBK-59 provides information and guidance on CALS requirements in solicitation/contract packages. The handbook includes MIL-STD-1379 tailoring guidance for delivery of training documents and materials in a digital format. This handbook also provides guidance on developing an acquisition data management strategy.

d.   Acquisition and program managers should become familiar with the requirements of MIL-STD-1840 and MIL-HDBK-59. These documents will aid in making decisions about the most appropriate delivery media. Section 5.5 of Appendix B in MIL-HDBK-59 provides information about using MIL-STD-1379 processes in training program acquisitions. MIL-D-28000, MIL-M-28001 and MIL-R-28002 apply to delivery of training documentation and materials in a digital form. Appendix D of MIL-HDBK-59 gives information and guidance on applying and tailoring these specifications.

e.   Magnetic tape is the digital delivery media recommended by the handbook because it is the only mature digital medium with established industry standards. This does not, however, prevent defining another physical media for delivery of digital information. If you identify another media in the CDRL, such as CD-ROM or WORM, assure you also specify a specific media structure and format. You may need help from an engineering activity to accomplish this.

f.   Current DIDs are adequate for deliveries in a digital form, except when the delivery will occur through on-line digital systems. CALS has not yet defined on-line system protocols to support training program requirements. When the final version of a particular deliverable will be delivered in a digital form, Block 16 of the CDRL should state the mode required, such as magnetic tape, magnetic disk, or optical (CD-ROM, WORM) disc. Specify that digital data must conform to the digital interchange requirements of MIL-STD-1840. The CDRL should also require that document review copies of the deliverable be on paper and generated from the digital version.

g.   When some or all deliverable data will be delivered in a digital form, you should include provisions for delayed delivery of the final versions. Delay final document deliveries until after the courseware and all other deliverables have been accepted

and updated. This assures all final deliverables incorporate changes resulting from the ICW validation and evaluation processes.

4.4.3 <u>Data Item Descriptions (DID), DD Form 1664.</u> The DID is a completed DD Form 1664 that defines the data required of a contractor. The form specifically defines the content, preparation instructions, format and intended use of the data. Data is information inherently developed during completion of work tasks in the SOW and required for retention. DIDs do not prescribe work tasks or performance methods (MIL-STD-963). There are three types of DIDs used to obtain data from the contractor.

4.4.3.1 <u>Type I DID.</u> The Type I DID describes data preparation instructions that apply to data requirements associated with a source document, such as a military specification or standard. For example, DIDs describing deliverable data produced as a result of work tasks in MIL-STD-1379 are Type I DIDs.

4.4.3.2 <u>Type II DID.</u> The Type II DID describes data preparation instructions that apply to data requirements not associated with a source document. There are many general subject DIDs in this category.

4.4.3.3. <u>Type III DID.</u> The Type III DID is called the one-time DID (OTDID) because it supports data requirements of a single acquisition. This type of DID is used only once in the specific acquisition for which it was developed. The Type III DID may or may not have a source document.

4.4.3.3.1 <u>Preparing Type III DIDs.</u> You prepare Type III, OTDIDs, only when a suitable Type I or Type II DID cannot be identified. When you cannot find a suitable Type I or Type II DID, you should coordinate these data requirements with your service or agency data management focal point. The agency data manager will help you search for a published DID. When necessary, the data manager will help you develop a OTDID. First review the DoD Acquisition Management Systems and Data Requirements Control List (AMSDL), DoD 5010.12-L, for a published DID that describes your minimum data requirements. You can delete any unnecessary data requirements in the DID, if it addresses minimum requirements.

   a.   <u>MIL-STD-963.</u> MIL-STD-963 tells you how to prepare DIDs, to include allowable content and correct format. Take care not to prescribe stringent format requirements in the OTDID. Unless you require a specific departmental form or format, it is more cost effective to allow using "best commercial practices" as the acceptable format.

   b.   <u>DD Form 1664, Data Item Description.</u> Prepare the OTDID using the DD Form 1664. MIL-STD-963 includes instructions for completing the DD Form 1664. Your agency data manager should help you prepare the OTDID and assure the correct format.

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4.4.3.4 Tailoring DIDs. DIDs formats allow the user to tailor data requirements to the specific acquisition following MIL-STD-963 instructions. Tailor each DID to meet the minimum needs of the particular acquisition. Tailoring deletes unnecessary paragraphs or sentences.

a. DIDs are not tailored to add or amend data requirements. DID tailoring should not add instructions or information that changes the provisions of any source document.

b. DID tailoring cannot task the contractor to perform work, or direct or constrain the agency preparing the deliverable data. Tailoring should delete unnecessary data requirements to reduce the overall data costs.

c. Figure 4 is an example of a physically tailored DID. The CDRL may include copies of DIDs showing actual tailoring actions. However, the CDRL, Block 16, normally contains DID tailoring information. Figure 3 shows DID tailoring information in Block 16. Appendixes A, B, and C of this handbook have guidance for tailoring MIL-STD-1379 DIDs for ICW acquisitions.

4.5 Analyzing requirements. A separate function within the contracting activity does requirements analysis with help from the acquisition and program managers. There are, however, factors and considerations unique to ICW acquisitions. The acquisition manager should become familiar with these unique factors and understand how they affect acquisition planning and decisions. Managers and analysts should also understand that ICW factors are not easily classified as scheduling, cost or trade-off risk factors. In fact, ICW considerations affect all of these areas simultaneously. You will see this is true in the following paragraphs describing these ICW analysis factors.

4.5.1 Risk analysis. Risk factors include technical, cost and schedule risks. Planning should identify methods and procedures to use in the acquisition that will reduce these risks for both the contractor and the Government. The amount of risk associated with the acquisition will affect the type of contract that is most appropriate and the resulting acquisition costs.

4.5.1.1 Technical risks. ICW technical risks include hardware and courseware capability requirements which exceed those found in commercial off the shelf equipment, authoring languages and systems, authoring tools, and courseware. Within ICW this could include voice recognition and voice synthesis requirements, and artificial intelligence and expert system architectures. Highly interactive team training systems and networks, and single application ICW programs that require unique system configurations, interfaces or design strategies also present technical risks.

a. These unique courseware, software and hardware requirements will impact upon full and open competition capabilities. The hardware technologies are not always available from several sources and few companies have courseware design and development experience using these technologies.

b. Another technical risk area relates to ICW applications required to run on an existing ICW device. You should check the existing device configuration and to assure the device is logistically supportable over the expected ICW life cycle. Assure the device is upgradable to meet present and future capability requirements. Check the existing device configuration for any proprietary technologies that will restrict courseware portability or affect compatibility with new devices purchased to meet total device requirements.

c. The DoD computer systems policy supports using an open systems environment (OSE) architecture. DoD OSE architecture efforts include the POSIX operating system, the GOSIP open system interconnection network architecture and protocols, and the interactive courseware portability protocols in Appendix D of MIL-STD-1379. However, any ICW acquisition requirement for compliance with these OSE and portability architectures should weigh the technical risks of these requirements. ICW devices, authoring languages and systems, and authoring tools may not support these requirements: a significant cost increase could result for developing compliant courseware or delivery devices.

4.5.1.2 <u>Cost risks.</u> ICW development and acquisition cost risk factors are the same as those described in 4.5.1.1. ICW technology considerations described in 4.5.2.2, and the agency's or selected vendor's ICW design and development experience also present cost risks. Shallow or inaccurate task and learning analysis due to inexperience can increase cost risks. Detailed, accurate analysis and documentation of inter-dependent knowledge and skills present cost risks when these are inadequate to support ICW design and development. Other ICW cost factors, described in 4.5.3, can pose additional cost risks depending upon the approach used to do the analysis, and the ICW design and development.

4.5.1.3 <u>Schedule risks.</u> An optimistic assessment of the ICW scope of work causes contract scheduling risks. These risks are associated with the amount of time available through the contract term. The analysis, and ICW design and development processes require more work than required for traditional courseware. Acquisition and program managers are experienced in traditional courseware work requirements and establish unrealistic ICW delivery schedules based on that experience. Handbook Appendixes A and B describe the analysis, and ICW design and development factors that increase the work effort needed for ICW programs. You can reduce these scheduling risks by carefully reviewing the ICW scope of work to be performed. This review should estimate the probable number of performance tasks and training objectives that will require ICW training materials. When the estimates are complete, take the time to research and approximate the ICW work effort required of the contractor.

4.5.1.3.1 <u>Category of interactivity.</u> The category of interactivity required to achieve training program objectives can increase the work required to design and develop ICW materials. The category of interactivity for each training objective addressed through ICW should be defined before entering into an ICW DD/I or ILS contract.

a. Training objectives that require Category 1 presentations should not present any significant schedule risks. If the source selection process selects an inexperienced contractor, there may be schedule risks. The likelihood of inadequate design strategy, flow diagrams and script-storyboards increases with inexperienced contractors. Schedule delays to correct inadequate documents are likely. A Government furnished style guide that sets up adequate branching strategies and conventions can minimize this risk.

b. Category 2 presentations represent an increased schedule risk. There is a significant increase in design and development complexity for Category 2. Category 2 presentations include design strategies that require response-specific branching and remediation, multiple input device support, and other instructional design factors.

    (1) These design factors require more work effort to design, flow diagram and script-storyboard each Category 2 module and lesson. The increased complexity also results in more workload for internal surveillance and quality assurance programs.

    (2) ICW computer program complexity increases in direct proportion to the design complexity. Computer programmer support and debugging requirements for Category 2 modules and lessons add time nearly to the design and development schedule. Programming and debugging cannot be done concurrent with design and development.

c. Category 3 presentations require significantly more work for an acceptable design and development effort. The high degree of student centered and controlled interactivity, and sophisticated branching and remediation strategies cause a significant increase in the required level of effort. This increase can be five or ten times the work in a Category 2 effort. The actual increase depends upon the task complexity and cognitive skills required to achieve the training objective. Category 3 ICW training objectives represent a significant schedule risk unless the agency or contractor has significant experience developing Category 3 courseware.

d. Training objectives that require sophisticated gaming strategies or artificial intelligence represent a major schedule risk. Any effort to develop this type of ICW should be accomplished using a prototype lesson approach. Using a prototype can quantify schedule requirements before entering into a full-scale design and development effort.

e. When the training requirements and objectives of the ICW apply to two or more training situations or occupational skill levels, a fairly complex instructional prescription program is needed. The prescription program analyzes individual student performance and "prescribes" instruction or remediation needed by the student. The schedule risks are not as significant as those for gaming or artificial

intelligence. However, they are greater than for ICW designed to support a single application or skill level. Multiple-level courseware schedule risks should be compared with the potential cost benefits to determine the most advantageous courseware design.

f.   The number of performance tasks and training objectives, and the category of interactivity required for each training task and objective will determine specific ICW data requirements. You should have information needed to estimate the manhours required to produce the deliverable ICW data.

4.5.1.3.2 <u>Risks related to weapons system and training system acquisition schedules.</u> The effect of schedule risk factors identified for the weapons system or training system acquisition are magnified in ICW design and development. This is especially true for training objectives that require Category 3 interactivity. Training task analysis and learning analysis results applicable to ICW are also impacted, but to a much lesser degree.

a.   Changes in either the weapons system or training system design and development process will affect ICW design strategies. ICW flow diagrams and script-storyboards, and actual development of the instructional media, is affected by changes in the weapon or training system acquisition. Any changes that affect the instructional requirements, task performance procedures, or the operational parameters and tolerances will affect ICW design and development. Changes to the support equipment used to perform training task procedures also affect ICW program design and development.

b.   Weapons system or training system design and development changes should not require any change to the instructional media design strategy. After review and approval of the design strategy, it should be frozen. Otherwise, there will be significant cost and schedule risks. Any changes to the design strategy will require major revisions to design and development documents produced after the original design strategy document was approved.

c.   Changes which effect task procedures, and supporting knowledge and skills will require corresponding changes in affected ICW design and development documents. Significant changes to the weapons system technical data will also require changes to the ICW design and development, and instructional materials. If the weapon system or training system design is highly volatile, it may be wise to defer ICW design and development efforts until the system design stabilizes.

4.5.2 <u>Trade-off analysis.</u> Trade-off analysis considers the gains or losses expected from trade-offs among the various cost, capability or performance, and schedule goals. The trade-off analysis determines the best balance between required system characteristics, and cost and schedule constraints. There are other ICW trade-off analysis considerations. There are two factors that can significantly impact risk, cost, and tradeoff analysis considerations. One is the potential application of the ICW program across

several instructional requirements. The second is current and future ICW training and equipment technologies.

4.5.2.1 ICW application considerations. You can apply ICW across several levels of instruction, from entry-level skill to advanced refresher training. You should consider this ICW characteristic during the trade-off analysis. Courseware design and development to support several training levels can significantly reduce overall life cycle costs because you can satisfy a greater number of training requirements with a single courseware package. However, multiple level courseware will cost more to develop (see 4.5.1.3.1e).

4.5.2.1.1 ICW capabilities. The media selection model should address ICW capabilities, advantages and disadvantages to determine whether or not ICW is the best media for a particular training requirement. You can apply ICW to a wide variety of training requirements; using ICW in a specific application may not achieve the best results. The media model should address the following ICW capabilities:

a. Courseware that is responsive to the individual student's needs.

b. Courseware applications across more than one skill level within an occupational skill area.

c. Stand-alone, exportable training materials which provide instruction and remediation based on student interactions with the courseware.

d. Flat panel simulations with a high degree of psychological task fidelity.

e. Student-centered instructional programs capable of presenting several different instructional strategies within the same module of instruction.

f. Flexible scheduling and availability to students.

g. The ability to train complex procedures, decision processes, and performance tasks that include potentially hazardous conditions through simulation and gaming techniques.

4.5.2.1.2 ICW application advantages. ICW has several advantages that can affect training program efficiency. It can also affect overall training effectiveness in achieving all program training objectives. Some of these advantages are:

a. ICW minimizes the use of expensive, fragile equipment not designed to accommodate the student abuse found in the normal training environment.

b. ICW has the ability to provide crises, conflicts, problems, or emergencies that traditional instruction or the normal job environment might never provide. ICW can provide these crisis in quantities required to adequately train the target population.

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c. ICW can provide equipment simulations that develop essential cognitive skills in personnel who do not have enough training access to the actual equipment.

d. ICW can provide refresher and follow-on training after the knowledge and skills have been learned.

e. ICW can reduce the amount of equipment required to support laboratory exercises in formal training environments.

f. ICW can reduce the-amount of time required to achieve training objectives. This can free critical training time for use in training and practicing other critical job tasks.

g. It provides individualized, interactive instruction with the ability for immediate, individualized remediation.

h. ICW provides standardized training that requires active student participation.

i. It can assess complex student responses and prescribe complex branching according to those responses.

j. ICW can support multiple training modes and applications using the same course materials. It can be designed to support a stand-alone instructional environment or be networked to support team or collective task training. The ICW devices can be configured as a networked learning lab, or interfaced with part-task trainers, simulators, maintenance test facilities, and other types of training and support systems.

k. ICW can reduce the number of instructors and trainers required to support overall training requirements without affecting the instructional integrity of the training program.

l. ICW training programs can be more cost effective on a life cycle, per student basis than traditional training. The ICW can be exported to and applied across all or several target population activities without any degradation in the quality or effectiveness of the instruction.

4.5.2.1.3 ICW application disadvantages. ICW has several disadvantages which preclude the wholesale use of the technology for any or all training requirements.

a. ICW is expensive to develop, with the majority of the expense occurring during initial design, development, and implementation.

b. ICW requires a significantly longer development lead time compared to more traditional instruction.

c. ICW is not well suited to tasks which require a high degree of psycho-motor skill development.

d. Costly facility modifications may be necessary to meet ICW device operational and environmental requirements, especially for networked ICW laboratory applications.

e. ICW development and maintenance requires special support capabilities, and personnel with unique ICW design and development, and computer programming experience.

4.5.2.1.4 Optimum system interface. Appendix B describes ICW system interface requirements. The interfaces relate to media selection, training system functional characteristics, and training equipment requirements. Trade-off analysis should consider the training effectiveness and cost benefits of integrating ICW into platform instruction, and developing stand-alone ICW that supplements platform instruction. The analysis should identify the benefits derived from developing stand-alone courseware that supports all training program requirements and training objectives. The target population entry-level knowledge and skills affect the benefits derived from each interface option.

4.5.2.1.5 Training effectiveness versus implementation cost. Analyze all potential applications for the ICW materials, and the development and implementation costs for each implementation strategy. The analysis determines the best balance between the training requirements, system capability characteristics, and the potential cost benefit. Using ICW to supplement platform instruction might offer a higher degree of training effectiveness, for example. However, using stand-alone, exportable ICW might provide adequate training effectiveness. If the exportable ICW can adequately train more personnel in less time, it may provide a more cost effective training strategy. The exportable ICW strategy will, however, require a larger number of training devices. Depending on the device architecture, this implementation strategy may or may not prove beneficial.

4.5.2.2 ICW technology considerations. Determining the ICW hardware needed for delivery of a specific ICW program is normally not difficult. The Media Selection Report, DI-ILSS-81084, identifies the ICW media features required to support the learning objectives. The Training System Functional Characteristics Report, DI-ILSS-81088, and Training Equipment Requirements Document, DI-ILSS-81073, are used with the Media Selection Report to identify minimum hardware requirements. There are other factors affecting hardware technology decisions you should consider. These factors are:

a. The first and most important factor to consider is how compatible the technology is with current and emerging DoD portability protocol standards. DoD established several technology standards to stem the proliferation of incompatible ICW delivery systems. Later paragraphs discuss these standards. Failure to use these standards will affect the ability to transport existing courseware to your system. It will also impact transporting courseware developed for your system to other

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DoD agencies. The cost to rehost existing courseware to run on your incompatible system could be considerable.

b. ICW hardware technology is a significant cost driver. If you consider future requirements, you can spread that cost across several ICW courses and applications.

c. Emerging ICW technologies should also be given consideration with an eye toward the future. This is not to say you should not consider compatibility and portability initiatives. Many of the emerging technologies do not conflict with these standards. The technologies and media features available in the delivery system will impact ICW design and development workload. The device configuration also affects the ICW implementation strategy and overall life cycle costs. Where emerging technologies represent a significant improvement in instructional capabilities, make provisions to support implementing that technology when it is needed.

d. Exercise care in defining ICW device requirements to prevent buying systems with proprietary technologies. While such technologies may appear cost effective compared only to hardware requirements, it may cost far more to buy Government data rights to the technology. Proprietary technologies prevent transporting ICW developed for these devices to other ICW devices without it. Proprietary technologies can also restrict your ability to later upgrade the system with new technologies.

e. Later paragraphs discuss ICW technology areas affected by courseware compatibility and portability requirements, and subject to trade-off analysis. The benefits and constraints of a particular technology depend on the ICW life cycle, application of the training device, and current and future ICW implementation strategies.

4.5.2.2.1 Video technologies. There are several video technologies commercially available today which have both current and future ICW application. The 12-inch Laser Vision Constant Angular Velocity (CAV) optical videodisc is the DoD standard laser optical videodisc format. The laser-optical videodisc is a viable technology for storing large video data bases. Compact Disc (CD) video technologies such as CD-Interactive (CD-I) and Digital Video Interactive (DVI) are also available. These emerging technologies have some limitations in video storage capacity and picture resolution, however. CD-I and DVI are competing digital video technologies, and are still being developed. There are no industry standards for either technology. The risks and cost of using these emerging technologies require careful consideration. When considering video technologies, include the costs to design, develop, produce, pre-master, master, and replicate the final video product for each technology.

4.5.2.2.2 Graphics technologies. The relatively new Video Graphics Array (VGA) graphics system boards being included in ICW training systems accommodate a wide

range of graphic resolutions, simultaneous on-screen color capabilities, and color palette sizes which exceed the VGA standard definition. You should consider how graphics are applied in the current courseware and its potential application in future ICW efforts. Then you can determine the range of video/graphics board capabilities required to support the ICW. Decisions about graphics capabilities also affect other hardware requirements, ICW design, development and implementation strategies, and courseware packaging and distribution schemes.

a. The graphic resolution and simultaneous on-screen color capabilities of the selected graphics board directly affect the average size of the graphic files. The amount of storage required to hold a single, complex, and high resolution graphics screen can exceed 100,000 bytes (100 Kilo Bytes (KB)). The size of a single high resolution graphics screen can range from 82 KB for a simple VGA graphics to over 256 KB for a complex, high resolution VGA graphics screen with 256 on-screen colors.

b. The amount of on-board video RAM and the size of the particular graphic files determines the graphics board's ability to store and sequentially recall two or more graphic screens. Graphics board video RAM capabilities impact instructional material design and programming. It also affects the time required to call and display a specific graphics screen on the monitor. Delays waiting for the graphic screen to appear on the monitor can adversely affect student interest and attention span. You should compare graphics board video RAM capacities with the potential impact each graphics board option has on training effectiveness, future device applications, and cost differentials associated with each option.

4.5.2.2.3 <u>Data storage technologies.</u> Data storage technologies offer a wide range of storage capacities and mediums. Storage capacities range from the standard 360 KB 5-1/4 inch floppy disk to compact disc and Write Once Read Many (WORM) devices offering more than 550 Megabytes (MB - 550 million bytes) of storage on an optical storage medium. Read/write compact disc systems will also be available in the not-to-distant future. There are several ICW design and implementation factors to consider when determining data storage requirements. Evaluate current and future ICW applications and requirements when making ICW training device trade-off decisions. The following factors affect data storage requirements for the ICW:

a. The amount of storage required to support the authoring language or system run-time program. Some run-time programs require a considerable amount of storage capacity. When you add the storage requirements of the run-time program to those for the lesson data files with VGA graphics, low density storage devices are probably too small. Storage devices holding less than 500 KB may not provide courseware designers enough storage capacity to develop complex, student centered, and highly interactive courseware programs. These programs may be needed to achieve training objectives. This storage requirement is significant if the implementation strategy includes using existing ICW training

devices. The older ICW devices probably have low density storage devices, and may lack the capability to support additional or larger storage devices.

b. The category of interactivity and degree of student control over lesson sequences directly impacts the design and development workload. It also impacts the lesson data files storage requirements. If your activity's long range plans for ICW include highly interactive, student centered courseware, you should favorably consider high capacity storage devices. This decision could prevent expensive device upgrades to support future ICW requirements.

c. Another system factor to consider is the amount of storage capacity needed for the courseware graphics files. As the use of high resolution courseware graphics increases, so does the demand for adequate storage to support each ICW lesson or module.

   (1) If a single lesson contains 150 VGA graphics screens and each of those screens requires 100 KB of storage, a total of 15 MB of storage capacity is required just for the graphics. Note that one double sided, high density 3-1/2 inch floppy disk holds 1.44 MB: it would take ten of these floppy disks just to store the graphics. More storage is required to hold the ICW run-time program. Orchestrating which program and graphic files to put on which floppy disk is a large workload and increases costs.

   (2) If this courseware or long range plans call for greater use of high resolution graphics, be sure any trade-off considerations address costs and design risks. There are costs and risks associated with selecting the minimum storage necessary to support the present ICW effort, and with providing the capability to support future storage requirements.

   (3) Depending on the overall system architecture and number of devices required, you can economically support future storage requirements. You can do this through contract requirements to provide high density storage device upgrades for a definite period after contract award.

4.5.3 Cost analysis. Cost analysis is done to set cost goals for the acquisition and define the rationale for those goals. The results of the cost analysis will also impact how much ICW development is purchased. The estimated costs to meet all requirements may exceed funding levels. Whether developed by the Government or industry, there is little concrete data with which to gauge the scope of work for a given training requirement. Performance work hours needed to develop a single ICW task can range from 100 to 4,000 man hours, depending on several development time and cost drivers. The following paragraphs point out the principle cost drivers for each type of ICW acquisition by the resulting deliverable data item. Following that is a discussion of ICW authoring languages and systems considerations. The discussion of ICW cost drivers concludes with a discussion of factors that affect a vendor's ability to give reliably cost estimates to a request for pricing (RFP).

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4.5.3.1 <u>ICW acquisition cost drivers.</u> ICW has a unique set of cost drivers for each type of ICW acquisition. These cost drivers have not been quantified, however. This is due to the limited background data and costing experience in this relatively new training media.

a.   Much of the Government's ICW acquisition experience is with contracts that convert existing classroom instruction into ICW program materials. The resulting cost data relates to the cost of converting one hour of classroom instruction to some amount of ICW material. The amount of ICW materials produced are only those required to achieve the same training-objectives. This cost data is not — adequate for estimating the cost of new courseware.

b.   A market survey will not give you reliable information about ICW development costs. The cost to develop ICW materials for commercial clients is significantly different from the cost of doing business with the Government. A market survey can, however, provide information about the cost range for each category of interactivity and various design strategies. This information could be useful for estimating costs based upon known Government costs for low level ICW. One reason for this difference is the Government's requirement to use and document either the Instructional Systems Development (ISD) or Systematic Approach to Training (SAT) development models. Another reason is that commercial client process and management controls placed on the contractor are less demanding than the Government's. Which method results in the best courseware is not easily determined. This would call for a subjective opinion without adequate research data to support it.

c.   One way to control ICW cost drivers is to accurately and clearly define the ICW requirements. To do this, provide appropriate and complete GFI on courseware requirements and objectives. The requirements definition processes described in Appendixes B and C, and shown in Figures B-1, B-2, and C-1 specifically address the GFI appropriate to the acquisition. When you provide this GFI, realistic costing of the acquisition is possible. When this GFI data is not available, you should either develop it or add the work tasks to the contract SOW that produce it.

4.5.3.1.1 <u>FEA cost drivers.</u> FEA tasks and data which are major cost drivers include the training situation analysis, training task analysis, and learning analysis. The training task and learning analysis tasks have unique requirements. ICW design and development requires thorough analysis and complete documentation of all specific and discrete decisions made during correct task performance. Analysis accomplished separate from the ICW DD/1 also requires a training program development and management plan. The development and management plan is another cost driver.

4.5.3.1.2 <u>DD/I cost drivers.</u> Except for the training program development and management plan, the following work effort and data include unique ICW development requirements. Tasks and data requirements considered major DD/I cost drivers are:

a.   Missing FEA documents and associated work tasks,

b. Training program development and management plan,

c. Lesson specifications,

d. Training system alternatives,

e. Instructional media design,

f. Electronic tests and test validation,

g. Instructional media production to include instructional media data files,

h. Instructional materials for instructors (ICW manager's guide and user's guide),

i. ICW validation, evaluation and error correction, and

j. The correction of all deliverable data and delivery of the final version in a digital form.

4.5.3.1.2.1 Contractor's technical approach. The contractor's technical approach to ICW design, development and implementation can have a significant effect on overall program costs. The following paragraph describes one area of concern.

4.5.3.1.2.2 Graphics/video consideration. The time required to develop a high resolution graphics screen versus the time required to capture the same screen on video is an important cost consideration. The workload required to design and script-storyboard a graphics screen or video frame are essentially the same.

a. The development workload for a few high resolution graphic screens is not significant: that workload is significant when the number of unique screens increases beyond a certain number. Workload to produce many high resolution graphic screens can quickly exceed the cost of capturing the same information on a video medium. Carefully analyze SOWs that emphasize or require high resolution graphic screens. Verify the requirement and determine whether or not these graphics offer the most cost effective approach.

b. The vendor's development techniques and use of digital video/graphics technologies can reduce this workload difference. However, the graphics data storage considerations described earlier are still a significant cost factor. Weigh the advantages and costs of each approach before deciding which one is best for your program.

4.5.3.1.3 ILS cost drivers. The principle ILS cost driver is either the training effectiveness evaluation or the training situation analysis. One of these is required to identify courseware maintenance requirements. Additional ILS cost drivers are those FEA and DD/I tasks and data requirements identified as cost drivers (see 4.5.3.1.1 and 4.5.3.1.2). Cost drivers are those FEA and DD/I tasks re-accomplished or developed to

support courseware and delivery system maintenance. Other logistics support requirements may or may not be cost drivers. These other requirements depend upon decisions reached about maintenance concepts, technical data, and training (see 4.3.3).

4.5.3.2 <u>Authoring languages, systems, and tools.</u> Selection of the ICW authoring language or system, and authoring tools used to develop the ICW programs can significantly impact program costs. These decisions also affect ICW life cycle costs because of the potential impact on future personnel skill requirements.

a. If the agency owns or licensed a particular authoring system or language, identify and provide it as GFP. Also provide any policy and guidance concerning use agreements as GFI, to include any non-disclosure statements the contractor must complete. You should include any mandatory statements or agreements in Section K of the solicitation/contract package.

b. When your ICW DD/I contract requires that the contractor identify and provide an authoring system or language, provide policy and guidance information about Government data rights. You should also provide any policy and guidance about DoD portability protocol support requirements. Include procedures for Government review and approval of the selected authoring system or language in the GFI.

c. ICW authoring tools include higher order language (HOL) libraries. HOL libraries support various graphics and color palette capabilities, and peripheral device driver routines. Authoring tools can also include application programs used to develop script-storyboards, flow diagrams, and data bases. Commercial graphics programs are often used to develop flow diagrams and script-storyboards. Commercial off-the-shelf flow diagram programs are also available to use in developing flow diagrams. A variety of ICW design and development work, to include video and graphic requirements data, use data base management system (DBMS) application programs. DBMSs provide the capability to store and sort large amounts of data. They are also used to sort video and graphics storyboard information to produce video shot lists, edit decision lists, and ICW programming data.

4.5.3.2.1 <u>Authoring languages.</u> Authoring languages usually require a greater level of computer programming experience to author new programs or to make changes to existing programs. Languages have more programming power than authoring systems which can be useful when developing more complex ICW programs.

a. Most authoring languages include "hooks" that allow developers to exit the language and "call" an external support software routine. Developers use support software routines for unique courseware operations. Using "hooks" requires a programmer to write the new routine in a software language compatible with the ICW authoring language.

b. ICW languages require the author to enter computer instructions on a line-by-line, program basis. Languages seldom support automatic generation of command sequence code based upon pre-defined computer routines. So, the cost of ICW development and maintenance is greater. The expertise required to use the language is normally found only in qualified programmers who cost more to keep on staff. Program debugging will also require more time. The language's line-by-line code structure can create a coding error "ripple effect" impacting several (several hundred in large programs) pages of code. The debugging process takes considerable time to locate and fix each code problem.

c. Evaluate authoring language user training. Consider the amount of training required and who will require the training. Determine whether or not the "user" has the prerequisite knowledge and skills needed for the training, and how often the training will have to be repeated.

4.5.3.2.2 Authoring systems. ICW authoring systems provide the same functional capability found in languages. Authoring systems do not require a great deal of programming expertise to use them. These systems use pre-defined computer software routines that write the correct computer instructions for the user.

a. The authoring system's pre-defined functions and capabilities restrict the developer. The user "calls" one of the pre-defined routines that perform a specific program function. The user is then prompted by the authoring system to enter any variable information required by the routine. Test question numbers, test answers, and videodisc frame numbers are examples of variable information.

b. Most authoring systems also include "hooks." Authoring system "hooks" also require a programmer to write the new routine in a compatible software language. Because they are easier to use and understand, most developers can use authoring systems with little or no training. This reduces the need for more expensive computer programmer expertise. Some programmer support is required, however, to write unique ICW support software routines the authoring system cannot provide.

4.5.3.2.3 Authoring tools. You should consider authoring tools provided with the authoring language or system during the selection process. The capabilities of authoring tools available to support the language or system can significantly impact ICW design and maintenance decisions.

a. Authoring tools are an integral part of the authoring language or system, or are adjunctive programs. Whether or not these tools are available during ICW development can impact overall development time and costs. Graphics libraries that support the full range of graphics and animation capabilities required by the courseware is a critical tool support element. Another important tool support area is the media interfaces (device drivers). You should assure that interfaces necessary to access and control delivery system devices are available in the language or system.

b. An important consideration for authoring languages is whether or not it has productivity tools. Productivity tools aid the programmer in developing, writing and debugging lesson programs and software routines.

4.5.3.2.4 Government-owned authoring programs. There are several Government owned ICW authoring languages and systems you should consider before purchasing a commercial product. Most of these are authoring systems. You should consider whether or not one of these products meets your program requirements. The following is a partial list of Government-owned authoring programs.

a. EIDS-ASSIST. This authoring system was developed by the Army. It supports design and development of interactive videodisc (IVD) training programs.

b. MERLIN. Merlin is a language that is being converted to an authoring system. Merlin supports computer based instruction. A revision to support IVD-based ICW is forthcoming.

c. IVDL. IVDL is an authoring system developed to support IVD training programs. Recent enhancements provide greater support for developing computer based instruction.

d. Instructional Support System (ISS). The Air Force developed this authoring system to support computer-based instruction. ISS supports IVD. It is available in either VAX computer system or personal computer versions. A version of ISS is written in Ada.

e. Computer Based Education Software System (CBESS). CBESS is an authoring system developed for the Navy. It supports five different courseware models. CBESS allows the user to develop unique data bases to satisfy training requirements.

4.5.3.2.5 Government-owned artificial intelligence/expert systems. The Government invested a great deal in artificial intelligence (AI) and expert system research and development (R&D). Some of this R&D effort applied these technologies to training and education requirements. Government-owned AI models are available. Before you venture into ICW development using AI, make sure the delivery device is capable of supporting AI or expert system computer requirements. When the training requirements need AI/Expert system architectures and the delivery system can support it, determine if a suitable Government owned AI shell is available.

4.5.3.2.6 Commercial authoring programs. There are many commercial ICW authoring programs available offering a wide range of support capabilities. The complexity of commercial programs ranges from simple CAI systems that run on personal computers to very powerful programs that require mainframe computers. The more powerful authoring programs support all aspects of ICW design and delivery.

a. The cost for a commercial authoring language or system includes the initial purchase price and the cost for a "run-time" license for each delivery station. Authoring program maintenance and updates increase life cycle costs. In addition, DoD Instruction 1320.20 requires obtaining unlimited rights or government-purpose license rights when acquiring ICW as a developmental item. These costs can amount to several hundred thousand dollars. You should assure these factors are considered during the acquisition process. Even though you purchase full or limited rights to the commercial software, there is still the issue of software update and maintenance costs. Full or limited rights to the current version will have little life cycle value if that version does not support your future courseware requirements.

b. If a commercial language or system is used, the cost and risk analysis should consider buying an unlimited "run-time" license for the entire agency, Service component, and the DoD. If the Government will buy full or limited rights to a commercial authoring program, make sure you address update and maintenance support costs. Include vendor provided maintenance and update support requirements in the solicitation package. The vendor will then cost this requirement, giving you more accurate life cycle cost data. The additional costs associated with authoring languages and periodic software maintenance described above also apply to commercial programs.

4.5.3.2.7 <u>Courseware portability.</u> You should consider ICW portability between major delivery systems available within your activity and to other DoD agencies. Rehosting ICW to run on a different system is very expensive. This is especially important when courseware is applied to more than one training situation, such as initial formal training and on-the-job training. You should select an authoring language or system that will run on several different delivery systems without rehosting. This will reduce the potential for portability problems.

4.5.3.3 <u>Factors affecting RFP cost estimates and risks.</u> Whether you are doing a Government cost estimate/analysis or a vendor is preparing an RFP proposal, there are factors that affect doing either one reliably. The factors described in the following paragraphs were identified during a Government sponsored survey of the ICW industry. This survey identified several factors that affect the vendor's ability to price ICW design and development contracts with accuracy. These factors also affect the vendor's ability to meet contract delivery schedules. By addressing these factors during acquisition planning, reliable Government and vendor pricing is possible. You can reduce program technical, cost, and schedule risks by addressing these factors in the solicitation. Assure your acquisition planning accurately and completely addresses each of the following areas.

a. <u>Course scope and objectives.</u> Describe the scope of the solicitation clearly and completely. If the ICW covers maintenance tasks, relate the maintenance concept to student performance requirements. If the course applies to operators who also have user maintenance responsibilities, communicate these performance requirements. Accurately describe skill

level requirements for ICW supporting both entry-level and skilled personnel. Focus the scope of work on student achievement. Define and specify required student learning outcomes. Focusing on student achievement and learning outcome helps distinguish between required and fashionable instructional strategies. If there are unique performance conditions and standards, identify and explain each unique requirement in the solicitation package. State and explain any assumptions affecting the scope and objectives of the ICW program. By including assumptions in the solicitation, vendors can better assess the risk they impose to the ICW development.

b. <u>Predispositions to media features and instructional approaches.</u> During discussions with the requiring agency/sponsor, determine whether or not there are preconceived ideas about program requirements. The requiring agency may have a predisposition toward using certain media features, or instructional strategies and approaches in the courseware. Communicate these preconceived ideas to potential vendors. The requiring agency will provide the expertise and personnel needed to evaluate course control documents: these preconceived ideas will greatly influence how they view the vendor's work.

c. <u>Weak initial specifications and performance work statements.</u> Weak, ambiguous specifications and work statements in the solicitation package cause problems throughout the acquisition process. Risk, cost, and trade-off analyses are more difficult to perform on poorly defined requirements. Vendors must interpret or guess at the requirements of weak packages to develop their proposals. When the solicitation package is ambiguous, source selection is more subjective and open to protest. Probably the greatest impact of weak specifications and work statements is the lack of good guidelines for ICW design, development and implementation. A well-written statement of work assures that everyone knows and understands contract requirements.

d. <u>Availability and stability of resources and key personnel.</u> Will the contractor have reasonable access to Government systems/equipments addressed by the training material? Is the configuration and operational capability of the system/equipment stable or is it undergoing frequent change? Can the vendor expect to be dealing with the same key personnel throughout the contract? If not, how often will key personnel change? You should address each of these questions during acquisition planning and make sure the answers are provided in the solicitation.

(1) The availability and stability of resources and Government personnel impact on the contractor's work effort, and the review and approval processes. If these factors are extremely volatile, you should consider deferring the ICW acquisition until a more stable situation is possible. Otherwise, frequent and costly changes may occur.

(2) Another significant factor concerns key personnel: How much ICW experience they have, and how well they understand ICW design and development processes? Key personnel with little or no ICW experience can cause frequent and unnecessary changes in the ICW scope and instructional design.

e. Curriculum control review processes. What are the required controls over curriculum content and instructional design? What is the review process? What type and how many reviews are required? What are the review steps? Who has final review approval authority? The solicitation package should clearly define the processes used to control curriculum design and content. It should also set up clear lines of authority to assure that development proceeds in an orderly fashion. Clearly defined control procedures and lines of authority allow vendors to assess the risk of having major course design and content changes. When there is a high risk of major change tasking late in the development process, there is a corresponding increase in contract costs.

f. Changes to project scope and assumptions. There are often over-riding reasons to change the scope of a contract. Situations and circumstances affecting basic assumptions also change for good reasons. Accepting these as a part of the business, the solicitation should clearly define how you will process and strictly control these changes. When changes are essential and affect the contractor's level of effort, include provisions for negotiating a reasonable price adjustment in the solicitation/contract package.

g. Delivery on existing ICW hardware. If the final ICW must run on installed hardware, you should define the hardware configuration to include its operational capabilities. The configuration data should identify hardware capabilities to support technology upgrades. It is equally important to define any hardware limitations or constraints. If the courseware must play on two or more systems, provide this information for each configuration. Be sure to identify the operating system and release version installed on each delivery system.

4.5.3.4 Other cost and risk considerations. There are other factors to consider which can have a dramatic effect on overall costs and risks associated with an ICW acquisition. The considerations described in the following paragraphs came from the Government sponsored industry survey mentioned in 4.5.3.3. These considerations relate to acquisition strategies described later in this handbook, but have a greater impact on costs and risk factors than on business strategies.

a. Complete the FEA before you contract for DD/I or ILS requirements. FEA contract efforts are usually done using a time and materials type of contract. This is because it is difficult to quantify the work effort necessary to complete an effective FEA. This approach results in a clear, concise definition of training program requirements under a time and materials effort.

You can then apply the results of the FEA requirements definition contract to an ICW DD/I or ILS contract. Because program requirements are defined, the DD/I or ILS effort can use a more favorable contract vehicle, such as a firm-fixed-price type contract. By providing the results of program analysis to support the ICW DD/I contract, vendors can more accurately estimate the DD/I costs and production schedule requirements.

b. **Prototype lesson designs** before you contract for full development of a large ICW program. This approach can be very beneficial when the large project includes sophisticated gaming strategies. Using lesson prototypes is also suggested for applications using new design strategies, and training technologies like artificial intelligence and expert systems. The prototype lesson provides valuable information about appropriate design strategies and development procedures. Prototypes will identify the work effort required to develop a typical lessons and provide information needed to develop realistic performance and delivery schedules. You can then use the information gained from the prototype lesson to develop a solicitation package for the remaining courseware. That package will clearly define your remaining requirements and result in better contractor proposals.

c. **Require separate estimates** for writing required documents and reports. Also require separate estimates for test validations and ICW evaluations. Vendors group the work effort required to produce these documents and perform required validations and evaluations into the overall development effort. Requiring separate estimates for each of these will significantly reduce cost and scheduling risks.

d. **Include provisions for alternate proposals in the solicitation.** Allow vendors to submit alternate proposals in addition to the RFP response. When they do, evaluate the alternate proposal: do not consider it as unresponsive. The RFP should seek and encourage alternative approaches which may provide greater overall benefit to the Government. ICW design and development are a long way from being a proven instructional technology. The solicitation process should give vendors who have a different, potentially more cost effective approach, the opportunity to receive a fair evaluation of their ideas. Both MIL-HDBK-245 and MIL-HDBK-248 include information and guidance on including alternative proposal procedures in the solicitation/contract package.

4.6 **Acquisition strategies.** Planning an ICW acquisition requires a thorough consideration of the various factors affecting preparation and management of the acquisition. You should weigh several key areas before deciding on the type of ICW contract, source selection, contract management and other factors. Carefully weigh each factor before you develop the solicitation package and delivery schedules.

4.6.1 <u>General strategy considerations.</u> You must consider and weigh several factors affecting acquisition strategy decisions. These factors and decisions will, in turn, affect other specific strategy decisions such as the source selection strategy.

a. A decision you should make very early in the acquisition process is what command structures, roles and responsibilities are needed to support the acquisition. These may not be serious considerations in normal acquisitions, but can be critical to the success of an ICW acquisition. Factors to consider include:

   (1) The organization responsible to provide SME support and determine minimum SME technical qualification requirements. This organization will be responsible to assure the ICW modules and lessons are technically correct and logically organized. They are responsible to assure that technical procedures in the technical data are correct as written. When errors are found in the technical data, they take necessary corrective actions. This organization and their SME should not be given authority over instructional methodology or technical aspects of video, audio or graphics production.

   (2) Identify the organization tasked with responsibility for the instructional integrity of the ICW materials. This organization should have a staff of Training or Education Specialists qualified in instructional development.

   (3) Identify the organization or activity responsible to provide hardware and software engineering support. The role and authority of the engineering activity is limited to their area of expertise. The engineering activity supports equipment specification development for the solicitation/contract package development. They also support technical evaluation of proposals.

   (4) If you expect the ICW program will require video, audio and graphics production support, decide whether you will use Government or contract support. When you decide to use a Government activity, identify the activity responsible to provide this support. Limit this activity's assigned role and authority to their area of technical expertise. These organizations should not exercise authority over instructional content or design. They serve in a support capacity.

   (5) After you identify all responsible organizations, you should meet with all key players. Define each team member's role and responsibilities in the acquisition, and clearly delineate individual authorities during this meeting.

b. If the ICW acquisition is part of or supporting the acquisition of a major weapons system, decide whether or not to include ICW requirements in that acquisition. If a training system acquisition separate from the weapon system is being planned, decide if your ICW program should be part of the overall training system program.

Another choice is to treat your ICW program as a separate acquisition requirement. Consider the following factors in making this decision.

(1) The status of the weapons system acquisition. Training requirements analysis can begin in the weapon system design stage. Actual ICW development should start after the system and equipment addressed by the courseware is in production and stable. The complexities of ICW design and development can cause significant cost increases if started on a system or equipment subject to frequent change.

(2) The current training system acquisition status will affect the practicality of *adding ICW requirements*. If media selection did not address ICW, adding ICW after completion of the front-end analysis may require the contractor to re-enter analysis. This could adversely impact the training system contract milestones. If the training system acquisition is in the planning stage, you should identify your ICW requirements. This approach allows the contractor to identify the most cost effective balance between *instructional settings, instructional media,* and ICW integration and implementation strategies. The source selection criteria should include evaluation of vendor ICW qualifications, however.

(3) The using activity may establish ICW program requirements, or ICW could be pre-selected because resource limitations prevent meeting all training requirements using traditional methods. In either case, the ICW program should be analyzed, designed, and developed as a separate acquisition. When the resource constraints also impact existing courses, plan to integrate the ICW materials into the existing instruction where possible (see 4.5.2).

c. Whether or not you include ICW requirements in a larger acquisition program, the training requirements analysis should be done before you *develop or buy ICW instructional materials* (see 4.3.2.2, 4.5.3.3 and 4.5.3.4).

(1) The front-end analysis may be conducted in-house or through a contract. However, it should be completed before and separate from ICW design and development. When the FEA, and ICW design and development are accomplished by contract, a separate FEA contract should be considered.

(2) The activity performing an in-house FEA should understand the capabilities and limitations of ICW. They should also understand other analysis factors affecting ICW that are described in Appendix A. However, any analysis that defines required training objectives can be used to buy or develop ICW training materials.

(3) The major impact of not considering ICW during the FEA is the amount of effort required to gather the missing analysis data. Some FEA work will be repeated to gather the analysis detail needed to design and develop ICW,

and determine the impact of the missing information on the training task and learning analysis. This effort is needed to identify and correct analysis data errors.

(4) Cost and schedule risks are greater when the FEA is not accomplished before negotiating an ICW DD/I contract. The reasons for the increased risks were described earlier.

4.6.2 Types of contracts. The acquisition/program manager should know the different types of contracts available to use in training program acquisitions and the basic differences between them. This section of the handbook introduces the different contract options allowed by the FAR/DFARS. It does not, however, provide the detailed information necessary to evaluate contract options. The program manager should work closely with the contracting officer to determine the type of contract most appropriate for a particular acquisition. The FAR/DFARS provide more detailed information on when and how to use each type of contract.

4.6.2.1 General. There are several different types of procurement contracts used to buy ICW. The following paragraphs discuss aspects of contract preparation and negotiation, and considerations for selecting the type of contract you should use to buy ICW. The types of contracts you can use to buy ICW are briefly described.

4.6.2.1.1 Introduction. Under a one step sealed bid acquisition, a contract is awarded directly to the responsive and responsible bidder who submits the lowest bid price without discussion of terms and conditions. The two step sealed bid contract method allows the contracting officer to negotiate some aspects of the contract, but the basis for award is still the lowest priced, technically acceptable bid. In the negotiation method, the contract type is usually a negotiable item along with cost or price, delivery schedule and other factors.

a. Contract negotiation entails: (1) reaching agreement with a proposed contractor on the pricing and performance terms, and other provisions conditioning performance or production, and (2) setting forth these terms in a contract that technically, contractually and legally protects the Government's interest and ensure delivery of acceptable items in time to meet operating needs.

b. The negotiator, buyer or contracting officer has the primary responsibility for negotiating the contract. The success of these efforts will depend largely on how well the requiring activity has carried out its responsibilities. It is also dependent on the adequacy of the information provided during pre-solicitation and solicitation.

4.6.2.1.2 Procurement spectrum and its effect on contract types. The services have many and varied ICW contracting needs requiring a number of contract types in order to meet specific requirements. Contract types differ principally in the amount of

responsibility or risk assumed by the contractor, and the amount and/or type of incentive provided for achieving certain goals.

a. In the Firm-Fixed-Price (FFP) contract, the contractor assumes full risk for performance of the work at the initially agreed upon price, regardless of costs. At the same time, the contractor keeps 100% of any cost reductions, providing great incentive to perform efficiently. In contrast, under a Cost-Plus-Fixed-Fee contract (CPFF), the contractor is reimbursed for all allowable costs thereby incurring minimal risk. The contractor has little reason to perform within the initially estimated price. The incentive to reduce cost is therefore almost non-existent.

b. There also exists a need for contractual arrangements by which the risk can be shared between the Government and the contractor. The rationale for these flexibly priced contracts can be stated as follows: As one proceeds through the product life cycle, the specifications for the item being researched, developed or produced become more detailed with accompanying increase in the certainty of cost estimates. This cost confidence should be accompanied by an increase in the contractor's willingness to assume cost risk. At the production end there is high cost certainty, and the firm-fixed-price form is a reasonable arrangement. There is a greater prospect for using sealed bids for which either firm-fixed-price or fixed-price with escalation are the only forms that may be used. Incentive arrangements, either fixed-price or cost-reimbursable, are designed with the objective of stimulating contractor performance and ensuring that performance is rewarded on its merit. Incentive arrangements with specific types of contracts are described later.

4.6.2.1.3 Selecting the contract type and terms for negotiation. One of the most important aspects of any negotiated acquisition is the selection of the most appropriate contract type and terms. The contracting officer has primary responsibility for making this selection. The provisions of every contract must adequately protect the Government's interests and comply with acquisition regulations. However, other Government personnel must support the contracting officer especially in areas requiring specialized technical expertise such as in ICW procurements. All personnel involved in the acquisition process should have knowledge of the solicitation/contract forms and terms.

a. The contract forms and terms not only establish the obligations and responsibilities of both the contractor and the Government, but also provide the regulatory framework of all acquisition action. They condition the functions of every person who has an interest in the particular acquisition. Conversely, the nature of the requirement as established and defined by the requiring activity, directly affects the type of contract that must be selected to fulfill the requirement.

b. The contact terms requiring the most careful consideration are those affecting the pricing of materials or services. Within the limitation of acquisition regulations,

pricing terms may be expressed in several ways. One, or a combination of two or more, will be appropriate for a specific acquisition.

4.6.2.1.4 <u>Selecting the proper type of contract.</u> DoD policy is to have contractors bear an equitable share of contract cost risk and to compensate them for the assumption of that risk. A contractor's risk associated with costs to perform under a Government contract is usually minimal under cost-reimbursement contracts. As acquisitions progress from basic research through follow-on production and supply contracts, the use of increased contractor-risk-assumption types of contracts is appropriate for increasing contractor responsibility for performance. The generally accepted progression of the acquisition spectrum, ranging from basic research through supply acquisitions, and from cost to firm-fixed-price contracts, is shown below:

<u>Type of Effort</u>	<u>Type of Contract</u>
Basic Research	Cost[1], Cost Sharing[2], CPFF[3]
Applied Research	Cost, Cost Sharing, CPFF
Exploratory Research	Cost, Cost Sharing, CPFF
Advanced Development	CPFF, CPAF[1]
Engineering Development	CPFF, CPAF, CPIF[3]
Operational System Development	CPIF, CPAF, FPI[3]
First Production	FPI
Follow-on Production	FPI, FFP[3]
Supply	FFP
Investigation, Research and Development	FFP Level of Effort[1]

4.6.2.1.5 <u>Contract type selection factors.</u> Many factors may govern selection of the most desirable type of contract for a given ICW acquisition. These include the:

a. Nature and complexity of the courseware or services required.

b. Urgency of the requirement.

c. Period of contract performance and the Government's quantitative requirements under the acquisition.

d. Degree of competition present in the solicitation.

e. Difficulty of estimating the contractor's costs or performance accurately, as is usually the situation in a FEA contract.

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[1] The Government assumes all risks with this type of contract.

[2] The Government and the contractor share risks with this type of contract.

[3] The contractor assumes all risks with this type of contract.

f. Availability of comparative data with which to evaluate the successful contractor's offer.

g. Government's prior experience with the contractor.

h. Extent and nature of the subcontracting contemplated by the contractor.

i. Degree of risk involved for the contractor.

j. Administrative costs to both parties generated by various contract types.

k. Government's need for information on the contractor's actual costs of performance (for use in pricing follow on acquisitions).

l. Size (in annual gross income and number of employees) of the contractor and the amount of the contract.

4.6.2.2 Fixed-Price-Type contracts.

4.6.2.2.1 Firm-Fixed-Price (FFP) contracts. A FFP contract contains an agreement to pay a specified price upon the delivery and acceptance of items or services. Unless performance is affected by other clauses (for example, the Changes clause), the contractor must perform for this price, regardless of the actual cost experiences or be liable for breach of contract. A FFP contract provides the contractor with the maximum incentive to avoid waste and devise more efficient, effective production and subcontracting methods. This type of contract is the simplest to administer by both the Government and the contractor.

4.6.2.2.2 Fixed-price contracts with economic price adjustment. Fixed-price contracts may include special clauses allowing for economic price adjustment when the contracting officer determines they are needed to protect the Government and contractor against significant economic fluctuations in labor or material costs, or to provide for price adjustments in the event of change in the contractor's established price. Adjustment may be upward or downward depending upon the occurrence of contingencies specifically defined in the contract. Adjustment may be based on established prices, labor and material costs (actual cost method), or on labor and material costs (cost index method).

4.6.2.2.3 Fixed-price incentive contracts. Unlike contracts providing for economic adjustment or for redetermination, an incentive contract is aimed at motivating the contractor to increase efficiency and reduce costs while producing the best possible item. Therefore, incentive provisions may cover areas of contractor performance (lower costs, better delivery schedule) and/or improved ICW performance (greater student-centered instruction, greater use of training prescriptions from pretests. The incentive contract, for example, will provide for establishment of the final contract price by application of an agreed-upon formula relating profit to total actual contract costs. Two kinds of fixed-price incentive contracts are currently being used: firm target (FPIF) and successive targets (FPIS).

4.6.2.2.4 <u>Fixed-price re-determinable contracts.</u> Re-determinable contracts provide a means of shifting certain indefinite risks from the contractor to the Government to exclude contingency allowances from the initially negotiated price. Redetermination is usually applied to acquisitions in which adequate estimates of material and labor quantities are not initially available, existing specifications are not accurate enough to set a FFP for the contract life, or sound initial estimate of the total cost of performance cannot be made. When a re-determinable type contract is used, the contract price can be adjusted either upward or downward at a selected point or points during contract performance. The redetermination provisions must be tailored to the specific need of the acquisition.

4.6.2.2.5 <u>FFP level-of-effort term contract.</u> This requires the contractor to provide a specified level of effort over a stated period of time. The work should be of such nature that it can only be stated in general terms.

4.6.2.3 <u>Cost-reimbursement-type contract.</u> Under cost-reimbursement contracts, the Government pays all allowable contract costs. These contracts are primarily used in the absence of a valid basis for estimating performance costs with sufficient reasonableness to permit use of a fixed-price contract. Negotiations at the start set an estimated cost as a basis for (1) obligating funds, and (2) establishing a ceiling that the contractor may not exceed without risk.

4.6.2.3.1 <u>Cost and cost-sharing contract.</u> The contractor receives no fee under either of these contract types. In the cost contract, the contractor is reimbursed for all allowable costs. With the cost-sharing contract, the contractor and the Government agree on the ratio by which they will share the costs. Both types are used principally in research and development work. The cost-type is normally used with non-profit organizations, and the cost-sharing when the contractor will receive substantial present and future commercial benefits from performance. However, certain limitations are imposed on the use of cost-sharing contracts.

4.6.2.3.2 <u>Cost-plus-incentive-fee contract.</u> Like its fixed-price counterpart, this contract type offers the contractor a higher fee (through application of a sharing formula) when the contractor performs at a cost lower than initially estimated. Initial negotiations set a target cost and a target fee. A maximum and minimum fee and a fee adjustment formula must be established within the maximums allowed by regulation.

4.6.2.3.3 <u>Cost-plus-award-fee contract.</u> The cost-plus-award-fee (CPAF) contract provides some incentive to a contractor in situations not susceptible to the finite measurement of performance necessary for structured incentive contracts.

4.6.2.3.4 <u>Cost-plus-fixed-fee contract.</u> This type of contract reimburses the contractor for all allowable costs of performance and pays a fee which is fixed during initial negotiations. This fee does not vary with actual cost including overruns. It can increase during performance if the scope of the work under the contract is increased or a change in work occurs within the scope of the contract but was not originally contemplated. Similarly, a decrease in fee can result if (1) the contract work is decreased, (2) a termination occurs, or (3) the contract is allowed to expire when the cost ceiling is

reached before contract completion (unless the contract requires only the best effort of the contractor).

4.6.2.4 Other contractual devices.

4.6.2.4.1 Time and materials and labor-hours contract. A time and materials (T/M) contract provides for acquiring supplies or services on the basis of: (1) direct labor hours at specified fixed hourly rates including wages, overhead, general and administrative expenses and profit, and (2) materials at cost including, if appropriate, material handling costs as part of material costs. The contract sets forth a rate of payment for each direct labor-hour. This negotiated rate includes an allowance for overhead and profit. The contract also provides that the Government will reimburse the contractor at "cost" (as defined in the contract) for materials used. The labor-hour contract is a variation of the time and materials contract, differing only in that it does not provide for payment for materials. Use of the T/M form of contract is suitable only when it is not possible at the time of placing the contract to accurately estimate the extent, duration or cost of the work (engineering and design services relating to production; repair, maintenance, or overhaul; ICW front-end analysis).

4.6.2.4.2 Letter contracts. A letter contract is a preliminary contractual instrument. It is used in instances where a contractor must be given a binding commitment to begin work immediately in the interest of national defense, and a definitive contract cannot be negotiated in time to meet the acquisition requirement. The letter contract is only an expedient and should never be used as a substitute for careful planning. The FAR states that a letter contract should be used only after a written determination has been made that no other type of contract is suitable. It should be converted to a definitive contract as soon as possible. The FAR and implementing departmental instructions place many restrictions and requires high-level approval of its use.

4.6.2.4.3 Indefinite delivery-type contract. If the exact delivery date(s) or quantity is unknown when the contract is written, a choice may be made from three types of indefinite delivery contracts:

4.6.2.4.3.1 Definite quantity contract. A definite quantity contract provides for delivery of a specific amount of supplies within a given period, at designated locations, on the order of the Government.

4.6.2.4.3.2 Requirements contract. A requirements contract obligates the contractor to fill all the acquisition requirements of designated activities for specific supplies or services as orders are placed during the contract period.

4.6.2.4.3.3 Indefinite quantity contract. An indefinite quantity contract is similar to the definite quantity contract except that no specific quantity is stated. The contract establishes minimum and maximum limits on the amount that can be ordered at one time and on total quantity.

4.6.2.5 Special contracting methods. Certain types of contracts described above may include contracting options beneficial to the Government. Contracting methods potentially beneficial in an ICW acquisition are the multi-year contract or the inclusion of contract option years. These special contracting methods are addressed further in the FAR, Part 17, and DFARS, Part 217.

4.6.3 Contractual considerations. Before proceeding to develop a contract package to purchase ICW materials, there are several alternatives and policy issues to consider. These may cause you to reconsider whether or not there is a need for a separate and costly contracting effort. Other means may be available that will meet your needs. When a separate contracting effort is appropriate, there are regulatory requirements to satisfy throughout the acquisition process.

4.6.3.1 Full and open competition. The Government requires using a competitive, fully open contract negotiation process (FAR, Part 6). The competitive procedures available for use in fulfilling this requirement are sealed bids, competitive proposals, or a combination of these competitive procedures. If sealed bids are not appropriate, contracting officers request competitive proposals or use other competitive procedures (for example, two-step sealed bidding, sealed bid - negotiation).

4.6.3.1.1 Exclusion of a particular source. There may a valid need to exclude a particular vendor from an otherwise full and open competition. Acceptable reasons to exclude are given in the FAR, Part 6. An exclusion requires a Determination and Finding (D&F).

   a. Technical and requirements personnel are responsible to provide all data necessary to support any recommendation to exclude a vendor from a specific solicitation.

   b. The information requirements and format for the D&F to exclude are in the DFARS, Part 206.

4.6.3.1.2 Other than full and open competition. Contracting by other than full and open competition is allowed under certain conditions and limitations. There are legal statutes which recognize this Government need. Detailed information about circumstances which permit using other than full and open competition is available in the FAR, Part 6, and the DFARS, Part 206. The accepted reasons for taking this contracting approach are:

   a. Only one responsible source exists for the supplies or services needed and no other supplies or services will satisfy the agencies needs. This is referred to as a sole source purchase.

   b. An unusual and compelling urgency exists which precludes entering into a lengthy acquisition procedure. Acceptable reasons to cite this provision are associated with natural disaster relief or recovery operations, or potentially serious mission circumstances.

c. To establish or expand the industrial mobilization; or engineering, developmental, or research capabilities within a particular supplies or services area.

4.6.3.2 <u>Small business and small disadvantaged business concerns.</u> DoD policy is to place a fair proportion of its total purchases and contracts for supplies, research and development, and services with small business concerns. Additionally, Section 8(a) of the Small Business Act (15 U.S.C. 637 (a)) allows the Small Business Administration (SBA) to enter into contracts for supplies, services, and construction. Contracts awarded to or through the SBA are referred to as "8a set-asides." This type of contract award for ICW procurement has advantages and disadvantages, depending on the type of contract being solicited and the product or services being procured.

a. A small business concern is independently owned and operated, is not dominant in the field of operation in which it is bidding, and can further qualify under criteria (size standards) set up by the SBA. These standards vary depending upon the industry whose products or services are being bought. Therefore, a firm that provides different products and services can be considered both "small" and large at the same time. For example, the standard for engineering services (other than marine engineering services) is $7.5 million in average annual receipts for its preceding three fiscal years. The standard for computer programming services is $4 million. For manufactured products, the standards are established by the number of employees (plastics, 50 employees; steel pipe, 1,000 employees; aircraft, 1,500 employees.)

b. A small disadvantaged business concern is a small business concern that is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged. It can also be a publicly owned business having at least 51 percent of its stock owned by one or more socially or economically disadvantaged individuals and has its daily business controlled by one or more such individuals.

c. The SBA funds any costs to DoD that are in excess of the estimated current fair market price anticipated under normal contracting procedures. These costs are known as business development expenses. These include start up, make-ready, training, or similar initial investment or learning costs. (FAR 19.801)

d. Specific policy and procedures for dealing with small business concerns and small disadvantaged business concerns are included in Part 19 of the FAR/DFARS. When a solicitation is "set aside" for small business, the solicitation package must clearly indicate the small business size standard and product classification.

4.6.3.2.1 <u>Small business set-aside contracts</u>. The contracting officer may set-aside all or a portion of a solicitation for award to small business. It is also allowable to divide large contracts (over $1 Million) to preclude the requirement to post a bond. The contracting officer assures small business concerns have an equitable opportunity to compete for Government contracts consistent with the needs and interests of the Government.

4.6.3.2.2 <u>Small and socially and economically disadvantaged business 8(a) set-aside contracts</u>. Section 8(a) of the Small Business Act (15 U.S.C. 637 (a)) allows the SBA to enter into all types of contracts with other agencies, and let subcontracts to socially and economically disadvantaged small business concerns eligible for program participation. Contracts under section 8 (a) of the Act are between the agency with the requirement and the Small Business Administration, and not with the actual small business concern.

a. Acquisitions such as ICW procurements are selected for 8(a) set-aside through cooperation between the SBA and the agency. When the potential exists for either a small business or 8(a) set-aside, the FAR requires that procurement publicity include notices to the SBA for possible identification of a qualified business concern.

b. When the SBA offers contract support through the 8(a) program, the requiring agency should evaluate several areas before agreeing to an 8(a) award.

   (1) Its plans to acquire the specific items or work that 8(a) contractors are seeking to provide. Consider the quantities required and performance or delivery requirements, including required monthly production rates.

   (2) Consider plans to acquire items or work similar in nature and complexity to that specified in the acquisition plan.

   (3) Problems encountered in previous acquisitions of the items or work from 8(a) concerns and other contractors.

   (4) The impact of any delay in delivery or performance.

   (5) Whether or not the items or work have been previously purchased through small business set-asides.

   (6) Any other pertinent information known about 8(a) contractors, the items, or the work. This includes any information concerning the 8(a) firm's capability.

c. When an 8(a) contract is offered, accepted and adequately performed, the agency is committed to using 8(a) contractors in the future. It is the agency's responsibility to review the qualifications and capabilities of the 8(a) contractor before accepting this contract vehicle.

d. Additional 8(a) contracting considerations regarding competitive acquisitions (FAR, Part 15), pre-award considerations, and contract preparation are addressed in the FAR, Part 19.

4.6.3.3 <u>Sealed bid and negotiated contract strategies</u>. Although either a sealed bid or negotiated contract could be used in an ICW acquisition, the sealed bid contract is not as likely to result in a cost effective, efficient acquisition.

a. Sealed bid contracts are firm fixed price contracts (FAR, Part 14. The FFP contract requirement makes the sealed bid contract inappropriate for front-end analysis. You could apply the two step sealed bid process to ICW DD/I requirements. If you do, prepare the solicitation/contract package very carefully.

b. Because of the complexities of ICW training programs, a negotiated contract is normally most appropriate. You should consider a negotiated contract that uses best value source selection criteria. Best value contracts are difficult to prepare, however.

4.6.3.4 <u>Interagency contracts</u>. Before beginning to develop an ICW acquisition package, determine whether or not another federal agency has a contract you can use. Under the Economy Act (31 U.S.C. 1535), one agency can place orders with another agency for supplies or services. The servicing agency may supply, render or obtain by contract the supplies or service you need. The requesting agency head determines whether or not this approach is in the best interest of the Government. The following paragraphs identify Government agencies that may have an existing indefinite quantity contract (IQC) or other contract vehicle. If they do not have an IQC, they may be able to identify an activity that does have a contract vehicle you can use.

4.6.3.4.1 <u>U.S. Office of Personnel Management (OPM) - Office of Training and Development (OTD) contracts</u>. The OPM Office of Training and Development, Washington, DC, offers a variety of services to federal agencies. OPM-OTD offers low cost service to agencies in need of instructional technology resources. It has several companies under contract to provide a wide range of training and development services. These services are arranged and managed as reimbursable assistance projects under interagency agreements. OPM charges a contract management fee for their services. OPM-OTD provides quality control of contractor products as part of their contract management service.

4.6.3.4.2 <u>DoD Agency contracts</u>. Within the DoD, there are several agencies and the military services engaged in the acquisition of training programs and materials. Many have IQCs in effect. Many service agencies responsible to support operational unit training requirements are involved in managing training contracts. They should be contacted about existing contract vehicles before entering into the lengthy acquisition process. You should contact key training support activities within your agency or activity to determine whether or not there are existing contract vehicles you can use.

4.6.3.4.3 <u>Videodisc mastering and replication contracts</u>. Including videodisc mastering and replication requirements in the contract is easy. However, the most cost-effective way to get your ICW videodiscs is probably through existing videodisc contracts. Before including videodisc mastering and replication in the contract, determine whether or not a current Government contract is available. The U.S. Army maintains a videodisc mastering contract administered by Tobyhanna Army Depot, Tobyhanna, PA. The Air Force also maintains a contract administered by the Air Force Audio/Visual Service (AAVS), Norton AFB, CA. Either of these contracts should be more cost effective.

4.6.3.5 <u>Interagency funding</u>. Using another agency's contract will require that your agency transfer funding to pay for the supplies or services.

4.6.3.5.1 <u>Commitments</u>. A commitment is the first stage of accounting for funds (moneys) and occurs when documents are initially certified by the Accounting and Finance Officer (AFO). In essence, they are saying funds are available to cover a specific dollar amount for a designated requirement.

a. The DD Forms 448, Military Interdepartmental Purchase Request (MIPR), is one such commitment document used between agencies of the DoD. The individual *services also have other funding documents that indicate and authorize their* agencies to incur an obligation against their funds.

b. A commitment reserves a specific amount of funds for a specified purposes such as supplies, material and equipment. They authorize the creation of an obligation without further approval from the official who certified the availability of funds. A commitment can always be canceled before a contract is awarded or a delivery order is processed against a requirements-type contract, since the funds were only reserved to cover the cost of a contract.

4.6.3.5.2 <u>Creating commitments</u>. The first person you must see before you enter into any type of commitment is your comptroller or financial advisor. Always coordinate all actions with this office before you try to commit funds.

a. A DD Form 448, Military Interdepartmental Purchase Request (MIPR), is used when ordering from other DoD agencies. MIPRs are requests for material or services between DOD agencies. They are issued on a reimbursable (Category I) or a direct citation (Category II) basis.

b. Under the Category I (reimbursable) MIPR, the performing agency uses its funds to accomplish the MIPR requirements, and bills the requesting agency for the costs incurred for supporting the MIPR. Under the Category II (direct citation) MIPR, the performing agency cites the requesting agency's accounting classification on the contractual documents and pays the contractor citing the requesting agency's fund.

c. At the end of the fiscal year, Category I MIPR balances must be de-obligated to the extent that the performing agency has not incurred valid obligations to complete the order. To determine the amount to de-obligate, the ordering activity must obtain a statement as to the work completed, or contracts let, from the performing agency, and the amounts which the performing agency claims reimbursement under the order. This statement supports the de-obligation.

4.6.4 Pre-proposal conference strategies. You should consider having a solicitation/contract pre-proposal conference (FAR, Part 15). ICW contracts are complex solicitations which are difficult to interpret and estimate...A pre-proposal conference that addresses the background and scope of the Government's ICW requirements should result in more complete and accurate vendor proposals. Proposal evaluation and source selection would be equally improved. If you think a pre-proposal can improve your ICW acquisition, discuss this with your contracting officer. Be prepared to explain how the pre-proposal conference will improve the acquisition process and the final ICW product.

4.6.5 Progress reports and delivery strategies. An integrated schedule of progress reports, and IPRs on key FEA and DD/I documents will reduce duplicate review work efforts. Establish document delivery schedules before determining requirements for progress reports. Then schedule progress reports for contract management during extended periods between IPRs.

4.6.6 Source selection strategies. Assure that source selection criteria is based upon the specifications and work requirements in Section C of the solicitation package. Sections L and M of the solicitation package should track with the criteria established in the source selection plan, with Section C of the solicitation package, and with each other. It is extremely important that these areas match to prevent source selection problems and protests to contract award. The acquisition/program manager should evaluate the available source selection options, and the factors and considerations presented in the following paragraphs. After considering each option and specific program requirements, discuss alternative strategies with the technical requirements activity and the contracting officer. Select the best source selection strategy based on these discussions.

4.6.6.1 Strategy considerations. Determining the best strategy to use in an acquisition requires that several factors be evaluated. The complexity and total dollar value of the acquisition determines how each factor is decided.

4.6.6.1.1 Competition. The Government prefers full and open competition. However, circumstances and conditions may warrant and justify limiting competition or not using a competitive process. Exceptions to full and open competition might involve limiting the acquisition to small business or excluding specific sources for justifiable reasons. A contract specification that includes very complex requirements, new technologies, or proprietary technologies or data may justify a non-competitive a sole or dual source acquisition.

a. Using full and open competition requires a decision about whether to use a sealed bid or negotiated contract strategy. The source selection procedures used with sealed bid and negotiated contracts are described below.

b. Competition may be restricted to qualified small business or small disadvantaged business concerns when sufficient competition is realistically expected. Limiting competition to small business requires careful consideration of each potential vendor's ability to perform contract requirements. There are several small and small disadvantaged business concerns capable of performing analysis and ICW design and development.

c. Another option is to award the contract to a qualified small disadvantaged business under the provisions of section 8(a) of the Small Business Act: the 8(a) set-aside.

d. Other sealed bid and negotiated contract factors, and contracting options were described earlier (see 4.6.3).

4.6.6.1.2 Source selection method. There are four different methods used in source selection; sealed bid, the FAR minimum source selection and formal source selection procedures, and the DoD 4-step source selection procedure. Each of these methods is described in later paragraphs. The source selection method used is determined by the complexity and dollar value of the Government's requirements and any specific requirements of your agency.

4.6.6.1.3 Selection factors. Certain facts pertaining to a particular acquisition influence source selection strategy decisions. These factors affect the risks involved for the contractor and the Government.

a. How well the Government can define its requirements affects decisions about the type of contract to use, and whether or not enough potential sources are available for competition. This also affects the source selection method most likely to result in choosing the best vendor.

b. Consider the need for and value to the Government of trade-offs between operational capabilities and cost. The level of competition and the source selection process should encourage innovation, and support and consider best or greatest value in source selection. The solicitation package should clearly encourage vendors to submit alternative proposals which may provide a greater value to the Government. ICW acquisitions have a high potential for vendor trade-off considerations because of evolving design and development techniques.

c. Potential market sources and the ability of those sources to provide the required supplies or services is another factor. This factor relates to the factors described above and may warrant contract award based upon a sole or dual source

solicitation. This factor is very important in ICW requirements which include artificial intelligence/ expert system instructional designs.

d. Carefully consider acquisition streamlining benefits. Where streamlining is a good approach to selecting the greatest value contract, include streamlining provisions in the solicitation package. The source selection method should consider vendor streamlining initiatives. MIL-HDBK-248 covers this aspect of source selection in more detail.

4.6.6.2 Selection process. The source selection process consists of four basic steps, regardless of the method used. This process includes solicitation and receipt of vendor bids/proposals, evaluation of proposals for technical adequacy, negotiation/best and final offers (BAFO) (when allowed by the FAR/DFARS), and contract award. The following paragraphs describe the methods used to carry out this basic process.

4.6.6.3 Source selection planning. Planning contract source selection is critical to a successful acquisition. The source selection process must determine which vendor's proposal meets the SOW technical requirements and is cost effective. Being cost effective does not necessarily mean the lowest priced. The vendor submitting the lowest priced proposal may not understand the contract requirements or work effort needed to meet those requirements. To assure selecting the best source, get people who understand the contract requirements to help you develop the source selection plan.

a. This handbook describes four different source selection procedures. These are the sealed bid process, the minimum negotiated contract selection process, the formal source selection process outlined in the FAR, Part 15, and the DoD "Four-Step" source selection procedure outlined in the DFARS, Part 215.

b. The DFARS, Part 215, states that negotiated contracts (FAR, Part 15) that do not use either the FAR formal source selection or the DoD "four-step" procedures will use the minimum source selection procedures in the FAR, Subpart 15.6.

4.6.6.4 Sealed bid process. You can use sealed bid procedures in ICW acquisitions if total costs are within limits and criteria established by the FAR/DFARS. Sealed bid requirements and procedures are contained in the FAR/DFARS, Part 14/214. Sealed bidding procedures include the basic, or one step, and two step formats.

4.6.6.4.1 One step sealed bid procedures. The one-step sealed bid process involves preparing the invitation for bids, Bid publicity, receiving proposals, proposal evaluation, and contract award. The specific FAR/DFARS requirements of each step are similar to those used in a negotiated contract (see 4.2.4).

a. Prepare the invitation for bids using the uniform contract format (see 4.8) or the simplified format outlined in the FAR, Part 14.

b. Mailing the bid package to potential sources on a vendors list satisfies publicity requirements. The contracting officer maintains this list. For large or complex acquisitions, the contracting officer may mail a notice of intent to invite bids to these vendors. The contracting officer only sends a bid package to vendors who request it.

c. Vendors have at least 30 days to prepare a proposal. The exact date and time for receipt of the proposals is set in the bid package.

d. Vendor proposal evaluation is done similar to negotiated contract evaluations. Evaluations consider most of the factors affecting best value selections (see 4.6.6.9). Discussions with the vendors are not allowed, however.

e. Sealed bid contracts are required to be firm-fixed-price type contracts. These contracts may include incentive provisions, but using incentive clauses in sealed bid contracts in restricted by the FAR and DFARS.

4.6.6.4.2 Two step sealed bid procedures. The two step sealed bid procedure is designed to provide the same benefits as the one step process. Use the two step process for packages with poorly defined requirements or specifications.

a. Step one of the two step process prepares the bid package and asks vendors to submit a technical proposal. Evaluate each technical solution for compliance. The contracting officer can hold discussions with vendors to clarify technical issues.

b. In step two, the contracting officer invites vendors who submitted technically acceptable proposals to submit a sealed, priced bid. The contracting officer processes sealed, priced bids like one step sealed bids.

4.6.6.5 Minimum source selection requirements for a negotiated contract. The FAR, Subpart 15.6, contains minimum source selection requirements for a negotiated contract. The minimum procedures include: solicitation for proposals, evaluation of proposals, determination of the competitive range, discussions and BAFO, evaluation of BAFOs, and source selection. These are the same procedures used in the formal source selection process described below. This process does not require the formal source selection plan and designated source selection authority, however. The FAR, Part 15, provides minimum source selection requirements.

4.6.6.6 FAR formal source selection process. A formal source selection process is normally used in ICW acquisitions. The formal selection process is used because of the complexity of vendor proposals and ICW technical issues. A source selection process is formal when a specific group structure is set up to evaluate proposals and select the source for contract award. The formal source selection process requires development and approval of a source selection plan. The plan is approved before holding a pre-solicitation conference or issuing the solicitation. The acquisition plan's plan of action describes the

source selection process. The actual source selection plan can, however, be developed and finalized after the acquisition plan is completed.

4.6.6.6.1 Source selection organization. The formal source selection process sets up a source selection organization consisting of an evaluation board, advisory council, and designated source selection authority. The source selection plan provides a brief description of the source selection organization and identifies key individuals.

4.6.6.6.2 Acquisition strategy. The plan should include a summary of the acquisition strategy. It should clearly describe the purpose and function of any pre-solicitation activities, and identify the expected benefits of those activities.

4.6.6.6.3 Evaluation factors. The source selection plan should clearly describe the proposed proposal evaluation factors and explain their importance to the source selection process. The plan should also describe the evaluation process, methodology and techniques for source selection. A schedule of significant source selection milestones is also required.

a. The plan should clearly describe each evaluation factor and its relationship to Government requirements. This is needed whether source selection is based on the lowest cost, technically acceptable proposal or on a greatest value to the Government determination.

b. Best or greatest value source selection factors should include specific information about what constitutes technical compliance. When compliance is defined, you can then define what contractor performance and ICW capabilities exceed technical acceptance. You can then describe how these performance and capability factors represent a greater value to the Government. Describe how these best value factors improve performance or operational capability, or reduce ICW life cycle cost estimates.

c. The acquisition and program managers, and the agency responsible for technical requirements work together to identify evaluation factors. When a best value source selection is planned, a collective effort is absolutely necessary. A coordinated effort is required to identify performance and capability factors that exceed minimum requirements.

4.6.6.6.4 Source selection authority. The nature and cost of the acquisition and individual service or agency criteria determines whether or not a source selection authority (SSA) is required. When source selection requires a SSA, formal appointment is required. The SSA must reside at a management level above the contracting officer. The SSA is responsible to set up a formal evaluation group structure appropriate for the specific acquisition. The SSA is also responsible to approve the source selection plan. The SSA uses the following factors to select the source.

a.　The SSA considers any rankings, rating and recommendations prepared by the evaluation team to aid in selecting the best source. It is very important that reports prepared by the evaluation team clearly describe the technical merit of each offeror's proposal. The report should describe how well the proposal complies with solicitation requirements (see 4.10).

b.　The SSA has final authority for source selection. The SSA must document the decision processes used in the selection. The final report must clearly describe the relative differences between proposals, to include their individual strengths and weaknesses. The report documents any source selection risks that are due to the evaluation process or evaluation factors.

4.6.6.6.5　Plan content. When the formal source selection process is used, a source selection plan is also required. Whether a formal source selection process is used or not, you should consider each of the source selection plan requirements described in the following paragraphs.

a.　A description of the source selection organization structure.

b.　A discussion of planned pre-solicitation activities, and the purpose and intent of these activities.

c.　An acquisition strategy summary that describes the type of contract selected, negotiation strategies, best value selection strategies, and other factors affecting source selection.

d.　A statement of the proposal evaluation factors and their relative importance to source selection.

e.　A description of the evaluation process, methodology and techniques. This is an important part of the plan. This portion of the plan should clearly describe how source selection will evaluate each evaluation factor. Describe the plan criteria for determining which proposal best meets the Government's requirements for cost, performance, and technical capability.

　　(1)　Describe best value source selection criteria. Explain how each exceeded requirement provides a better value to the Government. Capability demonstrations, past performance on similar contracts, technical superiority, offers that exceed the minimum capability requirements, and future technical support capabilities are factors you could include in a best value source selection plan.

　　(2)　Evaluation of total cost and the quality of goods and services is required in all source selections. Neither cost nor quality have to be the most important factors, however. The FAR/DFARS, Part 15/215 outlines cost evaluation criteria. Quality evaluation factors include technical excellence,

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management capability, personnel qualifications, prior experience, past performance, and schedule compliance. Note that acceptable quality evaluation factors also indicate greater value.

f. A schedule of significant source selection milestones.

4.6.6.7 DoD "four-step" selection process. The DoD "four-step" source selection procedure is an alternate selection process recognized by the FAR, Subpart 15.613. The DoD process limits discussion with the offeror during competition. The DoD process is used when Government evaluation of initial proposals provides enough information for source selection without discussion of proposal deficiencies with the vendor. The DFARS, Subpart 215.613, provides more detailed information about the DoD 4-step process. The DoD procedures:

a. Focus attention on technical excellence,

b. Maintain the integrity of each offeror's proposal,

c. Provide visibility of discriminating features between proposals,

d. Reduce the opportunity for buy-ins,

e. Prevent using auctioning techniques, and

f. Assure a disciplined and orderly source selection process.

4.6.6.7.1 Restrictions. The DFARS places certain restrictions on using the DoD "four-step" process. These restrictions apply to acquisitions which must conduct negotiations to obtain the best contract. The DoD process is inappropriate when one or more of the following conditions exist.

a. Full and open competition is not used citing FAR, Part 6, authority.

b. The acquisition is solely for personal or non-personal services. ICW DD/I contracts that do not include device specifications (for example, ICW turn-key systems) are normally non-personal services contracts. The You should not consider the DoD "four-step" selection process under these conditions.

c. The estimated value of the contract is less than $2 Million.

4.6.6.7.2 Step One - Evaluation and discussion of technical proposals. Technical proposals receive a detailed technical evaluation based on the solicitation criteria. When technical evaluations are complete, The contracting officer has limited discussions with all offerors. These discussions assure vendor understanding and clarify proposal contents. Offerors are not told of any proposal deficiencies during these discussions. Offerors are

allowed to provide proposal clarifications, however. When necessary, the offeror includes additional information with the cost/price proposal submitted in step two.

4.6.6.7.3 Step Two - Evaluation and discussion of cost/price proposals. Step two of the process gets fully documented cost/price proposals and clarification of technical proposals from the vendors. Each cost/price proposal is evaluated and non-competitive vendors are no longer considered. The contracting officer can conduct limited discussions with competitive vendors to correct minor errors or clarify proposal content. Proposals are reviewed again after these discussions to identify non-competitive proposals and remove them from further consideration.

4.6.6.7.4 Step Three - Common cut-off. At the end of step two, a common cut-off date is set up for receipt of any additional technical and cost/price proposal information. All remaining competitors have until that date to prepare and submit proposal clarifications and substantiations. Except when approved by the head of the contracting activity, the contracting officer cannot request more clarifications or substantiations after the cut-off date. Final contract negotiations are deferred until after source selection.

   a.   All proposals in the competitive range receive a complete evaluation of all solicitation factors and criteria. Evaluations are based upon the offeror's latest acceptable technical and cost/price proposals. This process selects a single offeror for further negotiation.

   b.   Source selection uses an integrated decision process that considers technical approach, capability, management, design to cost, operating and support cost objectives, historical performance, price/cost, and other factors identified during source selection planning.

4.6.6.7.5 Step Four - Final negotiations and contract award. The contracting officer conducts final negotiations with the selected vendor. Final negotiations include disclosure and resolution of all technical deficiencies and all unsubstantiated costs. Negotiations cannot change Government requirements nor the contractor's proposal if the change will affect the basis for source selection. After the contract is negotiated, the contracting officer conducts any formal debriefings required by the FAR/DFARS.

4.6.6.8 Capability demonstration. You can require potential vendors to demonstrate or show they can perform the ICW work if there is doubt about whether or not a responsible source exists. Comply with the FAR/DFARS, Part 9/209, if you will require a capability demonstration. The decision to qualify vendors requires close coordination between the technical activity, the acquisition/program manager(s) and the contracting officer. There are alternatives to the formal vendor qualification process. The alternatives are using either sample work tasks performed and documented in the vendor's proposal or solicitation-specific questionnaires completed by the vendor.

4.6.6.8.1 Work Samples. You may require work sample inputs in the proposal and can use those samples in the source selection. You should work closely with your

technical experts to develop a work sample scenario or task description. The solicitation package provides vendors with any information needed to accomplish the work sample. Vendors develop their work sample according to a specific, referenced section of the SOW and submit it with their proposal.

a. You might, for example, require the vendor to follow particular work tasks in the SOW to prepare and submit a Media Selection Model Report conforming to DI-ILSS-81072. This work sample is appropriate for a FEA contract that will probably include some ICW training program requirements. You could use a scenario with sample FEA and technical materials to require developing a sample ICW design strategy document. The resulting work sample is some part of an Instructional Media Design Report, DI-ILSS-81091. Your work sample criteria would specify compliance with specific paragraphs of the design report. You might include a requirement to develop a sample Training Material Change Package in accordance with DI-ILSS-81106, in an ICW ILS solicitation package.

b. You can include requirements to develop and submit work samples in 8(a) set aside contracts. By requiring the Small Disadvantaged Business (SDB) concern to submit an appropriate work sample, you can determine how well they understand contract requirements and the complexities of the work to be performed. Depending upon the SDB's ICW experience, you can use actual contract work requirements instead of a sample or scenario. With this approach, the SDB can apply the work sample toward the actual SOW requirements.

c. When vendors prepare and submit work samples, you must develop criteria for evaluating those inputs. The work sample should show whether or not the vendor understands the contract requirements and ICW complexities. The examples described above evaluate the vendor's understanding of ICW applications (media model), design (media design strategy report), and maintenance (change package) requirements. You can use other areas of analysis, and ICW DD/I to support work sample requirements. Select an area that is representative of the ICW work complexities in your program.

d. When defining a work sample requirement, be careful about placing an excessive proposal development workload on the vendors. Solicitation packages that impose excessive work may result in fewer proposals. This could impact meeting your agency's competition goals.

e. Include work sample requirements in Sections L and M of the contract package. Section M should explain how the work sample will affect source selection.

4.6.6.8.2 Questionnaires. A questionnaire can provide added insight about vendor capabilities. Questionnaires can ask the vendor about how the contract work tasks will be performed and managed. Questions can be very specific. When source selection includes a questionnaire, include it in section M of the solicitation package. Section M should also indicate the questionnaire's relative importance in the source selection process.

a. Questionnaires can ask the vendor to explain how they will apply their specific organizational structure and internal management procedures to contract performance. Questions may relate SOW requirements to areas such as the company's: organization, ICW experience, operational controls, staff technical skills or ability to get them, production control procedures, and quality assurance procedures. You can include other questions about specific ICW solicitation requirements needed to help you select a qualified source.

b. Another area to address in DD/I and ILS solicitation questionnaires is the use of technology in ICW design and development. There are several existing and emerging graphic and digital video technologies which can significantly reduce the work effort required to produce ICW materials. Whether designing and developing original ICW materials or performing maintenance on existing materials, these technologies can greatly reduce contract costs when properly employed.

c. Questionnaires can ask vendors to explain how their proposal provides a greater value to the Government. Include questions asking for specific explanations of how their proposal provides a greater value. Ask specific questions about source selection factors you think will help identify best value proposals. The vendor's answers can greatly improve Government understanding of each proposal. They will also provide insight into vendor perceptions of what factors provide greater value to the Government.

4.6.6.9 Lowest cost, technically acceptable source selection strategies. A source selection strategy used most often selects the proposal that is technically acceptable and provides the lowest life-cycle costs to the Government. This strategy can employ weighted evaluation factors, require work samples, and use questionnaires designed to identify vendor management, quality assurance and ICW capabilities.

a. The technical evaluation plan for a lowest cost, technically acceptable source selection strategy should address all technical requirements of the solicitation/contract package. Develop a comprehensive checklist that identifies all technical requirements. The proposal evaluation team uses the checklist to verify a proposal is compliant. The plan should not include any requirements or provisions to identify proposal contents which exceed solicitation technical requirements. Only non-compliance with the requirements needs to be identified during proposal evaluation.

b. Figure 4 is a sample technical evaluation plan for a lowest cost, technically acceptable source selection. This sample plan is based upon a solicitation package that required submission of an ICW design strategy as a work sample. The sample plan includes a series of checklists that check and verify that each vendor proposal meets each technical requirement of the solicitation package. Note, too, that the sample plan includes evaluation board and evaluation team member responsibilities and operating procedures. The plan includes non-

disclosure statements evaluation team members complete before participating in the source selection.

4.6.6.9.1 Questionnaire responses. The vendor's answers to questionnaires give significant information about the vendor's ability to provide a quality product for the cost. Your source selection plan should include evaluation criteria appropriate for each question included in the questionnaire. This criteria should identify responses that satisfy minimum requirements of the solicitation. Evaluate specific questions and answers in the applicable source selection area. For example, you would evaluate management questions with other management requirements. Evaluate questions dealing with the vendor's approach to performing solicitation requirements with other technical approach subjects, include questions about cost and pricing with other cost factors, and so on.

4.6.6.9.2 Work samples. If the solicitation includes the requirement to develop and provide a work sample, the sample work should carry considerable weight in the technical approach equation. Develop specific, detailed evaluation criteria for the work sample. Using the design strategy work sample as an example, evaluation criteria might address the following areas.

a. Does the vendor's media selection model show an understanding of appropriate ICW applications?

b. Does it show the importance of various media features to the instructional requirements?

c. Does the design strategy indicate an understanding of student interactivity requirements to achieve instructional objectives?

d. The evaluation criteria should include procedures and criteria for rejecting proposals as unresponsive when evaluation of the work sample demonstrates the vendor does not understand the contract work requirements or ICW design complexities.

4.6.6.9.3 Approach to work performance. The source selection process considers how the vendor intends to manage work performance and assure product quality. Define acceptable management and quality assurance requirements in the evaluation plan. Assure you include criteria for evaluating the vendor's approach to managing and meeting performance schedules.

4.6.6.9.4 Staff experience in similar ICW efforts. Establish criteria for vendor personnel experience level requirements. Personnel experience criteria should correlate to the ICW scope of work to be accomplished. Experience in analyzing, designing and developing traditional training materials may not transfer to ICW design and development. The expected complexity of the ICW materials determines the importance of staff experience criteria for vendor technical capability requirements. Training that involves complex learning (analysis, application, problem solving) requires higher ICW categories of

interactivity. They require ICW that uses complex branching and gaming design strategies. Vendor staff experience is critical when the training program includes complex ICW design strategy requirements. The more complex the training designs are, the more critical staff experience becomes.

4.6.6.9.5 Vendor's experience in similar ICW efforts. What is the vendor's experience level in ICW training program analysis, design and development? Are samples of this work required by the solicitation and provided for review and evaluation? How successful were these previous ICW program efforts? Evaluation criteria should identify minimum experience requirements that directly relate to the ICW work descriptions in the SOW.

4.6.6.9.6 Vendor's organizational structure and management plan. This factor closely parallels the factor in 4.6.6.9.4. You could reasonably evaluate both factors with a single list of criteria. Define those minimum requirements that demonstrate the vendor's ability to perform successfully, and meet or exceed quality and delivery schedule requirements.

4.6.6.9.7 Cost and cost realism. All source selections must consider cost regardless of the type of contract or source selection process used. Source selection should weight the importance of cost and cost realism based upon the overall complexity of the total requirements. You should consider cost more important in simpler ICW program requirements than in programs that include highly complex design strategies (see 4.6.6.9.4). As design complexity increases, the source selection value of cost and cost realism should decrease. The value of the vendor's corporate and staff personnel ICW experience, and technical approach to contract performance should increase as design complexity increases.

4.6.6.9.8 Other factors. The particular ICW contract effort may require consideration of other source selection factors. A contract requirement to develop ICW for two or more skill levels would impose unique design and development requirements. A requirement to support two or more ICW applications, such as both formal training and OJT, would also increase design complexity. These factors could indicate a need for slightly different source selection and proposal evaluation criteria. For example, the value of vendor's staff and corporate ICW experience in similar ICW efforts might become more important.

4.6.6.10 Best value source selection strategies. You should consider and evaluate several factors to develop the best strategy for making a best or greatest value source selection. The principle difference between a low cost, technically acceptable and a best value source selection is deciding what technical and performance improvements give greater value to the Government. The best value approach is, therefore, less objective than low cost-technically acceptable criteria. The best value source selection strategy requires more work and planning to develop Sections C, L, and M of the solicitation/contract package. The source selection plan also requires more work and planning.

a. Best value source selection requires that you identify ICW capabilities and performance which exceed SOW requirements. A best value source selection would identify vendor management, staff and corporate ICW experience, technical approach, and other factors exceeding minimum SOW requirements. The source selection and technical evaluation plans should describe how each of these factors provides greater value to the Government when they are exceeded. The plans should also describe how much the vendor must exceed each factor before the Government gains value.

b. *Those factors that represent a greater value are not, necessarily, included in section M of the solicitation package. You do include them in the source selection plan, however. The source selection plan should clearly describe each best value factor and reflect valid, significantly improved benefit for the Government. The source selection plan specifies the degree to which the vendor's proposal must exceed requirements before giving the proposal additional value points.*

c. A vendor's approach to ICW DD/I requirements can often represent a greater value to the Government. Vendor technical approaches and management techniques can significantly reduce technical and schedule risks. The vendor's approach to designing individual lessons might, for example, include a review and validation of detailed lesson flow diagrams with the SME(s) before preparing the *supporting script-storyboards.* This approach would reduce technical and schedule risks. It may also increase travel costs, however. You could determine whether or not the vendor's approach represents a greater value by comparing it to other factors. The required category of interactivity, design complexity, and cost increases or decreases resulting from that approach are other factors (see 4.6.6.8.2).

4.6.6.10.1 <u>Best value selection factors</u>. To develop a best value source selection plan and evaluation criteria, the evaluation criteria must address both technically acceptable criteria, and those technical and performance factors that exceed minimum technical requirements. Value given factors which exceed minimum requirements and provide a greater value to the Government is above value given for being technically acceptable. The source selection plan documents the specific values assigned to each factor. *Assign points or similar value indicators to each factor.* Values are assigned for being unacceptable, acceptable, exceeding requirements, greatly exceeding requirements, and so on. Proposal evaluators should document specific reasons for rating a factor as exceeding or greatly exceeding minimum requirements. When you will use a best value source selection strategy, consider using the following factors in the source selection and technical evaluation plans:

4.6.6.10.1.1 <u>Questionnaire responses</u>. The vendor's answers to the questionnaire will provide significant information about the vendor's ability to provide a quality product for the cost. Your source selection plan should include evaluation criteria appropriate for each question included in the questionnaire. This criteria should identify minimally

acceptable responses, and factors that exceed minimum requirements and afford better
value to the Government. Questionnaire responses should have significant weight in the
source selection formula. Those questions and vendor responses aimed at identifying best
value factors are especially important (see 4.6.6.8.2c).

4.6.6.10.1.2 Work samples. If the solicitation includes the requirement to develop
and provide a work sample, the sample work evaluation criteria should include both
minimum criteria and a definition of what work qualities exceed that minimum. Develop
specific, detailed work sample evaluation criteria. The following paragraphs describe how
to apply best value considerations to a work sample or contract performance requirement.

   a.   The vendor's media selection model should show an understanding of appropriate
        ICW applications and the importance of various media features to instructional
        design requirements. A model which also includes well defined criteria for
        emerging technologies exceeds this basic criteria.

   b.   The design strategy should demonstrate an understanding of student interactivity
        requirements to achieve instructional and learning objectives. The vendor could,
        however, propose a multiple skill level design that supports multiple training
        applications. This approach could reduce the overall per student training costs
        and provide greater value.

   c.   The vendor's technical approach to the ICW design and development may include
        new, more efficient methods and improve training effectiveness. This technical
        approach may also require an upgrade of the delivery system to improve system
        capabilities. The improved methods may provide greater value to the
        Government. You should consider whether or not spread the cost of system
        upgrades across future ICW program requirements to determine if the approach
        offers more value. If the necessary system upgrades where already planned and
        funded, the new methods may provide a significant increase in value.

   d.   As stated for low cost-technically acceptable source selection, the criteria should
        include procedures and criteria for rejecting proposals as unresponsive. Consider
        proposals unresponsive when evaluation of the work sample clearly shows the
        vendor does not understand ICW complexities and the contract requirements.

4.6.6.10.1.3 Approach to work performance. How the vendor intends to manage
work performance and assure product quality can significantly reduce technical and
schedule risks. Define the minimum criteria for contract management and quality
assurance. Then define those management approaches and quality assurance procedures
known to provide increased efficiency and ICW program quality. Use your agency's
experience in ICW and other training program contracts. Identify and consider agency
experience in contracts that used different approaches to program management and quality
assurance. Be sure to include criteria for checking the vendor's approach to managing and
meeting performance schedules. Complex ICW design strategies may require more
development time than anticipated and affect performance schedules. Check the vendor's

proposed schedule controls. Do the controls show an understanding of this potential problem area?

4.6.6.10.1.4 <u>Staff experience in similar ICW efforts</u>. The solicitation should identify minimum experience level criteria for the vendor's staff. Then determine what specific ICW experiences exceed requirements and reduce contract technical and schedules risks.

a. Evaluate personnel ICW experience against the scope of the ICW work to be accomplished. Consider experience in analyzing, designing, and developing complex, highly interactive ICW. This factor is an important part of any best value ICW contract.

b. Personnel who have considerable hands-on ICW design, development, and implementation experience are more expensive. These personnel cost even more when that experience also includes sophisticated branching strategies and highly interactive, student centered courseware. However, this experience will significantly reduce technical and schedule risks for complex, highly interactive ICW.

c. Best value is achieved by comparing staff expertise to program technical and schedule requirements, and costs.

4.6.6.10.1.5 <u>Vendor's experience in similar ICW efforts</u>. What is the vendor's experience level in ICW training program analysis, design and development? Are samples of this work provided for review and evaluation? How successful were these ICW programs? The evaluation criteria should identify minimum experience requirements. Vendors who have very successful experiences in sophisticated ICW training materials may deserve additional value points. The value increases if that experience directly relates to the ICW work requirements. A word of caution, however. The vendor who has a good track record in design and development of sophisticated ICW should also have the same or equivalent staff. The personnel who developed the successful ICW programs are responsible for the demonstrated capability. An effective best value source selection strategy will consider vendor and staff experience as a collective indicator of the vendor's ability.

4.6.6.10.1.6 <u>Vendor's organizational structure and management plan</u>. This factor closely parallels the factor in 4.6.6.10.1.5. The evaluation could reasonably consider both of these factors with a single list of criteria. Define the minimum requirements. Then define those criteria which indicate increased capability to perform successfully, and meet or exceed quality and delivery schedule requirements. Establish best value criteria to assess how the vendor's organizational structure and management plan controls design and development teams, and sets up and maintains program consistency. Define criteria to evaluate the vendor's contingency planning for rejection of ICW control documents. Control and management of critical documents like the Instructional Media Design Report, DI-ILSS-81091; Instructional Media Package, DI-ILSS-81092; or Instructional Media Data

Files, DI-ILSS-81093, are areas in which you could establish best value criteria for evaluation of organizational structure and management plans.

4.6.6.10.1.7 <u>Cost and cost realism</u>. Any source selection requires cost evaluation regardless of the type of contract or selection process used. Best value source selection criteria should include value points for life cycle costs and cost realism. A best value source selection strategy should consider trade-offs between vendor cost proposals and factors which reduce technical and schedule risks. Staff experience levels may increase personnel costs, but also significantly reduce risks. Life cycle costs are important, however, and should be a significant selection factor. A good best value source selection plan assures a balance between cost and cost realism factors, and those proposal factors that reduce program technical and schedule risks.

4.6.6.10.1.8 <u>Other factors</u>. You should consider other best value selection factors that apply to your ICW contract requirements (see 4.6.6.9.8).

4.6.6.10.2 <u>Best value considerations</u>. If the source selection plan properly defines best value criteria, the formal proposal evaluation process simply applies that criteria to each proposal. Note that the sample technical evaluation plan in Figure 5 requires only a yes/no response (meets or does not meet the requirement). This type of evaluation plan does not identify proposal factors which present a greater or best value to the Government. This plan is a base line document, however, since you define minimum technical criteria before you determine best value criteria. After you determine best value criteria, develop an evaluation grading system which assigns some point value to selection and evaluation factors. The grading system should total all points or values assigned to each proposal to identify which one provides the overall best value. The following is one approach to a best value grading system (see 4.10.1).

a.   One method uses a simple point system to rate each specific evaluation factor. Instead of a yes/no decision, a point value is given to each requirement or series of related requirements. For example, you could assign point values of: 4 - exceeds all elements, 3 - meets or exceeds all elements, 2 - meets all elements, 1 - does NOT meet most elements, and 0 - non-responsive (not technically compliant) for rating each technical requirement.

b.   In addition to giving value to each technical requirement, individual evaluation factors (that is, technical approach, management proposal, corporate and personnel experience, cost, work sample) can have value in the total grading system. For example, corporate and personnel experience might be worth 30% of the total points, work sample - 30%, cost - 25%, and hardware specification compliance - 15%.

c.   Final source selection using value rating and objective evaluation criteria should identify the proposal that provides the best performance for the total life cycle costs.

4.6.6.11 <u>ICW delivery device test and acceptance strategies</u>. A detailed discussion of hardware-related source selection, and test and acceptance strategies is beyond the scope of this handbook. However, the ICW acquisition may include a requirement to procure courseware and the delivery device. In this case, acquisition planning should address strategies for test and acceptance of vendor hardware solutions. Close coordination between the acquisition/program manager, supporting engineering activity, logistics support activity and the contracting officer is necessary. This coordination process assures that technical specifications for the delivery device are defined and included in the solicitation/contract package. You should have identified the activities responsible for acquisition engineering support and logistics support planning earlier. Specifically, when the acquisition planning team was established. Specific contractual requirements for device test and acceptance are addressed in the FAR/DFARS, Part 9/209.

4.6.6.11.1 <u>Live test demonstration</u>. Live test demonstrations (LTD) are normally included in source selection strategies when the technical solution is complex or is an important element of a best value source selection strategy. LTD requirements must be identified within Sections L and M of the solicitation/contract package to include the relative importance of LTD results in source selection. LTDs are used to verify that hardware devices proposed by the vendor meet or exceed the technical specifications contained in section C of the package. When a LTD will be required, detailed planning of the tests and methods to be employed in evaluating technical conformance with the specification is necessary. Evaluation planning should also include evaluation of any computer software identified in the specification.

4.6.6.11.2 <u>First article test</u>. You should include first article test requirements in the solicitation/contract when you will verify technical compliance of only the winning vendor's device. In first article testing, you verify device technical characteristics using technical data included in the vendor's proposal. When first article testing is required, the contracting officer should include appropriate FAR/DFARS contract clauses in the contract package.

4.6.7 <u>Quality assurance (QA) strategies</u>. Acquisition planning should determine how the quality of contractor goods and services is assured. The activity that determines technical requirements is, logically, also responsible for QA requirements. That activity develops the specifications for inspection, testing and other contract quality requirements. The FAR/DFARS, Part 46/246, defines QA requirements. Acquisition complexity determines specific QA requirements. The QA strategy should only be restrictive or demanding enough to assure a quality product is delivered.

a. The contractor's internal surveillance program is defined in the Training Program Development and Management Plan produced by MIL-STD-1379 Task 102. The surveillance program should respond to QA requirements prescribed in the ICW solicitation/contract package.

b. The Government performs contract quality assurance checks to verify the contractor's internal surveillance program is reaching program objectives.

Government IPRs, PDRs and CDRs performed during the analysis, design and development of ICW training materials are usually adequate quality controls.

c. The FAR/DFARS, Part 46.3/246.3 requires inclusion of specific QA contract clauses depending upon the specific type of contract being awarded. These inspection clauses also provide the contractual basis for imposing penalties for inadequate supplies and services. The acquisition/program manager should discuss the various clauses and clause versions with the contracting officer. Assure the solicitation/contract package includes the correct QA requirements.

d. Include provisions for reduced Government surveillance when the contractor's internal surveillance program is achieving program quality objectives. For example, performing a 100 percent review of individual lesson flow diagrams and script-storyboards wastes valuable manpower when every lesson reviewed is satisfactory the first time. Once you establish that the contractor's surveillance program is working, QA sampling methods should assure continued work quality.

4.7 ICW acquisition plan. The acquisition plan documents the acquisition strategy decisions described in the previous paragraphs. The plan also sets up milestones for completion of major steps in the procurement process. Depending on the acquisition value and complexity, and agency requirements, acquisition planning is documented in either a formal acquisition plan or a program management plan. The FAR/DFARS outline formal acquisition plan requirements. Agency directives define program management plans. Whether you use the formal acquisition plan or a program management plan, their purpose is the same. The plan outlines a brief history of the training requirement and acquisition strategies, and defines a plan of action for completing the acquisition process.

4.7.1 Acquisition plan considerations. A successful ICW acquisition integrates the efforts of everyone involved in the acquisition. This integration occurs through development and implementation of a comprehensive acquisition plan. Effective planning coordinates and directs personnel efforts toward a procurement strategy that results in a successful acquisition. Through planning, the acquisition meets the needs of the organization for a reasonable cost, and is completed on time.

4.7.1.1 Planning policy. Agencies perform acquisition planning and conduct market surveys to promote and support full and open competition (FAR, Part 7). This planning effort integrates the knowledge and experience of all personnel with specific acquisition responsibilities.

4.7.1.2 Planning procedures. Acquisition planning begins when you identify the need to purchase ICW. You begin planning well in advance of the fiscal year in which contract award is necessary. When circumstances prevent this, you might consider using an active IQC (see 4.6.3.4). Development of the acquisition strategy and contracting documents requires considerable time and effort. This is followed by the time required to solicit proposals, conduct source selection, and award the contract.

a. The person responsible for acquisition planning should form a plan development team. This team should consist of all personnel with acquisition responsibilities, such as contracting, budgeting, legal and technical personnel. Each team member should have subject area expertise so each contributes to development of an effective plan. Preferably, their experience includes ICW development and acquisition.

b. Make every effort during plan development to prevent unrealistic delivery or performance schedules. These restrict competition, increase prices, and produce less effective contract documents.

4.7.2 Acquisition plan requirements. The acquisition plan addresses all technical, business, management, and other significant considerations needed to control the acquisition and attain acquisition goals. Specific plan contents vary depending on the type of ICW acquisition. The FAR/DFARS, Part 7/207 provides specific guidance on preparing the acquisition plan. Formal acquisition plans are applied only to more complex and costly acquisitions. Your ICW acquisition may not need a formal plan. However, sufficient planning should occur to assure an efficient, timely acquisition process. Plans that address each FAR/DFARS planning element are more likely to process smoothly through the acquisition cycle. Good plans also result in acquisitions that meet requirements for the lowest life cycle cost.

4.7.2.1 Background information and objectives. You should have the necessary background information and pertinent facts available to support plan development. Clearly define the acquisition purpose or objective. A clear objective and good background information is critical to development of any plan of action. Successful acquisition planning is no different. Background information is gathered or developed during the requirements definition phase described earlier. Figures A-1, B-1, B-2, and C-1 show this definition process for FEA, ICW DD/I, and ICW ILS contracts, respectively. You should have the following background information to support acquisition planning.

4.7.2.1.1 Statement of need. The statement of need includes a summary of the technical and contractual history of the acquisition. It should describe acquisition alternatives and related in-house efforts. The requirements definition process should produce this information. An FEA acquisition plan should describe the rationale for buying the FEA instead of doing it in-house.

4.7.2.1.2 Significant conditions affecting the acquisition. Significant conditions include requirements for compatibility with existing ICW or other training programs/materials. When the ICW is part of a training system, you should describe compatibility requirements, interface requirements, and all constraints affecting the complete training system.

4.7.2.1.3 Cost. Describe the acquisition cost goals and provide rationale for those goals. You should address life cycle cost considerations to include commercial authoring language or system costs. When the ICW program supports a system or equipment

subject to frequent technical changes, describe life cycle courseware maintenance costs (see 4.5.3).

4.7.2.1.4 Capabilities or performance. This section of the plan addresses the ICW capabilities and performance requirements. It explains how the stated ICW requirements relate to the stated training need. This plan element is especially important for highly interactive gaming strategies, and artificial intelligence or expert system requirements. It is also important to describe costly ICW device capability requirements such as, dual video screens, face plate simulator interfaces, and so on.

4.7.2.1.5 Delivery or performance requirements. This section of the plan describes the basis or reasons for the delivery and performance schedule. When an urgent requirement prevents full and open competition, this section describes the reasons for this (see 4.3.5 and 4.4.2.3).

4.7.2.1.6 Trade-offs. Describe the results of trade-offs between capabilities and performance requirements, cost factors, and schedule goals. Identify the best balance between these factors and describe how you arrived at this balance (see 4.5.2).

4.7.2.1.7 Risks. Discuss technical, cost and schedule risks associated with the acquisition. Describe actions planned or taken to reduce these risks for the Government and the vendor (see 4.5.1).

4.7.2.1.8 Acquisition streamlining. The plan should describe plans and procedures for stimulating and encouraging industry participation in recommending appropriate application and tailoring of contract requirements. DoD Directive 5000.2 and MIL-HDBK-248 give additional information and procedures for acquisition streamlining.

4.7.2.2 Plan of action. The plan of action portion of the acquisition plan is essentially a business strategy. It describes how you will proceed through the acquisition process to achieve acquisition objectives.

a. The plan of action describes potential acquisition sources, including possible small business, small disadvantaged business, and labor surplus area concerns. When appropriate, describe the results of market research.

b. Other areas are included in the plan of action, as necessary. Consider the following areas based on specific program requirements.

    (1)   How you will support full and open competition.

    (2)   The type of contract vehicle used and why it was selected.

    (3)   Describe budget and funding provisions.

    (4)   Describe contract management methods and procedures.

(5)   Describe final test and evaluation procedures.

(6)   Describe initial logistic and life cycle support requirements and considerations.

(7)   Describe applicable GFI and GFP.

(8)   Describe security issues and procedures.

(9)   Describe standardization issues and concepts.

(10)   Describe foreign sales considerations.

(11)   Describe acquisition cycle milestones.

(12)   Describe the acquisition planning team composition.

c.   The FAR/DFARS describes each of these requirements more fully, either directly or by reference to other documents.

4.7.3 Plan format outline. Figure 6 provides a sample acquisition plan format. It provides a brief description of the information required. It also cites FAR and DFARS references that apply to the specific information required. You should consider tailoring this sample plan format to the specific requirements and needs of your agency.

4.8 Solicitation/contract package. The content and format of the solicitation package is flexible so it only includes essential Government requirements.

a.   Acquisition managers often leave preparation of the solicitation package to the contracting officer. The exceptions are contract Section C, and the CDRL delivery schedules and data formats. The acquisition/program manager(s) should take part in developing several other sections of the uniform contract format. Later paragraphs describe ICW requirements included in specific sections of the solicitation/contract package.

b.   The organization of any solicitation package should conform to the Uniform Contract Format (UCF) or the alternate forms described in the FAR and DFARS. The following paragraphs describe the UCF. The purpose and content of each part and section of the UCF package is described. The activity primarily responsible for completing each section is also identified. Contract part and section descriptions follow the UCF sequence for parts (I through IV) and sections (A through M) prescribed by the FAR, Part 15. Content descriptions include forms required, such as the SF 33, DD Form 1423, and DD Form 254. Descriptions identify standard contract clauses and specific clause considerations for ICW contract requirements.

c. You can convert solicitations using the UCF and issued as a request for pricing (RFP) directly to the contract after award. The SF 33 used as the solicitation cover page includes provisions for contract award.

d. The solicitation/contract package will reflect the adequacy and accuracy of your requirements definition. It will communicate your real understanding of ICW processes and work requirements to potential offerors. You place considerable risk on the vendor when the contract package lacks adequate definition of work process requirements. Packages lacking an integrated Government and contractor quality assurance effort also present significant risk. This results in increased costs or, in a severe case, vendors refusing to submit proposals. ICW DD/I is a complex process. This complexity mandates inclusion of appropriate process definition throughout the contract package. Joint quality reviews are equally important. A well written solicitation/contract package defines these processes and quality assurance procedures. This, in turn, reduces technical, schedule, and cost risks for both the contractor and the Government.

4.8.1 Contract Part I - The Schedule.

4.8.1.1 Section A: Solicitation/Contract Form(s). Section A of the UCF package includes the front side of the SF 33, Solicitation, Offer and Award, and the DD Form 1707, Information to Offerors or Quoters. These forms provide solicitation identification data, and identify key contracting agencies and officials. The DD Form 1707 provides a summary of the solicitation purpose and scope.

a. The SF Form 33 (front side) is the first page of the solicitation and includes sections used to identify the offeror and to award the contract. The contracting officer completes the SF Form 33.

b. The DD Form 1707 provides general information about the solicitation to potential offerors. This form also cautions offerors about special contract provisions required by law or the FAR/DFARS. An executive summary summarizes the acquisition scope, briefly describes proposal submission requirements, and describes the basis for award. This form or its continuation sheet also announces scheduled pre-proposal conferences and meetings. The contracting officer prepares the DD Form 1707 and continuation sheets. The contracting officer may require technical help preparing the executive summary.

4.8.1.2 Section B: Supplies or Services and Prices/Costs. This section of the UCF briefly describes the required supplies and services which are fully described in UCF Section C. The UCF Section B supply and service description includes the item number, noun, and quantity required. When the solicitation purchases a "turn-key" program, the ICW delivery device items and the courseware items are listed as separate contract line item numbers (CLIN). Each CLIN is cross-referenced to the UCF Section C paragraph that specifies the hardware or performance requirement. Incidental deliverables like technical and software manuals, and ICW analyses and reports data are also listed in Section B.

Section B begins on the back side of the SF-33. The contracting officer prepares UCF Section B and, if necessary, continues it on Optional Form 336, Continuation Sheet.

   4.8.1.3 Section C: Descriptions/Specifications/Work Statements. Section C is often referred to simply as the SOW. It can, however, consist of far more information than just a SOW. UCF Section C contains those purchase descriptions, specifications, standards, and work statements which reflect the minimum needs of the agency. The FAR, Part 10, and the DFARS, part 210, contain specific UCF Section C policy and procedural requirements. You should review the FAR/DFARS and agency FAR/DFARS supplements before developing this section. You should form a team of individuals who represent the various acquisition functional areas to develop UCF Section C. This handbook describes SOW requirements in general and specific terms throughout. When the acquisition includes a delivery device, the Training Equipment Functional Characteristics Report, DI-ILSS-81088, output from MIL-STD-1379 Task 209 provides the information needed to develop device specifications.

   a.   You must use existing standards and specifications that apply to the ICW acquisition (FAR, Part 10). This requirement applies to any specification, standard, commercial item description, or voluntary industry standards adopted by the DoD. Use the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, or the DoD Index of Specifications and Standards (DODISS) to determine document applicability. You must use any document listed in either of these indexes which applies to your ICW acquisition.

   b.   You selectively apply specifications and standards tailored to state minimum Government requirements. For ICW acquisitions, you must review and tailor MIL-STD-1379 task descriptions to satisfy all possible UCF Section C work statement requirements. Other, agency-specific standardization documents may also apply. ICW acquisitions require unique work statements for ICW design, development, and implementation. However, the distinctions between traditional and ICW training are less precise when developing acquisition documents for front-end analysis, or ICW ILS.

   c.   ICW UCF package purchase descriptions should describe only those specific services the contractor must perform. Management requirements define required results rather than detailing "how-to-manage" procedures. However, there are ICW-unique processes and procedures which are critical to successful development. Handbook appendixes describe ICW-unique work statement requirements in detail.

   d.   UCF Section C provides enough technical detail about the deliverable supplies -- the courseware -- to assure the final ICW serves its purpose.

   e.   Acquisition streamlining applies to ICW acquisitions. Before you develop Section C, carefully review acquisition streamlining requirements in the FAR, Part 7. Also

review streamlining guidance in MIL-HDBK-248. Begin this review during development of the acquisition strategy and acquisition plan.

4.8.1.4 Section D: Packaging and Marking. UCF Section D defines packaging and marking requirements to prevent deterioration and damage supplies during shipping, handling, and storage. Accepted industry standards should meet ICW supply packaging requirements. Voluntary industry standards such as ASTM D 3951 should meet packaging requirements. Marking and packaging of ICW supplies being processed through the military transportation system should meet MIL-STD-129 and MIL-STD-2073/1 criteria. Identify any unique packaging and marking requirements in UCF Section D. The contracting officer prepares this UCF section with help from the technical activity team members.

4.8.1.5 Section E: Inspection and Acceptance. UCF Section E defines general and specific quality assurance (QA) requirements for both in-process, and final inspection and acceptance. The FAR/DFARS, Part 46/246, defines quality assurance requirements and contract clause provisions (see 4.6.7). This section provides for Government in-process review (IPR)/inspection, and acceptance of criticaL ICW DD/I documents.

a. The DFARS, Part 246.1, makes the technical requirements activity responsible to define inspection and acceptance criteria for UCF Section E. In determining QA inspection and acceptance criteria, consider that ICW is complex and warrants high-level QA provisions. However, set up QA criteria based on the unique characteristics of each ICW program.

b. Include provisions for QA inspection and acceptance of all deliverables critical to a successful ICW DD/I effort in UCF Section E. Separately address the design strategy, script-storyboards, flow diagrams, and so on.

c. You require subject matter experts (SME) who know the course content requirements to perform inspection and acceptance of ICW deliverables. You do not need SMEs who are knowledgeable or skilled in QA processes and procedures. The organization responsible for technical requirements should, therefore, develop program-specific QA guidelines. These guidelines should provide SMEs procedural and technical guidance for performing ICW inspection and acceptance. This guidance should address both in-process, and final inspection and acceptance procedures. Well developed guidelines assure each critical element of the ICW development process meets UCF Section C criteria.

4.8.1.6 Section F: Deliveries or Performance. This section specifies the time, place, and method of delivery or performance by the contractor. It includes delivery instructions and procedures, delivery time tables and schedules, and delivery or performance locations and destinations. Section F provides any other information pertinent to delivery or performance of contracted supplies and services. It includes any provisions for stop work orders, suspension of work, and Government delay of work. The FAR, Part 12, and the

DFARS, Part 212, give regulatory provisions and procedures for invoking contract clauses that govern delivery and performance.

a. Close coordination between the contracting officer and the requiring agency is needed to develop an acceptable, cost effective Section F. Delivery and performance requirements in section F can have a dramatic effect on overall contract costs. Overly restrictive delivery and performance schedules are costly. Avoid them except when mission essential to the requiring agency.

b. If the delivery or performance schedule is a source selection factor, assure Section F clearly describes the basis for this evaluation. Source selection information and evaluation criteria in UCF Sections L and M should also reflect this requirement. When timely delivery or performance is a source selection factor, you should also include an appropriate liquidated damages clause in the contract.

c. Section F includes provisions for delayed or partial delivery of supplies or services, when delayed delivery or partial shipment is allowed by the contract provisions. You should, for example, provide for delayed delivery of the final ICW deliverables when the required media is a digital form (see 4.4.2.4). Include procedures for accepting and processing delivery orders in Section F for indefinite delivery type contracts.

4.8.1.7 Section G: Contract Administration Data. Section G provides any required information and data concerning accounting and appropriation, and general contract administration procedures.

a. There are many regulatory requirements associated with cost accounting and appropriation procedures which are beyond the scope of this handbook. The contracting officer and appropriate financial advisor should develop this section. Carefully review the requirements of the FAR/DFARS, Parts 30/230, 31/231, and 32/232 before you complete UCF Section G. Also review applicable agency regulations.

b. Section G provides contract administration information. It identifies the procuring contracting officer, contract manager, and contractor's contract administrator. This section provides addresses for delivery orders, and each service and agency point of contact authorized to issue delivery orders.

c. Section G provides information about the preparation and submission of required reports which are not in the CDRL. For example, address routine contractor program progress reports in this section.

4.8.1.8 Section H: Special Contract Requirements. Section H includes any special contractual requirements not included in Section I, Contract Clauses, or another section of the UCF. The complete contract development team should develop this UCF section

because it may contain contract provisions affecting any functional area of the UCF. Section H can affect areas like contracting, finance, transportation, technical requirements, and data requirements.

    a.   Section H should include information about the type of contract to award and the expected contract period including any options to extend it. This Section should also address the contract scope, any maximum or minimum ordering limitations, and warranty requirements for supplies.

    b.   Section H should include provisions for in-process review of specific ICW contract deliverable data. Address data like the ICW design strategy, flow diagrams, script-story boards, and ICW tests. Include specific provisions for Government review and approval of these courseware control documents. Also include Government responsibilities to accomplish these reviews within specified periods.

    c.   Section H contains contract provisions for processing and approving changes to approved ICW design and development control documents. It should also include provisions for alteration, modification, or substitution of ICW delivery hardware. These special provisions should separately identify contractor and Government initiated changes.

    d.   Clearly define any special coordination, work plan, or access requirements affecting how, when or where the contractor must perform work in this section. For example, include special requirements for video production, subject matter expert support, and small group try-outs special work requirements in Section H. Also include security clearances, and restrictions on work performed in restricted areas and foreign countries.

    e.   Section H defines Government rights to technical data and ICW software when contract clauses in Section I are not enough. Take special care to protect the Government's rights to unique ICW support software developed during contract performance. If you will allow contractor developed ICW support software, require prior Government approval of specific support software requirements. Also require full Government rights to change, copy, and distribute support software as an integral part of the ICW. Make sure you also require delivery of the support software documentation defined in DI-ILSS-81093, Instructional Media Data Files. You will need this documentation for ICW life cycle support.

    f.   Include provisions for control of Government owned or furnished authoring languages or systems. Define specific procedures to control making and distributing copies of this software. This is especially true of commercial software programs licensed to the Government and provided as GFP to the contractor. Commercial ICW generation programs provided in ILS contracts also require contractual protection against violation of software licensing agreements. ICW generation programs are defined by DI-ILSS-81093.

4.8.2 <u>Contract PART II and Section I - Contract Clauses</u>. Section I of the UCF contains all contract clauses required by law, the FAR, and agency FAR Supplements. This section identifies contract clauses that apply to any contract resulting from the solicitation. Section I includes contract clauses not required in another UCF section. Each part of the FAR includes a subpart titled Contract Clauses. This FAR Subpart provides instructions on clauses required by the particular Part or Subpart of the FAR. This Subpart also describes contracting situations that warrant alternate clause formats.

a. The contracting officer prepares Section I. However, other members of the contract development team should assist in this effort. The FAR, Part 52, as supplemented contains clauses and clause formats included in Section I.

b. Part 52 of the FAR includes contract clauses covering a wide range of Government requirements. These clauses also have alternative formats for tailoring the particular clause to specific solicitation/contract requirements. The entire contract development team should help the contracting officer determine which clause format best represents the needs of the Government. There are, for example, five different clauses in the FAR, Part 52, dealing with warranties. Each of these has two or more alternate formats. The organization responsible for technical requirements should determine which warranty clause and format is correct for the particular ICW acquisition.

4.8.3 <u>Contract Part III and Section J - List of Documents, Exhibits and Other Attachments</u>. Part III, Section J of the contract serves as an index of documents, exhibits and other attachments to the contract package. List each document, exhibit, and attachment by title, date, and number of pages. Attachments identified in UCF Section J are an integral part of the package. List and attach specifications and standards not listed in the DODISS. Also list and provide plans, drawings, and other documents not included in appropriate indexes, and DIDs not included in the AMSDL. Identify and provide any document cited in Section 2 of the SOW that is not available from an established distribution source. Include documents listed in Section J in the UCF following Section M (DFARS 210.011). The DD Form 1423, CDRL, and associated DIDs, is an exhibit cited in Section J (DFARS, Part 215.40). Applicable DIDs are attachments to the CDRL.

a. Only list a document if you will provide it with the solicitation package. You should provide documents cited in Section 2 of the SOW, but not available from some other source. All documents, such as specifications and standards, listed in Section J, must be provided to vendors who request a copy of the solicitation. You can list and provide other applicable documents. But, this is not required if the documents are available through the source identified in Section 2 of the SOW.

b. The contracting officer prepares UCF Section J. However, other team members should help. Assure all unavailable documents, exhibits and attachments essential for development of good vendor proposals are listed.

4.8.4 Contract Part IV - Representations and Instructions.

4.8.4.1 Section K: Representations, Certifications and Other Statements of Offerors (Incorporated by Reference). UCF Section K identifies requirements for contractor representations, certifications, and binding statements. Usually, these requirements are identified by contractual clauses in UCF Section I. The contracting officer prepares Section K after preparing other UCF Sections. Contract clauses in other sections may specify a contractor representation, certification, or binding statement. The contracting officer may ask for help from other team members.

4.8.4.2 Section L: Instructions, Conditions, and Notices to Offerors. Use this section to provide information, instructions and solicitation provisions not included in other UCF section. Provide information to guide vendors in preparing proposals or quotations. Section L may also include contract clauses by reference as done in Section I and other UCF sections.

a. You can instruct prospective vendors to submit technical proposals in several parts to meet agency requirements. Technical, and costing or pricing data should be in separate parts of the proposal. This prevents the contracting officer having to separate the costing information from the package before giving it to the technical evaluation team. Additional instructions on proposal format may also include parts on management and administrative data. Also identify requirements to include technical literature with the proposal.

b. During preparation of Section L, the technical organization should carefully consider how to structure the offeror's proposal. A good proposal structure helps conduct an efficient source selection evaluation. Clearly describe the required proposal structure in this UCF section. Give detailed instruction on the organization, content, and format of the offeror's proposal. Make sure that Section L proposal requirements match those in Section C. Also match Section L information with evaluation factors and criteria in Section M. A concurrent development of UCF Sections C, L, and M will protect against inconsistencies between sections. As the specifications and SOW are being written, also determine how to evaluate the requirement and how the vendor's proposal should address each requirement. Be sure you distinguish between ICW hardware specifications and courseware statements of work during this process.

c. Include any provisions for excluding an offeror's proposal as being frivolous or unresponsive in this section. Give the offeror enough information about what you consider is frivolous or unresponsive to prevent any misunderstandings.

d. Provide instructions on how to get copies of documents cited in the UCF, but not provided with the UCF package.

e. The use of questionnaires can be a very useful tool during source selection. If questionnaires are used in source selection, explain how they will be used and

their impact on source selection. Vendor responses to questionnaires can provide valuable information about the capabilities of the offeror to perform contract requirements.

f. In addition to questionnaires, UCF Section L may also prescribe qualification demonstrations by offerors in the competitive range (FAR, Part 9).

  (1) Under these provisions, the contracting officer may require that the offeror have already demonstrated the ability to perform ICW contract work. The contracting officer includes these vendors on a Qualified Bidders List.

  (2) Another approach allowed by the FAR is to require the offeror to show their qualifications through presentation of a live demonstration (LD). The vendor would demonstrate an ICW product they developed which has a comparable level of work effort and task complexity.

  (3) You may also require vendors to develop and submit appropriate ICW work samples based upon a scenario and materials provided in the solicitation package. This handbook describes types of work samples to consider for this purpose (see 4.6.5 and 4.8.4.3).

  (4) If Section L includes a qualification requirement, you must also include appropriate FAR, DFARS, and agency FAR supplement provisions. Describe specific requirements for the qualification demonstration and how the results will affect source selection. The specific factor value factor in source selection is not included. You should describe its relevant importance in source selection, however.

4.8.4.3 <u>Section M: Evaluation Factors for Award</u>. UCF Section M provides information about how the Government will evaluate proposals during the source selection process. Section M identifies all source selection factors, including cost or price, and any significant subfactors affecting contract award. This section must also state the relative importance the Government places on those evaluation factors and subfactors. The Government is not required to identify specific weighting or point values assigned to each factor or subfactor.

  a. You should have identified significant evaluation factors and subfactors during development of the source selection plan, and development of UCF Sections C and L. If this was done, completion of Section M will entail adding information about the relative importance of evaluation factors and significant subfactors.

  b. All source selections include an evaluation of price or total cost to the Government (FAR, Part 15.6). However, lowest price or cost is not always the deciding source selection factor. The Government may select the source whose proposal offers the greatest or best value to the Government. The Government's

right to award contracts based upon best value has been upheld several times under contract appeals (see 4.6.6.10).

c. Source selection criteria must also include quality factors. You can express quality as technical excellence, management capability, personnel qualifications, experience, past performance, and schedule compliance. You can also include any other factors, like cost realism. The DFARS, Part 215.8, prescribes cost realism analysis. This analysis can help identify unresponsive "buy-in" proposals to cost-plus type solicitations/contracts.

d. Source selection based on best value requires a comprehensive source selection plan. A comprehensive plan will thoroughly evaluate and quantify each evaluation factor and subfactor. You have broad discretion in defining the applicable evaluation factors and the relative importance of those factors.

e. If you require offerors to develop and submit work samples based upon a scenario and materials provided in the solicitation package, Section M must address how these samples will be used in source selection. Section M must also describe the relative importance placed on the work sample. Address questionnaire responses in the same manner as the work samples.

f. The handbook described source selection and best value criteria under source selection planning. The FAR/DFARS, Part 15.6/215.6, give specific source selection requirements and procedures. You should review each of these references, and appropriate agency FAR supplements and regulations during source selection plan development. Do this review before preparing UCF Section M.

4.9 Solicitation process. The solicitation for vendor proposals begins after development and approval of all necessary acquisition documents. The solicitation process involves publicizing the Government's requirements for information, quotes or proposals. This publicity covers a specific package of information, specifications, or work requirements. The Government uses vendor packages submitted in response to the solicitation to refine requirements, or to negotiate a contract.

4.9.1 Types of solicitation packages. The basic structure and content of each type of solicitation package is the same. However, each type serves a specific purpose in the acquisition system.

4.9.1.1 Requests for Information/Requests for Quotes. The request for information/quotes (RFI/RFQ) is a procedure in which you solicit information from industry to aid in defining Government requirements. You determine whether or not you will require an RFI/RFQ during acquisition planning.

a. The RFI/RFQ process submits a draft solicitation package to industry for their comments and recommendations. The FAR, Part 15, addresses using solicitations for information or planning purposes. The RFI/RFQ process is used only

when necessary information is not available using more economical or less formal methods.

b.   The RFI is an alternate information source when other sources are inadequate.

c.   The RFQ is used to gather additional technical information about the requirement. It is also used to get industry comments and recommendations for acquisition streamlining, and to get industry involved in the acquisition.

d.   You must follow certain approval processes before you issue a RFI/RFQ. Since the principle function of the RFI/RFQ is to get information from industry, you cannot use vendor RFI/RFQ responses to award a contract.

4.9.1.2 Request for Pricing (RFP). The RFP is used to get vendor proposals that can be the basis for contract award. The RFP consists of a complete solicitation/contract package containing all of the Government's requirements.

4.9.2 Publicity requirements. You must satisfy certain publicity requirements before the solicitation package is distributed to prospective vendors (see 4.2.4.4). The contracting officer assures publicity requirements are met. A synopsis of the acquisition requirement is published in the Commerce Business Daily under the section titled "Training Services" (see DoD Instruction 1322.20) for a minimum of 15 days before the package is distributed. This lead time allows vendors to request a copy of the solicitation package from the contracting officer.

a.   After 15 days, the contracting officer mails the solicitation package to all prospective vendors who asked for one. You can also provide the contracting officer a listing of potential vendors and their addresses. The contracting officer mails these vendors a copy of the package whether they asked for it or not.

b.   The contracting officer allows vendors a minimum of 30 days from the solicitation distribution date to review the package and prepare a proposal. Vendors who request copies after the initial distribution do not receive any additional time to prepare their proposal.

c.   The FAR allows and encourages open communications with industry before completing the solicitation package. This communication promotes an understanding of Government requirements, and fosters full and open competition. There is a point where this communications must cease: the contracting officer assures all acquisition team members know when that time arrives. After that time, all communications between vendors and the Government is done through the responsible contracting officer.

4.9.3 Pre-solicitation conference. A pre-solicitation conference is appropriate in circumstances where Government requirements are complex. Complex requirements may warrant better information flow to industry before issuing the solicitation. Extremely

complex ICW acquisitions may justify having a pre-solicitation conference. However, you should discuss this possibility with the contracting officer during development of the acquisition plan: the need and justification for a pre-solicitation conference is identified at that time.

a. The acquisition/program manager should help the contracting officer conduct the pre-solicitation conference. The acquisition/program manager explains and clarifies Government requirements. The manager should understand the purpose of these conferences and recognize when a pre-solicitation conference would benefit the acquisition-process. The FAR/DFARS, Part 15/215, provides additional guidance concerning pre-solicitation conferences.

b. The acquisition/program manager(s) should adequately prepare for the pre-solicitation conference by identifying poorly defined requirements in the solicitation package. Weak definitions may be in the SOW task descriptions, definition of deliverable data, the ICW process definition, or the adequacy of quality assurance processes.

c. A pre-solicitation package is mailed to prospective vendors. This package should include questions about perceived weaknesses in the package. Develop questions about those requirements areas you will discuss in the pre-solicitation conference. Otherwise, prepare these questions for discussion at the conference.

d. The purpose of the pre-solicitation conference is to:

   (1) Develop or identify interested sources.

   (2) Request preliminary information based upon a general description of the Government's requirements.

   (3) Explain complex specifications and requirements not easily communicated through a written document.

   (4) Aid prospective offerors in later submitting responsive proposals without undue use of effort, time and money.

4.9.4 <u>Pre-proposal conference</u>. When conducted, the pre-proposal conference occurs some time before the proposal due date. The acquisition/ program manager plays a key role in the pre-proposal conference. The manager should be ready to discuss all requirements identified in section C of the solicitation package. You may also need to explain delivery schedules, proposal formats, evaluation factors and criteria, and other areas. You should be prepared to discuss any UCF area which is not the specific responsibility of the contracting officer. It may, therefore, be wise to have a representative from the technical activity also attend the conference.

a.   The purpose of the pre-proposal conference is to discuss requirements with vendors after they study the package. The use of pre-proposal conferences in ICW acquisitions is normally a good strategy.

b.   The conference allows you to discuss actual requirements with the vendors and explain specific proposal package content and format requirements. It also provides an opportunity to assure the prospective vendors are aware of specific contract clauses incorporated by reference. Discuss clauses dealing with warranties, quality assurance, contractor default, and default penalties.

c.   Discuss source selection information included in section M of the solicitation only in general terms. You should carefully avoid discussing specific values assigned to evaluation factors and significant subfactors.

4.9.5   Amending the solicitation. When the Government changes, relaxes, increases, or otherwise modifies its requirements, the contracting officer issues a written amendment to the solicitation. Amendments occur when vendors request clarification of requirements or show that requirements are overly restrictive or unnecessary. The contracting officer will need your help to answer vendor questions dealing with the specific work statements or specifications. You should not let vendor challenges intimidate you into relaxing valid requirements. The contracting officer issues amendments using a Standard Form 30, Amendment to Solicitation/Modification of Contract. The contracting officer can issue solicitation amendments both before and after receipt of proposals.

4.10   Proposal evaluation. You will evaluate vendor proposals following the procedures in the source selection plan. If you devoted enough time to prepare the evaluation plan and developed evaluation criteria concurrent with UCF sections C, L, and M, proposal evaluation should proceed without difficulty.

4.10.1   Technical evaluation. Technical evaluations are done according to the technical evaluation plan developed as part of the source selection plan. Figure 5 is a sample technical evaluation plan. The sample plan supports a lowest cost -- technically acceptable source selection strategy. The sample plan supports evaluation of proposals submitted against an ICW design and development contract. The solicitation included the requirement to prepare and submit an Instructional Media Design Report in accordance with DI-ILSS-81091 and the CDRL. The work sample used information included in the solicitation package. Note that the evaluation plan addresses vendor proposals by volumes. UCF Section L specified the content and format of these volumes. The sample plan also includes portions detailing team member responsibilities, required board member non-disclosure statements and evaluation board procedures.

4.10.1.1   Establishing and organizing the evaluation team. The total requirements of the solicitation determine the proposal evaluation team composition: that is, the number of different functional areas that require representatives. Some of the skills required to conduct an ICW evaluation include:

a. **ICW acquisition manager**. The acquisition manager should be most knowledgeable of the total acquisition requirements and relative importance of each evaluation factor. The acquisition manager, with the program manager, will also be most knowledgeable of minimum and best value source selection criteria. The acquisition manager and program manager should jointly consider and rate the qualifications of vendor management personnel.

b. **Training (ICW) program manager**. When the program manager and acquisition manager are different people, the program manager should participate in the evaluation process to maintain overall program integrity. The program manager should be knowledgeable of overall program requirements and the relationships between the program and the ICW training materials. The program manager should also be more knowledgeable of the basis for source selection criteria. The program manager should also help the acquisition manager evaluate the qualifications of the vendor's management personnel.

c. **Education/training specialist**. The education/training specialist (military or civilian) will help evaluate the vendor's approach to analyzing, designing, developing and evaluating the ICW materials. This team member provides the expertise needed to evaluate the integrity of the proposed instructional design and the work sample, when one is required. This team member should consider best value source selection factors associated with ICW instructional design. The education/training specialist evaluates individual qualifications of the vendor's instructional design and development staff. The education/training specialist works hand-in-hand with the subject matter expert.

d. **Subject matter expert (SME)**. SMEs provide the technical expertise necessary to validate the vendor's approach to the subject matter. SMEs work closely with the education/training specialists to evaluate proposed lesson and learning objective sequences. SMEs provide the technical experience necessary to verify that the approach to performance measurement and courseware evaluation is logical and valid. SMEs and the education/training specialists jointly evaluate the proposed instructional design. The design is considered relative to correct job performance and the learning hierarchy requirements.

e. **Engineer**. The evaluation team will need the expertise of an engineer when the solicitation includes ICW delivery devices. The engineer evaluates the proposal's compliance with hardware technical specifications. When the best value source selection criteria includes device characteristics, the engineer evaluates additional capabilities offered by the vendor, and rates the relative value of these capabilities.

f. **Software engineer**. The evaluation team may require the technical expertise of a software engineer or a computer programmer/analyst to evaluate proposals which include software engineering data. The software engineer should also evaluate the proposal's support for any required ICW portability protocols. Whether or not

a software engineer is required is determined by how the SOW, and UCF sections L and M treat ICW authoring languages and systems, and portability protocols. The software engineer should also evaluate the qualifications of the vendor's software programmer/analyst personnel.

g. Visual information (VI) specialist. The team may require a VI specialist to help evaluate the vendor's approach to video and graphics design and production. The VI specialist should also evaluate the qualifications of vendor VI personnel to support the ICW program requirements.

h. ILS manager. The evaluation team should include an ILS manager to evaluate the vendor's approach to ILS requirements established in the solicitation. The ILS manager should pay particular attention to the vendor's approach to ICW configuration management requirements and resource control procedures. When the acquisition includes requirements for an ICW delivery device, the ILS manager should evaluate compliance with the hardware-related logistic support requirements, such as technical data, maintenance, spares, and training.

i. Cost analyst. The cost analyst evaluates the specific CLIN and life cycle costs of the proposal. The cost analyst would not, however, participate in the technical evaluation. In fact, the technical evaluation team should not have any access to vendor cost data. This information could influence a team member's objectivity. The cost analyst also conducts the cost realism analysis. The cost analyst does cost analysis following the FAR/DFARS requirements and agency directives. The cost analyst provides the analysis results directly to the contracting officer.

4.10.1.2 Evaluation procedures. Depending on the complexity of the specific solicitation, the technical evaluation may require and consist of more than one evaluation team. As already stated, cost evaluation is done apart from the technical evaluation. Likewise, technical evaluation responsibilities may need to be subdivided according to evaluation areas. One group may evaluate the vendor's management proposal. Another group might be responsible for evaluating the sample work and still another the vendor's personnel qualifications. Solicitations that include hardware requirements should consider a separate group to evaluate compliance with the technical specifications. Figure 5 includes samples of additional evaluation team procedures. You could easily adapt and apply them to your evaluation plan.

4.10.1.3 Proposal formats and grading schemes. This paragraph suggests a proposal volume format that you can use or adapt to your agency's needs. Regardless of the format used, you must cite your proposal format requirements in UCF section L. The suggested format structures the proposal into distinct volumes according to the proposal areas usually evaluated during the source selection process. When your solicitation package includes questionnaires, develop the questionnaires to correspond with the proposal format. Require the vendor to include questionnaire responses in the applicable volume. Table 1 depicts a suggested method for grading each proposal by volume, chapter, section and paragraph. The proposal volume structure includes:

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a. Volume I - Technical Approach. This volume would include the vendor's proposed technical approach to meeting the specifications and work requirements. The vendor would include responses to technical approach questionnaire(s) in this volume.

b. Volume II - Logistics support. The vendor addresses integrated logistics support requirements and logistic support questionnaire responses in this portion of the proposal package.

c. Volume III - Management. The vendor's proposed or existing management structure is defined and explained in this volume. It should address all of the management functions identified in MIL-STD-1379, Task 102, Training Program Development and Management Planning. This volume also includes questionnaire responses relating to management functions.

d. Volume IV - Cost. This volume would include the vendor's proposed cost structure for accomplishing the contract requirements. The contracting officer removes this volume from the proposal package and provides it to the cost analyst. This volume contains vendor responses to cost-related questionnaires.

e. Volume V - Work Sample. When the source selection criteria includes a work sample, it is included here. You should also require questionnaire responses relating to the vendor's approach to the work sample, and the vendor's rationale for critical work decisions in this volume.

4.10.2 Cost evaluation. The contracting officer assures cost evaluation is performed. The cost evaluation is usually performed by a trained cost analyst. The cost evaluation will address life cycle costs, cost realism and, when appropriate, "should cost" analysis. The contracting officer receives the results of the cost evaluation to use in contract negotiations and final source selection.

4.10.3 Correction of minor proposal errors. You do not have to eliminate proposals which are basically sound but have some minor technical or cost errors. You may provide vendors the opportunity to correct minor proposal errors when the proposal is otherwise competitive.

a. The contracting officer may identify the suspected error to the vendor and request verification of the information that is suspect. This approach is not a discussion with the vendor, as defined in the FAR.

b. When the error correction process meets the definition of a discussion, all vendors in the competitive range can "discuss" and correct similar errors.

c. Corrected vendor proposals are subject to additional evaluation to determine technical compliance and the selection point values of the final proposal.

4.10.4 <u>Evaluation reports</u>. The evaluation report is a key document in the final source selection and contract award. It is critical, therefore that the report be clear, concise, objective, and only address the specifications and performance requirements. Neither the FAR or DFARS prescribe an evaluation report format except in very general terms (FAR, Part 15). Evaluation reports should address the following general areas.

4.10.4.1 <u>Responses and ratings</u>. The report should give the pertinent facts determined through the actual proposal evaluation. This section of the report should present and analyze these facts in a rational, objective manner. The report author's reasoning processes leading up to the report's conclusions and recommendations should be clear to the reader. The reader should be able to follow the author's logic from facts to conclusions and recommendations.

a.   When the source is selected based upon lowest priced, technically compliant proposal, the team findings should include a listing of all offerors who submitted proposals. The list should indicate the classification of their proposal (acceptable, marginal or unacceptable).

b.   If award is based upon technical and other factors, the report should include a listing or table showing all offerors in order of merit. It should show the technical score given for each evaluation factor/area and the overall or composite score.

4.10.4.2 <u>Proposal evaluation summary</u>. The summary concisely presents and analyzes significant facts relative to each offeror's total proposal. It should also state the conclusions and recommendations appropriate to each proposal. The analysis summary addresses the total proposal and evaluation factors except for price and cost factors. These are provided directly to the contracting officer by the cost analyst.

4.11 <u>Contract award</u>. The contracting officer receives the technical evaluation report and the cost analysis report. The contracting officer reviews the reports, and starts the final source selection and contract award process.

4.11.1 <u>Negotiations</u>. The contracting officer begins negotiations or discussions with those vendors determined to be within the competitive range for award. The contracting officer notifies unsuccessful vendors dropped from further competition. The negotiation process further clarifies vendor proposals and arbitrates cost and delivery schedules.

4.11.1.1 <u>Competitive range determination</u>. The contracting officer determines which vendors are in the competitive range based upon the results of the technical and cost evaluations. The contracting officer keeps all proposals with a reasonable chance for source selection and contract award. The competitive range determination identifies and limits the vendors with whom the contracting officer will conduct further discussions and negotiations.

4.11.1.2 <u>Best and final offer procedures</u>. The contracting officer issues a request for best and final offers (BAFO) from all vendors who are still in the competitive range. After

receipt of BAFOs from the vendors, the contracting officer should not normally re-open negotiations. Nor is another request for a BAFO issued later. Any additional BAFO request requires strong justification and approval by an authority above the contracting officer.

4.11.1.3 Source selection. Based upon evaluation of the BAFOs received from the remaining, competitive vendors, the contracting officer or higher authority selects the successful vendor. The selection chooses that source whose BAFO is most beneficial for the Government. This selection decision uses the same criteria used in the evaluation process, to include the cost factors.

4.11.2 Award procedures and publicity. Contract award entails changing the solicitation schedule (Part I of the UCF) to reflect the results of negotiations between the contracting officer and the successful vendor. The contracting officer then gets the appropriate signatures on contract documents. Following contract award, the contracting officer debriefs any unsuccessful offerors who request it. The contracting officer publicizes award of the contract through appropriate channels. Award publicity for an ICW acquisition is accomplished through an announcement in the Commerce Business Daily under the section titled "Training Services." The announcement includes the ICW program name, the name of the successful contractor, the total contract cost, and the number of ICW copies procured (DoD Instruction 1322.20). Depending on the total value of the contract, the contracting officer may also accomplish additional surveys and notifications.

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5. DETAILED GUIDANCE

5.1 <u>ICW statement of work (SOW) requirements</u>. Preparing an ICW SOW that will achieve acquisition objectives requires a thorough review of Handbook Section 4. The requirement definition process determines specific MIL-STD-1379 task descriptions you should include in UCF Section C. These tasks will, in turn, cause the work needed to define training program requirements. Each requirements definition area in Section 4 described issues and considerations. These, in turn, require decisions about the best course of action for your particular ICW training program acquisition.

a. Actual analysis, ICW DD/I, and contract management work requirements are identified through the task descriptions, task inputs, and task outputs of MIL-STD-1379. Handbook Appendixes A, B, and C describe the process for developing ICW statements of work using MIL-STD-1379 task descriptions and data item descriptions.

b. There are ICW SOW requirements not in MIL-STD-1379 task descriptions. However, these are critical to developing an effective, efficient contract package. You will have to add these additional work statements to the SOW. These additional requirements relate to specific Government inputs to the analysis, design, and development processes. They establish overall requirements for remedial and tutorial branching. These SOW requirements prescribe treatment of related task activities in analysis and ICW DD/I. Traditional analysis considers related task activities as pre-requisite knowledge and skills. There are task description requirements for ICW testing strategies and performance simulation pass/fail criteria, and many other aspects of ICW DD/I and student management.

5.2 <u>Front-end analysis (FEA) contract</u>. The FEA should occur under the MIL-STD-1379 process. However, in the event it was not accomplished or was incomplete, FEA contract requirements are presented in this handbook. Appendix A identifies and describes FEA contract SOW requirements. The analysis process is initiated due to an emerging weapons system or equipment that will require establishing some form of training program. The analysis may also be necessary because of major changes in the system, equipment or support area that an existing training program supports. Whether the acquisition of front-end analysis supports a new training system or is intended to upgrade an existing training system, some contract requirements definition will be necessary. Insure that agency-unique policies and guidance are addressed in the FEA.

5.3 <u>ICW design, development and implementation (DD/I) contract</u>. The ICW DD/I contract is the most involved and challenging of those discussed in this handbook. Appendix B describes the ICW DD/I contract task description requirements definition process. As with the FEA contract, there are DD/I SOW task description and process definition requirements that are not adequately addressed in MIL-STD-1379. You will need to provide these additional and necessary task descriptions. Decisions reached during requirements definition, and specific agency policy and guidance concerning ICW application and implementation strategies determines actual requirements.

5.4 ICW integrated logistic support (ILS) contract. ILS contract discussions focus upon using the course control documents produced during the analysis, and ICW DD/I processes. These documents are necessary to maintain and revise ICW program materials throughout its life cycle. If these control documents are properly maintained, maintenance of the courseware will be a relatively straight forward procedure. When these documents are not available and current to support ILS requirements, maintenance may require re-accomplishing much of the original work they documented. Sound courseware management is, therefore, very important to maintaining an efficient life cycle support capability. Appendix C describes ILS requirements and necessary course control documents.

a. This handbook describes ILS factors and considerations that determine program and DD/I contract requirements (see 4.3.3).

b. Configuration management requirements applicable to both DD/I and ILS contracts are discussed in paragraph 5.6.2.

5.5 Acceptance of supplies and services. Information and guidance on evaluating applicable ICW deliverables is in the appropriate handbook appendix.

5.6 Courseware management. Effective management control over completed ICW materials is critical to the life cycle support and maintenance of the courseware. The ILS requirements definition process should identify some of the requirements in this paragraph: others should result from the configuration management plan developed by MIL-STD-1379, Task 102. The Training Program Development and Management Plan, DI-ILSS-81070, describes plan content. Management controls over ICW materials and configuration control documents should include the following requirements.

5.6.1 Courseware manager/management agency. Each ICW training program is a major investment: provide management controls equal to the value of the courseware and delivery devices. DoD Instruction 1322.20 tasks each DoD Component to designate a life cycle manager for each ICW program developed by or for the DoD.

5.6.1.1 Life cycle management. Effective management of the ICW program materials requires designating an ICW life cycle manager (LCM). Identify an activity tasked with responsibility to maintain courseware management and configuration control records. This activity exercises management control over the life cycle of the training materials. DoD Instruction 1322.20 establishes the following LCM responsibilities:

a. Maintain the courseware, associated training materials, documentation, and administrative records. The LCM controls these materials throughout the ICW life cycle and disposes of them in accordance with DoD and Agency directives.

b. Ensure that a record copy and reproduction master materials for all assigned ICW and associated training materials are retained throughout the program life cycle.

c. Ensure that an executable circulation copy of all assigned ICW, including associated presentation programs necessary to interpret and execute the courseware, support software, and user documentation is retained for the program life cycle. These are maintained for review by requesting activities and organizations to determine the program's (or significant program elements) applicability to their training requirements.

5.6.1.2 Training effectiveness evaluations (TEE). The LCM activity is also tasked by the DoD Instruction 1322.20 to conduct ICW program TEEs. The LCM would start courseware maintenance actions when the TEE results indicate this is necessary. TEE results are documented according to the instruction and should include lessons learned and the extent to which the ICW meets specified training objectives and performance goals.

5.6.1.3 Courseware management. Agencies should address other ICW life cycle management and support requirements in addition to those required by the DoD Instruction 1322.20. Specific courseware management responsibilities should include the following:

a. Maintain ICW course control and configuration management documents.

b. Set up and maintain logistic support for the ICW device, to include spare parts, as required.

c. Assure ICW training program materials are effectively and efficiently integrated into the total instructional system for affected occupational skill areas.

d. Accomplish required ICW program reporting in DITIS (once DITIS is operational) and DAVIS (for IVD). Maintain report data records through the program life cycle.

5.6.2 Configuration management. Configuration management for the ICW and its delivery system or device should provide adequate controls. Provide configuration management over the delivery system/device, the courseware, and the software programs that interface the two. The following paragraphs provide a general overview of ICW configuration management requirements. More information and guidance about hardware configuration management is in MIL-STD-490, MIL-STD-973, and applicable agency directives. DOD-STD-2167 provides additional information about software configuration management. The activity responsible for life cycle support of the ICW training program should develop an ICW configuration management plan. You can get an ICW configuration management plan as part of the contractor-developed integrated logistics support plan (ILSP).

5.6.2.1 Equipment management. Configuration management of the delivery system or device involves those records and actions associated with configuration control of any other Government system or equipment. If a logistics depot or similar activity will manage and control the device, agency directives, like SECNAVINST 4130.2 (Navy) and AFR 50-11 (Air Force) govern configuration management. Whether system/device management is

through a standard program or not, configuration controls should be similar to those described in the following paragraphs. Without these or similar controls, device life cycle support becomes increasingly more difficult. The ability to develop and deliver future ICW programs on the device based upon a known configuration also becomes increasingly more difficult.

 5.6.2.1.1 <u>Baseline configuration document</u>. You should document the "as-installed" configuration of the system/device and keep it in some form of configuration management file. The baseline configuration document should include the following information about the device.

a. A description of the weapons/operational system the ICW device supports if the device supports a single operational system. This information should include any *information concerning engineering changes and modifications that affect the* courseware or device characteristics.

b. A description of the delivery system/device. Include a description of all major components of the device. Include serial numbers when they are available.

c. A detailed description of each major component's as-installed configuration. Document the following ICW device configuration data:

 (1) <u>Computer configuration and capabilities</u>. Record major characteristics affecting the computer's operational characteristics and capabilities to include: (a) CPU chip and clock speed, (b) the installed operating system and version, (c) the number, capacity and type of internal storage devices, (d) the type and capabilities of the installed disk controller board, (e) installed ports and types, (f) video/graphics board type and capabilities, (g) type and number of available expansion slots and the buss architecture, (h) the amount of installed and possible internal RAM, (i) network type, architecture, and system file server software, and (j) internal and external data storage devices and capabilities. If the computer is connected to a network, document whether the specific computer is a client or the server station, and the specific network transmitter/ interface board installed. Also document any other interface/controller boards installed in the computer for peripheral devices like touch screens and videodisc players to include capabilities, inputs and outputs. If there are special controller, encoder or decoder boards installed, the purpose, inputs, outputs and capabilities of these boards should also be fully documented.

 (2) <u>Monitor configuration and capabilities</u>. Monitor capabilities to document include the type, maximum video and graphic resolutions supported, the type and resolution of any installed touch screen panel, installed audio system characteristics, and monitor interface/connection capabilities.

(3) Videodisc/compact disc, or other type of optical disc player. Important player characteristics to document include the types (CAV, CLV) and sizes of videodiscs it will play, maximum search time, play modes and functions, disc loading procedures, installed interfaces, and any installed special features like audio or data decoders. CD/WORM/CD-I/DVI player data should include the data format supported, data capacities, type and size of the physical data medium and any other available technical capability data. The type of interface/controller device installed to support installed optical disc players should also be documented.

(4) Input devices. Document the type, operational characteristics and interface requirements for each system input device (for example, keyboard, mouse, track ball, scanner). Be sure to discuss any compatibility with industry command code standards.

(5) Output devices. Document the type, operational characteristics and interface requirements for each system output device (printer, plotter, voice synthesizer). Any compatibility with industry command code standards should also be recorded.

(6) Documentation. A complete listing of all commercial and Government system/device installation, operation and maintenance documentation. The list should include a location where one or more copies of the documentation are archived and maintained.

5.6.2.1.2 Engineering change and modification record. Configuration management records should include a detailed audit trail of all engineering changes and modifications made to the ICW system/device. This record should include any changes and modifications completed before acceptance of the device.

5.6.2.1.3 Applicable drawings. Include any drawings that depict the "as-built" and "as-installed" configuration in the configuration management files. Only include data not included in the associated technical manuals. "As-installed" drawings for ICW device networks are especially important.

5.6.2.1.4 Accountability and inventory control records. This part of the configuration management file identifies who has physical control of the device, and any appropriate accounting and inventory control documents.

5.6.2.2 Software management. Configuration management of ICW software is usually relatively simple. These are most often commercial programs or Government-owned programs managed by the developing agency. However, DoD Instruction 1322.20 does prescribe software management controls according to the type of software used for the ICW program. The configuration management files should include documentation for the specific version(s) of the installed operating system, and the authoring system used to develop and run the courseware. Maintain software documentation in the configuration

management files. Maintain the applicable user's manual and any programmer's documentation manuals. ICW support software configuration management requires controls and documentation that meets the requirements of DOD-STD-2167. The Instructional Media Data Files, DI-ILSS-81093, resulting from the performance of MIL-STD-1379, Task 301, should satisfy most software configuration management requirements, except those required by DOD-STD-2167 for developmental software (ICW support software).

5.6.2.2.1 <u>Management functions</u>. Software configuration management during courseware development should include the following requirements:

a. <u>Technical and administrative direction</u> to: (1) identify and document the functional and physical characteristics of each lesson or unique routine, (2) control changes to those characteristics, and (3) record and report the processing of changes, and the implementation status.

b. <u>Configuration management</u> in the framework of system and device configuration management including hardware, related lessons, support and training elements, and Government furnished hardware and software, as applicable. Configuration management on non-deliverable software used in ICW development, and on changes or revisions to commercial authoring languages and systems is also required during development and after implementation.

5.6.2.2.2 <u>Management documentation</u>. The following documentation is required for software configuration management.

a. <u>Functional and allocated baselines</u>. This documentation identifies the baseline characteristics and capabilities of the operating and authoring systems provided or approved by the agency for use in developing the ICW programs.

b. <u>Developmental configuration</u>. Developmental documentation defines the design and code (including any revisions) for each lesson, and its associated computer management and record keeping programs. This documentation includes the complete and current software source and object code for tested and approved program segments. Developmental configuration documentation is kept under configuration control until the software programs and routines become part of the baseline configuration documentation.

c. <u>Product baseline</u>. Product baseline documentation is the developmental configuration documentation discussed above that has been accepted by the Government and is subsequently placed under Government control. This, as well as the functional and allocated baseline documentation, collectively define the characteristics and capabilities of the finalized ICW.

5.6.2.2.3 <u>Software configuration record copies</u>. Software configuration records should include all of the documentation and data files described below. Identify all data

files and documentation by course number, course revision number, delivery system/device to include "up-to" change and modification data, and ICW software version identification. Also include specific delivery system/device models and serial numbers when the software does not apply to all systems/devices.

a. All product baseline documentation resulting from courseware development. Complete software object and source code documentation is critical for future life cycle support and re-hosting of the courseware.

b. A record of commercial software programs used to develop the ICW materials and the system/device operating system, to include the specific version of those programs. Software programs that may be appropriate include the authoring language or system, graphics/character generation programs, and manufacturer's driver programs for system input and output devices. A master copy of the operating system and other applicable software programs should be included in the file. The master copy should be on the appropriate magnetic media and write-protected to prevent writing over the master copy data files.

c. The master copy of computer data files that contain the ICW graphics screens, character generation (video) screens and overlays, lesson data files, and all final copies of courseware development and control documents (instructional design strategy document, flow diagrams, script-storyboards, electronic tests) delivered in digital form. These data files should be write-protected to prevent accidental over-write of these important files.

d. Copies of all software purchase and licensing agreements.

5.6.2.3 Courseware management. Configuration management of the courseware as a complete instructional program must address all additional and adjunctive materials not already managed under the delivery system/device (hardware) or software configuration management areas. These include course materials such as instructor and student guides, video media, and ICW validation and evaluation reports. The courseware should receive the same level of configuration control provided for the hardware and software. Courseware configuration management records should include final copies of the following documents. Documents delivered on magnetic media should be protected and managed using the guidelines for software materials.

a. Video materials. Video materials maintained in the configuration management files include the master video tape or digitized video equivalent (streamer tape, magneto-optical, WORM), all resource video produced during program development, and a copy/replicate of the glass-mastered videodisc. Note that video tape and videodisc glass master storage should be performed by an activity having suitable environmentally controlled facilities. Otherwise, the video tape and glass master videodisc will rapidly degrade and become unusable.

b. <u>Adjunctive and other paper-based materials</u>. The camera-ready copy of all adjunctive and other paper-based materials supporting the ICW training program, to include the instructor and student/user guides, should be maintained in the courseware files if the final documents were delivered in paper form.

c. <u>Requirements definition and analysis documents</u>. Include all final, approved copies of reports and documents produced during identification of the training need and front-end analysis of the training program. These documents are identified in Figures A-1 and B-1, and are essential elements of the overall ILS program. Effective courseware configuration management requires maintenance of current document versions.

d. <u>Design, development and implementation documents</u>. Include all final, approved copies of reports and documents produced during program development. All course control documents for design strategies and lesson architecture are necessary. Required documents are shown in Figures B-1 and B-2. Obtain final copies of most DD/I documentation in a digital form because of their volume.

5.6.3 <u>ICW reporting and cataloging</u>. ICW is reported and cataloged in two separate DoD automated information systems, and archived by the Defense Technical Information Center (DTIC).

a. The provisions of DoD Directive 5040.2, Office of Federal Procurement Policy (OFPP) Policy Letter 79-4, and implementing agency directives apply when audiovisual productions or visual information products are acquired or developed in support of or as part of the courseware. ICW video materials are reported and cataloged in the Defense Automated Visual Information System (DAVIS) in accordance with DoD Directive 5040.2 (see 5.6.3.1).

b. ICW programs and related instructional materials will be entered into and cataloged by the Defense Instructional Technology Information System (DITIS) in accordance with DoD Instruction 1322.20, when the DITIS is operational (see 5.6.3.2).

c. Copies of key courseware development documents are maintained by the Defense Technical Information Center (see 5.6.3.3).

5.6.3.1 <u>Defense automated visual information system (DAVIS)</u>. The DAVIS is used to catalog and manage DoD visual information regardless of its current or future applications. Accomplish DAVIS reporting and cataloging of the VI portions of the ICW following DoD Directive 5040.2. Information and guidance on using and reporting in the DAVIS is available through your agency's VI manager.

5.6.3.1.1 <u>DAVIS catalog search</u>. The DAVIS includes several data elements which may be useful in conducting a VI data search for VI resource materials. A DAVIS search is initiated through your command audio/visual manager if you do not have local access to

the system. It is possible to obtain local access capability if you have a computer terminal and modem. A dial-up, on-line search capability was recently added to the DAVIS system. Training on how to conduct searches on the system is also available to individuals or agencies with dial-up access. DAVIS includes the DoD catalog of film and video productions. This catalog should be searched for possible resource footage to use in ICW development.

5.6.3.2 <u>Defense instructional technology information system (DITIS)</u>. When completed, the DITIS will be an on-line cataloging system authorized and developed by DoD Instruction 1322.20. DITIS is for tracking and managing the increasing quantity of ICW training materials within the military components. DITIS will catalog all DoD computer-based instruction/ICW programs presently available or in development. Information and guidance on DITIS ICW data searches and for reporting ICW programs in DITIS is provided in DoD Instruction 1322.20.

5.6.3.2.1 <u>DITIS data search</u>. Once activated, the DITIS will provide an on-line capability to search for and retrieve information about existing and under development ICW programs. The on-line, dial-up capability will be used to conduct a data search or to add ICW programs to the data base. The system will allow on-line communications with any computer and modem hardware combination. User registration will occur the first time a person accesses DITIS. The DITIS system will assign a user ID to simplify future access.

    a.   DITIS will support data searches or queries according to several query categories. Users can retrieve system information and down-load it to the user's computer for review whenever it is convenient.

    b.   DITIS will include a data field for recording the DAVIS reference number assigned to ICW products also recorded in the DAVIS system. This feature should speed the DAVIS search procedure considerably.

5.6.3.3 <u>Defense Technical Information Center (DTIC)</u>. A copy of the front end analysis, media selection analysis, and training effectiveness evaluation reports for all in-house and contractor-developed ICW programs are submitted through command channels to the DTIC. This is required by DoD Instruction 1322.20 for all ICW programs up to and including the "Secret" classification level. These reports should be submitted within 30 days of report completion.

5.6.3.3.3 <u>ICW front end analysis report</u>. To meet front end analysis reporting requirements, a copy of the Mission, Collective, Individual, and Occupational Training Task Analysis described in DI-ILSS-81078, and the Learning Analysis Report described in DI-ILSS-81083 should be forwarded to the DTIC.

5.6.3.3.2 <u>ICW media selection report</u>. A copy of the Media (and media features) Selection Report, DI-ILSS-81084, should be forwarded within 30 days after completion of the report. This report meets the requirements for providing a copy of the media selection analysis to DTIC.

5.6.3.3.3 <u>ICW training effectiveness evaluation Report</u>. A copy of the completed ICW program training effectiveness evaluation should be submitted through command channels to the DTIC. The report content and format prescribed by DI-ILSS-81105, Training Evaluation and Validation Report, meets this reporting requirement.

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6. NOTES

6.1 Intended use. This handbook is intended to be used in conjunction with MIL-STD-1379 for development, acquisition and management of ICW for military training programs. It is designed to aid managers in the definition of program analysis, and ICW design, development, implementation and configuration management requirements whether the courseware is developed in-house or through contract.

6.2 Tailoring guidance. To insure proper application of MIL-STD-1379, this handbook provides detailed information on the application of the standard in invitations for bids, requests for proposals and contractual statements of work for ICW training programs. The relationship of MIL-STD-1379 task descriptions, and task inputs and outputs to the acquisition of ICW is discussed in the applicable handbook appendix. Each appendix also address deliverable data requirements prescribed by MIL-STD-1379 DIDs, to include guidance on applicable and appropriate DID paragraphs.

6.3 Subject term (key word) listing.

> Acquisition Manager
> Acquisition Plan
> Acquisition Strategy
> Configuration Management
> ICW Design Strategy
> Instructional media
> Instructional media data files
> Lesson Data Files
> Requirements Definition
> Source Selection

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TABLE 1. Proposal grading scheme.

PROPOSAL DIVISION	EVALUATION LEVEL	EVALUATION SCORING
Volume	Evaluation area	Color (Assign colors to denote area is exceptional, acceptable, marginal or unacceptable)
Chapter	Evaluation item	Adjective (exceptional, acceptable, marginal or unacceptable)
Section	Evaluation factor	Points
Paragraph	Sub-factor	Check (acceptable), Plus (Exceeds Requirements), or minus (Deficient)

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MILESTONE 0   MILESTONE 1

STEP 1   **STEP 2**

DEFINE REQUIREMENTS & GATHER PERTINENT BACKGROUND DATA	PREPARE/DRAFT ACQUISITION PLAN DOCUMENTS

STEP 3   **STEP 4**

DEFINE REQUIREMENTS & GATHER PERTINENT BACKGROUND DATA

- FEA inputs from MIL-STD-1379
- DD/I inputs from Appendix B
- ILS inputs from Appendix C

- Capabilities and requirements
- Risk analysis
- Trade-off analysis
- Cost analysis
- Other FAR/DFARS Info Requirements

PREPARE/DRAFT ACQUISITION PLAN DOCUMENTS

- Contracting considerations
- Budget/funding
- Source selection
- Competition
- Management plan
- Test plan
- Schedules
- Logistics support
- GFI/GFP available
- Acquisition Strat
  -- Bid/negotiate
  -- 8(a) set aside
- Other FAR/DFARS Info Requirements

PREPARE ACQUISITION PLAN (IF REQUIRED)

Prepare plan IAW agency directives (See Figure 5)

ACQUISITION PLAN REVIEW/APPROVAL

- Req'd reviews
- Approval IAW agency reqmts

MILESTONE 2   MILESTONE 3   MILESTONE 4   MILESTONE 5

STEP 5   **STEP 6**

PREPARE THE SOLICITATION PACKAGE

- Final SOW Final CDRL
- Prepare remainder of solicitation package
- Tailor documents
- Final Source Selection Plan
- Final Eval Plan
- Final device specs

REVIEWS/APPROVALS

- IAW agency directives
- Prepare & issue purchase request
- Obtain funding or commitment

OTHER APPROVALS
- Non-competitive solicitation J&A
- Determinations & Findings (D&F)

STEP 7   **STEP 8**

ISSUE SYNOPSIS

- Publicizing contract actions
- 15 days in CBD
- Contract Pkg to KO

ISSUE SOLICITATION

- All requesters
- Known sources

→(cont.)

STEP 7A   STEP 8A

PRE-SOLICITATION CONFERENCE/MTG

- Approval req'd
- Identify sources
- Gain industry inputs/comments

PRE-PROPOSAL CONFERENCE/MTG

- Clarify govt requirements
- Clarify format of proposals
- Suggested for ICW contracts

FIGURE 1. <u>Negotiated acquisition process</u>.

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STEP 9   MILESTONE 6   STEP 10   STEP 11   MILESTONE 7   MILESTONE 8

EVALUATE PROPOSALS

- Form Eval team
- Technical Eval
  -- IAW Eval plan
  -- Responsive
  -- Complete
  -- Correct format
(cont.) -- Meets technical
     requirements
  -- Weigh best
     value factors
     IAW Eval plan
  -- KO obtains cost
     evaluations
     (See Figure 6)

PREPARE REPORT

- Evaluation results
  -- Positive and
     deficient areas
  -- Acceptable or
     unacceptable
- Rank order by the
  weighted factors

NEGOTIATE CONTRACT

- KO develops the
  pre-negotiation
  objectives memo
- KO negotiates with
  remaining vendors
- Request best and
  final offer after
  negotiations done
- KO or SSA selects
  winning source

STEP 12

PRE-AWARD ACTIONS

- Reviews and
  approvals IAW the
  FAR/DFARS and
  agency directives
- Required surveys
- Required notices

MILESTONE 9

STEP 13   STEP 14   STEP 15   STEP 16

AWARD CONTRACT

- Publicize award
- Debrief unsuccess
  vendors on request

KICK-OFF MEETING

- Identify key
  people
- Discuss GFI/GFP
- Settle procedural
  requirements

**FIRST IN-PROCESS
REVIEW**

Review/approve
first deliverable
data
- Form IPR team
- Review procedures
- Correct errors

**SECOND IN-PROCESS
REVIEW**

Review/approve second
deliverable data
- Form IPR team
- Review procedures
- Correct errors

STEP 20

FEA CONTRACT

Go to Appendix B
for DD/I
requirements

STEP 17   STEP 18   STEP 19

**THIRD IN-PROCESS
REVIEW**

Review/approve 3rd
deliverable data
- Data criteria
- Review procedures
- Correct errors

**"Xth" IN-PROCESS
REVIEW**

Review/approve "Xth"
deliverable data
- Form IPR team
- Review procedures
- Correct errors

**FINAL ACCEPTANCE OF
PRODUCTS/SERVICES**

- ICW Evaluation
  plan procedures
- Integrated ICW
  validation
- Final reports and
  other final data

DD/I CONTRACT

Go to Appendix C
for ILS
requirements

FIGURE 1. Negotiated acquisition process - Continued.

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(SAMPLE)

INTEGRATED LOGISTIC SUPPORT PLAN (ILSP)
OUTLINE FOR
INTERACTIVE COURSEWARE (ICW) SYSTEMS

1.0 Introduction.

1.1 Purpose. This Integrated Logistic Support Plan (ILSP) for Interactive Courseware (ICW) systems identifies logistic resource requirements and the management processes necessary to achieve satisfactory support across all logistic elements. Requirements within each ILS element have been developed considering the type of hardware and/or software that comprise ICW systems.

2.0 System description and acquisition strategy.

2.1 Courseware.

2.1.1 Description.

2.1.1.1 Give an in-depth description of the function of the courseware. As a minimum, this should include the type of training, expected results, trainee skill requirements, course length, courseware media, and other course descriptive data pertinent to the ICW system being supported.

2.2 Hardware and Media.

2.2.1 Description.

2.2.1.1. Describe the hardware and media that is required by the ICW. This section should also include a physical and functional description of the hardware and media.

2.3 Software.

2.3.1 Description.

2.3.1.1 Describe any additional software required to make the hardware and courseware compatible.

FIGURE 2. ILSP outline for ICW systems.

3.0 Life Cycle Support.

3.1 Configuration control activity. Provide the activity name, address, and point of contact who is responsible for maintaining configuration control over the ICW system. **3.2 Maintenance Planning.**

3.2.1 On-line Maintenance.

3.2.2 Off-line Maintenance.

3.2.3 Depot Maintenance.

4.0 Training Sites.

4.1 If Available, provide the ICW device control number, name, sponsor, delivery date, and location of each system supported through this ILSP.

5.0 ILS Management.

5.1 ILS Management Team (ILSMT). Provide a list of the ILSMT members, to include their *name, organization, and telephone numbers.*

5.2 Type and Schedule of ILS Management Meetings.

    __TYPE__   __SCHEDULE__

5.3 Plan for ILS Verification.

5.4 Project Team Members.

  __NAME__   __ORGANIZATION__   __PHONE__   __TITLE__

6.0 Logistic Element Management.

6.1 Manpower and Personnel.

6.1.1 Organizational Manning.

FIGURE 2. __ILSP outline for ICW systems__ - Continued.

6.1.2 Maintenance Manning.

6.2 Supply Support.

6.2.1 Supply Support Concept.

6.2.2 Strategy for Acquisition of Spare Media.

6.2.3 Supply Support Data.

6.3 Support Equipment.

6.3.1 General Purpose Test Equipment.

6.3.2 Special Purpose Test Equipment.

6.3.3 Support Equipment Data.

6.4 Training.

6.4.1 Operator/Instructor Training.

6.4.2 Maintainer Training.

6.4.3 Training Data.

6.4.4 Course Monitoring.

6.5 Technical Data.

6.5.1 Technical Data Support Package (TDSP) Deliverables.

6.5.2 TDSP Verification Conference.

6.5.3 Technical Data Deliverables.

6.6 Packaging, Handling, and Transportation.

6.6.1 Special Requirements.

6.7 Facilities.

FIGURE 2. ILSP outline for ICW systems - Continued.

6.7.1 General Facility Requirements.

6.7.2 Air Conditioning and Heat Requirements.

7.0 Operational Support Summary

7.1 Summary of Logistics Deliverables.

7.2 Engineering Change Support Activity.

7.2.1 Assessment of Probable Change Activity.

7.3 Depot Level Maintenance Activity.

7.3.1 Procedures for Obtaining Depot Level Repair.

7.3.2 Identification of Overhaul Candidates and Estimated Cycle.

7.4 Spare Media Replenishment.

7.5 Documentation Updates and Replacement.

7.6 Maintenance and Operation Support Responsibilities.

FIGURE 2. ILSP outline for ICW systems - Continued.

CONTRACT DATA REQUIREMENTS LIST (2 Data Items)	Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 220 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT A	C. CATEGORY: TDP _____ TM _____ OTHER Training Data

D. SYSTEM/ITEM General Training	E. CONTRACT/PR NO. N61339-91-D-0008	F. CONTRACTOR SSC

1. DATA ITEM NO. A001	2. TITLE OF DATA ITEM Mission, Collective, Individual, and Occupational Training Task Analysis Report	3. SUBTITLE

4. AUTHORITY (Data Acquisition Document No.) DI-ILSS-81078	5. CONTRACT REFERENCE SOW 3.1.3	6. REQUIRING OFFICE NTSC 114

7. DD 250 REQ LT	9. DIST STATEMENT REQUIRED	10. FREQUENCY OTIME	12. DATE OF FIRST SUBMISSION 2 MAC	14.	DISTRIBUTION			
8. APP CODE	D	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION				b. COPIES	

16. REMARKS	a. ADDRESSEE	DRAFT	FINAL	
			REG	REPRO
1. Format and content shall be in accordance with tailored Data Item Description provided at Attachment B to SOW.	NTSC 114		2	
	PMTRADE (AMCPM-CSTS)		1	
2. Paragraph 10.3.2.1a(7) "Documentation" of DI-ILSS-81078 shall contain that content required by SOW paragraph 1.1.b.				
3. The Government shall have 14 days for review and acceptance or rejection.				
	15. TOTAL →		3	

1. DATA ITEM NO. A002	2. TITLE OF DATA ITEM Training System Alternatives Report	3. SUBTITLE

4. AUTHORITY (Data Acquisition Document No.) DI-ILSS-81086	5. CONTRACT REFERENCE SOW 3.2.3	6. REQUIRING OFFICE NTSC 114

7. DD 250 REQ LT	9. DIST STATEMENT REQUIRED	10. FREQUENCY OTIME	12. DATE OF FIRST SUBMISSION 2 MAC	14.	DISTRIBUTION			
8. APP CODE	D	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION				b. COPIES	

16. REMARKS	a. ADDRESSEE	DRAFT	FINAL	
			REG	REPRO
1. Format and content shall be in accordance with tailored Data Item Description provided in Attachment B to SOW.	NTSC 114		2	
	PMTRADE (AMCPM-CSTS)		1	
2. Required content data shall be prepared and delivered as an Appendix to CDRL Item A001.				
3. The Government shall have 14 days for review and acceptance or rejection.				
	15. TOTAL →		3	

G. PREPARED BY Richard Fields, NTSC 114	H. DATE 12/18/91	I. APPROVED BY C.D. Parker, Tech Data Mgmt Officer	J. DATE 12/18/91

DD FORM 1423-2, JUN 90   *Previous editions are obsolete*   Page 1 of 1 Pages

FIGURE 3. Sample CDRL, DD Form 1423 (ADPE-formatted).

DATA ITEM DESCRIPTION	Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours of response time, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. TITLE	2. IDENTIFICATION NUMBER
TRAINING SYSTEM MODIFICATION REPORT	DI-ILSS-81087

3. DESCRIPTION/PURPOSE

3.1 The Training System Modification Report describes modifications to training equipment required to enhance training.

4. APPROVAL DATE 901205	5. OFFICE OF PRIMARY RESPONSIBILITY SH	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the preparation instructions for the content and format of the Training System Modification Report resulting from the work task described by Task 207.4.1 of MIL-STD-1379.

7.2 It is not intended that all the requirements contained herein should be applied to program or program phase. Portions of this DID are subject to deletion tailoring depending upon the program phase in which it is applied in the contract.

(Continued on Page 2)

8. APPROVAL LIMITATION	9.a. APPLICABLE FORMS	9b. AMSC NUMBER N5058

10. PREPARATION INSTRUCTIONS

10.1 <u>Reference documents</u>. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

10.2 <u>Style and format</u>. The style and format of the Training System Modification Report shall be in accordance with Appendix C of MIL-STD-1379.

10.3 <u>Content</u>. The Training System Modification Report shall contain the following:

   a. Front Matter.
   b. Introduction.
   c. Description of the Training System Modification.

10.3.1 <u>Front matter</u>. The content of front matter shall be in accordance with Appendix C of MIL-STD-1379.

10.3.2 <u>Introduction</u>. This section shall provide a brief overview of the purpose and expected application of the Training System Modification Report.

(Continued on Page 2)

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

DD Form 1664, APR 89   *Previous editions are obsolete.*   Page 1 of 3 Pages

FIGURE 4. <u>Sample tailored DID, DD Form 1664</u>.

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Block 7, Application/Interrelationship (Continued)

7.3 This DID supersedes DI-H-25719B.

Block 10, Preparation Instructions (Continued)

10.3.3 Description of the training system modification . This section shall describe the training system modification. This description shall include:

a. Description of the Ɛmaterial system changes or theƐ training deficiencies which drive this training Ɛ equipmentƐ modification.
b. Description of the training ƐequipmentƐ modifications.
c. An estimate of the scheduled or projected remaining life of the materiel system.
Ɛ d. An estimate of gains to the operational mission readiness and or effectiveness which will result from the training equipment modifications.Ɛ
Ɛ e. Estimates of the training pipeline for the remaining materiel system life (include data for each training and operational unit to be impacted by the modifications.Ɛ
f. A comparative analysis of modification life cycle costs, training gains, and materiel system life expectancy
g. Estimates of training resource savings or other gains:

   Ɛ (1) Instructor timeƐ
   (2) Operational equipment training hours
   (3) More effective training resource utilization
   (4) Elimination of training problems

h. Trainer modification utilization. Describe the planning and other provisions required to ensure maximum training value shall be achieved from each learning objective supported by the training ƐequipmentƐ modification(s). For each training objective the following shall be provided: ·

   (1) Description of Ɛtrainer instructional features and instructor/operatorƐ instructional features required to support the learning objectives:

   (a) Pre-training, briefing, and demonstration
   (b) Training scenario, task scheduling, and difficulty level control
   (c) Monitoring of trainee performance
   (d) Measuring and scoring trainee performance
   (e) Providing feedback
   Ɛ (f) Facilitating instructor performanceƐ

   (2) Description of modifications to lesson plan, training performance measurement required to support the learning objectives

Page 2 of 3 Pages

FIGURE 4. Sample tailored DID, DD Form 1664 - Continued.

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Block 10, Preparation Instructions (Continued)

       (3) Description of modifications to academic courseware, performance evaluation, and training device outlines required to ensure trainee readiness to accomplish the learning objectives

       (4) Description of modifications to subsequent training (additions, deletions, or alterations) required as result of training equipment modifications.

    ⁊ (5) Description of modifications to instructor training required to support the training equipment modifications. Identify the personnel to be trained and the commands responsible for providing the required training. ⁊

       (6) List of the Points of Contact related to the training equipment modification

i. Integrated logistic support requirements.

j. Estimate budget requirements to accomplish the training equipment modifications.

k. Identify potential for inter-service utilization.

⁊ l. Identify similar equipment in other services. ⁊

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FIGURE 4. Sample tailored DID, DD Form 1664 - Continued.

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(SAMPLE)

TECHNICAL EVALUATION PLAN
for
Solicitation/Contract (__number__)

DEVELOPMENT OF INTERACTIVE COURSEWARE (ICW)
on the
AN/NEW RADIO SYSTEM

June 1990

TABLE OF CONTENTS

FIGURE 5. Sample technical evaluation plan.

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TECHNICAL EVALUATION PLAN

1. <u>Purpose</u>. This plan sets forth operating procedures, guidance and criteria for the evaluation of technical proposals received in response to the Request for Proposal (RFP) on Solicitation/Contract (__number__).

2. <u>Objective</u>. The technical evaluation is designed to accomplish the following:

    a. Determine the degree of the contractor's ability to meet the requirements of the RFP.

    b. Determine the contractor's understanding of his responsibility in technical and management functions.

    c. Identify areas of risk and uncertainty that exist within the proposal under consideration.

    d. Identify the strengths and weaknesses of proposed solutions to the technical and management problems.

    e. Classify the proposals according to the following categories:

        (1) Technically unacceptable.

        (2) Susceptibility to being made technically acceptable.

        (3) Technically acceptable.

        (4) Highly acceptable (Best value TEPs only)

3. <u>Policy and Definitions</u>. The proposal shall be evaluated using the criteria set forth in this plan. No deviation from the criteria is permitted. The criteria used in this plan requires judgement based upon an individual evaluator's training and experience. An evaluation rating will be assigned using the following definitions.

<u>TECHNICALLY UNACCEPTABLE (UA)</u>. A proposal which modifies or fails to conform to the essential requirements of the specifications of the request for proposal will be categorized as UA. For example, a submission that has:

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

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a. A gross omission of one or more technical requirements, or

b. has a major item and/or gross omission which precludes meeting program objectives and/or results in substantial impact on either manhours or time which cannot be corrected without major modifications or complete resubmission of the technical proposal, or

c. has a multitude of minor omissions or technical deficiencies which have a collective effect on a o⊾b, above.

SUSCEPTIBLE TO BEING MADE ACCEPTABLE (S). A submission which has deficiencies that can be corrected by the offeror without significantly changing the submission is susceptible to being made technically acceptable. For example:

a. A minor omission or lack of clarity that could be resolved to the satisfaction of the Government in a timely manner would result in the proposal being considered technically acceptable.

b. An issue of minor omission or lack of clarity must be of such consequence that it can be resolved prior to or during negotiations (which defines "timely manner").

c. An example of such minor deficiencies includes a number left blank or an obvious misprint or deletion which can be quickly and easily corrected by the offeror.

TECHNICALLY ACCEPTABLE (A). A proposal which, as a minimum, meets the minimum acceptable technical requirements/standards set forth in the solicitation with no omissions.

HIGHLY ACCEPTABLE (H). A proposal which offers a technical solution to the Government's requirements which exceeds or greatly exceeds the minimum requirements established by the solicitation package. (This rating is only used in technical evaluation plans which support a best value source selection.)

4. Technical Evaluation Board. The purpose of the Technical Evaluation Board (TEB) is to determine if the technical proposal meets the minimum needs of the Government. The TEB will be composed of the most competent personnel available.

a. Responsibilities of the TEB Chairperson are to:

(1)   Assemble the TEB members and conduct an orientation.

FIGURE 5. Sample technical evaluation plan - Continued.

(2) Chair the TEB and monitor the evaluations to ensure they are conducted in accordance with the technical evaluation plan, and are fair, impartial and complete.

(3) Safeguard proposals to ensure they are treated as "Procurement Sensitive."

(4) Facilitate discussions when evaluators do not agree.

(5) Consolidate TEB ratings and comments, and prepare the Technical Evaluation Report.

b. Responsibilities of TEB members are to:

(1) Read the "Guidelines for the Evaluation Process" (Appendix A) and "Rules of Conduct" (Appendix B).

(2) Read the statement of work (SOW), data item descriptions (DID), and the other parts of the solicitation package for which they are responsible to evaluate.

(3) Read the evaluation criteria.

(4) Read each proposal in its entirety to obtain an understanding of the contractor's approach.

(5) Evaluate each proposal separately and independently, and compare the proposal with the source selection criteria. Adherence to an established procedure and independent evaluation will provide objective evidence if a contractor should register a protest.

(6) Determine a rating for each factor set forth in the technical evaluation plan.

(7) Return each proposal with worksheets to the chairperson when evaluation of each proposal is completed. Include on each worksheet your name, date of evaluation, the name of the proposing firm and all comments pertaining to the particular evaluation because worksheets may be used to debrief unsuccessful offerors.

FIGURE 5. Sample technical evaluation plan - Continued.

5. <u>Technical Evaluation Report</u>. TEB worksheets will be used to prepare the Technical Evaluation Report. The report will:

    a. Classify the proposals consistent with ratings UA, S, or A (or H if best value)

    b. Provide a written description of areas of significant risk, uncertainty, omission or lack of clarity within each proposal classified as susceptible to being made technically acceptable.

    c. Identify those proposals that are technically unacceptable and provide a detailed narrative supporting that determination. The narrative will include the description of the technical aspects of the proposal which are unacceptable, why it is unacceptable, and the anticipated effect on achievement of the overall program objective.

    d. Have as enclosures, the names and organizations of TEB members, all evaluation worksheets, and memorandums pertinent to board proceedings.

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

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Technical Evaluation Plan
APPENDIX A

GUIDELINES FOR THE EVALUATION PROCESS

Conduct of the Technical Evaluation Board (TEB).

1. The contracting officer removes and retains the cost proposal information and obtains appropriate cost analysis. Should a TEB member be given a proposal package containing cost information, immediately notify the TEB chairperson.

2. TEB members receive technical proposals and begin evaluation process.

3. Proposals are evaluated and the results are furnished to the contracting officer.

4. Unsuccessful offerors may request a debriefing. Evaluation worksheets will be used to conduct debriefings.

Dos and DON'Ts for the TEB Members.

1. DO become familiar with the solicitation package, especially the statement of work (SOW) and the evaluation plan.

2. DO be sure that you understand the evaluation plan.

3. DO be aware of the need to apply your own judgement in evaluating each proposal. Evaluation worksheets should be the product of an individual's effort -- not the results of a "committee approach."

4. DO evaluate the proposal using only the criteria set forth in the solicitation and the technical evaluation plan.

5. DO be aware of the need to avoid even the appearance of a potential conflict of interest. A conflict of interest may exist when you have a financial interest in a firm whose proposal you are evaluating or when you have applied for employment with that firm.

6. DO write legibly. Your worksheets will be reviewed by the contracting officer and by the General Accounting Office in the event of a contractor protest.

7. DO remember that the evaluation process is the single most important function prior to contract award.

FIGURE 5. Sample technical evaluation plan - Continued.

8. DO remember that the evaluators will establish a consensus based on their worksheets.

9. DON'T feel that your evaluation must be consistent with the findings of the other evaluators. Each persons may have a different perspective on the quality of individual proposals. You must, however, evaluate each proposal in a manner consistent with the terms of the technical evaluation plan and established evaluation criteria.

10. DON'T introduce bias into the evaluation process: For example, a previous experience with the proposing contractor under a prior Government contract. If you have information you believe is germane, bring it to the attention of the chairperson. Do not introduce it into your evaluation or discuss it with other team members.

11. DON'T discuss the results of your evaluation with individuals who are not TEB members. Any inquiry concerning an eventual award must be referred to the contracting officer handling the procurement.

12. DON'T merely express conclusions on your worksheets. You must provide a detailed narrative which identifies weaknesses. this point cannot be over emphasized. In addition to their use in reaching a decision on contract award, the worksheets will be used to debrief unsuccessful offerors.

13. DON'T forget to identify areas within a proposal that must be strengthened if the offeror is to be considered for award. Unjustified conclusions expressed by an offeror are of little value.

FIGURE 5. Sample technical evaluation plan - Continued.

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Technical Evaluation Plan
APPENDIX B

RULES OF CONDUCT

1. Do not permit members of your parent or home organization to divulge your membership on the evaluation board to casual callers.

2. Divert all attempted communications by contractor's representatives to the contracting officer once the solicitation has been synopsized in the Commercial Business Daily (CBD).

3. Do not discuss the source selection with other board members outside the area designated for deliberations.

4. Do not assume that it is safe to speak of the source selection because you are among Government employees or are in a Government facility.

5. Do not discuss the substantive issues of the source selection with any unauthorized individual even after the announcement of the winning contractor.

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

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Technical Evaluation Plan
APPENDIX C

CONFLICT OF INTEREST STATEMENT
(Solicitation number _____)

I have reviewed (appropriate agency directive) in addition to the list of offerors who have submitted proposals in response to the solicitation. I hereby certify that I have no business or personal interest in any corporation or business which has chosen to submit a proposal. I further certify that I am not personally acquainted with any individual who is presently employed or who may stand to gain from an evaluation of proposals submitted in response to this solicitation.

If during the conduct of evaluation of proposals I become aware of a situation which might be a conflict of interest, I will bring this situation to the attention of the contracting officer. I will immediately withdraw from the evaluation board upon the recommendation of the contracting officer.

_____
MEMBER'S SIGNATURE

_____
PERMANENT ASSIGNMENT

_____
DATE

FIGURE 5 Sample technical evaluation plan - Continued.

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TEP - APPENDIX C

CERTIFICATE OF NONDISCLOSURE

For solicitation number (_____) entitled "Interactive Courseware Development."

I have read and understand the requirements of: (Applicable agency directives).

I understand my obligation not to divulge information received in confidence from contractors in connection with bids and proposals, trade secrets, inventions, discoveries and reports of a financial, technical and scientific nature.

I further understand my responsibility not to disclose the methods or procedures being used to evaluate contractor's proposals.

I will not reveal the standards, ratings, or scores used by this Technical Evaluation Board in the evaluation process unless authorized to do so by competent authority.

<div align="right">

_____
MEMBER'S SIGNATURE

_____
PERMANENT ASSIGNMENT

_____
DATE

</div>

FIGURE 5. Sample technical evaluation plan - Continued.

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TEP - APPENDIX C

AFFIDAVIT

I, _____, being a duly authorized member of the Technical Evaluation Board for the purpose of evaluating technical proposals for solicitation number _____ ___, do affirm that I will not discuss any of the information revealed to me during this technical evaluation prior to award of any resulting contract unless required to do so in an official capacity and then only to those individuals with a need to know.

I further affirm that to the best of my knowledge neither I, nor any of my immediate relatives, have any stocks, bonds, or other interest in the firms or subsidiaries thereof who have submitted proposals where my participation in this evaluation board may be construed or constituted as a possible conflict of interest.

_____   _____
MEMBER'S SIGNATURE   **MEMBER'S TITLE**

_____   _____
PERMANENT ASSIGNMENT   **TELEPHONE NUMBER**

_____
DATE

FIGURE 5. Sample technical evaluation plan - Continued.

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Technical Evaluation Plan
APPENDIX D

TECHNICAL EVALUATION BOARD (TEB) PROCEDURES

1. The contracting officer will receive contractor proposals and remove cost proposal information. The contracting officer will give the technical proposals to the TEB chairperson.

2. The TEB chairperson will issue a copy of the solicitation package and the evaluation plan to each member of the TEB.

3. The TEB chairperson will:

   a. Brief TEB members on the rules of conduct.

   b. Ensure each member signs pertinent statements.

   c. Ensure TEB members understand the Technical Evaluation Plan, its objective and required procedures.

   d. Provide TEB members a copy of the solicitation package at least two weeks prior to convening of the TEB.

4. Each board member will evaluate each proposal and prepare evaluation worksheets. Evaluation worksheets will include written narrative identifying proposal strengths, weaknesses, and an evaluation rating.

5. The TEB chairperson will discuss evaluation worksheets with TEB members and prepare a worksheet summary for each proposal.

6. The TEB chairperson will prepare the final evaluation report and debriefing papers.

FIGURE 5. Sample technical evaluation plan - Continued.

FACTOR I: Interactive Courseware (ICW) Media Design Report.
          REFERENCE: DI-ILSS-81091; Section M, para 5.1.1.2

Evaluate the Media Design Report and determine if it provides management (Government and contractor) with a common document to describe all critical strategy elements required to design ICW modules or lessons. Determine if the content is in sufficient detail to show an understanding of the scope of work. Note all omissions and insufficient detail items. Provide your comments in narrative form identifying both the positive and deficient parts of the contractor's design strategy. Evaluator comments must include proposal page and paragraph references. The minimum parts of the Media Design Report are as follows:

DI-ILSS-81091 PARA NO.	TEP Section	PART/CONTENT DESCRIPTION
10.3.1	A.	FRONT MATTER (IAW Appendix C, MIL-STD-1379)
10.3.2	B.	ICW Lesson Title and Description
10.3.3	C.	Course Data
10.3.4	D.	Lesson Objectives
10.3.4	E.	Lesson Design Strategy
10.3.5	F.	Conventions
10.3.6	G.	Equipment
10.3.7	H.	Reference materials
10.3.8	I.	Adjunctive Materials
10.3.9	J.	Abnormal Operating Conditions to be Simulated
10.3.10	K.	Performance Standards
10.3.11	L.	Computer Managed Instruction (CMI) Training Strategy
10.3.12	M.	Course Map
10.3.13	N.	Maximum Security Classification
10.3.14	O.	Tentative Production Requirements
10.3.15	P.	Miscellaneous

FACTOR I, PART A - Front Matter. Does the front matter contain the appropriate:

YES	NO	
___	___	Document Title?
___	___	Courseware Title?
___	___	Production Identification Number (PIN)?
___	___	Preparing Activity (Any response is acceptable)?
___	___	Volume Number?
___	___	Distribution Statement?
___	___	Date?
___	___	Type of Submission?

FIGURE 5. Sample technical evaluation plan - Continued.

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COMMENTS:

_____

_____

PART B - ICW Lesson Title and Description. Are the lesson title and lesson description correct?

YES   **NO**

___   ___   ˅ **Lesson Title?**

___   ___   **Lesson Description?**

COMMENTS:

_____

_____

PART C - Course Data. Does the course data contain appropriate:

YES   **NO**

___   ___   **Title?**

___   ___   **Tasks?**

___   ___   **Sequence?**

___   ___   **Estimated Time?**

___   ___   **Video/Photography/Audio Requirements?**

___   ___   **Recommendations?**

COMMENTS:

_____

_____

PART D - Lesson Objectives. Do lesson objectives contain appropriate:

YES   **NO**

___   ___   **Title?**

___   ___   **Lesson Objectives? Objectives must be written for the training situation.**

COMMENTS:

_____

_____

FIGURE 5. Sample technical evaluation plan - Continued.

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PART E - Lesson Design Strategy. Does the lesson design strategy include:

<u>YES</u>   <u>NO</u>

___   ___   Description of the decision making process and strategies to be used in designing the ICW modules or lessons?

___   ___   Learning and branching Strategies.

COMMENTS:

_____

_____

PART F - Conventions. Did the contractor address each of the following areas:

<u>YES</u>   <u>NO</u>

___   ___   Title?

___   ___   Conventions (applicable to sample)?

                   ___   Techniques?

                   ___   Practices?

                   ___   Principles and Procedures?

COMMENTS:

_____

_____

PART G - Equipment (Reviewed by subject matter expert). Does equipment contain:

<u>YES</u>   <u>NO</u>

___   ___   Title?

___   ___   Equipment to be simulated?

COMMENTS:

_____

_____

PART H - Reference Materials. Does the reference material include:

<u>YES</u>   <u>NO</u>

___   ___   Name/Title (Publication number including changes)?

___   ___   Section (Subsection and Paragraph number)?

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

COMMENTS:

_____

_____

PART I - Adjunctive Materials (Reviewed by subject matter expert). Do adjunctive materials include:

YES   NO

__   __   Title?

__   __   Other materials required to support the ICW lesson? If none, is it stated?

COMMENTS:

_____

_____

PART J - Abnormal operating conditions to be simulated (reviewed by subject matter expert). Does the abnormal operating conditions section contain:

YES   NO

__   __   Title?

__   __   Abnormal conditions description(s)? If none, is it stated?

COMMENTS:

_____

_____

PART K - Performance standards (reviewed by the subject matter expert). Do the performance standards contain:

YES   NO

__   __   Title?

__   __   Performance standards (evaluation criteria used to demonstrate measurable minimum desired qualities for the ICW lessons)?

COMMENTS:

_____

_____

FIGURE 5. Sample technical evaluation plan - Continued.

PART L - Computer managed instruction (CMI) training strategy flow diagram. Is the CMI training strategy flow diagram complete, to include:

<u>YES</u>   <u>NO</u>   <u>MUST INCLUDE THE FOLLOWING</u>:

____   ____   **Trainee data to be collected?**
____   ____   **Tracking of individual student progress?**
____   ____   **Measuring individual and aggregate test scores and on-system/lesson times?**
____   ____   **Item analysis of test questions?**
____   ____   **Retaining records to track student usage of the courseware?**
____   ____   **Monitoring of courseware usage?**

COMMENTS:

_____

_____

PART M - Course Map. Does the course map include:

<u>YES</u>   <u>NO</u>

____   ____   **Title?**
____   ____   **Course map? Does the course map include:**
         ____   **Each module or lesson?**
         ____   **Recommended presentation sequence of all modules or lessons?**
         ____   **Relationship of each module or lesson to another module/lesson?**

COMMENTS:

_____

_____

PART N - Maximum Security Classification. Does the security classification include:

<u>YES</u>   <u>NO</u>

____   ____   **Title?**
____   ____   **Security classification?**

COMMENTS:

_____

_____

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

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PART O - Tentative Production Requirements. Do the tentative production requirements include:

<u>YES</u>   <u>NO</u>

___	___	Title ?
___	___	Existing resource footage (Videotape)?
___	___	Support requirements (props, equipment)?
___	___	Narrator?
___	___	Actors?
___	___	Field environment?
___	___	Studio requirements?
___	___	Special equipment?
___	___	Costumes, uniforms?
___	___	Lighting?
___	___	Animation rationale?
___	___	New art work, photographs?

COMMENTS:

_____

_____

PART P - Miscellaneous. Does the miscellaneous section include:

<u>YES</u>   <u>NO</u>

___	___	Title?
___	___	Miscellaneous?

COMMENTS:

_____

_____

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

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CONTRACTOR _____   CONTRACT # _____

EVALUATOR _____

FACTOR II. MANAGEMENT PROPOSAL References: Sections C (SOW), L, and M.

Evaluate the management proposal and determine if it provides management with information required to manage all elements required to design ICW modules or lessons. Determine if the content is in sufficient detail to show an understanding of the scope of work. Note all omissions and insufficient detail items. Provide your comments in narrative form identifying both positive and deficient parts of the contractor's management proposal. The minimum parts are as follows:

A. OVERALL PROJECT PLAN.

1. SCOPE: Does the contractor proposal show an understanding of the following:

 YES   NO

___   ___   1. Will the ICW be developed to run on the existing (device identification) using the latest version of (name) ICW authoring system and the (name) graphics and animation application software package (SOW para)?

___   ___   2. The Government will/will not provide GFE for the ICW development effort?

___   ___   3. The contractor shall provide the ICW authoring work stations and all hardware necessary to produce the resource video and graphics, and the applications and authoring software packages?

___   ___   4. Two-dimensional simulation testing using the random assignment capabilities of the computer is required?

___   ___   5. The contractor is required to sign a non-disclosure agreement with the Government before receiving the Government's (name) authoring system?

___   ___   6. One contractor employee will be trained to use the (name) authoring system for each subject area or a maximum of two employees per contract?

___   ___   7. The contractor is required to have an SME in each subject area or military occupational specialty in which he is developing ICW?

___   ___   8. The Government will/will not provide facilities to the contractor to perform work on this contract?

___   ___   9. That work will be assigned by delivery order (Indefinite Quantity type contracts)?

FIGURE 5. Sample technical evaluation plan - Continued.

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COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

2.   DELIVERABLE REPORT DESCRIPTIONS AND FORMAT

_____   _____   10.   Does the offeror understand that monthly lesson status reports are required monthly by the 10th of each month?

COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

3.   OFFEROR'S APPROACH TO EACH TASK. To achieve a YES in the following questions, the offeror's proposal must provide the following minimum information: (a) Manloading chart depicting manhours by labor category, (b) description of work to be performed by each labor category, and (c) reflect the requirements stated in the specification and work descriptions.

 YES   NO

_____   _____   11.   Evaluate Government Furnished Material (Cite applicable references)?
_____   _____   12.   Prepare ICW design strategy (cite references)?
_____   _____   13.   Develop ICW tests (cite references)?
_____   _____   14.   Design ICW Flow Diagrams (cite references)?
_____   _____   15.   Create ICW script-storyboards for draft lessons (cite references)?
_____   _____   16.   Prepare draft and camera-ready copy of adjunctive materials and labels (cite references)?
_____   _____   17.   Develop ICW Manager's Guide (cite references)?

COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

4.   OFFEROR'S APPROACH TO ICW VIDEO AND LESSON PROGRAMMING. To achieve a YES in the following questions, the offeror's proposal must show an understanding of the requirements and complexities of video acquisition planning, production and editing of the premaster tape. The proposal must demonstrate an understanding of the capabilities and limitation of the authoring system and address methodology to control software development external to the authoring system. Management of ICW validation and error correction must also be evident.

FIGURE 5. Sample technical evaluation plan - Continued.

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YES   **NO**

___ ___ 18. Produce Pre-master video tape (cite references)?
___ ___ 19. Edit Pre-master video tape (cite references)?
___ ___ 20. Prepare computer programs and documentation (cite references)?
___ ___ 21. Final ICW lessons (Cite Refs)?
___ ___ 22. Correct ICW lesson errors (Cite Refs)?
___ ___ 23. Revise ICW lessons (Cite Refs)?

COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

B. CONTRACTOR INSPECTION SYSTEM (Reference Section E, FAR Clause 52.246-02). Evaluate the management proposal and determine if it provides for an inspection system to insure that deliverables are inspected for quality and technical accuracy prior to delivery to the Government. The contractor's system can be either internal to the development team (Least preferred), external to the development team, i.e., Corporate staff (more preferred), or both (most preferred). The contractor's system shall not include Government in-process or other reviews.

To achieve a YES to the following questions, the contractor must provide the following information as a minimum:

a. The name or duty position of the responsible individual(s) (must be someone other than the developer).

b. The qualifications of that individual(s) to review for <u>technical</u> accuracy.

c. The method of documenting that inspection of materials has occurred.

d. The method of controlling materials that require revision.

e. The method by which revised materials are re-inspected and that inspection is documented.

f. The method by which any work performed by a subcontractor, if any, at any tier is inspected and documented.

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

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__YES__ __NO__

___   ___   24. Does the contractor's proposal provide for an inspection system that is internal to the project team?

___   ___   25. Does the contractor's proposal provide for an inspection system that is external to the project team, i.e., corporate staff?

COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

PART C - TELEVISION PRODUCTION. To achieve a YES in the following questions, the contractor must provide the following minimum information:

a. Discussions showing an understanding of the cited television standards and specifications.

b. Manloading chart depicting manhours by labor category.

c. Description of work to be performed by each labor category.

d. An approach reflecting the requirements stated in the specifications and related SOW work statements.

e. The equipment to be used in television production.

f. A contingency plan to replace/repair inoperative equipment.

__YES__ __NO__

___   ___   26. The contractor shall produce the original resource footage necessary to produce an edited pre-master video tape?

___   ___   27. The contractor shall perform the post-production functions necessary to provide the Government with an edited pre-master video tape?

COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

FIGURE 5. Sample technical evaluation plan - Continued.

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FACTOR III - COMPANY EXPERIENCE AND TECHNICAL QUALIFICATIONS OF PROPOSED KEY PERSONNEL. (Reference Section M.)

Evaluate the company experience and the qualifications of key personnel identified in the offeror's proposal. Determine if the minimum requirements outlined in Section M of the solicitation are met. The proposal must address (1) company experience, (2) qualifications of the proposed project team, (3) qualifications of the proposed instructional technologist, and (4) qualifications of the proposed subject matter experts.

PART A - COMPANY EXPERIENCE. Does the company experience description reflect:

 YES   NO

___   ___   27.   Corporate experience that indicates the ability to accomplish the contract?

___   ___   28.   The corporation has completed one or more ICW projects of similar complexity and magnitude?

___   ___   29.   The corporation has provided a description of their previous ICW projects of similar complexity and magnitude?

___   ___   30.   The corporation has provided a description of their experience using SAT and/or ISD in developing ICW?

COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

PART B - PERSONNEL QUALIFICATIONS. Do the resumes of key personnel who will be assigned to the project indicate they possess minimum qualifications, as follows:

<u>Project Manager.</u>

 YES   NO

___   ___   31.   Has a BA or BS degree?

___   ___   32.   Has 18 or more months experience managing one or more ICW projects?

___   ___   33.   Has six or more months professional experience working on a Defense agency contract effort?

___   ___   34.   Has a minimum of one year experience with military training using ISD and/or SAT?

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

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COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

<u>Instructional Technologist</u>.

<u>YES</u>   <u>NO</u>

___   ___   35.   Has a BA or BS degree in Education, Instructional Technology or related field? The relationship of the degree must be explained.

___   ___   36.   Has two years minimum experience teaching or other instructional discipline?

___   ___   37.   Has professional experience working in two or more of the following areas: (a) job/task analysis, (b) course design, (c) written/performance test development, or (d) development of interactive criterion-referenced materials?

COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

<u>Subject Matter Expert (SME)</u>.

<u>YES</u>   <u>NO</u>

___   ___   38.   Has minimum of three years experience at the journeyman level in the appropriate skill of the occupational specialty or subject area for which the ICW is being developed?

Note: Resume must clearly state the person's subject matter expertise.

COMMENTS: Please answer who, what, when, where, why, how and note the page, reference and paragraph number the comment pertains to.

_____

_____

FIGURE 5. <u>Sample technical evaluation plan</u> - Continued.

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SAMPLE ACQUISITION PLAN FORMAT

The following acquisition plan format is written to accommodate the information requirements of a formal acquisition plan mandated by the FAR, DFARS or agency regulations. Therefore, the format includes numerous information requirements that may not apply to a straight-forward courseware acquisition. Regardless of whether or not a formal acquisition plan is required, your research and documentation of the acquisition background data and planning considerations is still necessary. This format should be reviewed and tailored to accommodate the specific requirements of your agency and the particular acquisition. Where applicable, reference to the FAR/DFARS parts are indicated that prescribe the information requirement.

SAMPLE PLAN FORMAT

Acquisition Plan (AP) Number _____

Program: _____

Program manager: _____

Program/Project Identifier: _____

Prescribing Document: _____ (Identify the document that authorized the program from a requirements standpoint.)

DESCRIPTION OF PROGRAM/SYSTEM/ITEM.

Provide a brief description of the product or services being acquired under this plan. The description of major acquisitions should be similar to that provided in the Congressional Data Sheets with the annual budget. Identify related programs or contracts and the nature of the interrelationship(s). characterize the proportional interests of participating services if supporting a joint program. Characterize the major program's current acquisition life cycle status and list the contractual years including option years this plan addresses.

APPROVAL/SIGNATURE ELEMENTS (according to agency requirements)

(Narrative portion of the plan)

FIGURE 6. Sample acquisition plan format.

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1. ACQUISITION/BUSINESS APPROACH

a. **Statement of Need**: FAR Part 7. Provide a brief description and purpose of the acquisition (2 or 3 sentences).

b. **Historical Summary**: Include, as appropriate (detailed business plan information should be provided in the plan of action):

    (1) A chart or brief statement illustrating how long the program has been in development and/or production, and how long it is expected to continue.

    (2) A table or matrix of existing contracts supporting the major system/end items and those to be awarded under authority of this plan. Include contract types, nomenclature of item/service, quantities, and historical or estimated contract values. This information is best presented in a brief summary chart.

    (3) Competition/sole source strategy for each major element of the program addressed by the plan.

    (4) A brief discussion, as necessary, to add any further information on the program history which you consider important or useful to plan reviewers.

c. **Delivery or performance period requirements**: FAR Part 7. Develop a milestone chart depicting the objectives of the acquisition. Include the major milestones indicated in Figure 1 and milestones for preliminary/critical design reviews (PDR/CDR), and exercise of contract options. Describe the basis for establishing delivery or performance period requirements (FAR Part 12). Explain and provide reasons for any urgency if it results in or constitutes justification for not providing for full and open competition. When the acquisition will be affected by configuration/ design freeze and imposition of configuration control, the requirements of DFARS Part 207 are discussed in this part of the plan. Briefly discuss how configuration will be managed. This portion of the plan should also discuss intended uses of deferred ordering, deferred delivery and withholding of payment clauses related to delivery or performance requirements.

d. **Budgeting and funding**. Briefly address each of the following areas.

    (1) Current funding by appropriation and fiscal year. A matrix or chart that identifies total cost, contract cost, in-house cost and quantities by appropriation by year is a suggested method for providing this information. Be sure to verify that dollar figures add up to the identified budget amount.

FIGURE 6. Sample acquisition plan format - Continued.

(2) Briefly discuss the methodology used to develop budget estimates. A description of the pricing methodology (e.g., parametric, historical, catalogue) is usually sufficient.

(3) Briefly discuss any POM considerations affecting the business strategy of the plan. If the current funding levels are adequate to achieve the acquisition objectives, this should be stated.

2. PLAN OF ACTION. Acquisition plans which address more than one acquisition requirement should discuss the plan of action for each requirement separately. Be sure to clearly identify each separate plan of action. The discussion of each required contract should be as brief as possible.

a. Item description/scope of work: DFARS Part 207. A brief description of what is being acquired. Include quantities or man-hours for services required for each significant element of the acquisition. Refer to, rather than repeat, information provided elsewhere in the plan.

b. Estimated cost: DFARS Part 207. Provide the estimated cost of the proposed acquisition. Identify funds by fiscal year and appropriation account. If the acquisition strategy includes the use of options or a multiple phased approach, the cost for each option/ phase should be identified. For service contracts (i.e., FEA, ICW DD/I), provide annual average labor-hour prices and hours procured per year historical data from previous, similar contracts. When hardware is being procured under this acquisition, provide the unit price history and projections in constant dollars to include base year and then-year equivalents. You should provide historical cost information for at least two prior procurements and relate this information to the current planned buy and any out year buys.

c. Proposed sources and basis for selection: FAR Part 7 and DFARS Part 207. Briefly discuss known sources capable of performing contract requirements and proposed source selection procedures. Include discussions on consideration given to small business and small disadvantaged business concern set asides. When potential sources are unknown, discuss how sources will be identified (e.g., pre-solicitation advertisement in the CBD). If the acquisition or a part of it is for commercial or commercial-type products, address the results of market research and analysis, and indicate their impact on other parts of the plan. Discuss any factors which restrict foreign source participation whether or not foreign interest is expected. If potential sources are restricted to domestic concerns, provide the rationale for this restriction.

d. Competition: FAR/DFARS Part 7/207. Discuss your overall competition strategy and the cost analyses that support it. The competition portion of the plan should address the following areas.

FIGURE 6. Sample acquisition plan format - Continued.

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(1)   The schedule for obtaining competitive proposals.

(2)   Full and open competition after exclusion of sources (FAR Part 6). If
sources are to be excluded, identify the authority that permits the exclusion
and cite the appropriate FAR basis. If a source will be excluded citing FAR
Part 6, the supporting information required by DFARS Part 206 should also
be included.

(3)   Other than full and open competition: FAR/DFARS Part 6/206. If other than
full and open competition is proposed, cite the applicable statutory
authority and basis in FAR Part 6. Include a cost benefit analysis and any
other information to support justification for this approach.

(4)   Discuss or show by using a table or matrix any up-front costs expected to
be incurred to facilitate future competition. Do not include any Government
in-house costs to manage, monitor or execute a competition. You should
show or discuss where these costs are covered in the program budget.
Describe the expected source(s) of up-front funding to execute your
competition plan if these costs are not included in the budgeted funding.

(5)   Show or discuss unit cost and total gross savings expected to be realized
through competition. The methodology used to determine these estimates
should also be discussed.

(6)   Discuss the extent of any subcontractor competition and any restrictions in
the solicitation on foreign participation. If the primary source will be a sole
source selection, you should provide and discuss plans for increasing the
level of subcontractor competition through the prime source.

e.   Subcontracting plans. Discuss any subcontracting goals that will be established
in the acquisition for small business and small disadvantaged business concerns.
Include a discussion of any special methods and incentives to be included in the
solicitation as incentives for the contractor to achieve more challenging goals
than historically attained.

f.   Source selection procedures: FAR/DFARS Part 7/207. Discuss specific source
selection procedures that will be used and the relationship between evaluation
factors that will be used and attainment of the acquisition objectives. Source
selection methodology should be clearly discussed: lowest cost-technically
acceptable or best value selection, routine or formal (FAR, part 15 or DFARS 4-
step) source selection process, sealed bid (one or two step) or negotiated RFP,
and similar types of general information should be provided. When using a

FIGURE 6. Sample acquisition plan format - Continued.

cost/benefit (best value) approach and a weight of less than 40% on cost is planned, a rationale or justification for this approach should be included in the discussion.

g. <u>Contract considerations and contract type</u>: FAR/DFARS Part 7/207. Discuss the factors considered in determining the type of contract to use for the acquisition and the rationale for selecting the type being proposed.

h. <u>Alternate acquisition approaches considered</u>: DFARS Part 207. Briefly discuss any alternative approaches to the acquisition strategy that were considered and reasons these alternatives were not selected.

i. <u>Warranty</u>: DFARS Part 246. Discuss how warranties will be used and incorporated into the solicitation/ contract package. The effect of warranties on acquisition and life cycle costs should also be discussed.

j. <u>Make or buy considerations</u>: FAR Parts 7 and 15. Briefly discuss any Government make or buy considerations and the rationale for the approach selected.

k. <u>Other contract/business considerations</u>: DFARS Part 207. Identify and discuss any other factors or considerations pertinent to the acquisition which you feel should be included in the acquisition plan.

l. <u>References</u>. List any related program documentation not referenced elsewhere in the plan to include the dates of the document's last approval and next revision.

m. <u>Contract award date</u>. Identify the required contract award date and the impact on the program if this date is not met.

n. <u>Incentives</u>: FAR/DFARS Part 7/207. Briefly discuss any incentive provisions planned in the acquisition and the anticipated benefit of these incentives on the program acquisition and life cycle costs.

3. <u>IDENTIFICATION OF PARTICIPANTS</u>: FAR Part 7. Identify those persons who participated in developing the acquisition plan, their parent organization, organization mailing address and telephone numbers.

4. <u>TECHNICAL ANNEXES</u>. The following technical annexes may also be required in your acquisition plan. Technical annexes contain more detailed information about the acquisition background and objectives synopsized in the preceding sections of the plan. Only include those annexes germane to the program and the acquisition plan. It is

FIGURE 6. <u>Sample acquisition plan format</u> - Continued.

normally acceptable and encouraged to include more than one annex on a single page when possible.

a. Applicable conditions: FAR Part 7. State and discuss all significant conditions affecting the acquisition, such as requirements for compatibility with existing or future systems/programs. You should also discuss any known cost, schedule, and capability or performance constraints affecting the decisions reflected in the plan.

b. Cost goals: FAR Part 7. Discuss the cost goals established for the acquisition and the basis for establishing them. Discussions should address life-cycle costs, design-to-cost and application of should-cost objectives, as applicable, and methods to be employed in the acquisition to achieve those objectives. Refer to, rather than repeat, information and data supplied in another part of the plan.

c. Capability or performance: FAR Part 7. This annex specifies the required capabilities or performance characteristics of the supplies or services being acquired. Discussions should explain how these requirements are specifically related to the need.

d. Trade-offs: FAR Part 7. Discuss the expected consequences of trade-offs among the various cost, capability or performance, and schedule goals. Relate trade-off decisions to their respective effects on the quality and delivery of the required product or services.

e. Risks: FAR/DFARS Part 7/207. Discuss technical, cost and schedule risks. Describe efforts planned or underway to minimize risk and the consequences of not achieving acquisition goals and objectives. The discussion of risk reduction plans should specifically address protection against breaching performance, quality, cost and schedule thresholds.

f. Management information requirements: FAR Part 7. Discuss the management system or approach that will be used by the Government to monitor the contractor's effort. How you intend to use progress reports, in-process reviews and other methods to manage product or service quality, and adherence to performance schedules should be explained.

g. Reliability, maintainability and quality assurance requirements: FAR Parts 7 and 46, and DFARS Parts 207 and 246. Discuss the following areas, as applicable to the acquisition. Note that many of these areas only apply when the ICW acquisition includes delivery devices. Since most ICW delivery devices will be commercial hardware systems, many of the specific areas identified by the

FIGURE 6. Sample acquisition plan format - Continued.

FAR/DFARS references are not included in the following sub-paragraphs. You will need to work closely with your engineering support activity to assure all appropriate plan subjects are discussed.

(1) Using the templates of DOD 4245.7-M to define the program's minimum technical baseline. Also discuss other requirements of DOD 4245.7-M which apply to your acquisition.

(2) Procedures that will be used to assess and evaluate the offeror's compliance with the templates of DOD 4245.7-M during source selection.

(3) Address the funding profile which provides properly phased and adequate funding for technical requirements.

(4) Discuss reliability and maintainability requirements.

(5) Software development requirements specified in DOD-STD-2167. Various portions of this standard will apply in ICW design and development acquisitions depending upon whether or not and authoring language or system is used, and to what extent you will allow the contractor to develop software routines external to the approved authoring program.

(6) Identify a point of contact for answering any questions concerning this portion of the plan.

h. <u>Test and evaluation</u>: FAR Part 7. A discussion of test and evaluation procedures and criteria may be required if your acquisition includes ICW delivery devices which are commercial-type items containing unique or specialized interface capabilities. The acquisition plan should discuss evaluation methodologies that will be used and the criteria to be applied for acceptance.

i. <u>Government furnished Property</u>: FAR Parts 7 and 45. This portion of the plan identifies the Government property (material and facilities) that will be provided to the contractor. Discuss any availability or scheduling considerations associated with items of GFP and any potential risks induced into the acquisition plan by the intended reliance upon GFP availability.

j. <u>Government furnished information</u>: FAR Part 7. Identify any Government information that will be provided to the contractor, such as Logistic Support Analysis (LSA) data furnished with FEA contracts, technical data, drawings, configuration data on installed ICW delivery devices and other GFI applicable to the acquisition.

FIGURE 6. <u>Sample acquisition plan format</u> - Continued.

k. <u>Security considerations</u>: FAR Parts 4 and 7. Identify security requirements associated with the acquisition and discuss how adequate security will be established, maintained and monitored throughout the term of the contract.

l. <u>Systems safety program</u>. Discuss how applicable safety program requirements identified in MIL-STD-882 series standards will be established, maintained and monitored.

m. <u>Logistics</u>: FAR/DFARS Part 7/207. Discuss logistics support considerations applicable to the ICW acquisition. Logistics annex information requirements will be determined by whether or not delivery devices will be acquired along with the courseware and to what extent commercial off the shelf ICW systems will be used to satisfy ICW device requirements. When required, this section should discuss planning to seek, promote and sustain early competition in spare parts acquisition, technical data rights, optimized use of commercially available components, competitively available vendor material and military standard parts.

n. <u>Technical data</u>: FAR Parts 7 and 27. Discuss the plan for acquiring and managing the acquisition of required technical data. Discuss Government rights to data provisions and schedules for interim and final review of the technical data. Also discuss the planned methodology and schedule for conducting major technical data management events if required. Identify key personnel who will participate in reviews. Discuss any evaluation factors related to technical data that will be used in source selection, especially those relating to the contractor's willingness to provide data with unlimited rights.

FIGURE 6. <u>Sample acquisition plan format</u> - Continued.

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CONCLUDING MATERIAL

Custodians:
    Army - AV
    Navy - SH
    Air Force - 11

Preparing activity:
    Navy - SH

Agent:
    Navy - OS
    (Project ILSS-0052-01)

Review activities:
    Army - TM
    Navy - AS, EC, MC, TD
    Air Force - 13, 94

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APPENDIX A

FRONT-END ANALYSIS (FEA)

10. SCOPE

10.1 <u>Scope</u>. This appendix discusses front-end analysis (FEA) requirements in terms of MIL-STD-1379 task process and data product criteria unique to and required to support the design, development and implementation of training and training materials in military training programs. The requirements process in this appendix is designed to identify MIL-STD-1379 task descriptions, inputs and outputs necessary to acquire training program FEA. MIL-STD-1379 DIDs that define FEA deliverable data are identified. This appendix also provides suggestions for tailoring MIL-STD-1379 requirements and associated DIDs to support FEA acquisitions.

10.2 <u>How to use this appendix</u>. This appendix is written to support the acquisition of training program FEA, separate from program design, development and implementation (DD/I). MIL-STD-1379 task descriptions applicable to a FEA acquisition are presented in their recommended statement of work (SOW)/ contract performance sequence. These requirements are SOW task descriptions rather than material/weapon system and equipment training program requirements. The FEA work effort should define the material/weapon system and equipment training program requirements. The SOW task performance sequence is reflected in Figure A-1 which is a FEA requirements logic diagram. This figure should be used to determine the MIL-STD-1379 task descriptions that are required to support your particular requirement.

    a. Section 30 discusses Government furnished information and property (GFI/GFP), and subject matter expert (SME) support that should be provided to the contractor when it is available.

    b. Section 40 discusses each MIL-STD-1379 task description applicable to a FEA SOW. Tasks are presented and discussed in the sequence in which they should appear in Section 3 of the FEA contract SOW. Data resulting from performance of each MIL-STD-1379 task and subtask are identified. Task performance data should help you determine your minimum data requirements and to tailor the applicable DID(s) to reflect those requirements.

    c. Tables A-1 and A-2, and Figure A-1 are provided to assist in determining work task and deliverable data requirements outlined in Section 40. Table A-2 also shows those deliverable products which should be jointly reviewed with the contractor during an In-Process Review (IPR).

    d. Section 50 discusses outlines report requirements and recommends an integrated progress report and IPR schedule to minimize redundant contract management activities. This section is intended to aid in preparing the contract SOW.

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10.2.1 <u>Terms, abbreviations, and acronyms used in this appendix</u>. Key terms, abbreviations, and acronyms used in this appendix are defined as specified in Section 3 of the basic handbook.

20. APPLICABLE DOCUMENTS.

20.1 <u>Government documents</u>.

20.1.1 <u>Specifications, standards, and handbooks</u>. The following specifications, standards, and handbooks form a part of this appendix to the extent specified herein.

STANDARDS

MILITARY

MIL-STD-1379	Military Training Programs
MIL-STD-1388-1	Logistic Support Analysis
MIL-STD-1388-2	DoD Requirements for a Logistic Support Analysis Record

(Unless otherwise specified, copies of military specifications, standards and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

20.1.2 <u>Other Government documents, drawings, and publications</u>. The following other Government documents, drawings, and publications form a part of this appendix to the extent specified herein.

PUBLICATIONS

DEPARTMENT OF DEFENSE

DoD Instruction 1322.20	Development and Management of Interactive Courseware (ICW) for Military Training

(Copies of DoD Instruction 1322.20 are available from the Navy Aviation Supply Office, Physical Distribution Division, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

DATA ITEM DESCRIPTIONS

DI-MGMT-80555	Program Progress Report
DI-ILSS-81069	Training Situation Analysis Report

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DI-ILSS-81070	Training Program Development and Management Plan
DI-ILSS-81071	Individual Training Plan
DI-ILSS-81072	Media Selection Model Report
DI-ILSS-81073	Training Equipment Requirements Document
DI-ILSS-81076	Training Evaluation Plan
DI-ILSS-81077	Mission Performance Standards
DI-ILSS-81078	Mission, Collective, Individual, and Occupational Training Task Analysis Report
DI-ILSS-81079	Personnel Performance Profile Tables
DI-ILSS-81080	Training Path System Report
DI-ILSS-81081	Individual Training Standards
DI-ILSS-81082	Training Technology Assessment Report
DI-ILSS-81083	Learning Analysis Report
DI-ILSS-81084	Media Selection Report
DI-ILSS-81086	Training System Alternatives Report
DI-ILSS-81087	Trainer System Modification Report
DI-ILSS-81088	Training System Functional Characteristics Report
DI-ILSS-81089	Training Facilities Report
DI-ILSS-81105	Training Evaluation and Validation Report
DI-ADMIN-81249	Conference Agenda
DI-ADMIN-81250	Conference Minutes

(Copies of DIDs are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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APPENDIX A

30. INPUT DATA AND SUPPORT.

30.1 Introduction. The Government should identify available information and property applicable to the training program FEA and plan to provide it to the contractor as GFI and GFP. A thorough review of available documentation pertinent to the FEA effort using the process in Figure A-1 will prevent SOW efforts that will duplicate existing information. When this information is not available, MIL-STD-1379 includes task descriptions which will produce the information necessary to accomplish the analysis. The Government should also plan to provide qualified subject matter experts (SMEs) to assist in validation of task listings, training requirements and the learning analysis.

30.2 Government-furnished information (GFI). The MIL-STD-1379 identifies specific GFI input requirements of each task description. GFI inputs to support FEA tasks should include the following:

30.2.1 Evaluation of task performance factors. Specific agency guidance on how the various task factors should be evaluated to determine training requirements and as media selection criteria should be provided to the contractor as GFI.

    a. Agency guidance on the relative importance of individual and collective task factors should be provided. This will determine training requirements and provide the significance of each factor in the media model decision process.

    b. Agency guidance on proper evaluation of task factors is necessary to support resource constraint evaluation and the decisions about which instructional and implementation strategies will provide the most training to the largest number of people in the target population. (See 30.2.3) Of particular importance is guidance on those task factors which have traditionally been the basis for tasks not being selected for any type of structured training, but which could now be met through emerging technology. In particular, criteria for tasks which include safety hazards or which cannot be trained in a formal environment because of task complexity or a requirement for special support equipment should be addressed.

30.2.2 Related task activities. Related task activities are those performed during the course of task performance, but which are related to peripheral duties or tasks. An example would be using an item of test equipment to perform a maintenance task. Correct use of the test equipment would be considered a prerequisite for training on the maintenance task. Agency guidance pertaining to how these related activities will be analyzed and documented should be provided.

30.2.3 Target population identification. It is extremely important that the target population be accurately identified in terms of their knowledge and skill capabilities by skill level, what percentage each skill level is of the total target population, any occupational

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skills data pertaining to this target and where they are located, geographically. The more accurately you can identify the target population, the more reliable the analysis results and the media selection model will be.

a. How many people require the training and whether they are in the active, guard or reserve components, and whether or not hands-on task training is readily available is also important to determining media selection criteria.

b. The identification of target population entry-level and proposed (through training programs currently in development) knowledge and skills should include identification of any existing training program curriculum used as the basis for establishing the entry-level knowledge and skills. This curriculum can support the task and learning analyses and provide training materials to support remediation of students who are weak in these areas.

30.2.4 Material/weapon system data. All Government information about the material/weapon system that is available and germane to the analysis should be collected and provided to support the FEA Tasks. Information, if available, should include:

a. The mission and functional requirements of the system, equipment or function the training program will support. Include system and equipment performance data, and identify any existing or proposed new or modified equipment within the system.

b. All available logistic support analysis (LSA) data pertaining to the system and equipment. Of particular importance are the results of the training analysis and training analysis report data. LSA data can significantly reduce the overall analysis work requirements of the FEA contract.

c. All information and course control data for training programs on this and similar material/weapon systems. Current curriculum documentation, plans of instruction, training equipment/device/ simulator functional characteristics and training objectives they support, training effectiveness evaluation results, and any other documentation on current training programs and training equipment should be gathered. When possible, define the relationship between the existing course curriculum documents and the expected requirements of the training program being analyzed.

30.2.5 Approval and update procedures. A number of plans and reports may be generated during the course of a FEA contract effort. Some of these reports and plans are subject to Government approval. Others may also require periodic updates based upon new or modified information gathered during the analysis process. When Government approval is required and certain reports or plans require updates as changes occur, you will

need to include procedures for accomplishing these approval and update requirements in the contract package.

30.2.6 Other GFI. In addition to the information discussed above, the following should be provided as GFI if it is available.

a. A list and description of constraints affecting courseware design, development and implementation planning decisions.

b. Description of resources available and required to support training program development and implementation. Include any existing training devices.

c. Results of the training data search and any instructional materials obtained from that search.

d. Occupational skills data applicable to the target population.

e. Existing lists of knowledge and skills required to operate and maintain the subject and similar equipment, subsystems or systems.

f. A description of circumstances or conditions which affect the instructional methodology or media selection decision processes.

g. Agency procedures and guidelines that the contractor must follow which will be included in the contract as exhibits.

30.3 Government-furnished property (GFP). Government furnished property should not, normally, be necessary to support a FEA effort. The exception might be to provide a delivery device to allow the contractor to evaluate the applicability of existing training program materials to an emerging system training requirement. This might also apply to training programs which have been affected by major system or equipment modifications, where a new FEA is necessary to address these requirements.

30.4 Subject matter experts. Government supplied SMEs are normally necessary in any training program analysis, design or development effort. SMEs provide the job-specific technical expertise needed to assure that the FEA identifies and documents all performance tasks. They also determine if conditions and standards for performance are valid, and if resulting training objectives and performance measurements are necessary and valid. Identification of a qualified SME is essential in order to provide an individual who can identify correct and appropriate task performance requirements. More importantly, they are necessary to determine the consequences of incorrect task performance and the job "cues" that differentiate between correct and incorrect operation.

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APPENDIX A

40. FRONT-END ANALYSIS CONTRACT SOW TASK DESCRIPTIONS.

40.1 Introduction. This section describes the MIL-STD-1379 tasks applicable to developing a FEA contract SOW.

40.2 How to apply Appendix A Tables and Figures in SOW development.

40.2.1 FEA requirements. Figure A-1 is a logic diagram of the decision process used to determine which MIL-STD-1379 tasks may be required. The logic diagram identifies the need for both in-house development or contractor development of critical documents through the appropriate MIL-STD-1379 task descriptions. When the FEA documents identified by the process are available and current, they should be provided as GFI to support other FEA contract performance requirements.

40.2.2 Applicable MIL-STD-1379 task descriptions. Table A-1 is designed to aid you in tailoring MIL-STD-1379 task descriptions and data requirements by relating each task and subtask to the applicable DID and DID paragraph that defines the data. When you determine that a particular subtask is not necessary to support your FEA contract requirements, review and consider subtask data inputs and DID paragraphs prior to tailoring the subtask out. This table further identifies data inputs required to perform the subtask, and both discrete and deliverable data produced by subtask performance. Some subtask data may also apply to more than one DID or more than a single paragraph within a particular DID.

40.2.3 Data delivery and IPR sequences. Table A-2 provides a listing of MIL-STD-1379 DIDs applicable to FEA contracts and is intended to help you determine contract delivery and IPR schedule sequence requirements. DIDs which deliver FEA documents and reports are listed in the suggested delivery sequence. The actual delivery schedule will be determined by the scope of the FEA contract SOW. The table also indicates whether or not you should consider conducting an in-process review on the particular deliverable product. An IPR is recommended for those deliverables critical to the overall analysis process. You may elect to include more than one deliverable in the IPR, but be careful that you do not impact upon the contractor's ability to continue working between scheduled IPRs. The fact that an IPR is not recommended for a deliverable does not preclude you receiving, reviewing, and approving that deliverable.

40.3 Training Development Control, Task 103, (Conference). Task 103 is called for several times in a FEA contract because it includes the work descriptions for producing conference agendas, conference minutes, program progress reports, and other contractor support of the in-process reviews.

40.3.1 Task purpose. Task 103 should be included at the beginning of the FEA contract SOW when the contractor plans the contract management team (Kick-off)

meeting. Two subtasks of Task 103 are included in the SOW to require contractor kick-off meeting planning: Subtask 103.2.8, develop conference agenda; and Subtask 103.2.9, develop conference minutes. The only input required to support task performance is the signed contract.

40.3.2 Task output data.

40.3.2.1 Meeting agenda. Performance of Subtask 103.2.8 will produce an agenda for the kick-off meeting. The agenda is documented in accordance with DI-ADMIN-81249, Conference Agenda. Depending upon specific program requirements, the agenda should address the following:

a. Performance schedule if included in the solicitation/contract to discuss any contractor assumptions affecting the schedule.

b. Introductions of key Government and contractor personnel, and each person's role in the contract.

c. Delivery and review of all GFI and any other preliminary data that is available. While the GFI cannot realistically be evaluated for adequacy during the kick-off meeting, any potential problem areas surfaced during this review should be documented in the minutes.

d. Delivery schedule(s) and accountability procedures for any GFP.

e. Explanation of the contractor's technical approach to contract performance to assure that all key personnel understand how the contractor intends to address each of the contract performance requirements and what the Government expects to receive from task performance. Interrelationships between the various steps of the technical process and data resulting from that process should also be discussed.

f. Any additional, non-MIL-STD-1379, work requirements included in the contract SOW to assure contractor understanding of the added requirements and the importance of these requirements to courseware design and development.

g. Travel requirements and itineraries as they relate to contract performance and required IPRs.

40.3.2.2 Meeting minutes. Minutes of the kick-off meeting are developed by performing Subtask 103.2.9 and are documented in accordance with DI-ADMIN-81250, Conference Minutes. If you intend that these minutes should be approved, this requirement should be identified in the SOW.

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40.4 Training Development Control, Task 103, (In-process review). Task 103 should be cited at any point in the SOW when you: (a) determine an IPR will be conducted after completion of a critical task, and (b) you want the contractor to provide administrative support for and participate in the IPR, such as after the Training Program Development and Management Plan or Media Selection Model. Under these conditions, three (3) subtasks from Task 103 should be included in the SOW.

40.4.1 Subtask 103.2.8. Subtask 103.2.8, Develop conference agenda, tasks the contractor to prepare an agenda for the IPR. You may not desire an agenda for the IPR however, and one is not essential to the conduct of an effective IPR.

40.4.2 Subtask 103.2.10. When included in the SOW, this subtask requires the contractor to support and participate in the IPR. The SOW should clearly state whether the IPR will be conducted at the contractor's facilities or Government facilities.

40.4.3 Subtask 103.2.9. Subtask 103.2.9, Develop conference minutes, is cited to require the contractor to develop minutes of the IPR. A copy of the "red-lined" document(s) should be an attachment to these minutes. Be sure to include review and approval procedures for the minutes in the SOW.

40.4.4 Task performance data. Data produced by the IPR will be the minutes of the IPR and a copy of the "red-lined" document(s). Requirements and procedures for correcting the marked up document(s) and routing of the corrected document(s) for review and approval should be identified in the SOW paragraph that contains the critical task requirements.

40.5 Training Program Development and Management Planning, Task 102. This task and its subtasks establish contract requirements for developing those plans necessary to perform contract work requirements, and establish minimum quality assurance and internal surveillance programs. Plans that define the management structure and processes needed to assure performance schedules and quality standards are met are also developed using Task 102.

40.5.1 Subtasks applicable to FEA contracts. Task 102 subtasks address several planning actions which are applicable in a FEA contract. Task output data are identified in Table A-1. FEA contracts should include the following subtasks.

40.5.1.1 Subtask 102.2.1. This subtask requires the contractor to define and describe those contractor activities necessary to perform the contract. Interrelationships between these activities and resource requirements are also defined.

40.5.1.2 Subtask 102.2.2. Subtask 102.2.2 requires a make or buy analysis which may or may not be required in your FEA contract. This subtask is not necessary to accomplish other FEA requirements, as indicated in Table A-1. When your activity has an

determine whether internal or contractor FEA is most advantageous. The results of this analysis are not deliverable data however, as the analysis data is not identified in a DID.

40.5.1.3 Subtask 102.2.6. Since Table A-2 suggests IPR requirements, you should not normally need to cite this subtask. It is applicable to FEA contracts if you elect to have the contractor make IPR determinations. The resulting IPR schedule is deliverable data, if you leave it in the DI-ILSS-81070.

40.5.1.4 Subtask 102.2.8. The work of this subtask produces an individual training plan which is acquired by DI-ILSS-81071. The individual training plan provides information concerning the Government's long range plans affecting a particular occupational skill area and category of personnel.

40.5.1.5 Subtask 102.2.10. This work description requires the contractor to develop an internal surveillance plan for assuring product quality. This plan is deliverable data as defined by DI-ILSS-81070 and should correlate with the quality control program developed under Subtask 102.2.11.

40.5.1.6 Subtask 102.2.11. This subtask requires the contractor to develop a quality control (QC) program and identify quality indicators and controls which will assure work performance and deliverables meet contract requirements. The QC program description is deliverable data as defined by DI-ILSS-81070 and should work in conjunction with the internal surveillance program.

40.5.1.7 Subtask 102.2.12. Subtask 102.2.12 would be appropriate for FEA contracts supporting an emerging material/weapon system, since it requires integration of LSA, integrated support and training development planning efforts. Citing this subtask in a FEA contract supporting an established system would require that you also address MIL-STD-1388-1 and MIL-STD-1388-2 requirements in your SOW and is not recommended.

40.5.1.8 Subtask 102.2.13. This subtask is required when your contract will allow the prime contractor to subcontract work requirements. The intent of this subtask is to identify subcontractors and the major work tasks each will perform, and to define the management procedures and controls that will be used to administer subcontractor performance. This information is deliverable data as defined by DI-ILSS-81070.

40.5.1.9 Subtask 102.2.14. This subtask is necessary to identify and document the relationship between SOW task requirements and the contractor's work breakdown structure. It also defines the management processes and controls for cost and progress reporting. Data produced by this subtask is deliverable data as defined by DI-ILSS-81070.

40.5.2 Subtasks not required in FEA contracts. Subtasks 102.2.3, 102.2.4, 102.2.5, 102.2.7 and 102.2.9 are not, normally, required in a FEA contract. These subtasks are more applicable to training program design and development contract efforts.

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You should review these subtasks, however, against your agency's FEA policies before you tailor them out for your SOW.

40.5.3 <u>Task performance data</u>. Contractor performance of Task 102 produces planning data. Each subtask in Task 102 results in or supports development of specific plan elements that are described in the DIDs supported by this task: DI-ILSS-81070, Training Program Development and Management Plan and DI-ILSS-81071, Individual Training Plan.

40.5.3.1 <u>Training Program Development and Management Plan, DI-ILSS-81070 (planning elements)</u>. The planning elements necessary to support a FEA contract are related to the management of work performance and cost and progress reporting management planning elements. Training program development plan elements are not needed until you begin courseware design and development tasks. Plan elements produced by the work tasks discussed in 40.5.1 and the kinds of information these elements should contain are as follows.

40.5.3.1.1 <u>Government and contractor coordination process</u>. This plan element describes the process to used in planning, developing and acquiring program resources necessary for accomplishing contract requirements. It should clearly define information flow established and necessary for effective communication between Government and contractor personnel, and identify decision authorities within the program management hierarchy. This element should define Government SME support requirements and scheduling, and identify requirements for validation of technical data procedures supporting tasks which may require training materials.

40.5.3.1.2 <u>Contractor's management system</u>. This element should clearly define the contractor's internal management system that will be used to manage and control performance of SOW requirements. The plan information should clearly explain how the management system is applied toward specific contract requirements and the relationship of those requirements to the development of the overall management plan. This element should discuss how the contractor's management system will assure that each FEA performance task is properly accomplished, accounted for and accurately documented according to CDRL and associated DIDs.

40.5.3.1.3 <u>Subcontractor management</u>. Subcontractor management planning information includes identification of each subcontractor, the work tasks each will be responsible to perform and the prime contractor's management and quality control system for assuring subcontractor work meets schedule and quality requirements. This plan element should include provisions for periodic audit of both the subcontractors and contractor's activity responsible to manage subcontractor performance.

40.5.3.1.4 <u>Management system and SOW requirements cross-reference</u>. The cross-reference plan element graphically depicts the relationship(s) between each element of the

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contractor's management system to each contract performance requirement. This element should clearly show the relationship of each management system requirement to a contract performance need without undue management layering or redundant/duplicative management structures.

40.5.3.1.5 <u>Resource requirements</u>. This element should identify and describe the resources (contractor or Government supplied), data requirements, procedures and milestones applicable to and required to perform each contractor task, and the interrelationship of each task to other contractor tasks.

40.5.3.1.6 <u>Management diagram</u>. This plan element should be a block diagram of the contractor's management and control activities involved in accomplishing contract requirements. This element, described in paragraph 10.3.2.8 of DI-ILSS-81070, graphically shows information presented in the narrative description of the management system and, therefore, may not be needed to support your FEA contract management requirements.

40.5.3.1.7 <u>Responsible authority</u>. Identification of the contractor's organizational element having the overall responsibility and authority for accomplishing contract requirements should be in this element. It should separately identify the elements that have technical authority and those which have contractual authority.

40.5.3.1.8 <u>Milestone chart</u>. A milestone and time phasing chart (such as, Gantt or PERT chart) depicting all program task requirements is provided by this plan element. Since this chart is redundant to other plan elements, you should consider either tailoring paragraph 10.3.2.7 of DI-ILSS-81070 to delete milestones and time phasing data requirements or completely tailor this requirement (DID paragraph 10.3.2.10).

40.5.3.1.9 <u>Quality assurance (QA)</u>. The QA procedures and management processes established to assure all work tasks are performed correctly and deliverables meet established criteria should be provided in this plan element. It is important to assure the QA system specifically addresses each and every work task in the SOW and all deliverable data identified in the contract data requirements list (CDRL). It is also important that the QA process address verification of application of task performance factor criteria provided as GFI to development of the media selection model. The QA process should verify that related task activities are properly documented in applicable analysis reports and that technical procedures for tasks tentatively identified for ICW training have be validated prior to completion of the learning analysis.

40.5.3.1.10 <u>IPR schedule</u>. When you require the contractor to establish the in-process review schedule, it may be acquired as a plan element in accordance with paragraph 10.3.2.10 of DI-ILSS-81070. This element should not be required however, for the reasons cited in 40.5.1.3.

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40.5.3.1.11 Key personnel. The key personnel plan element identifies both Government and contractor key personnel. It lists their tasks and responsibilities in training program management.

40.5.4 In-process review (IPR). Task 103 should be cited at this point in the SOW for an IPR in accordance with the guidance provided in 40.4.

40.6 Training Situation Analysis, Task 101. The Training Situation Analysis (TSA) can be performed before or after Task 102. Where you place Task 101, sequentially, within the SOW should be evaluated from the stand point of the type of contract (cost plus, time and materials, fixed price) you expect to award, the depth and detail of GFI available to support planning actions and how accurately you feel the total FEA contract requirements have been defined. When good GFI and requirements definition exist, adequate program development and management planning can occur without the TSA. Conversely, poor or weak GFI and requirements definition would indicate the need for a contract, and conducting the TSA first in order to better define the work requirements before planning program development and management.

40.6.1 TSA subtasks required in FEA contracts. Task 101 contains three subtask work descriptions which are all necessary to accomplish the TSA, regardless of the training requirements. When you include the requirement to perform a TSA in your FEA contract, you will need to cite all work descriptions in the SOW. Input data identified in Task Input 101.3 are also required to the extent they are available. The LSA input data identified in Task Input 101.3.2 should be reviewed for currency and applicability when the TSA will be performed on an existing curriculum because of system or equipment modifications.

40.6.2 TSA task performance data. Data produced by performance of the TSA is acquired by DI-ILSS-81069, Training Situation Analysis Report. This DID will, however, require a thorough review to identify your agency's data requirements. Extensive tailoring of this DID may be necessary.

    a.   DID paragraphs 10.3.2, Study background; 10.3.3, Introduction; and 10.3.4, Organization development, contain data requirements which may not be important or necessary to your agency, and which should receive significant tailoring. Many of the data elements may not apply to the training program being analyzed. Many of the data elements pertain to established in-resident courses, for example, and would not apply to an analysis of field unit or on-the-job training programs.

    b.   DID paragraph 10.3.5 contains the actual situation analysis data elements. As noted for other DID paragraphs, however, this section of the DID includes data elements pertaining to specific types of training situations which may or may not

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apply to your requirements. Careful review of these elements should be accomplished and unnecessary data elements tailored out.

c. DID paragraph 10.3.6, Summary, should be retained.

40.7 <u>Training Technology Assessment, Task 202</u>. The purpose of the training technology assessment is to identify state-of-the-art and emerging training, and training equipment technologies which may have applicability to the training program requirements being analyzed. After state-of-the-art and emerging technologies are identified, this MIL-STD-1379 task requires they be compared to existing training and training equipment, and analyzed to determine the most cost effective mix of existing, state-of-the-art and emerging technologies applicable to program requirements.

40.7.1 <u>Subtasks applicable to FEA contracts</u>. Generally, all four subtasks of Task 202 should be cited in the FEA contract SOW.

40.7.1.1 <u>Subtask 202.2.1</u>. Subtask 202.2.1 surveys existing training equipment, state-of-the-art, and emerging technology.

a. Existing training equipment, including simulators, part-task trainers and ICW training systems (ICWTS) supporting this or similar material/weapon systems and equipment training, should be identified during performance of this task. All identifying data including equipment capabilities and functional characteristics of each training equipment item should be documented as part of this subtask.

b. The state-of-the-art training equipment technology survey should identify those new equipment technologies presently available from commercial sources which may be applicable to the training program requirements. The survey should identify those technologies which are proprietary to the manufacturer. Proprietary technologies can induce additional technical and cost risks into your acquisition, so it is important that the survey include this information.

c. Emerging training equipment technologies are those new technologies being developed and normally have established product availability dates. Some emerging technologies are proprietary and are subject to slippage of the availability date.

d. State-of-the-art and emerging technologies should be identified as either compliant or non-compliant with the mandatory DoD software interface and command requirements for interactive courseware and authoring systems specified in MIL-STD-1379, Appendix D.

40.7.1.2 <u>Subtask 202.2.2</u>. This subtask produces a survey of existing, state-of-the-art and emerging training technologies. These technologies may affect instructional

design, learning processes and instructional presentation strategies, and may be tied directly to a particular training equipment technology such as ICWTS technologies. This subtask should document how training technologies are applied to the same or similar training requirements, learning objectives or training environments.

40.7.1.3 Subtask 202.2.3. Subtask 202.2.3 directs the analysis of Subtask 202.2.1 and 202.2.2 survey results to identify those training and training equipment technologies that may be applicable to the training program being analyzed through your FEA contract. The analysis should compare existing, state-of-the-art and emerging training/training equipment technologies in terms of the same or similar training requirements.

40.7.1.4 Subtask 202.2.4. This subtask produces a summary of the technology assessment results.

40.7.2 Task 202 input data requirements. Task input data identified in Task Input 202.3 are required to support task performance. You should also input the results of the training situation analysis, when Task 101 is included in the FEA contract SOW. Consequently, you should indicate in the SOW that both Tasks 101 and 102 are to be performed.

40.7.3 Task performance data. During performance of the technology assessment, data which is important to future training program decisions is produced. This data includes listings of existing, state-of-the-art and emerging training and training equipment technologies pertinent to the training program. The most significant data is the comparative analysis data showing the similarities and differences, applications, and effectiveness of the training and training equipment technologies. Data produced during performance of the technology assessment is acquired by DI-ILSS-81082, Training Technology Assessment Report.

a. The training technologies analysis should provide a comparative analysis of the various instructional strategies, implementation concepts, learning hierarchies and instructional design considerations affecting the training effectiveness and efficiency of each training technology. Training effectiveness and efficiency analysis should evaluate each technology's application or potential application to the same or similar training objectives.

b. Training equipment technology analysis should identify instructional designs and strategies each technology is best suited for in terms of types of training objectives and the learning hierarchy. Instructional design complexities associated with each technology should also be addressed during the analysis in order to compare the relative efficiencies of each.

c. The analysis should identify those state-of-the-art and emerging training, and training equipment technologies which are proprietary or which do not comply

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with DoD ICW portability practices. Those technologies which are proprietary should include information about the cost of licensing the technology. The cost to obtain limited and unlimited Government rights should also be addressed, since these costs may be acceptable compared to the training efficiencies they could provide.

d. Much of the data discussed above should be provided in the listings of technology features required by paragraph 10.3.8 of DI-ILSS-81082. However, you should assure this data is available somewhere in the approved technology assessment report. Decisions affecting the media selection model, media selection and instructional design are affected by the adequacy and accuracy of this data.

40.8 Training Development Control, Task 103 (Media selection model). The primary function of Task 103 is development of the training program media selection model. Subtasks 103.2.1 through 103.2.7 support this requirement.

a. Task 103 is especially important to training program design and development, since the media model will determine how applications and media features are identified and applied to program requirements. You should also assure the media selection model report is carefully and thoroughly reviewed to assure it represents and supports your agency's ICW application policy.

b. Criteria you establish for evaluation of task performance factors to determine training requirements will affect design of the media selection model, since the model should incorporate this selection criteria. You should also provide guidance on how these task factors should be applied to media selection. (See 30.2.1)

40.8.1 Subtasks applicable to FEA contracts. Subtasks listed for Task 103 may require modification to achieve your program objectives. There are few existing media selection models that adequately address the full potential of emerging technologies. These models are less likely to address the application of emerging ICW and ICWTS technologies which have the potential for significantly improved training effectiveness and training efficiency.

40.8.1.1 Subtask 103.2.1. This subtask requires the contractor to develop or adapt a media selection model for the training program addressed by your FEA contract. The task input described in 103.3.1.2 is identification of the underlying family of media selection models you want the contractor to either adapt or use to develop the media selection model.

40.8.1.2 Subtask 103.2.2. This subtask establishes the relationship between the media selection process and development of the course outline.

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40.8.1.3 <u>Subtask 103.2.3</u>. Subtask 103.2.3 requires the contractor to develop a process flow chart depicting the process and decision points of the media selection model.

40.8.1.4 <u>Subtask 103.2.4</u>. This subtask supports developing a media allocation table of media, media attributes, media options and values assigned to each type of media and media attribute in the media selection model.

40.8.1.5 <u>Subtask 103.2.5</u>. Subtask 103.2.5 requires development of examples of application of the media model. The data resulting from this work description (sample applications) is not deliverable because sample applications are not identified in DI-ILSS-81072. This information should be an input to the media selection task performed in accordance with MIL-STD-1379, Task 204. When training program FEA and DD/I will be accomplished through a single contract, you should identify the sample applications as a discrete task output. Further these samples should be identified as inputs to Task 204, Media Selection.

40.8.1.6 <u>Subtask 103.2.6</u>. This subtask requires developing a synopsis of the research and theoretical basis of the model and a history of prior applications. You should consider tailoring this requirement to your agency's specific needs.

40.8.1.7 <u>Subtask 103.2.7</u>. This subtask develops cost, schedule and other constraint elements affecting application of the model. This information is required to support the media selection process prescribed by MIL-STD-1379, Task 204.

40.8.2 <u>Proposed GFI</u>. Task Inputs 103.3.2 and 103.3.3 relate to the technology assessment performed in Task 202. (See 40.7) These inputs do not, however, include the comparative analysis data of training and training equipment technologies necessary to identify constraints affecting the media selection model. If you have a need for a comparative analysis for ICW, it should be acquired separately through the purchase of a Training Technology Assessment Report, DI-ILSS-81082.

40.8.3 <u>Task performance data</u>. Data resulting from performance of Task 103 subtasks discussed in 40.8.1 are identified and acquired by DI-ILSS-81072, Media Selection Model Report.

40.8.3.1 <u>Media selection model considerations</u>. The media selection model identified in the report should adequately address the capabilities and applications of any existing, state-of-the-art and emerging technologies applicable to the training requirements.

a. The media selection model should include provisions for exportable training materials capable of providing continuation, transition and skill level up-grade training in an on-the-job training (OJT) environment. This will assure that the full potential of all media applications receives proper evaluation during the training

system alternatives analysis process. (See 40.8) Specific agency guidance on how to address these requirements should be provided.

b. Your review of the media selection model should also assure the model includes attributes and values which will differentiate between media features required to support task performance factor and learning objective requirements.

40.8.3.2 Task performance factors affecting media selection. A media determination should be made for each task selected for training.

a. The media selection model should apply task performance factors to those tasks selected for training during performance to MIL-STD-1379 Task 201 according to the criteria you provide. (See 30.2.1)

b. Task performance factors may indicate selection of the ICW media and media features when resource constraints would normally preclude addressing the training need through more traditional media.

c. A single task factor should not normally be the only basis for selection of any media. The only exceptions to this might be; (1) a task which poses serious safety considerations, or (2) one that would be too costly or time consuming to train using the actual system or equipment.

d. Your evaluation criteria should provide guidance on how these task factors should be individually and collectively evaluated to identify training tasks which might require specific training materials.

e. Task performance factors included in the media selection decision process and which should be addressed by your agency's evaluation criteria are discussed in the following paragraphs. You might also have other factors to include based upon the type of system or equipment the training program will support.

f. The discussion of these task performance factors includes some examples of how the various factors are interrelated and how these interrelationships could be considered to determine appropriate media applications. These interrelationships are only examples provided to aid you in developing appropriate evaluation criteria.

40.8.3.2.1 Criticality of correct task performance. This factor relates to the impact of incorrect task performance on the operational capability of the system, equipment or function. Critical tasks are those which will prevent continued operation. Semi-critical tasks are those which can impair, but will not prevent continued operation. Non-critical tasks have no impact on operational capability. Evaluation criteria and the media model should define and quantify the relationships between task criticality, frequency of

performance, task complexity, delay tolerance and the probability of incorrect performance factors. A critical task may be easy to learn and to perform correctly, and require little or no training. A critical task that is hard to learn and which has a high incidence of incorrect performance, however, might better be trained through ICW practice, simulation or gaming strategies.

40.8.3.2.2 Frequency of task performance. Frequency of performance is a measure of how often each individual is likely to perform the task on the job within a set period of time (week, month, year). Frequently performed, easy to learn tasks should not be candidates for ICW. On the other hand, complex tasks that are seldom performed and have a high probability for incorrect performance due to the task complexity might justify ICW training that provides practice, simulation or gaming instructional strategies.

40.8.3.2.3 Task performance delay tolerance. Task delay tolerance indicates the nominal amount of time (hours, days, weeks) between learning that task performance is required and the time when actual performance is started. Tasks that have a long delay tolerance may allow enough lead time for refresher training. A short or no delay tolerance might require some form of practice or simulation to assure proficiency, especially if the task is also complex or critical. This would be an important factor when considering emergency procedures and critical problem solving training requirements.

40.8.3.2.4 Task complexity. This factor relates to how complex the task procedure is and, consequently, how difficult it is to perform the task correctly each time performance is required. Complex tasks usually require several practice sessions to master. When the task is also seldom performed and critical to the operation, ICW may be appropriate for providing a practice and simulation capability, and to support continuation, refresher training to maintain task proficiency. A short or no delay tolerance would serve to compound this requirement.

40.8.3.2.5 Learning difficulty. Learning difficulty may be attributable to both the type/level of learning (recall, recognition, classification, analysis, synthesis) and task complexity. Tasks which require both cognitive and precise psychomotor skills may also be difficult to learn. While ICW would not support developing the precise psychomotor skills, it may be able to provide the type of learning experiences necessary to develop appropriate cognitive skills and, thus, reduce the overall time necessary to achieve mastery of the task. ICW may also provide adequate, more efficient simulation and stimulation for higher order learning through gaming strategies and problem scenarios.

40.8.3.2.6 Probability of incorrect task performance. The probability of incorrect task performance indicates how often an individual's task performance is likely to be below acceptable standards. This factor is related to task complexity, learning difficulty and frequency of task performance. ICW applications using practice, simulation and gaming strategies may serve to overcome this problem, and provide an effective means to accomplish refresher training and maintain cognitive skill levels.

40.8.3.2.7 <u>Hazardous and unsafe conditions in task performance</u>. This factor identifies hazards and unsafe conditions associated with task performance. Task performance hazards an unsafe conditions may affect either personnel or material systems and equipment. Tasks which present serious hazard and safety conditions are often not selected for training because of these conditions. When the task is also critical to sustaining operations and infrequently performed, there is usually a corresponding high probability of incorrect performance that serves to increase the potential for personnel injury or equipment damage. ICW training materials may provide an adequate environment for practice and simulation of the task, to include the hazardous and unsafe conditions, without the creating a potentially dangerous training environment.

40.8.3.2.8 <u>Availability of system/equipment for hands-on task training</u>. This task factor identifies the realistic availability of the material system or equipment to support the conduct of hands-on task performance training and experiences. It often becomes a significant factor when large numbers of the target population who require system and equipment training are located in the active guard and reserve forces and do not have access to the system and equipment on a regular basis.

    a.   System or equipment availability may be a significant factor when only one system/equipment is available at a geographic location and the system/equipment does not include redundant equipment or channels capable of supporting hands-on training requirements. In the context of in-resident, formal training facilities, this factor affects laboratory availability and schedules, and the number of hands-on task experiences which can be supported by the curriculum.

    b.   Where system/equipment availability to support training is a factor, those tasks which are critical to sustained operation, complex, difficult to learn, have little or no delay tolerance and have a significant probability for incorrect performance in combination are potential candidates for ICW media selection.

40.8.3.2.9 <u>Susceptibility of material/weapon system and equipment to damage during hands-on training</u>. This factor identifies those tasks which have a high potential for causing system/equipment damage during task performance and, especially, during hands-on training. This task factor is an important consideration for high technology systems and equipment in which tolerances can be quickly exceeded through indiscriminate control settings and adjustments. Systems and equipment supporting in-resident, hands-on training and susceptible to this type of damage through continuous training exercises are prime candidates for ICW training materials which can reduce or eliminate indiscriminate over control/adjustment on the system/equipment through task practice and simulation. The live system or equipment supporting hands-on training requirements should achieve a higher training availability rate because of fewer student errors on the equipment. Because students will have become familiar with task performance requirements through ICW simulations, they also require less hands-on time in the equipment laboratory. This, in

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turn, can reduce overall training times and allow adding other training objectives to the curriculum previously omitted due to time constraints.

40.8.3.3 Media Selection Model Report, DI-ILSS-81072. This DID prescribes the media selection model. The media model includes both criteria and procedures for applying the model to media and media features selection.

a. Paragraph 10.3.2 of the DID prescribes an introduction which includes a description and justification of the general approach to media selection being proposed by the model. Paragraph 10.3.3 provides a detailed description of the model itself.

b. The media model described in paragraph 10.3.3 of the DID should provide the procedures for establishing the media attributes required for each learning objective, and media features required to support the learning activities and events. These procedures should adequately address training modes and applications, capabilities, advantages and disadvantages, and the task performance factors discussed in 40.8.3.1.

c. Procedures for selecting the media delivery formats for each learning objective are a function of the media model. The delivery formats should demonstrate adequate and correct consideration of task performance factors.

d. The media selection model includes a logic flow chart of the media attributes and media features selection process. The flow chart should show all questions asked, the decision points of the model, and the sequence of events for using the model. The decision sequence should begin with consideration of media selection for hands-on training task requirements followed by academic training objectives.

e. Attributes and values assigned for each type of media and media features should reflect adequate consideration and evaluation of capabilities, advantages and disadvantages, and task performance factors.

f. Media model procedures for addressing cost, schedule, and other resource constraints should include adequate consideration and evaluation of applications, capabilities, and costs.

40.8.4 In-process review (IPR). Because the media selection model is so important to design and development of the training program, an IPR of the draft Media Selection Model Report is recommended. When you desire the contractor to plan for and support the IPR, follow the direction in 40.4.

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40.9 Mission, Collective, Individual, and Occupational Training Task Analysis, Task 201. Task 201 is cited in the FEA contract to develop and analyze functional requirements and task statements required for job performance. The results of this task are identification of mission requirements and listings of the collective and individual job tasks necessary to support the mission. Tasks are further analyzed to identify task training requirements. An occupational analysis may also be obtained using this task.

40.9.1 Subtasks applicable to FEA contracts. There are several subtasks listed in MIL-STD-1379, Task 201, which may not be necessary to support your FEA contract depending upon agency requirements and prior decisions affecting acceptable training modes and courseware applications. Each of these subtasks should be evaluated in terms of your overall training program requirements and agency directives.

40.9.1.1 Subtask 201.2.2. Subtask 201.2.2 develops functional requirements and job task statements applicable to the training program. This subtask requires that the task analysis use the results of LSA, MIL-STD-1388-1, Tasks 301 and 401, or equivalent when the job tasks apply to material systems and equipment operations and maintenance. An equivalent analysis includes the following principle elements.

a. Identify and document the functions that must be performed to operate and maintain the system and equipments.

b. Identify operations and maintenance tasks based upon system/equipment functional requirements. Maintenance tasks should address corrective maintenance requirements derived from the failure modes, effects, and criticality analysis, and preventive maintenance requirements derived from the reliability centered maintenance analysis. Operations and other support task requirements are determined through analysis of the functional requirements and system operation concepts.

c. Analyze each operations, maintenance and support task to determine procedural steps, logistics support requirements, task factors (frequency, interval, elapsed time and manhours) and maintenance level.

d. Identify new and critical logistics support resource requirements.

e. Identify task training requirements based upon identified procedural steps and personnel assignments, and recommend the best training mode (formal classroom, on-the-job, self-study, ICW, or combinations thereof) for each training requirement.

f. Validate the task procedures and training requirements analysis.

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40.9.1.1.1 SOW Tasking for LSA data. When your training program will include operations and maintenance training requirements, and LSA data is not available, your SOW should cite MIL-STD-1388, Task 401.1 and use the following SOW tailoring statement with numbered subparagraphs essentially the same as those in 40.9.1.1a through f to produce the data required to complete the remaining Task 201 subtasks:

"LSA Data Generation Task. Develop functional requirements and task statements."

40.9.1.2 Subtask 201.2.3. Subtask 201.2.3 addresses collective or team job task requirements. This subtask should not be cited in the FEA contract when it is known there are no collective job tasks associated with the training program. This subtask produces a listing of collective job tasks, analyzes these tasks to determine which ones require training, and produces a listing of collective training requirements. Service specific guidance is required to support the collective task analysis. (See 40.9.2)

40.9.1.3 Subtask 201.2.4. This subtask is essentially the same as Subtask 201.2.3, but addresses individual job tasks instead of collective. When the individual job tasks relate to more than one occupational specialty, those tasks selected for training are grouped according to the occupational specialty having responsibility for task performance. Service specific guidance is necessary for subtask performance. (See 40.9.2)

40.9.1.4 Subtask 201.2.5. Subtask 201.2.5 develops and validates job performance measures for the collective and individual job tasks which require training. Collective job task performance measures are not deliverable because they are not collective task data required by any of the DIDs applicable to MIL-STD-1379, Task 201.

40.9.1.5 Subtasks 201.2.7 and 201.2.8. These two subtasks produce personnel performance profiles (PPPs) and training path system requirements. They usually support Navy training program analysis requirements. Only those agency's that use PPP tables and training path system program architectures should include these tasks in their FEA SOW. Service specific guidance is required to support performing this subtask.

40.9.1.6 Subtask 201.2.9. Performance of Subtask 201.2.9 produces Individual Training Standards that are directly related to mission performance standards resulting from Subtask 201.2.1. Subtask 201.2.9 supports Marine Corps training program architectures and should normally be tailored out by other services. The individual training standards produced by this subtask should provide the basis for training design and development.

40.9.1.7 Subtask 201.2.11. This subtask produces a cross reference of individual job tasks selected for training to collective job tasks selected for training.

40.9.1.8 Subtask 201.2.12. Subtask 201.2.12 identifies all performance elements or activities of each collective and individual training task.

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40.9.1.9 <u>Subtask 201.2.13</u>. Subtask 201.2.13 identifies those collective and individual job tasks requirements which can be satisfied by job aids.

40.9.2 <u>Proposed GFI</u>. MIL-STD-1379 Task 201 requires agency/service specific guidance and regulation inputs to support work performance. Specifically, Subtasks 201.2.1, 201.2.3, 201.2.4, 201.2.7, 201.2.8, 201.2.9 and 201.2.10 require service specific guidance. This guidance information should clearly define your agency's policy and procedures affecting mission, collective, individual and occupational training task analysis. The information and policy requirements addressed in the following paragraphs may either be presented to the contractor as agency policy and guidance, or as additional SOW work descriptions. Some areas might be better handled by adding necessary work statements, depending upon the adequacy of agency guidance and information.

40.9.2.1 <u>Task performance factors</u>. Service specific guidance on how to use task performance factors to determine training requirements, and to select the appropriate media and media features should be provided. (See 30.2.1)

    a.   Guidance information should include identification of task performance factors that should be analyzed to determine training requirements and the relative importance of each factor in the decision process. Training programs that may deliver training in several modes (formal classroom training, on-the-job training (OJT), self-paced training, simulation training, ICW, or integrated and stand-alone combinations of these modes) should include criteria for applying the task factors to each task selected for training to determine the mode that is most advantageous for the particular training requirement.

    b.   Each task factor affects the decision process differently, depending upon the training mode. A task which is performed infrequently (once in two years), for example, may not be selected for training in a formal setting because of resource constraints and low training emphasis rating (because of infrequent performance), even though it might also be critical and complex. This same task should be selected for training in OJT and may require some form of simulation or ICW to develop cognitive skill proficiency.

    c.   If your agency has not established training task and media selection criteria, you should require the contractor to include these task factors in their selection criteria. The interrelationships between the various task factors and the relative importance of each in selecting the best training mode and media should be described in the introduction portion of the training task analysis report, in accordance with paragraph 10.3.2 of DI-ILSS-81078.

40.9.2.2 <u>Analysis requirements</u>. You should include agency specific guidance on applying the Instructional Systems Development (ISD)/Systematic Approach to Training (SAT) model to analyzing training program requirements. Implementing some of the

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ISD/SAT model's flexibility begins in the analysis process. Frequent modifications to instructional materials can be labor intensive and time consuming; the following "modifications" to the ISD/SAT analysis process help assure training materials are correct the first time. Identification of these procedural requirements in your FEA contract is necessary to accomplish MIL-STD-1379, Task 201 work that will support cost effective, efficient design and development.

a. The task performance factors (for example, complexity, frequency of performance, criticality) identified during collective and individual training task analyses should be used to help make a preliminary media selection. Proper analysis of these task performance factors will, in turn, identify those tasks that require more in-depth, detailed analysis to support ICW design and development.

b. Agency policy and information should include directions and guidance concerning evaluation and documentation of related tasks, implied task performance requirements, and assumed knowledge and skills. The analysis process should identify and document the assumed and implied task elements, knowledge and skills inherent in all technical data. This should include the specific task elements and functions of ancillary/peripheral support systems/equipment that are related to and an essential part of task performance. Should the analysis process fail to accomplish this, additional analysis work will be necessary in the design and development phases. Analysis to support traditional instruction usually identifies support systems/equipment as a pre-requisite knowledge or skill. Simulation requires specific analysis data on the application and functions of related support system/equipment tasks before design can be accomplished. This analysis detail is necessary to determine total simulation processes and procedures, and student tutorial/remediation branching strategies.

c. Most of the GFI discussed in 30.2 applies to the training task analysis work performed in accordance with MIL-STD-1379, Task 201. This GFI is important to the conduct of the analysis. The target population data is particularly important to this analysis. Target population data should be as thorough and complete as possible because this data combines with task performance factor data to establish training task selection criteria.

40.9.2.3 Approved FEA documents. The approved Media Selection Model Report, DI-ILSS-81072 should be an input to Task 201. The approved Training Situation Analysis Report, DI-ILSS-81069, and the Training Technology Assessment Report, DI-ILSS-81082 can also be beneficial to the conduct of training task analysis. When you have identified these documents as deliverable data, you should also identify them as inputs to Task 201.

40.9.3 Task performance data. Performance of Task 201 of MIL-STD-1379 can result in five separate deliverables as well as several discrete task outputs. Because the DIDs supported by Task 201 are designed to address a wide range of requirements, each

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one you include in the CDRL should be very carefully reviewed and tailored to define only that data you require.

40.9.3.1 <u>Mission Performance Standards, DI-ILSS-81077</u>. Subtask 201.2.1 produces the data required for preparation of Task Output 201.4.1 in accordance with DI-ILSS-81077. This DID would normally be required only when the analysis addresses mission performance requirements and performance standards affecting an entire operational unit.

40.9.3.2 <u>Mission, Collective, Individual and Occupational Training Task Analysis Report, DI-ILSS-81078</u>. The training task analysis data is produced by Subtasks 201.2.1 through 201.2.6 and 201.2.9 through 201.2.13. Because this DID addresses a wide range of data pertaining to missions, collective job tasks, individual job tasks, occupational specialties, training analysis and individual training standards, tailoring of DID requirements is essential. Task 201 subtasks tailoring directly affects and relates to DID tailoring requirements. You should tailor this DID only after MIL-STD-1379, Task 201 has been tailored to reflect agency requirements.

   a. DID paragraph 10.3.2, Introduction, specifies the purpose, scope and intended use of the report. It also contains a requirement for background information and a description of the analysis methodology. Tailoring to specify the particular report analyses (mission, collective, individual, occupational) is needed. Content of this DID paragraph will be determined by the specific analyses required by the subtasks included in the SOW.

   b. DID paragraph 10.3.3.1, Mission data, defines mission statements and identifies collective tasks related to mission performance. Mission scenarios are also addressed. Data for this DID paragraph is produced by Subtasks 201.2.1, 201.2.2 and 201.2.3.

   c. DID paragraph 10.3.3.2, Collective data, provides data about each and every collective task identified and analyzed through performance of Subtasks 201.2.1, 201.2.2, 201.2.3, 201.1.12 and 201.2.13. The primary subtasks supporting this paragraph of the DID are Subtasks 201.2.2, 201.2.3 and 201.2.12.

      (1) Data actually required by this paragraph will be subject to the specific, tailored subtasks included in the SOW and tailoring of DID paragraph requirements.

      (2) This paragraph covers the criteria used in training task selection. Specific information about how the criteria was applied/is applicable to each collective task to determine those tasks that require training should be included.

(3) Collective tasks that are not selected for training or which only require job aids should be identified by the collective task training analysis and Subtask 201.2.13, and documented in this section of the analysis report. The rationale for task training selection and job aid support requirements should also be documented.

(4) Your review of collective task data should assure that agency criteria for selecting tasks for training and identifying tasks which may require ICW training materials has been applied according to the policy and guidance provided as GFI.

d. DID paragraph 10.3.3.3, Individual task data, covers one of the primary data elements resulting from Task 201. Individual task data results from performing Subtasks 201.2.1, 201.2.2, 201.2.3, 201.2.4, 201.2.5, 201.2.11, 201.2.12 and 201.2.13. Each and every individual job task should be addressed in this DID paragraph, whether or not it is selected for training. The principle subtasks are Subtasks 201.2.2, 201.2.4, 201.2.5, 201.2.11 and 201.2.12.

(1) The actual content of the final data will depend upon which subtasks are included in the SOW, how these subtasks are tailored to reflect agency requirements, and how the requirements of DID paragraph 10.3.3.3 are tailored.

(2) Thorough documentation of the task cues, performance steps, validated performance measures, hazards and safety considerations, support equipment (related tasks) and the training task selection criteria are especially important data elements for training design and development. You should ensure this analysis data reflects correct application of the task performance factors criteria to selection of training tasks. Individual tasks tentatively identified should be carefully reviewed to assure compliance with agency policy and guidance.

(3) Individual job tasks not selected for training or that only require job aids should be clearly identified in this data element to include the criteria used to make these determinations. You should review this data carefully to assure agency criteria was correctly applied in making these decisions.

e. DID paragraph 10.3.4, Occupational analysis, covers the data produced by Subtask 201.2.10. You should seldom require this subtask and data to support your FEA requirements. This paragraph and Subtask 201.2.10 should only be included in the SOW and CDRL when you require a complete analysis of an occupational specialty to define or restructure a specialty's job task responsibilities.

f.   DID paragraph 10.3.5, Training analysis,documents the data produced through Subtasks 201.2.3, 201.2.4 and, possibly, 201.2.1. This data element includes the training emphasis analysis, identifies task responsibility to occupational specialty skill level, summarizes the results of the training analyses and makes recommendations based upon analysis results.

g.   DID paragraph 10.3.6, Individual Training Standards (ITS) analysis, documents the analysis process used to develop ITSs in accordance with DI-ILSS-81081. This data results from performing Subtasks 201.2.1, 201.2.2, 201.2.3, 201.2.4, 201.2.9 and 201.2.12, and would only be required when ITS development is needed to support your training program requirements.

h.   DID paragraph 10.3.7, Training analysis matrix, identifies a matrix which cross-references job tasks to the system, subsystem and equipment levels. A matrix of systems levels to subsystem and equipment levels is also required. Subtasks 201.2.2, 201.2.3 and 201.2.4 produce the data required to develop these matrices.

40.9.3.3 Personnel Performance Profile (PPP) Tables, DI-ILSS-81079. Performance of Subtask 201.2.7 results in the data for developing the PPP Tables defined in DI-ILSS-81079. The results of Subtasks 201.2.1 through 201.2.4, 201.2.9 and 201.2.12 are also the basis for developing the PPP Tables and also produce many of the required DID data elements.

40.9.3.4 Training Path Systems Report, DI-ILSS-81080. The Training Path Systems Report is produced by Subtask 201.2.8. The results of performing Subtasks 201.2.2, 201.2.3, 201.2.4, 201.2.7 and 201.2.12 contribute work processes and data elements necessary to develop the report. The training path system is directly related to and based upon the PPP tables produced by Subtask 201.2.7.

40.9.3.5 Individual Training Standards, DI-ILSS 81081. Individual Training Standards (ITS) are produced by Subtask 201.2.9. They are derived from and support the mission performance standards produced by Subtask 201.2.1. Work and data resulting from Subtasks 201.2.1, 201.2.2, 201.2.3, 201.2.4 and 201.2.12 are also required to develop ITSs. This DID is normally required to support Marine Corps training programs.

40.9.4 In-process review (IPR). Because the training task analysis is the foundation for all future courseware development, a preliminary design review (PDR) of the draft training task analysis report (see 40.9.3.2) is recommended. Follow the guidance in paragraph 40.4.

40.10 Learning Analysis, Task 203. The purpose of Task 203 is to identify instructional objectives and methodologies required to support tasks selected for training in Task 201. Task 203 work descriptions determine entry level knowledge and skills of the target population, and analyze tasks selected for training to identify knowledge and skills

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required for task performance. A comparative analysis of entry level and required knowledge and skills is done to determine training requirements which are then used to develop training program terminal and enabling learning objectives. Program learning objectives are subsequently grouped by occupational specialty and skill level, the arranged in a learning objectives hierarchy within each occupational grouping. The type of learning, learning principles, instructional setting, instructional methodology, and learning activities and events appropriate for each learning objective is identified.

40.10.1 Subtasks applicable to FEA contracts. The majority of Task 203 subtasks are required in FEA contracts *regardless of training modes.* Additional learning analysis subtasks are recommended in order to assure clear communication of analysis process requirements. If you included the work description modifications and additions presented in 40.9.1, analysis and documentation requirements should be adequately addressed in Task 203 without work description changes.

40.10.1.1 Subtask 203.2.1. This work description identifies the entry level knowledge and skills of the target population the training program will be applicable to. This information provides the base line for determinations about what knowledge and skills training will be necessary to achieve training program objectives.

40.10.1.2 Subtask 203.2.2. Subtask 203.2.2 produces a listing of the knowledge and skills necessary to perform each collective training task. This listing is produced by analyzing the collective task and task procedures/steps identified during training task analysis.

40.10.1.3 Additional SOW task using Subtask 203.2.2. To assure a clear communication of learning analysis requirements and to obtain a comparative analysis of entry level knowledge and skills to collective task knowledge and skills requirements, recommend you add the following task as a part of the ICW SOW. This SOW tasking description should immediately follow Subtask 203.2.2.

> "Knowledge and Skills Training List For Collective Tasks. Develop a consolidated listing of all knowledge and skills required to perform collective training tasks. Compare this listing to the list of entry level knowledge and skills and identify knowledge and skills training necessary for entry level personnel to perform collective tasks selected for training."

40.10.1.4 Subtask 203.2.3. Subtask 203.2.3 produces a listing of the knowledge and skills necessary to perform each individual training task. This listing is produced by analyzing the individual task and task procedures/steps identified during training task analysis.

40.10.1.5 Additional SOW task using Subtask 203.2.3. To obtain a comparative analysis of entry level knowledge and skills to individual training task knowledge and skills

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requirements, recommend you add the following task as part of the ICW SOW. This SOW tasking description should immediately follow Subtask 203.2.3.

"Knowledge and Skills Training List For Individual Tasks. Develop a consolidated listing of all knowledge and skills required to perform individual training tasks. Compare this listing to the list of entry level knowledge and skills and identify knowledge and skills training necessary for entry level personnel to perform individual tasks selected for training."

40.10.1.6 Subtask 203.2.4. This subtask develops learning objectives which should identify the collective and individual tasks selected for training as terminal learning objectives (TLO). The knowledge and skill training requirements identified through the entry level to collective/ individual training task comparative analysis (See 40.10.1.3 and 40.10.1.5) should produce enabling learning objectives (ELO) required to support the TLOs.

40.10.1.7 Subtask 203.2.5. Subtask 203.2.5 identifies and develops the knowledge, skills, attitudes and information necessary to achieve each ELO identified in Subtask 203.2.4. These knowledge, skills, attitude and information requirements determine the learning events and activities necessary to achieve the ELOs.

40.10.1.8 Subtask 203.2.6. The TLOs and ELOs are grouped by occupational skill areas and skill levels by Subtask 203.2.6. Once the objectives are logically grouped according to occupational skill areas and level, they are arranged into an objectives hierarchy depicting the overall relationships between the various TLOs, and between each TLO and its subordinate ELOs. Any particular ELO may be subordinate to and required by more than one TLO.

40.10.1.9 Subtask 203.2.7. Subtask 203.2.7 requires analysis of each ELO to determine the appropriate types of learning, and learning principles applicable to each knowledge, skill, attitude and information requirement necessary to support and achieve the objective.

40.10.1.10 Subtask 203.2.17. Subtask 203.2.17 should be performed following identification of types of learning and associated learning principles. This maintains a logical subtask performance sequence. Subtask 203.2.17 is performed to determine the instructional methodology appropriate for each learning objective.

40.10.1.11 Subtask 203.2.8. This subtask identifies the instructional setting(s) necessary to support the types of learning, learning principles and instructional methodologies, and to achieve each learning objective.

40.10.1.12 Subtask 203.2.9. This subtask produces sequential listings of learning objectives, learning activities and learning events. This listing show the relationships

between the objectives, activities and events identified through the learning analysis process.

40.10.1.13 Subtask 203.2.10. Subtask 203.2.10 produces a cross reference of learning objectives to training tasks to job tasks. This cross reference depicts the overall relationship of the objectives to job performance requirements.

40.10.1.14 Subtask 203.2.11. This subtask produces a course mission statement. A course mission statement may not be required by agency policy and guidance. You should validate the need for this subtask before including it in the SOW. The course mission statement is covered in paragraph 10.3.4 of the Learning Analysis Report defined in DI-ILSS-81083.

40.10.1.15 Subtask 203.2.12. Subtask 203.2.12 tasks the contractor to develop course learning objectives, parts, sections and topics, and then sequence them in presentation order. The content and coverage of each topic is described. This subtask is performed in accordance with service specific guidance and may not apply to your agency requirements. You should validate the need for this subtask prior to developing the SOW.

40.10.1.16 Subtask 203.2.13. Profile item-to-topic objective assignment charts are developed by this subtask. These charts support the PPP Tables and Training Path system requirements discussed in 40.9.1.5. These charts become deliverable data elements as part of the task outputs of Task 106.

40.10.1.17 Subtask 203.2.14. Performing this subtask produces a listing of reference materials and special tools required to support the learning objectives defined by Task 203.

40.10.1.18 Subtask 203.2.15. Subtask 203.2.15 identifies course lengths, and minimum, optimum and maximum class sizes.

40.10.1.19 Subtask 203.2.16. This subtask results in a listing of learning objectives which may be met through an appropriate job aid.

40.10.2 Task performance data. Data produced by performing Task 203, is acquired by DI-ILSS-81083, Learning Analysis Report. Much of the data produced by Task 203 is used to develop two or more data elements within the DID and, consequently, difficult to link to a single, discrete DID paragraph. You will find, therefore, that Table A-1 often references two or more paragraphs in the far right column. The DID definition of data requirements is extensive as well, and applies the same data element requirements to both training task data requirements and learning objectives data requirements. A very careful review of the learning analysis report DID should be accomplished after you have tailored the task description statements.

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40.10.3 <u>In-process review (IPR)</u>. The Learning Analysis Report is the final FEA document and is the sum total of all prior FEA work effort. This report establishes the training program requirements, methodologies, and broad instructional strategies for courseware design and development. The accuracy and adequacy of this document is critical to training program efficiency and effectiveness. You should consider conducting an in-process critical design review (CDR) of the Learning Analysis Report with the contractor. Follow the guidance in paragraph 40.4.

40.11 <u>Media Selection, Task 204</u>. The purpose of Task 204 is to apply the media selection model developed in FEA Task 103 to the training task requirements and learning objective requirements that were identified through performance of Task 201 and 203. The results of performing Task 204 are identification of the media and media features required to support achieving the training program learning objectives. The media and media features data is also an important input to support identifying the training system functional requirements.

40.11.1 <u>Subtasks applicable to FEA contracts</u>. All subtasks of Task 204 are applicable to FEA supporting an integrated application.

40.11.1.1 <u>Subtask 204.2.1</u>. This subtask identifies the media attributes required to support the training program learning activities and events. This is accomplished by applying the media selection model to each of the learning objectives and training task requirements. The learning events and activities needed to achieve the terminal and enabling learning objectives are identified in the Learning Analysis Report, DI-ILSS-81083.

40.11.1.2 <u>Subtask 204.2.2</u>. Subtask 204.2.2 defines the media attributes required to support the training program learning activities and events. The media selection model developed during FEA is used in this subtask.

40.11.1.3 <u>Subtask 204.2.3</u>. Primary and alternate delivery systems that are capable of supporting the media attributes and media features identified by the work in Subtasks 204.2.1 and 204.2.2 are identified by performing Subtask 204.2.3.

40.11.1.4 <u>Subtask 204.2.4</u>. This subtask produces a chart showing the sequencing of learning events and activities using the primary and alternate media delivery systems defined in Subtask 204.2.3. Training mode application decisions should be reviewed to determine whether or not this subtask is required in the DD/I contract SOW.

40.11.1.5 <u>Subtask 204.2.5</u>. Subtask 204.2.5 requires the contractor to conduct a cost analysis comparison of the competitive media and media features, and primary and alternate delivery system alternatives. Based upon the analysis results, the contractor recommends appropriate media, media features, and delivery systems capable of supporting the required learning activities and events. When the only media (media of choice) is ICW, the analysis should address media features analysis results.

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40.11.1.6 Subtask 204.2.6. This subtask produces a list of the selected media and media features.

40.11.1.7 Subtask 204.2.7. Subtask 204.2.7 requires the contractor to produce the data required by paragraph 10.3.4f of the Media Selection Report, DI-ILSS-81084. If any ICW is selected, this subtask will also produce the ICW media selection abstract required by DoD Instruction 1322.20.

40.11.2 FEA document inputs. FEA documents and reports required to support performance of the media selection are:

a. The Media Selection Model Report, DI-ILSS-81072; Mission, Collective, Individual, and Occupational Training Task Analysis Report, DI-ILSS-81078; and the Learning Analysis Report, DI-ILSS-81083.

b. A copy of the approved Training Situation Analysis Report, DI-ILSS-81069, should be provided as GFI when available. This report is not as critical to the FEA process, but does provide beneficial information.

40.11.3 Task performance data. Performing Task 204 produces data which is required by DI-ILSS-81084, Media Selection Report.

a. The media selection report includes an introduction that provides an overview of the purpose and expected application of the media selection report.

b. The media selection analysis section of the report defines data elements applicable to a wide variety of training media, from charts to interactive courseware. You should review this section of the DID and tailor out any unnecessary requirements. There are number of charts which would only be necessary to support an integrated training application.

c. Media features analysis is another section within the DID that is of particular importance. The media features analysis will define the capabilities and limitations of the delivery system, and determine how much design flexibility there will be. The results of the media features analysis will also affect identification of the required interfaces during performance of Task 208.

40.11.4 In-process review (IPR). Task 103 should be cited at this point in the SOW when you: (a) determine an IPR will be conducted after completion of the Media Selection Report, and (b) you want the contractor to support the IPR. An IPR following the Media Selection Report is recommended, because of the significant impact this document has on all subsequent ICW DD/I efforts. (See 40.4)

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40.11.4.1 Task performance data. Data produced by this IPR will be the minutes of the IPR and a "red-lined" copy of the Media Selection Report, DI-ILSS-81084. Requirements and procedures for correcting the marked up report, and review and approval of the corrected report should be identified. Agency policy and guidance concerning approval and update procedures should also have been provided as GFI.

40.12 Training System Alternatives Identification, Task 206. This task description identifies the various alternative approaches to meeting the specific training requirements identified during training task analysis and learning analysis. This task should be included in the FEA SOW.

40.12.1 Subtasks applicable to FEA contracts.

40.12.1.1 Subtask 206.2.1. This subtask requires the contractor to define the instructional staff required to support the training program. This information is used during evaluation of alternative systems.

40.12.1.2 Subtask 206.2.2. Subtask 206.2.2 identifies projected class data for alternatives evaluation.

40.12.1.3 Subtask 206.2.3. This subtask describes the relationship of the course to the operational mission or follow-on courses, or both. It also describes the relationship of the course to learning objectives, course length and structure, and to the methods employed in performance measurement.

40.12.1.4 Subtask 206.2.4. This subtask identifies the alternate training equipment and facilities that could support the training requirements. This subtask should identify ICW delivery device alternatives (single screen, double screen, single device system, networked system of single devices). It would also identify facility requirements for larger, networked systems for evaluation of alternative approaches.

40.12.1.5 Subtask 206.2.5. Subtask 206.2.5 evaluates each of the alternative training systems identified during performance of Subtasks 206.2.1 through 206.2.4. Each alternative is evaluated in terms of its capability to meet the training requirements.

40.12.1.6 Subtask 206.2.6. This subtask also evaluates each of the alternative training systems, but in terms of each system's cost relative to its capability to meet the training requirements and constraints.

40.12.1.7 Subtask 206.2.7. Subtask 206.2.7 tasks the contractor to identify the best suited system based upon the evaluations accomplished during performance of Subtasks 206.2.5 and 206.2.6. The best suited system alternative is selected based upon training requirements, constraints, capability, and cost. Justification for the alternative system selected is also produced by this work task.

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40.12.2 Task performance data. Performing Task 206 work requirements produces the data defined and acquired by DI-ILSS-81086, Training System Alternatives Report. The Training System Alternative Report is primarily oriented toward training equipment alternatives, and describes how each specified alternative can correct specific tasks not trained to standards. The report also describes any other training deficiencies in existing training methods that can be solved by the selected alternative.

a. Training equipment constraints are identified in the report, as are the training task requirements the training equipment will support.

b. Alternatives that are included and evaluated include alternate training equipment, operational equipment not currently used in the training environment, and facilities that could support the training task requirements.

c. The evaluation of each training system alternative is included in the report. Evaluation includes an analysis of life cycle cost estimates. During your review of the costing data, be sure to verify that cost data is based upon total direct and indirect cost, and reflects cost estimates for student travel and time away from primary duties.

d. The contractor's evaluation methodology is included and explained in the system alternative report. This portion of the report will be useful in evaluating the selection process and decisions.

40.13 Training System Modification Requirements, Task 207. This MIL-STD-1379 task should only be included in the contract SOW when the material may be integrated into existing training.

40.13.1 Subtasks applicable to FEA contracts. When training program materials may be integrated into an existing course of instruction, the following subtasks should be included in the SOW.

40.13.1.1 Subtask 207.2.1. This subtask defines the training system changes required to correct known deficiencies within the existing courseware. Deficiencies might include training task requirements not included within the course or training tasks not being trained to standards.

40.13.1.2 Subtask 207.2.2. Subtask 207.2.2 develops the training system modifications required to correct the training deficiencies, and identifies the impact these modifications will have on the training system.

40.13.1.3 Subtask 207.2.3. An analysis of the emerging training technologies to be employed in the training system compared to the life expectancy of the materials system/equipment is accomplished by this subtask.

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40.13.1.4 <u>Subtask 207.2.4</u>. Performance of this subtask defines anticipated savings, improvements in training effectiveness, and gains in the mission operational readiness that are expected to be realized as a result of the training system modifications.

40.13.1.5 <u>Subtask 207.2.5</u>. This subtask develops a projection of the training system logistics support requirements resulting from the training system modifications.

40.13.1.6 <u>Subtask 207.2.6</u>. Contractor performance of this subtask will produce a definition of the scope of the required training system modifications.

40.13.1.7 <u>Subtask 207.2.7</u>. Subtask 207.2.7 develops budget estimates, and detailed justification for the required training system modifications.

40.13.1.8 <u>Subtask 207.2.8</u>. This subtask requires the contractor to identify or define the potential inter-service applications of the training system modifications. The results of this subtask can be significant if the system modifications involve a large amount of training material which does, in fact, have application in other services training programs. Inter-service applications identification will focus on the very specific content of the modules/lessons rather than the material (weapon) system and equipments the training supports (The specific jet engine rather than the aircraft, the specific radio rather than the integrated communications system).

40.13.2 <u>Proposed GFI</u>. FEA documents and the following constraints should be input data provided to support accomplishment of this task description. In addition, you should identify any known potential for inter-service use of the training, and identify the agency or activity that has overall logistics support management responsibility for the supported system or equipment. The system/equipment logistics manager should be able to identify any other services using the particular equipment or component addressed by the training materials.

40.13.2.1 <u>Constraints</u>. Constraints which may impact media and media features selections, instructional design, and training modes and applications should be identified in the contract SOW or another appropriate document which can be GFI. A list and description of constraints affecting courseware design, development and implementation planning decisions should be developed and provided as GFI. You should specifically address funding and facility limitations for the current contract year, and applicable out years which affect ICW design and hardware specification decision criteria. Planned or anticipated manpower reductions in the affected occupational skill areas, or significant changes in the ratios of skilled and unskilled personnel in the target population should also be identified.

40.13.3 <u>Task performance data</u>. Performance of Task 207 produces the data acquired by the Training System Modification Report, DI-ILSS-81087. The modification

report includes a complete description of the training system modifications required to correct the identified training deficiencies, to include:

a. Expected gains in training effectiveness and efficiency, and operational mission readiness.

b. The impact the modifications should have on the training system in relation to resource requirements, estimated training pipeline remaining through the expected life cycle of the material system/ equipment.

c. Life cycle cost estimates of the modification, to include projected logistics support requirements.

40.14 Training Equipment Requirements Identification, Task 104. This MIL-STD-1379 task identifies the training equipment required to support the new or modified training system. The data produced by this subtask is used to develop training system functional characteristics, and is a principle document used, in conjunction with the training system functional characteristics document, for development of the equipment specifications that will be used to acquire the training equipment.

40.14.1 Subtasks applicable to FEA contracts. All subtasks of Task 104 are used when the contractor is required to identify the delivery device required to support the media and media features selected during performance of Task 204.

40.14.1.1 Subtask 104.2.1. This subtask identifies the training equipment requirements necessary to support the learning objectives and provides the rationale for each requirement.

40.14.1.2 Subtask 104.2.2. Subtask 104.2.2 identifies all of the sites where the training equipment will be installed to support the training system.

40.14.1.3 Subtask 104.2.3. The logistics support requirements of the training equipment identified by Subtask 104.2.1 is projected by this subtask.

40.14.1.4 Subtask 104.2.4. Subtask 104.2.4 produces a definition of the scope of the training equipment requirements, to include a life cycle cost benefit analysis of the training equipment alternatives that were considered.

40.14.1.5 Subtask 104.2.5. This subtask develops the initial budget estimates to acquire and support the training equipment, and provides detailed justification for the training equipment.

40.14.1.6 Subtask 104.2.6. This subtask develops a listing of the required training equipment, to include detailed descriptions of the equipment and major components.

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40.14.2 <u>Proposed GFI</u>. Proper performance of this task by the contractor may require additional inputs. To the extent it is available, you should provide the following documents and information as GFI to support performance of this task description.

40.14.2.1 <u>FEA documents</u>. You should provide the following FEA documents if they were delivered by the FEA contract, or are otherwise available.

a. The Training Situation Analysis Report, DI-ILSS-81069. This report includes information about training system deficiencies which would be useful in developing equipment justifications.

b. Provide the Media Selection Model Report, DI-ILSS-81072, because of the sample model applications, and rationale for the various media and media features this report contains.

c. The Media Selection Report, DI-ILSS-81084, should be provided because of the criteria and justification it provides concerning the media and media features identified as necessary to support the learning objectives.

d. Provide the Mission, Collective, Individual and Occupational Training Task Analysis Report, DI-ILSS-81078, and the Learning Analysis Report, DI-ILSS-81083. These reports identify the training task requirements and learning objectives which the training equipment is required to support.

e. When it is available, provide the Technology Assessment Report, DI-ILSS-81082. This report includes an analysis of the various technologies considered during the assessment which would be beneficial to the analysis of media and media features requirements.

40.14.2.2 <u>GFI requirements</u>. In addition to the FEA documents, you should provide other information pertinent to determining training equipment requirements. Information concerning the specifications of existing training devices, training modes and applications, and training system constraints is necessary to support training equipment requirements definition.

40.14.3 <u>Task performance data</u>. Data produced by Task 104 is prescribed and acquired by DI-ILSS-81073, Training Equipment Requirements Document. The document provides the information required by management to make decisions about training equipment requirements.

a. The document provides the rationale for the proposed training equipment requirement, to include material system and equipment changes, training system deficiencies, and the capabilities of the proposed training equipment.

b. The document describes the specific capabilities and purpose of the training equipment and relates these to the training requirements and learning objectives which the equipment will support.

c. Training sites, facilities, and logistic support requirements associated with the training equipment and alternate equipment are identified, and subjected to a life cycle cost benefit analysis to identify the most advantageous training equipment.

d. The equipment requirements document should also identify key milestone dates, decision points and points of contact relative to training equipment acquisition and upgrade actions necessary to support training system implementation.

40.15 Training System Functional Requirements, Task 208. The training system functional requirements task description develops the functional characteristics requirements that are used to baseline development of the training system specifications.

40.15.1 Subtasks applicable to FEA contracts. All subtasks of Task 208 are applicable to FEA contract requirements.

40.15.1.1 Subtask 208.2.1. Subtask 208.2.1 requires the contractor to identify the training requirements, training system constraints, material (weapon) system and equipment normal and abnormal condition scenarios, mission of the material system and equipment supported, and the functions of the training system required to support them.

40.15.1.2 Subtask 208.2.2. This subtask develops the training functional characteristics, elements, and modes of operation of the training system.

40.15.1.3 Subtask 208.2.3. Subtask 208.2.3 identifies the environmental, physical and functional fidelity requirements of the material system and equipment to be presented in the training system.

40.15.1.4 Subtask 208.2.4. Subtask 208.2.4 identifies the training equipment requirements of the training system from Task 104 performance data. This subtask also identifies the requirements for integration of the training equipment with the training system.

40.15.1.5 Subtask 208.2.5. This subtask requires the contractor to define the reliability, availability (to support training), and maintainability parameters for the training equipment, and project the logistic support and additional manning requirements of the training system. If manning requirements are not an issue, this portion of the task description should be tailored out of the standard.

40.15.1.6 Subtask 208.2.6. Subtask 208.2.6 develops a training system budget estimate with detailed justification. Since detailed budget estimates and justification are

also developed in Task 104, Training Equipment Requirements Identification, this subtask may not be required. An alternative to tailoring out this subtask would be to carefully tailor DI-ILSS-81088 to eliminate redundant budget data and justification.

40.15.1.7 Subtask 208.2.7. This subtask is cited to have the contractor develop and propose a pre-planned product improvement program. This subtask may not be required to support ICW applications. You should determine whether or not agency directives require this program before including it in the contract.

40.15.1.8 Device acceptance plan. When you require development of training equipment/device operational test criteria, and contractual device acceptance planning, you should coordinate with appropriate acquisition personnel/activities of your command to ensure that the SOW is developed to support such efforts by the contractor.

40.15.2 Proposed GFI. Performance of Task 208 may require additional data input to support development of the training system functional characteristics. The Learning Analysis Report, DI-ILSS-81083, from the FEA effort provides learning objectives which the training system supports, to include learning events and activities necessary to achieve the objectives. The approved Media Selection Report, DI-ILSS-81084, identifies the media and media features required to support the learning objectives, events and activities, and provides an analysis of the media and media features which would be beneficial for determining required functions of the training system.

40.15.3 Task performance data. The data produced by performing the work requirements of Task 208 is defined and acquired by DI-ILSS-81088, Training System Functional Characteristics Report. The data prescribed by this DID is extensive with a heavy emphasis on data supporting development of training equipment/devices --especially costly simulators. Much of the data is normally not required solely to support ICW training program DD/I. You should carefully review all data elements prescribed by this DID, and tailor out those elements which exceed agency and activity requirements.

a. DID paragraph 10.3.3.1 defines the source of the training requirements and include data elements which are redundant to other deliverable documents.

b. The data prescribed by DID paragraph 10.3.3.2 identifies training system considerations and summarizes the training analyses that are the basis for developing the training equipment.

c. The training system description data element in DID paragraph 10.3.3.3 describes the functional characteristics of the training equipment/device in sufficient detail to enable development of procurement specifications and realistic cost and scheduling information. Training system fidelity requirements are addressed in this portion of the DID.

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d. DID paragraph 10.3.3.4 prescribes training system support data consisting of the concepts, goals, and constraints which will control development of an integrated logistics support package.

e. The training device tests and evaluation data developed by the subtask added at 40.15.1.8 is defined by DID paragraph 10.3.3.5. This DID paragraph identifies evaluation data requirements that are redundant to data produced by Task 107, Training Evaluation Planning, and Task 402, Training Evaluation. Duplicate data requirements are in DI-ILSS-81076, Training Evaluation Plan, and DI-ILSS-81105, Training Evaluation and Validation Report. You should compare the data prescribed by these DIDs and tailor them according to when and how you want the data produced and delivered.

f. DID paragraph 10.3.3.6 describes the Preplanned Product Improvement data element.

g. Reference materials used to develop, and applicable to the Training System Functional Characteristics Report are prescribed by DID paragraph 10.3.3.7. Tailor out any data elements which are excess to your agency/activity requirements.

40.15.4 In-process review (IPR). Task 103 should be cited at this point in the SOW when you: (a) determine an IPR will be conducted after completion of the Training System Functional Characteristics Report, and (b) you want the contractor to support the IPR. An IPR following development of the Training System Functional Characteristics Report is recommended because of the significant impact this document has on all subsequent efforts. Follow the guidance in 40.4.

40.15.4.1 Task performance data. Data produced by this IPR will be the minutes of the IPR and a "red-lined" copy of the Training System Functional Characteristics Report, DI-ILSS-81088. Requirements and procedures for review and approval of the report should also have been provided as GFI. A copy of the corrected and approved report should be forwarded to the activity responsible to provide engineering support for development of training equipment procurement specifications. A copy of the approved Training Equipment Requirements Document, DI-ILSS-81073 should be included with the functional characteristics report to aid in developing the device specifications.

40.16 Training Facility Requirements Identification, Task 209. This task will be required when facility requirements or modifications are anticipated or needed. Determination of facility requirements would be necessary when the delivery device configuration is a larger, multi-station device or a network of several devices within a single learning laboratory. Decisions about training modes and applications should be reviewed prior to including this task description in the FEA contract.

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40.16.1 <u>Task performance data</u>. Performance of Task 209 produces the data acquired by DI-ILSS-81089, Training Facilities Report. The data elements prescribed by this DID should be carefully reviewed and tailored to minimum requirements.

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50. PROGRESS REPORTS

50.1 <u>Progress Reports</u>. Your requirements for training development contract progress reports should be addressed in the SOW. Progress reports are contract management tools. Program Progress Reports provide management indicators and work progress status necessary to manage contractor performance, schedules and deliverables. MIL-STD-1379 Task 103, Training Development Control, includes Subtask 103.2.11 for contractor development of Program Progress Reports.

50.2 <u>Progress report schedules</u>. Progress report requirements are established within the SOW, to include reporting schedules. You should consider establishing a reporting schedule that combines with but does not duplicate in-process review schedules. This appendix recommends in-process reviews upon completion of the draft Media Selection Model Report; Mission, Collective, Individual, and Occupational Training Task Analysis Report; and Learning Analysis Report. Report scheduling should not require a Program Progress Report within the same time frame as an in-process review will occur. A suggested approach to progress report scheduling is to require monthly reports, but not within 20 calendar day of a scheduled IPR/PDR/CDR. The monthly schedule should commence one month after the kick-off meeting and continue until the first, Media Selection Model Report IPR will occur within 20 days. Monthly progress reports would begin again one month after the this IPR and continue until the within 20 days of the Training Task Analysis Report PDR. Reporting would commence one month after the PDR until the CDR occurs.

50.3 <u>Progress report content</u>. The content and format of training development contract program progress reports is prescribed by DI-MGMT-80555, Program Progress Report. Report content should be tailored to reflect your minimum reporting requirements. Be sure to include distribution requirements in the CDRL, as well as review and approval procedures.

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TABLE A-1. MIL-STD-1379 tasks applicable to FEA contracts.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	TASK INPUT	TASK OUTPUT	
Task 101, Training Situation Analysis.		101.4.1	DI-ILSS-81069, Training Situation Analysis Report
101.2.1	101.3.1, 101.3.2	101.4.2, 101.4.3, 101.4.4	Paragraphs 10.3.5.1 through 10.3.5.6
101.2.2	101.3.1, 101.3.2	101.4.5	Paragraph 10.3.5.6
101.2.3	101.3.1, 101.3.2	101.4.6	Paragraph 10.3.5.5
Task 102, Training Program Development and Management Planning		102.4.1	DI-ILSS-81070, Training Program Development and Management Plan
102.2.1	102.3 (All)		Paragraphs 10.3.2.7, 10.3.2.8, 10.3.2.10 and 10.3.2.18.
102.2.2 [1]	102.3 (All)	102.4.3	
102.2.3	102.3.1		Paragraph 10.3.2.15
102.2.4	102.3 (ALL)		Paragraphs 10.3.2.16 and 10.3.2.10.
102.2.5	102.3 (All)	102.4.4	
102.2.6			Paragraph 10.3.2.17
102.2.7 [1]	102.3.1	102.4.5	Paragraph 10.3.2.10
102.2.8 [1]	102.3 (All)	102.4.2 and 102.4.6	DI-ILSS-81071, Individual Training Plan
102.2.9	102.3.1, 102.3.3	102.4.7	DI-ILSS-81070, Paragraph 10.3.2.6
102.2.10		102.4.8	Paragraph 10.3.2.3
102.2.11	102.3.1		Paragraph 10.3.2.14
102.2.12 [2]	102.3 (All)	102.4.9	Paragraphs 10.3.2.11, 10.3.2.12 and 10.3.2.13.
102.2.13			Paragraph 10.3.2.4

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[1] This task description may be required depending upon agency requirements. The task is not however, normally necessary to support FEA contracts.

[2] Task description would be necessary when the FEA supports training program development for an emerging material system and when LSA data is available to support task performance. When you required the contractor to integrate training program development and integrated support planning, tailor out "logistics support analysis (LSA) and."

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TABLE A-1. MIL-STD-1379 tasks applicable to FEA contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	TASK INPUT	TASK OUTPUT	
102.2.14			DI-ILSS-81070, Paragraphs 10.3.2.2, 10.3.2.3, 10.3.2.5, 10.3.2.9 and 10.3.3.
Task 103, Training Development Control (Media Selection Model)		103.4.1	DI-ILSS-81072, Media Selection Model Report
103.2.1	103.3.1 through 103.3.4. [3]		Paragraph 10.3.3a, b, c, d and e.
103.2.2	103.3.1		Paragraphs 10.3.2 and 10.3.3f.
103.2.3			Paragraph 10.3.3g
103.2.4			Paragraph 10.3.3h and i
103.2.5		103.4.5	
103.2.6		103.4.6	Paragraph 10.3.3k
103.2.7	103.3.4, 103.3.5	103.4.7	Paragraph 10.3.3j
103.2.8		103.4.2	DI-ADMIN-81249, Conference Agenda
103.2.9		103.4.3	DI-ADMIN-81250, Conference Minutes
103.2.10		103.4.4	DI-MGMT-80555, Program Progress Report (See 40.4 of appendix)
103.2.11		103.4.4	
Task 104, Training Equipment Requirements Identification		104.4.1	DI-ILSS-81073, Training Equipment Requirements Document.
104.2.1	104.3 (All)	104.4.2	Paragraph 10.3.3a and b.
104.2.2	104.3.3		Paragraph 10.3.3d and e.
104.2.3	104.3.3		Paragraph 10.3.3f and i.
104.2.4		104.4.3	Paragraph 10.3.3g.
104.2.5		104.4.4	Paragraph 10.3.3h.
104.2.6		104.4.5	Paragraph 10.3.3c and j.

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[3] Input the approved Training Technology Assessment Report, DI-ILSS-81082, in lieu of Inputs 103.3.2 and 103.3.3 when the technology assessment report is a deliverable. The report provides an analysis of the training technologies which would support developing the media selection model.

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TABLE A-1. MIL-STD-1379 tasks applicable to FEA contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	TASK INPUT	TASK OUTPUT	
Task 201, Mission, Collective, Individual, and Occupational Training Task Analysis.		201.4.1 201.4.2 201.4.3 201.4.4 201.4.5	DI-ILSS-81077, Mission Performance Standards. DI-ILSS-81078, Mission, Collective, Individual and Occupational Training Task Analysis Report. DI-ILSS-81079, Personnel Performance Profile Tables. DI-ILSS-81080, Training Path System Report. DI-ILSS-81081, Individual Training Standards.
201.2.1 (Mission)	201.3 (All)	201.4.1, and 201.4.2	DI-ILSS-81077, Mission Performance Standards, and DI-ILSS-81078, Paragraph 10.3.3.1
201.2.2	201.3 (All)		
201.2.3	201.3 (All)	201.4.2, 201.4.6, 201.4.8, 201.4.17 and 201.4.20	DI-ILSS-81078, Paragraphs 10.3.3.2 and 10.3.5.
201.2.4 [*]	201.3 (All)	201.4.2, 201.4.6, 201.4.8, 201.4.9, 201.4.17, 201.4.19, and 201.4.21	Paragraphs 10.3.3.3, 10.3.5, 10.3.6 and 10.3.7.
201.2.5	201.3.1	201.4.2, 201.4.10	Paragraph 10.3.3.3.
201.2.6 (Manpower)	201.3.2	201.4.11	
201.2.7 (Navy - PPP Tables)	201.3.1 and 201.3.2	201.4.3; and 201.4.12	DI-ILSS-81079, Personnel Performance Profiles Tables.
201.2.8 (Navy - Training Path System)	201.3.1 and 201.3.2	201.4.4; and 201.4.13	DI-ILSS-81080, Training Path System Report.
201.2.9 (Marine Corps)	201.3.1 and 201.3.2	201.4.2; 201.4.5; and 201.4.14	DI-ILSS-81078, Paragraph 10.3.6 (Defines ITS analysis data) DI-ILSS-81081, Individual Training Standards. (Defines the standards)

[*] Tailor out the requirement to develop a listing of occupationally grouped tasks when it is known that only one occupational skill area is affected. Task Output 201.4.9 is not required when this tailoring is done.

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TABLE A-1. MIL-STD-1379 tasks applicable to FEA contracts - Continued.

| MIL-STD-1379 TASKS AND WORK DESCRIPTIONS | MIL-STD-1379 | | DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT |
	TASK INPUT	TASK OUTPUT	
201.2.10 (Occupational Analysis)	201.3 (All)	201.4.2; and 201.4.15	DI-ILSS-81078, Paragraph 10.3.4.
201.2.11		201.4.2; and 201.4.7	Paragraphs 10.3.3.3i and 10.3.7
201.2.12		201.4.2	Paragraphs 10.3.3.2f and 10.3.3.3l.
		201.4.5	DI-ILSS-81081, Paragraph 10.3.8d
201.2.13		201.4.18	
Task 202, Training Technology Assessment.		202.4.1	DI-ILSS-81082, Training Technology Assessment Report.
202.2.1	202.3 (All). Also input 101.4.1, or outputs 101.4.2 and 101.4.3	202.4.1 and 202.4.2	Paragraphs 10.3.3 and 10.3.5.
202.2.2	202.3 (All). Also input 101.4.1, or outputs 101.4.2 and 101.4.3	202.4.1 and 202.4.3	Paragraphs 10.3.3 and 10.3.4.
202.2.3		202.4.1 and 202.4.4	Paragraphs 10.3.6 and 10.3.7.
202.2.4		202.4.1	Paragraph 10.3.8.
Task 203, Learning Analysis.		203.4.1	DI-ILSS-81083, Learning Analysis Report.
203.2.1	203.3.1	203.4.2	DI-ILSS-81083, Paragraph 10.3.4
203.2.2	203.3 (All)	203.4.1, 203.4.3	
203.2.3	203.3 (All)	203.4.1, 203.4.4	Paragraphs 10.3.2.1a(6) and 10.3.4.
203.2.4	203.3.1	203.4.1, 203.4.5	Paragraphs 10.3.2.1b, 10.3.3 and 10.3.4.
203.2.5	203.3.1	203.4.1, 203.4.6	Paragraphs 10.3.2.1b and 10.3.4.
203.2.6	203.3.1	203.4.1	Paragraphs 10.3.2.1b and 10.3.4.
203.2.7	203.3.1	203.4.1, 203.4.7	Paragraph 10.3.2.1b(7)
203.2.8	203.3.1	203.4.1, 203.4.8	Paragraphs 10.3.2.1a(10) and 10.3.2.1b(8).

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TABLE A-1. MIL-STD-1379 tasks applicable to FEA contracts - Continued.

| MIL-STD-1379 TASKS AND WORK DESCRIPTIONS | MIL-STD-1379 | | DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT |
	TASK INPUT	TASK OUTPUT	
203.2.9		203.4.1, 203.4.9	DI-ILSS-81083, Paragraphs 10.3.2.1c, 10.3.2.2 and 10.3.4
203.2.10		203.4.10	Paragraph 10.3.2.1d
203.2.11	203.3.1	203.4.11	Paragraph 10.3.4
203.2.12	203.3.1, 203.3.5 and 203.3.6.	203.4.1 and 203.4.12	Paragraph 10.3.4
203.2.13 (Navy)	203.3.1, 203.3.5 and 203.3.6.	203.4.13	
203.2.14	203.3.1	203.4.1, 203.4.14	Paragraphs 10.3.2.1a(7) and 10.3.2.2g.
203.2.15	203.3.1	203.4.15	
203.2.16	203.3.1	203.4.16	
203.2.17	203.3.1	203.4.1, 203.4.17	Paragraph 10.3.2.1b(11)
Task 204, Media Selection		204.4.1	DI-ILSS-81084, Media Selection Report.
204.2.1	204.3.1, and 204.3.4 through 204.3.8	204.4.2	Paragraph 10.3.3a and b.
204.2.2	204.3.1, 204.3.4, 204.3.6, 204.3.7, and 204.3.8.	204.4.6	Paragraphs 10.3.3c, and 10.3.4.
204.2.3	204.3.1, 204.3.3 through 204.3.6, 204.3.8, and 204.3.10	204.4.3	Paragraph 10.3.3c.
204.2.4	204.3.1, 204.3.8, 204.3.9, and 204.3.11.	204.4.4	Paragraphs 10.3.3d, f, and g.
204.2.5	204.3.1 and 204.3.2		Paragraphs 10.3.3b and e, and 10.3.4f.
204.2.6		204.4.5	Paragraphs 10.3.3g, and 10.3.4f.
204.2.7		204.4.2, 204.4.6	Paragraph 10.3.4f.
Task 206, Training System Alternatives Identification		206.4.1	DI-ILSS-81086, Training System Alternatives Report.
206.2.1	206.3.1 and 206.3.5		Paragraph 10.3.3.1a.
206.2.2	206.3.1 and 206.3.5		Paragraph 10.3.3.1b.

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TABLE A-1. MIL-STD-1379 tasks applicable to FEA contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	TASK INPUT	TASK OUTPUT	
206.2.3	206.3.1 and 206.3.5		DI-ILSS-81086, Paragraphs 10.3.3.1c, and 10.3.3.2.
206.2.4	206.3.1 and 206.3.4		Paragraph 10.3.3.3.
206.2.5	206.3. (All)		Paragraph 10.3.3.4.
206.2.6	206.3. (All)		Paragraph 10.3.3.5.
206.2.7	206.3. (All)	206.4.2	Paragraph 10.3.3.6.
Task 207, Training System Modification Requirements.		207.4.1	DI-ILSS-81087, Training System Modification Report.
207.2.1	207.3.1, 207.3.2. Also input [5] discrete outputs 202.4.2, 202.4.3, 204.4.2, 204.4.6, and 402.4.1		Paragraph 10.3.3a.
207.2.2	207.3.1 and 207.3.3. Also input [5] discrete outputs 202.4.2, 202.4.3, 204.4.2, 204.4.6, and 402.4.1.		Paragraphs 10.3.3b, c, and d.
207.2.3	207.3.1 and 207.3.4	207.4.3	Paragraph 10.3.3f.
207.2.4	207.3.1		Paragraph 10.3.3g.
207.2.5	207.3.1		Paragraph 10.3.3i.
207.2.6	207.3.1	207.4.2	Paragraph 10.3.3h.
207.2.7	207.3.1		Paragraph 10.3.3j.
207.2.8	207.3.1		
Task 208, Training System Functional Requirements.		208.4.1	DI-ILSS-81088, Training System Functional Characteristics Report.
208.2.1	208.3.1, 208.3.2, 208.3.6, and 208.3.8 through 208.3.11.	208.4.2	Paragraphs 10.3.3.1, 10.3.3.2, and 10.3.3.3.

[5] These additional inputs should be identified when the associated work tasks are part of the SOW, and the resulting data is available. The inputs from Task 202 are related to new technologies applicable to the training requirements. Task 204 inputs relate to the selected media and media features. The input from Task 402 is the training effectiveness evaluation report identifying deficiencies in an existing course of instruction.

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TABLE A-1. MIL-STD-1379 tasks applicable to FEA contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	TASK INPUT	TASK OUTPUT	
208.2.2	208.3.1, 208.3.6, 208.3.7, 208.3.10, and 208.3.11. Also input 204.4.2	208.4.3	DI-ILSS-81088, Paragraph 10.3.3.3b.
208.2.3	208.3.1, 208.3.3, 208.3.6, and 208.3.11.	208.4.4	Paragraph 10.3.3.3b.
208.2.4	208.3.1, 208.3.6, and 208.3.11.	208.4.5	Paragraphs 10.3.3.3c and d, 10.3.3.4.
208.2.5	208.3.1, 208.3.6, and 208.3.11.	208.4.6	Paragraph 10.3.3.1.
208.2.6	208.3.1, 208.3.4, 208.3.6, 208.3.11, and 208.3.12.	208.4.7	Paragraph 10.3.3.1.
208.2.7	208.3.1, 208.3.5, 208.3.6, and 208.3.11.		Paragraph 10.3.3.6.
Task 209, Training Facilities Requirements Identification.		209.4.1	DI-ILSS-81089, Training Facilities Report.
209.2.1	209.3. (All)	209.4.5	Paragraph 10.3.3.
209.2.2	209.3. (All)		Paragraph 10.3.4.
209.2.3	209.3. (All)		Paragraph 10.3.4.
209.2.4	209.3. (All)		Paragraph 10.3.5.
209.2.5	209.3. (All)	209.4.2	Paragraph 10.3.5.
209.2.6	209.3. (All)	209.4.3	Paragraph 10.3.6a.
209.2.7	209.3. (All)		Paragraph 10.3.6b.
209.2.8	209.3. (All)		Paragraph 10.3.6c.
209.2.9	209.3. (All)	209.4.4	Paragraph 10.3.6d.

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TABLE A-2. Sequence of FEA contract deliverables and IPRs.

DID NUMBER	DID TITLE	MIL-STD-1379 TASK OUTPUT	TYPE OF IPR SUGGESTED
DI-ADMIN-81249	Conference Agenda [1]	103.4.2	NONE
DI-ADMIN-81250	Conference Minutes [1]	103.4.3	NONE
DI-ILSS-81070	Training Program Development and Management Plan	102.4.1	YES/IPR
DI-ILSS-81069	Training Situation Analysis Report	101.4.1	NONE [2]
DI-ILSS-81082	Training Technology Assessment Report	202.4.1	NONE [2]
DI-ILSS-81072	Media Selection Model Report	103.4.1	YES/IPR [3]
DI-ILSS-81077	Mission Performance Standards	201.4.1	NONE [2]
DI-ILSS-81078	Mission, Collective, Individual, and Occupational Training Task Analysis Report	201.4.2	YES/ [4]
DI-ILSS-81079	Personnel Performance Profile Tables	201.4.3	NONE [2]
DI-ILSS-81080	Training Path System Report	201.4.4	YES/IPR
DI-ILSS-81081	Individual Training Standards	201.4.5	NONE [2]
DI-ILSS-81083	Learning Analysis Report	203.4.1	YES/CDR [5]
DI-ILSS-81084	Media Selection Report	204.4.1	YES/IPR
DI-ILSS-81086	Training System Alternative Report	206.4.1	NONE
DI-ILSS-81087	Training System Modification Report	207.4.1	NONE
DI-ILSS-81073	Training Equipment Requirements Document	104.4.1	NONE
DI-ILSS-81088	Training System Functional Characteristics Report	208.4.1	YES/IPR

[1] Required only when contractor will prepare for and conduct the Contract management planning (kick-off) team meeting and in-process reviews (IPR).

[2] You may desire a Program Progress Report, DI-MGMT-80555 at this time.

[3] An IPR is recommended to assure the media model properly incorporates the results of the technology assessment and adequately provides for the consideration of ICW media features.

[4] Suggest an PDR for the collective and individual task analysis. You will have to decide whether or not an IPR/PDR is necessary for the mission and occupational analysis.

[5] A critical design review is suggested due to the significant impact the learning analysis report will have on all future design and development efforts.

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TABLE A-2. Sequence of FEA contract deliverables and IPRs - Continued.

DID NUMBER	DID TITLE	MIL-STD-1379 TASK OUTPUT	TYPE OF IPR SUGGESTED
DI-ILSS-81089	Training Facilities Report	209.4.1	NONE
DI-MGMT-80555	Program Progress Report	103.4.4	(See 50.1 of appendix)
ALL	FINAL VERSION *		

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* The final version of all deliverable analysis data should be deferred until after completion and acceptance of the Learning Analysis Report. Any necessary corrections to deliverable reports and documentation should be accomplished after acceptance of the Learning Analysis. The final version of all deliverables should then be delivered in a CALS-compliant digital form.
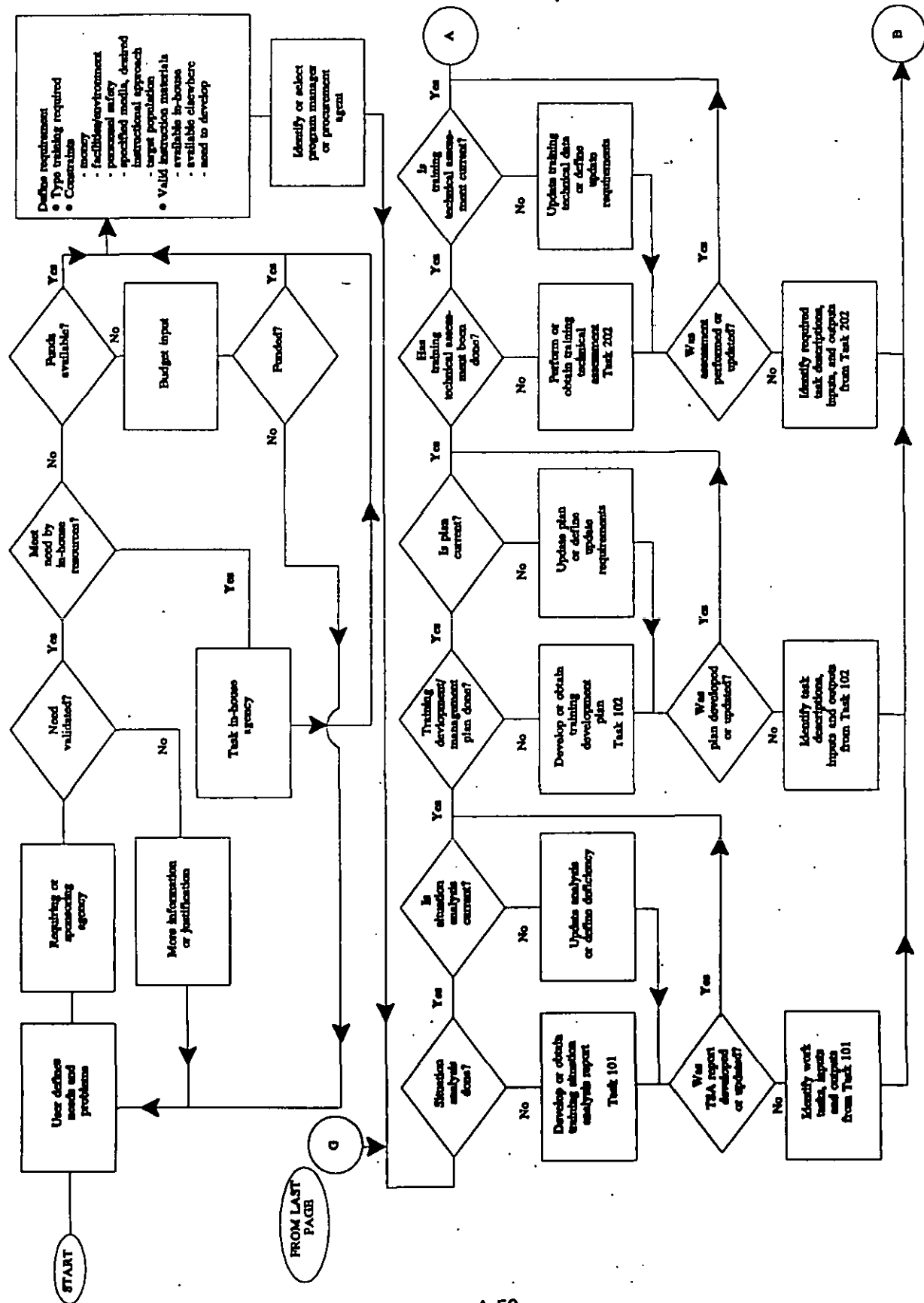
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FIGURE A-1. FEA Requirements definition.
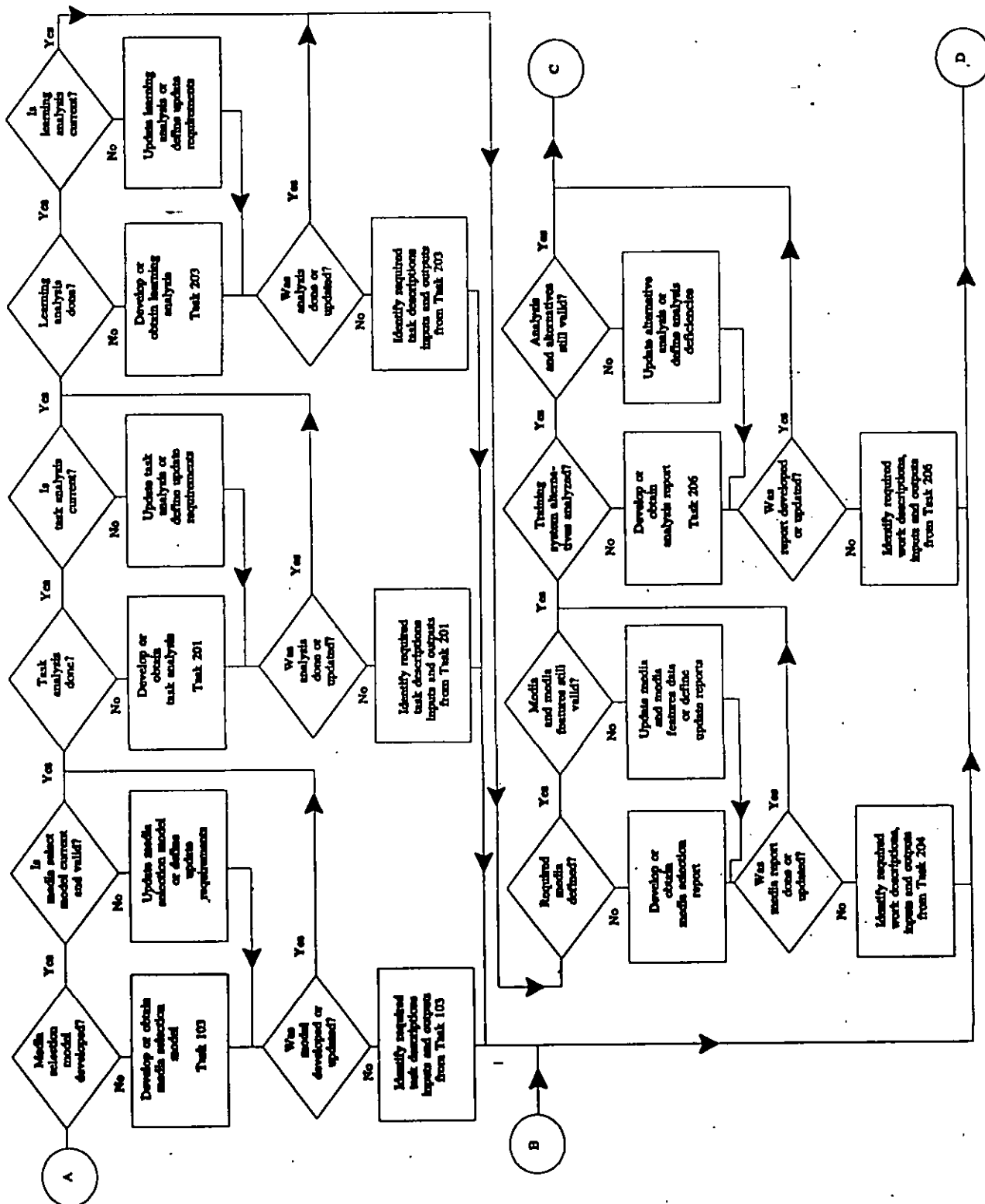
FIGURE A-1. FEA Requirements definition - Continued.
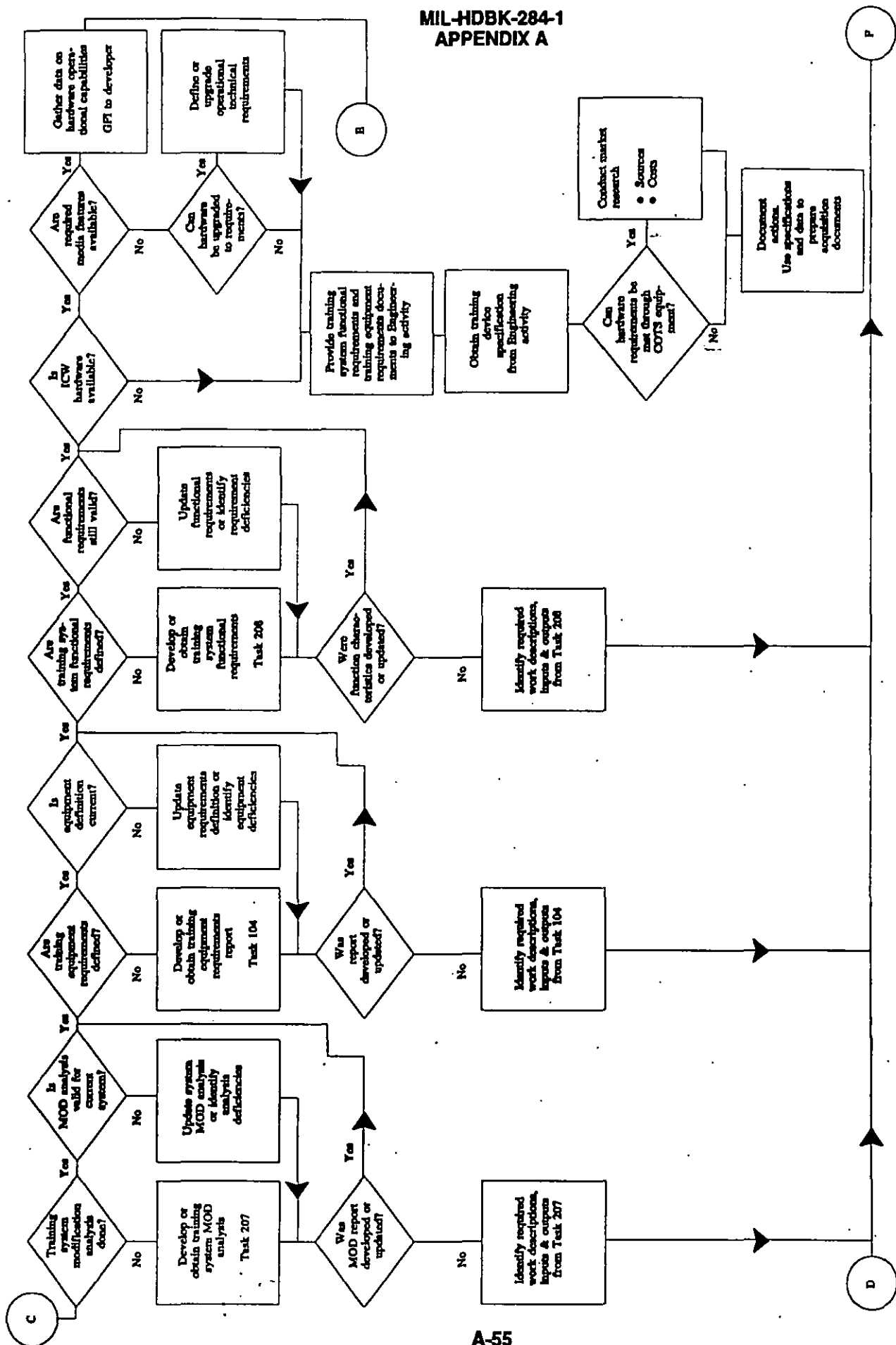
FIGURE A-1. FEA Requirements definition - Continued.
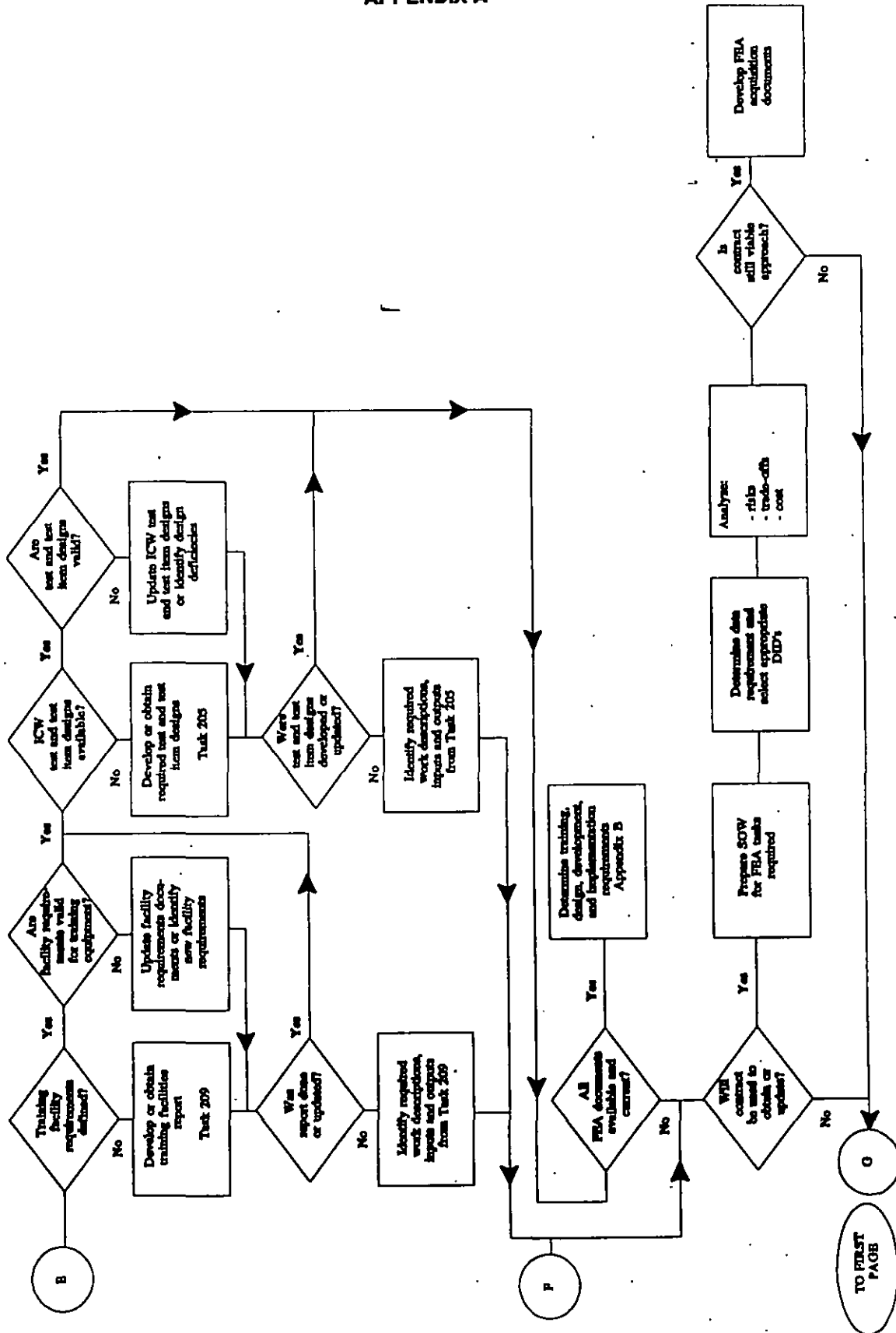
FIGURE A-1. FEA Requirements definition - Continued.

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ICW DESIGN, DEVELOPMENT, AND IMPLEMENTATION

10. SCOPE

10.1 Scope. The information and guidance contained in this appendix is intended to assist acquisition managers in defining contract requirements for inclusion in an ICW design, development and implementation (DD/I) acquisition package statement of work. The requirements definition process described in this appendix is designed to identify task descriptions, inputs and outputs of MIL-STD-1379 that are necessary to acquire ICW DD/I and life cycle management products required to produce and support ICW materials for military training programs. MIL-STD-1379 DIDs which define deliverable products applicable to ICW training programs are also described. This appendix provides suggestions for tailoring MIL-STD-1379 requirements and associated DIDs based upon the ICW training mode applications and implementation strategies.

10.2 How to use this appendix. This appendix is written to support the acquisition of ICW training program DD/I separate from the training program front-end analysis (see 4.5.3.4). MIL-STD-1379 task descriptions applicable to an ICW DD/I acquisition are presented and described in their recommended statement of work (SOW)/contract performance sequence. These requirements are SOW task descriptions rather than material/weapon system and equipment training program requirements. The DD/I work effort resulting from these SOW task descriptions should define the material/weapon system and equipment training program requirements. The SOW task performance sequence is reflected in the logic diagram provided in Figures B-1 and B-2. These figures should be used to determine the MIL-STD-1379 task descriptions that are required to support your particular requirements. Once you have identified the applicable task descriptions, this appendix is designed to help you apply MIL-STD-1379 task descriptions and DIDs to your particular program.

a. Section 30 describes Government furnished information, property, and support (GFI/GFP/GFS), and subject matter expert (SME) support that should be provided to the contractor when it is available. SME support will normally be required throughout the ICW DD/I acquisition process.

b. Section 40 describes MIL-STD-1379 Task 102, Training Program Development and Management Planning, and Task 103, Training Development Control (In-process review of the development and management plan) which are not specifically related to ICW design, development or implementation requirements. Tasks are presented and described in the sequence in which they should appear in Section 3 of the contract SOW. The applicability and purpose of subtasks required to identify and document ICW program development and management planning data are presented. Development and management planning data resulting from performance of MIL-STD-1379 Task 102 and its subtask are also identified and described. Descriptions of task performance data should help you

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determine your minimum data requirements and to tailor the applicable DID to reflect those requirements.

c. Section 50 describes those tasks and DIDs applicable to ICW training program design. Figure B-1 is a logic diagram of the process and decisions necessary to identify ICW design requirements for the DD/I SOW. These MIL-STD-1379 200-series task descriptions build upon the analysis conducted and documented during the FEA. MIL-STD-1379 Task 102, Training Program Development and Management Planning, is included in Figure B-1 to support separate FEA and ICW DD/I acquisition efforts.

d. ICW development task descriptions and data are described in Section 60 of this appendix. Figure B-2 is a logic diagram of the process and decisions necessary to identify development tasks for the DD/I contract SOW. Courseware development tasks are in MIL-STD-1379 300-series task descriptions. Development tasks are described assuming that ICW-unique design requirements presented in Section 50 have been included in the DD/I SOW.

e. Courseware implementation, validation and evaluation requirements are presented in Section 70 of this appendix. Courseware implementation begins by developing implementation and evaluation plans, and establishing course control documents. These requirements are identified in MIL-STD-1379 100-series task descriptions. Actual ICW training program implementation, validation and training effectiveness evaluation (TEE) tasks are in the 400-series of MIL-STD-1379. Figure B-2 addresses these implementation requirements, as well as courseware development.

f. Section 80 describes final evaluation and acceptance of the DD/I contract deliverables. It suggests additional SOW task descriptions that address courseware deficiencies identified during courseware implementation, validation, and evaluation. These task descriptions are not in MIL-STD-1379, but accomplishment of the work is an implied requirement. These suggested task descriptions clarify requirements which could affect future courseware maintenance actions.

g. Section 90 describes progress report requirements and recommends an integrated progress report and IPR schedule to minimize redundant contract management activities. This section is intended to aid in preparing Section 4, Progress Reports, of the contract SOW.

h. Tables B-1 and B-2, in conjunction with Figures B-1 and B-2, are provided to assist in determining work task and deliverable data requirements outlined and described in Sections 40 through 70. Table B-1 lists the MIL-STD-1379 task descriptions applicable to ICW DD/I. Each subtask of the task description is also

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listed in the table. Subtasks are referenced to the specific task inputs required to accomplish the subtask and the specific output data it produces. Finally, Table B-1 references each task description and subtask to the MIL-STD-1379 Data Item Description (DID) and specific DID paragraph that defines the deliverable task output data. This is intended to help you identify and tailor data requirements which must be cited in the DD/I contract CDRL. Table B-2 lists all DIDs applicable to ICW DD/I in the suggested data delivery sequence. Table B-2 also indicates those deliverable products which are recommended to be jointly reviewed with the contractor during an In-Process Review (IPR).

10.2.1 _Terms, abbreviations, and acronyms used in this appendix_. Key terms, abbreviations, and acronyms used in this appendix are defined as specified in Section 3 of the basic handbook.

20. APPLICABLE DOCUMENTS.

20.1 _Government documents_.

20.1.1 _Specifications, standards, and handbooks_. The following specifications, standards, and handbooks form a part of this appendix to the extent specified herein.

STANDARDS

MILITARY

MIL-STD-1379	Military Training Programs
MIL-STD-1388-1	Logistic Support Analysis
MIL-STD-1388-2	DoD Requirements for a Logistic Support Analysis Record

(Unless otherwise specified, copies of military specifications, standards and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

20.1.2 _Other Government documents, drawings, and publications_. The following other Government documents, drawings, and publications form a part of this appendix to the extent specified herein.

PUBLICATIONS

DEPARTMENT OF DEFENSE

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DoD Instruction 1322.20   Development and Management of Interactive
    Courseware (ICW) for Military Training

(Copies of DoD Instruction 1322.20 are available from the Navy Aviation Supply
Office, Physical Distribution Division, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

DATA ITEM DESCRIPTIONS

DI-MGMT-80555	Program Progress Report
DI-ILSS-81069	Training Situation Analysis Report
DI-ILSS-81070	Training Program Development and Management Plan
DI-ILSS-81071	Individual Training Plan
DI-ILSS-81072	Media Selection Model Report
DI-ILSS-81074	Training System Implementation Plan
DI-ILSS-81075	Training Course Control Document
DI-ILSS-81076	Training Evaluation Plan
DI-ILSS-81078	Mission, Collective, Individual, and Occupational Training Task Analysis Report
DI-ILSS-81079	Personnel Performance Profile Tables
DI-ILSS-81080	Training Path System Report
DI-ILSS-81082	Training Technology Assessment Report
DI-ILSS-81083	Learning Analysis Report
DI-ILSS-81084	Media Selection Report
DI-ILSS-81085	Test Package
DI-ILSS-81088	Training System Functional Characteristics Report
DI-ILSS-81090	Lesson Specifications Report
DI-ILSS-81091	Instructional Media Design Report

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DI-ILSS-81092	Instructional Media Package
DI-ILSS-81093	Instructional Media Data Files
DI-ILSS-81096	Training System Utilization Handbook
DI-ILSS-81097	Individual Task Training Package
DI-ILSS-81098	Collective Task Training Package
DI-ILSS-81104	Trainee and Training Course Completion Report
DI-ILSS-81105	Training Evaluation and Validation Report
DI-ADMIN-81249	Conference Agenda
DI-ADMIN-81250	Conference Minutes

(Copies of DIDs are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

20.2 Non-Government publications. The following document forms a part of this appendix to the extent specified herein.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C98.20M   Tape Recording, Video, Frequency Response and
Reference Level of Recorders & Reproducers For Audio
Records For 1 Inch Type C Helical Scan (DoD adopted)

(Application for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York, NY 10018-3308.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

APPENDIX B

30. INPUT DATA AND SUPPORT.

30.1 <u>Introduction</u>. The Government should identify and provide all available information and provide property applicable to and necessary for training program design, development and implementation. A thorough review of available documentation pertinent to the DD/I effort using the process in Figures B-1 and B-2 will prevent SOW efforts that will produce data that duplicates existing information. When this information is not available, MIL-STD-1379 includes task descriptions which will produce the information necessary to accomplish DD/I. There are also GFI requirements which are important to ICW design and development decision processes, beginning with media and ICW media features selection. This GFI usually comes in the form of agency directives, policy and guidance information, and technical documentation. The Government should plan to provide qualified subject matter experts (SMEs) throughout the DD/I process to assist in defining and validating courseware design, development, and implementation requirements.

30.2 <u>Government-furnished information (GFI)</u>. The MIL-STD-1379 identifies specific GFI input requirements in each task description. GFI input requirements which apply only to a single task description are described as part of that task in Sections 40, 50, 60, and 70 of this appendix. GFI that is significant and applicable to more than one ICW design, development, and implementation task are described in the following paragraphs.

30.2.1 <u>Front-end analysis (FEA) documents</u>. Paragraph 4.5.3.4 of the basic handbook describes the rationale behind separately contracting for the training program FEA and the program DD/I when ICW is likely to be the media selected for all or part of the training requirements. Given that FEA was contracted or conducted separate from the DD/I, there are several FEA documents and reports which should be available and provided as GFI.

a. The Media Selection Model Report, DI-ILSS-81072; Mission, Collective, Individual, and Occupational Training Task Analysis Report, DI-ILSS-81078; the Learning Analysis Report, DI-ILSS-81083, and Media Selection Report, DI-ILSS-81084, are essential and required to perform ICW DD/I contract requirements. These reports should either be provided as GFI or, if not available, the appropriate task descriptions described in Appendix A should be included in the DD/I SOW. If these documents are not available, it may also be necessary to include several other FEA task descriptions that develop input data critical to producing the missing reports.

b. A copy of the approved Training Situation Analysis Report, DI-ILSS-81069, and the Training Technology Assessment Report, DI-ILSS-81082 should be provided as GFI when available. These reports are not as critical to the DD/I process, but do provide beneficial information.

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30.2.2 <u>Material (weapon) system and equipment technical data</u>. All Government technical information about the material/weapon system and equipment that is available and germane to the ICW DD/I effort should be collected and provided to support the effort. Information, if available, should include:

a. The mission and functional requirements of the system, equipment, or function the training program will support. Include system and equipment performance and technical data, and identify any existing or proposed new or modified equipment within the system.

b. All information and course control data for training programs on this and similar material/weapon systems. Current curriculum documentation, plans of instruction, training equipment/device/ simulator functional characteristics and training objectives they support, training effectiveness evaluation results, and any other documentation on current training programs and training equipment should be gathered. When possible, define the relationship between the existing course curriculum documents and the requirements of the training program being developed.

c. Training cost data for any existing training programs that support the system and equipment. This cost data will be an important consideration when performing the media selection and media features cost trade-off analysis in MIL-STD-1379 Task 204, Media Selection.

d. Technical documentation and technical materials to support ICW design requirements.

30.2.2.1 <u>Material (weapon) system and equipment mission and characteristics</u>. The operational mission of the system and equipment can significantly affect decisions about media selection, instructional modes, and instructional design. System/equipment configurations and capabilities may also be important factors when selected training modes include on-the-job training (OJT) and self learning.

a. Systems/equipments which support a 24 hour per day operational mission may not be available to support OJT hands-on task training requirements. Resource constraints often result in less frequently performed training tasks being identified for OJT when access to the operational system/equipment is inadequate to support this training mode.

b. System and equipment reliability and maintainability factors may result in single thread (no channel or equipment redundancy) operational system and equipment configurations. Access to these systems/equipment for hands-on training is often difficult and limited to periods when there is no operational mission support required.

c.   System/equipment job task performance may involve significant safety or hazardous conditions, or might require special equipment. These conditions and special requirements should be identified where possible to aid in determining the most appropriate training modes and instructional media.

30.2.2.2 Technical data currency, validity and stability. Define any known or potential problems with technical data currency, procedural validity, and stability. Task procedures for tasks tentatively selected for ICW should have been validated during training task analysis (see Appendix A, 40.9.2.2b). Validation would not, however, mean that the technical data is current. There may also be system and equipment modifications planned or in progress which would affect technical data currency and task validity, and, consequently, could significantly impact courseware design and development work already completed. When these factors exist within your program, identify the causes for the instability and estimates of when the technical data will be updated to reflect current requirements and procedures. Any changes which alter procedures of performance tasks selected for ICW should be revalidated as soon as possible.

30.2.2.3 ICW design freeze. ICW DD/I contracts supporting systems and equipment which have potentially unstable technical data should include provisions for an ICW design freeze to protect the contractor from frequent courseware changes, and protect the Government from higher contract costs due to higher schedule and technical risks. The suggested approach is to establish a course and lesson design freeze upon acceptance of the Instructional Media Design Report, DI-ILSS-81091. The freeze provisions should also require, however, that the final modules/lessons be technically accurate and current at the time of small group try-outs. Any changes to applicable technical data occurring after the design report is accepted would not require changes to courseware instructional design; those changes affecting technical content of the module/lesson and occurring after small group try-outs would not require changes to the module/lesson without additional cost.

30.2.3 ICW device specifications. If the ICW materials being designed and developed will run on existing ICW devices, or a device specification has been established, these specifications should be provided to the contractor as GFI. Existing ICW delivery device data should include the capabilities and configurations, and any configuration upgrade potential (see 5.6.2). This information will be necessary to support media and media features selection, instructional media design, and instructional media development.

30.2.4 Agency/activity policy and guidance. MIL-STD-1379 tasks identify requirements for GFI in the first subparagraph under Task Input (for example 102.3.1). You should provide the policy and guidance information to support your ICW DD/I contract. When policy and guidance information does not exist, you should contact agencies and activities identified in this handbook as points of contact for ICW-related information (see 4.5.3.2.4). The DAVIS/DITIS programs will also provide agencies and activities that have either developed or acquired ICW programs.

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30.2.4.1 <u>Task performance factors</u>. Task performance factors are identified and described in paragraphs 30.2.1 and 40.8.3.1 of Appendix A.

30.2.4.2 <u>ICW system interface requirements</u>. The various system interfaces affecting the courseware functional characteristics, and final installation and implementation should be carefully evaluated during review of the Training System Functional Characteristics Report, DI-ILSS-81088. These interface requirements can greatly-influence decisions about ICW delivery device configurations, and the inter-operability and portability of the courseware.

30.2.4.2.1 <u>Authoring language/system interface</u>. The authoring language/ system used to develop the courseware must provide the bridge between what the instructional designer intended the courseware to present and what is actually presented to the student. The language/system is also a critical factor in courseware portability between the various delivery devices on which the ICW will be required to operate. You must assure that the authoring language/ system that will be used to develop the courseware will operate on the installed devices, if required. You must also assure that the authoring language/system is capable of supporting all essential elements of the instructional design and media features (see 4.5.3.2).

30.2.4.2.2 <u>Training system courseware interface</u>. When the ICW will be integrated into another course of instruction, the interface and relationships between the ICW materials and all other curricula objectives, schedules and materials must be considered. If you are preparing to contract for all courseware development including ICW, this interface definition is addressed in several of the task descriptions in MIL-STD-1379 (for example, Tasks 107, 203, 204, and 208).

30.2.4.2.3 *Training system interface/integration*. The ICW interface with the training system includes determining which of the training system objectives will be provided through ICW and whether the ICW will provide all or a portion of the required instruction. When the ICW will be designed and developed for application to more than one skill level/training requirement, how the ICW will be integrated and implemented across the training system must be defined. This is an extremely important consideration when analyzing the overall costs of the various training system alternatives, when ICW is one of those alternatives. As described in the handbook, the per student life cycle cost of ICW is inversely proportional to the number of students who require/use it -- the more students given access to a module of instruction, the more cost effective that module is.

30.2.4.2.4 <u>Training device interface(s)</u>. Another interface that must be determined is whether or not the ICW will interface with existing or programmed maintenance support systems (for example, Bench Test Facilities (BTF), system mock-ups) or other training device technologies such as two/three dimensional trainers and computer driven flat panel trainers. Defining this type of interface requirement is critical to determining the overall instructional design strategy, and the training courseware and training system interface

requirements. A requirement to interface with another device may also impact selection of the authoring language/system. A well-defined ICW and maintenance support system interface requirement can be very beneficial and cost effective, functioning both as imbedded training for complex BTFs or system mock-ups, and as an automated procedural guide and job aid.

30.2.4.3 ICW style guide. An ICW design and development style guide can serve to convey your agency and activity policy and guidance concerning established ICW design and development conventions. Figure B-3 is an example of an ICW style guide. This sample is included to illustrate the kinds of information a style guide may contain. The information presented in this figure is an extract from an in-use ICW style guide developed by an activity of the Air Force Tactical Air Command.

30.2.4.3.1 Design and development style guides. An important aspect of any ICW design and development effort is the consistent approach to lesson architecture, video and graphics screen composition, student interaction with the courseware, screen color schemes, testing strategies, and other courseware design conventions. While it is most important to maintain consistency within a given course of instruction, consistency between courses presented on the same device is also important.

a. Because design consistency is so important to the learning process, you should establish and use an ICW style guide for all ICW design and development and acquisition efforts. A comprehensive style guide is beneficial in terms of communicating your agency's ICW requirements to the contractor, eliminating guess work about design conventions, evaluation of deliverables and other issues covered by a well conceived ICW style guide.

b. Provide as GFI or have an ICW style guide developed that establishes the conventions or standards to be used during ICW design and development. ICW design and development conventions can be obtained using Subtask 211.2.1 in the DD/I SOW, and by DI-ILSS-81091 when you do not have an established style guide. Once established, an ICW style guide assures consistency between instructional modules and lessons, and between past, present and future ICW materials. As your style guide becomes more exact and detailed through iterative applications to ICW programs, less work effort will be required to make decisions concerning ICW conventions and standards.

30.2.4.3.2 Government ICW design and development style guides. Several ICW style guides have already been developed by Government agencies. You should consider obtaining a copy of these guides which can then be modified and applied to your particular agencies requirements. These organizations have developed ICW style guides which include conventions and standards for the design and development of ICW, to include interactive videodisc (IVD) training materials.

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30.2.4.4 <u>ICW training modes and applications</u>. ICW training mode (self paced, instructor assisted self paced, self learning, OJT) and application (integrated into formal classroom instruction, integrated into operational equipment labs, stand-alone courseware, stand-alone courseware in a networked device learning lab, single or multiple screen devices) decisions are made before developing the ICW DD/I contract SOW by the FEA routine.

a. These decisions have been based upon the training task analysis and learning analysis completed during the FEA, or they may have been based upon other factors. These decisions and the rationale are important factors in media and media features selection, developing lesson specifications, and in instructional media design and development.

b. Training mode and application decisions affect courseware designs of pretest based instructional prescriptions for multiple skill level ICW, and supporting a target population with a variety of entry level skills and knowledge. They also affect media and media features needed to support those portions of the target population who do not have sufficient access to operational systems and equipment for hands-on task training.

c. Figure B-3 is an extract of a style guide dealing with pretest and instructional prescriptions based upon test results. It is an example of the kinds of training mode and application guidance you should consider providing with your DD/I contract.

30.2.4.5 <u>ICW authoring systems and languages, and tools</u>. Policy and guidance concerning which authoring system/language, and which authoring tools to be used during ICW design and development should be provided. Authoring system, authoring language, and authoring tools considerations are described in paragraph 4.5.3.2 of the Handbook.

30.2.4.6 <u>ICW categories of interactivity</u>. Providing agency or activity definitions of ICW categories of interactivity, and examples of how these defined categories are applied to training tasks and learning objectives establish a base line for ICW DD/I decision processes. Required categories of interactivity effect media features selected and required to achieve course training objectives. Categories of interactivity are also crucial elements of the instructional media design accomplished during performance of Task 211.

a. Generally, ICW categories of interactivity are classified as being Category 1, Category 2, and Category 3. Figure B-4, ICW Interactivity Categories, shows the three most commonly used definitions of ICW categories of interactivity, and relates each definition to the courseware presentations it supports. It also indicates the level of learning each interactivity category is best suited to support.

b.   Based upon your agency's background and experience with ICW, you might have established more than three categories. Whether you define three or five categories, you should establish some defined bench mark that communicates your courseware interactivity requirements to the contractor (see 4.5.1.3.1).

c.   The best and recommended approach to defining categories of interactivity is to specifically define them within the SOW and identify which categories are required for each terminal and enabling learning objective identified by the FEA learning analysis. This approach provides the potential contractor with a better understanding of the work requirements and should result in more accurate estimates of total DD/I contract workload and cost.

30.2.4.7 <u>Test and measurement criteria</u>. If policy and guidance on test and measurement criteria information exists, it should be provided as GFI. Test and measurement criteria might include:

a.   Pass/fail criteria for task simulations and problem scenarios.

b.   Gaming strategies.

c.   Test item pool criteria. Criteria to address may include the minimum number of items within a pool, random item selection sampling rates and processes, pool item numbering schemes.

d.   Test item prescription criteria and procedures. This information will be required when you include Subtask 205.2.6 and Subtask 211.2.8 (see 50.5.1.5.1) in the DD/I contract SOW.

e.   Figure B-3, Sample Style Guide, includes a sample of testing conventions.

30.2.4.8 <u>Agency and activity DD/I document formats</u>. When your agency or activity has established standard content and format requirements for DD/I documents such as flow diagrams, scripts, script-storyboards, video shot lists, and edit decision lists, these standard requirements should be provided to the contractor as GFI. When agency/activity formats are prescribed, be sure you also tailor applicable MIL-STD-1379 DIDs to reflect this requirement in lieu of the formats established by Appendix C of MIL-STD-1379. You should also coordinate these requirements with you command data manager to assure the scope of the applicable DIDs has not been exceeded by the agency's content criteria.

30.2.4.9 <u>ICW design and development conventions</u>. Agency policy and guidance information on ICW design and development conventions should be provided as GFI when these conventions have been established. ICW design and development conventions might address a wide variety of subjects, from test and test item design and development to

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graphic screen designs, standard icons, the use of prompts and colors, how input devices will be applied, and computer managed instruction (CMI) functions and records.

30.2.5 DD/I document and report approval and update procedures. Unless you have clearly specified document and report approval and update procedures elsewhere in the contract, guidance and procedures governing how various documents and reports are supposed to be processed for Government review and approval should be included in policy and guidance GFI. Be sure to make compliance with this document a mandatory part of the contract if you require the contractor to comply with its provisions. The CDRL, block 8 should identify those documents and reports that require Government approval (see 4.4.2.2i). Any special requirements concerning final delivery media and formats should also be addressed.

a. Procedures for gaining approval of any support software should be included in this GFI.

b. . When you are providing an agency style guide as GFI, you should consider including provisions for proposing enhancements to the style guide and for review and approval of these proposed changes. This action will provide an avenue for contractor improvements to the style guide, yet assure any changes or enhancements are consistent with existing style guide conventions.

30.2.6 Coordination and scheduling procedures. Establish procedures for the contractor to coordinate and schedule access to and use of Government facilities, systems/equipment, and personnel. When advance coordination and scheduling dates are important, be sure to identify the minimum and, if appropriate, maximum amount of scheduling lead time required. Be sure you have coordinated any coordination and scheduling procedures with the activities who will be responsible to provide the support, such as operational units who will provide systems/equipment, and SME support; video production facilities and personnel who will be responsible to acquire video and audio resource materials, and edit these to produce the premaster and master tape versions for replication.

30.2.7 Training program constraints. Constraints which may impact media and media features selections, instructional design, training modes and ICW applications should be identified in the DD/I contract SOW or an other appropriate document which can be GFI. A list and description of constraints affecting courseware design, development and implementation planning decisions should be developed and provided as GFI. You should specifically address funding and facility limitations for the current contract year and applicable out years which effect ICW design, and hardware specification decision criteria. Planned or anticipated manpower reductions in the affected occupational skill areas, or significant changes the ratios of skilled and unskilled personnel in the target population should also be identified.

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30.2.8 _Other GFI_. In addition to the information described above, the following should be provided as GFI if it is available.

  a. Description of resources available and required to support training program development and implementation. Include any existing training devices.

  b. Results of the ICW and VI data searches, and any instructional or audio/visual materials obtained from that search.

  c. Occupational skills data applicable to the target population.

  d. A description of circumstances or conditions which affect the instructional methodology or media selection decision processes. The requiring agency's/activity's predisposition toward a particular instructional approach or media should be identified.

  30.3 _Government-furnished property (GFP)_. Depending upon your specific agency's ICW requirements, existing ICW devices, and production capabilities, you should consider providing one or more of the following ICW DD/I support items as GFP.

  a. ICW hardware devices to be used for courseware development. This may be necessary when the courseware being developed will have to run on an existing hardware platform.

  b. ICW authoring system/language, and other development and authoring tools. Identify those Government owned or licensed authoring programs and development tools which you will require the contractor to use during the ICW DD/I work effort, and provide them as GFP. Be sure to include any required statements and affidavits relating to these programs and tools in Section K of the solicitation/contract package. When making the decision to use either Government owned or commercial authoring systems/languages and tools, remember to address the costs associated with each one. The contractor may require training on Government owned programs/tools that would not be necessary for commercially available programs and tools. The costs associated with any training required by contractor personnel on Government programs or tools should be included in the cost data and compared to the cost to purchase and license commercial programs/tools.

  c. Government provided on-site facility space may be cost effective if suitable facilities and space are available. This should be given careful consideration when the ICW program development will required extended periods of travel in high cost areas to gather data, validate instructional design materials, or acquire video. When Government facilities will be provided, this will have to identified in

the solicitation/contract package to include any provisions for reimbursement for utilities, and office equipment support.

30.4 Government-furnished support (GFS). It may be beneficial for the Government to provide other ICW DD/I contract support functions. Those support capabilities which are cost effective should be identified in the solicitation/contract package. Some support *functions that may be more cost effective to provide at Government furnished support* Include, but are not limited to the following:

30.4.1 Personnel. Depending upon availability, the Government may be in a position to provide personnel services support to the contractor beyond the normal SME support. Personnel occupational specialties to consider and evaluate include: education specialists, training specialists, material system/equipment technical experts, video scripting/storyboarding/production specialists, graphic artists, computer programmers, and personnel to perform training program validations and evaluations. When Government personnel will perform some of the work required in ICW DD/I, coordination, scheduling and accounting procedures will have to be addressed.

30.4.1.1 Subject matter experts. SMEs are necessary in any training program analysis, design or development effort. SMEs provide the job-specific technical expertise needed to assure that the FEA identifies and documents all performance tasks. They also determine if conditions and standards for performance are valid, and if resulting training *objectives and performance measurements are necessary and valid.* SMEs play an important role in FEA that supports ICW design and development. They assure that all job-related tasks and procedures are accurately and thoroughly documented (see 30.1).

30.4.2 Media acquisition. Media acquisition support might include the full range of video and audio production requirements. There are several Government VI facilities capable of producing ICW video and audio materials;, to include digital audio encoding, editing the premaster video/audio, and producing master video/audio materials. Some Government facilities also have the ability to produce check videodiscs from the master video materials used to support instructional materials programming and conducting small group try outs of the preliminary training program. Identify those video production support capabilities which will be provided to the contractor and include them in the contract requirements.

30.4.3 Replication, packaging and distribution. Government acquired replication, packaging and distribution of the approved ICW training program instructional media, instructional media data files, adjunctive materials, and the manager's and user's guides may be done more effectively and efficiently using established Government facilities, personnel, and contract vehicles. Where the overall costs, and cost and schedule risks warrant, these support functions should be provided by the Government. When provided, they must be clearly identified in the contract as Government furnished support.

APPENDIX B

40. ICW DD/I CONTRACT SOW TASK DESCRIPTIONS

40.1 Introduction. This section describes the purpose, application, and data produced by MIL-STD-1379 task descriptions applicable to the general program planning and management tasks usually included at the beginning an ICW DD/I contract statement of work. This section of Appendix B only describes the initial, kick-off meeting between Government and contractor management personnel actively involved in the contract. ICW design, development and implementation task descriptions are described in Sections 50, 60, and 70, respectively.

40.2 How to apply Appendix B Tables and Figures in SOW development. Figure B-1, ICW Design Requirements Definition; Figure B-2, ICW Development and Implementation Requirements Definition; Table B-1, MIL-STD-1379 Tasks Applicable to ICW DD/I Contracts; and Table B-2, Sequence of DD/I Contract Deliverables and IPRs, are provided to aid you in determining DD/I contract requirements.

40.2.1 ICW DD/I requirements definition. Figures B-1 and B-2 are a logic diagram of the decision process necessary to determine which MIL-STD-1379 task descriptions may be necessary based upon the availability and currency of critical analysis, design, and development control documents. The logic diagrams support both in-house development of critical documents or contractor development through the appropriate MIL-STD-1379 task description. The diagram logic follows the normal ICW design, development and implementation task performance sequence. When the documents identified by the logic process are available and current, you should provide them as GFI to support other DD/I contract performance requirements.

40.2.2 Applicable MIL-STD-1379 task descriptions. Table B-1 presents each MIL-STD-1379 task description applicable to ICW DD/I in task number sequence. This table is designed to aid you in tailoring MIL-STD-1379 task descriptions and data requirements by relating each subtask to the applicable DID and DID paragraph that defines the data.

   a. When you determine that a particular subtask is not required to support your contract requirements, those subtask data inputs and DID paragraphs which should be reviewed for tailoring are readily apparent in the table.

   b. The table lists each task description subtask and indicates whether or not that subtask is required to support integrated or stand-alone ICW applications. The table further identifies data inputs required to perform the subtask, and both discrete and deliverable data produced by subtask performance. Task performance data is identified to the MIL-STD-1379 DID and specific DID paragraph which specifies the format and content of the deliverable data produced by subtask performance.

c. In some cases, the subtask may produce data that is identified and acquired by a separate, stand alone DID. Other subtask data may apply to more than one DID or more than a single paragraph within a specific DID. These situations are described in the paragraphs relevant to the specific task description.

40.2.3 Data delivery and IPR sequences. Table B-2, Sequence of DD/I Contract Deliverables and IPRs, provides a listing of MIL-STD-1379 DIDs applicable to ICW DD/I contracts. This table is intended to help you determine contract delivery and IPR schedule sequence requirements.

a. DIDs which define DD/I documents and reports are listed in their suggested delivery sequence. However, the actual delivery schedule will be determined by the scope of the contract SOW -- how much work is actually required to accomplish the work that produces the data -- and the term of the contract.

b. This table indicates whether or not you should consider conducting an in-process review on the particular deliverable product. An IPR is recommended for those deliverables critical to the overall ICW design, development, and implementation process. You may elect to include more than one deliverable in the IPR, but be careful that you do not impact upon the contractor's ability to continue working between scheduled IPRs. The fact that an IPR is not conducted for a specific deliverable does not preclude you receiving, reviewing, and approving that deliverable.

40.3 Training Development Control, Task 103 (Conference). Task 103 should be cited several times in a ICW DD/I contract because it includes the work descriptions for producing conference agendas, conference minutes, and program progress reports. Task 103 also includes other contractor support of the in-process reviews.

40.3.1 Task purpose. Task 103 should be included at the beginning of the contract SOW when the contractor is required to plan the contract management team (Kick-off) meeting. Two subtasks of Task 103 are included in the SOW to require contractor kick-off meeting planning: Subtask 103.2.8, Develop conference agenda; and Subtask 103.2.9, Develop conference minutes. The only input required to support task performance is the signed contract.

40.3.2 Task performance data. Performance of Subtasks 103.2.8 and 103.2.9 will produce the agenda and minutes of the kick-off meeting, respectively.

40.3.2.1 Meeting agenda. Performance of subtask 103.2.8 will produce an agenda for the kick-off meeting. The agenda is acquired in accordance with DID DI-ADMIN-81249, Conference Agenda. Review the DID and tailor out any agenda data you do not require, and stipulate in the CDRL that a draft of the agenda is required for review and comment prior to the actual meeting. Review the draft agenda to assure the agenda

includes all areas you wish to address during the meeting. Depending upon specific program requirements, the agenda should address the following:

a. When the solicitation/contract requires the contractor's proposal include a performance schedule, description of this schedule and any contractor assumptions affecting the schedule should be an agenda item.

b. Introductions of key Government and contractor personnel, and each person's role in the contract.

c. Delivery and review of all GFI, and any other preliminary data that is available. While the GFI can not realistically be evaluated for adequacy during the kick-off meeting, any potential problem areas surfaced during this review should be documented in the minutes.

d. Delivery schedule(s) and accountability procedures for any GFP.

e. Government furnished support items, such as video acquisition and editing, and personnel support other than SMEs, should be included on the agenda when these support areas are provided for in the contract.

f. Description of the contractor's technical approach to contract performance. This description should assure that all key personnel understand how the contractor intends to address each of the contract performance requirements, and what the Government expects to receive from task performance. Interrelationships between the various steps of the technical process and data resulting from that process should also be described.

g. Description of any additional, non-MIL-STD-1379, work requirements included in the contract SOW (see Section 80). This description should assure contractor understanding of the added requirements and the importance of these requirements to courseware DD/I and final acceptance.

h. Travel requirements and itineraries should be described as they relate to contract performance and required IPRs.

40.3.2.2 Meeting minutes. Minutes of the kick-off meeting are developed by performing Subtask 103.2.9 and are acquired in accordance with DI-ADMIN-81250, Conference Minutes. If you intend that these minutes should be approved, this requirement should be identified in the SOW and the CDRL.

40.4 Training Program Development And Management Planning, Task 102. This task and its subtasks establish contract requirements for developing those plans necessary to perform and manage contract work requirements, and to establish minimum quality

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assurance and internal surveillance programs. Plans that define the management structure and processes necessary to assure performance schedules and quality standards are met are also developed using Task 102.

40.4.1 Subtasks applicable to DD/I contracts. Task 102 subtasks address several planning actions which are applicable in a stand- alone DD/I contract. Task output data items are identified in Table B-1. Generally, all subtasks of MIL-STD-1379 Task 102 are required in an ICW DD/I contract SOW. The SOW should include the following subtasks.

40.4.1.1 Subtask 102.2.1. This subtask requires the contractor to define and describe those contractor activities necessary to perform the contract. This definition and description of contractor activities is often referred to as the "technical approach." Interrelationships between these activities and resource requirements are also defined. Data produced by this subtask is identified and defined as indicated in Table B-1.

40.4.1.2 Subtask 102.2.2. Subtask 102.2.2 requires a make or buy analysis which may or may not be required in your DD/I contract. This subtask and the data it produces are not necessary to accomplish other DD/I SOW requirements, as indicated in Table B-1. When your activity has an internal DD/I capability, you may want to include this subtask in the contract in order to determine whether internal or contractor DD/I is most advantageous. The results of this analysis are not deliverable however, as the analysis data is not identified in the DID.

40.4.1.3 Subtask 102.2.3. This subtask develops the approach, procedures, and management controls that will be necessary to establish and maintain follow-on configuration controls over the final ICW training program courseware and instructional software materials. This subtask produces the ICW materials configuration control planning element.

   a. This task does not establish a hardware configuration control program. Hardware requirements are beyond the scope of MIL-STD-1379. Hardware requirements are addressed through other standards and agency directives.

   b. When your agency or activity has an established training program materials configuration control and management program, you may not require this subtask. You might, however, have to include an alternate task description that identifies any special or unique information the contractor should provide to support the agency's configuration control program.

40.4.1.4 Subtask 102.2.4. Subtask 102.2.4 tasks the contractor to develop the approach, procedures and management controls that will be required to properly integrate changes or revisions of training program materials, such as adding ICW training materials, into existing course curricula. This planning should also address integration of new

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training resources and technologies into the existing course materials and instructional methodologies. The subtask produces a training system integration plan element.

40.4.1.5 Subtask 102.2.5. Subtask 102.2.5 tasks the contractor to develop a management plan for constructing individual test items and for test design. The plan should address planning, designing, and development factors for all test items and tests. It should also describe the overall testing strategy to be employed in the ICW. This issue should be addressed in the SOW.

40.4.1.6 Subtask 102.2.6. This subtask is only required if you want the contractor to determine in-process review requirements. Since Table B-2 suggests IPR requirements, you should not normally, need to cite this subtask. It is applicable to DD/I contracts however, if you elect to have the contractor make IPR determinations. The resulting IPR schedule is deliverable data identified in DI-ILSS-81070.

40.4.1.7 Subtask 102.2.7. Subtask 102.2.7 produces a milestone and time phase chart of the requirements in Subtask 102.2.1. The chart and the narrative produced by Subtask 102.2.1 are somewhat redundant. You might consider deleting milestones and time phasing descriptions from Subtask 102.2.1 in favor of Subtask 102.2.7. If Subtask 102.2.1 will not be tailored, you should consider whether or not Subtask 102.2.7 is necessary. The data produced by Subtask 102.2.7 is not a deliverable data that is required to accomplish DD/I requirements. Training development milestones is a discrete output of Subtask 102.2.7 (Task Output 102.4.5) which can be input to other DD/I task descriptions where necessary.

40.4.1.8 Subtask 102.2.8. Whether or not Subtask 102.2.8 is required will be determined by your agency's requirements. The work of this subtask produces an Individual Training Plan (ITP) which is deliverable data under a separate, subtask-specific DID. The ITP provides information concerning the Government's long range plans affecting a particular occupational skill area and category of personnel. This subtask does not produce data used to develop the material system and equipment training. Rather, the data provides a broad brush stroke of the occupational skill area duties and responsibilities. If you are considering including this subtask, be sure you review the ITP DID, DI-ILSS-81071 before making a final determination.

40.4.1.9 Subtask 102.2.9. Performance of Subtask 102.2.9 results in a plan for validation of all training materials, test items and tests. The validation plan establishes the contractor's ongoing, continuous review and validation of training materials, test items, and tests throughout the training program design and development process.

40.4.1.10 Subtask 102.2.10. This subtask requires the contractor to develop an internal surveillance plan for assuring complete and accurate performance of SOW work descriptions, and delivery of a quality product. This plan is deliverable data and should correlate with the quality control program developed under Subtask 102.2.11.

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40.4.1.11 <u>Subtask 102.2.11</u>. This subtask requires the contractor to develop a quality control (QC) program and identify quality indicators and controls which will assure work performance and deliverables meet contract requirements. The QC program description is deliverable data and should work in conjunction with the internal surveillance program.

40.4.1.12 <u>Subtask 102.2.12</u>. Subtask 102.2.12 would be appropriate for DD/I contracts supporting an emerging material/weapon system, since it requires integration of LSA, integrated support and training development planning efforts. Citing this subtask in a DD/I contract supporting an established system would require that you also address MIL-STD-1388-1 and MIL-STD-1388-2 requirements in your SOW, and is not recommended. This subtask may be applicable to your DD/I contract depending upon agency directives and subtask tailoring, such as striking out "logistics support analysis (LSA) plan and." This tailoring would require integration of integrated support plans and training development planning.

40.4.1.13 <u>Subtask 102.2.13</u>. This subtask is required when your contract will allow the prime contractor to subcontract work requirements. It would also apply to "teaming" arrangements between contractors, since one would be the prime and the others subcontractors. The intent of this subtask is to identify subcontractors and the major work tasks each will perform, and to define the management procedures and controls that will be used to administer subcontractor performance. This information is deliverable data.

40.4.1.14 <u>Subtask 102.2.14</u>. This subtask is necessary to identify and document the relationship between SOW task requirements and the contractor's work breakdown structure. It also defines the management processes and controls for cost and progress reporting. Data produced by this subtask is deliverable data.

40.4.2 <u>Proposed GFI</u>. Because the suggested approach to ICW training program acquisition is through separate FEA and DD/I efforts, performing Task 102 in the DD/I effort will require input data not identified in Task Input 102.3.1 of the task. There are other inputs required that provide agency/activity policy and guidance information.

a. The FEA documents and reports are necessary to support developing the various program development and management plans. These documents are identified in 30.2.1.

b. Government furnished information (GFI) input requirements are identified and described in 30.2.2 through 30.2.8. These information requirements should be input to task 102 where they apply to the particular DD/I requirement.

c. Government furnished property (GFP) should not be required to perform Task 102. Knowing what GFP will be provided is needed. You should provide a listing and description of any GFP not identified within the contract, itself.

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d. *Government furnished support (GFS) may or may not apply to your particular DD/I effort. However, if GFS will be provided, it should be identified for planning purposes.*

40.4.3 <u>Task performance data</u>. Contractor performance of Task 102 produces planning data. Each subtask in Task 102 results in or supports development of specific plan elements that are defined in the DIDs supported by this task: DI-ILSS-81070, Training Program Development and Management Plan and DI-ILSS-81071, Individual Training Plan.

40.4.3.1 <u>Training Program Development and Management Plan elements</u>. The planning elements necessary to support a DD/I contract are related to the management of work performance, and cost and progress reporting — contract management planning elements -- and training program development plan elements. Plan elements produced by the work tasks described in 40.4.1 and the kinds of information these elements should contain are described in subsequent paragraphs sequenced according to how the data elements appear in the DID. The relationships between specific subtasks and specific paragraphs of the DID are shown in Table B-1.

40.4.3.1.1 <u>Government and contractor coordination process</u>. This plan element describes the process to used in planning, developing and acquiring program resources necessary for accomplishing contract requirements. It should clearly define information flow established and necessary for effective communication between Government and contractor personnel, and identify decision authorities within the program management hierarchy. This element should define Government SME support requirements and scheduling, and identify requirements for validation of technical data procedures supporting tasks which may require ICW training materials.

40.4.3.1.2 <u>Contractor's management system</u>. This element should clearly define the contractor's internal management, surveillance, and production control system that will be used to manage and control performance of SOW requirements. This section of the training program development and management plan is often referred to as the "technical approach" element – how the contractor intends to comply with the specifications and statements of work in the contract. This portion of the development and management plan should be subjected to a very careful review to assure the technical approach and management processes are realistic to the contract requirements, and that the contractor's methods reflect up to date commercial practices using current ICW design and development technologies.

a. The plan information should clearly explain how the management system is applied toward specific contract requirements and the relationship of those requirements to the development of the overall management plan. This element should describe how the contractor's management system will assure that each DD/I performance task is properly accomplished, accounted for, and accurately documented according to CDRL and associated DIDs.

b. The design and development of ICW instructional modules/lessons is generally more efficient when a development team approach is used, especially when the total program ICW requirements are extensive. Establishing teams of two or three people to design and develop ICW instructional materials generally produces courseware in fewer total manhours, yet produces a more complete, higher quality product. Two or more teams may be used to design and develop separate ICW materials. However, the best results are achieved when both the design and development are accomplished by the same team members rather than establishing a "design team" and a "development team" approach. While a team concept is more productive for design and development, a single Quality Assurance function responsible for all instructional materials should be used to assure consistency of the final ICW materials.

c. Although producing the ICW module/lesson flow diagram is considered a design function and producing the related script-storyboards is part of development, developing the lesson flow diagram and related script-storyboards consecutively by module/lesson is, generally, more efficient than producing the flow diagrams and script-storyboards independent of each other. The module/lesson design flow diagram and its supporting script-storyboards should also be reviewed as a package; make sure the lesson design works on paper before committing to the more expensive aspects of ICW development.

d. Several new video and graphics technologies have appeared in the commercial market which offer more efficient ICW design and development processes. Newer graphics scanners and graphics board technologies, for example, allow the developer to scan an existing picture or drawing and capture it as a graphic file. Using this technology in ICW development can greatly reduce the effort required to develop graphic screens where a picture or drawing already exists. Once converted to a graphic image, the picture or drawing can be altered using an appropriate graphics software program. There are other video and graphic technologies which can be used to reduce the workload associated with ICW design and development.

40.4.3.1.3 Subcontractor management. Subcontractor management planning information includes identification of each subcontractor, the work tasks each will be responsible to perform and the prime contractor's management and quality control system for assuring subcontractor work meets schedule and quality requirements. This plan element should include provisions for periodic audit of both the subcontractors and contractor's activity responsible to manage subcontractor performance.

40.4.3.1.4 Management system and SOW requirements cross-reference. The cross-reference plan element graphically depicts the relationship(s) between each element of the contractor's management system to each contract performance requirement. This element should clearly show the relationship of each management system requirement to a

contract performance need without undue management layering or redundant/duplicative management structures.

40.4.3.1.5 <u>Incremental training program validation system</u>. This portion of the plan establishes the training materials, test item, and test validation process and management system. The purpose of this plan element is to assure al materials, test items, and electronically administered ICW tests are technically (in relation to the training subject) and instructionally valid. The validation plan should establish an ongoing, continuous validation. effort that is integrated with the internal surveillance and quality assurance plans.

40.4.3.1.6 <u>Resource requirements</u>. This element should identify and describe the resources (contractor or Government supplied), data requirements, procedures, and milestones and time phasing required to perform each contractor training development task, and the interrelationship of each task to other contractor tasks. This plan element should be an overall "master plan" of the activities and resources that will be applied to the contract effort, and the results of that effort.

40.4.3.1.7 <u>Management diagram</u>. This plan element should be a block diagram of the contractor's management and control activities involved in accomplishing contract requirements. This element, described in paragraph 10.3.2.8 of DI-ILSS-81070, graphically shows information presented in the narrative description of the management system and, therefore, may not be needed to support your DD/I contract management requirements.

40.4.3.1.8 <u>Responsible authority</u>. Identification of the contractor's organizational element having the overall responsibility and authority for accomplishing contract requirements should be in this element. It should separately identify the elements that have technical authority and those which have contractual authority when these lines of authority are separate entities.

40.4.3.1.9 <u>Milestone chart</u>. A milestone and time phasing chart (such as, Gantt or PERT chart) depicting all program task requirements is provided by this plan element. Since this chart is redundant to other plan elements, you might consider either tailoring paragraph 10.3.2.7 of DI-ILSS-81070 to delete (the narrative description of) milestones and time phasing data requirements, or completely tailor out this chart requirement (DID paragraph 10.3.2.10).

40.4.3.1.10 <u>Data interchange management</u>. This plan element describes the methods and procedures that will be used to assure appropriate interchange of analysis and design data. It should describe interchange mechanisms between the contractor organizational element responsible for developing the ICW training program and any other organizational elements impacting and affecting the development process.

40.4.3.1.11 Requirements integration. The contractor should describe how the integration of training program development requirements with the material system and equipment development and SOW requirements will be accomplished. This plan element should also describe how the integrated information will be processed to the organizational elements that need this information.

    a.   This data element should be tailored when the ICW DD/I effort supports an existing material system and equipment. References to the "material system/equipment" should be deleted from the DID except when the ICW program will support an emerging system/equipment.

    b.   Tailoring should not, normally, eliminate the requirement to describe how training development requirements will be integrated with scope of work requirements -- how ISD/SAT process requirements will be accomplished to meet the scope of work.

40.4.3.1.12 LSA data integration. This plan element should only be retained in the deliverable data when the ICW program supports an emerging system/equipment. This plan element addresses management procedures used to assure LSA and engineering design data elements produced by MIL-STD-1388-1 and MIL-STD-1388-2 are integrated with training development. When the ICW program supports existing systems and equipment, this portion of DI-ILSS-81070 (paragraph 10.3.2.13) should be tailored out.

40.4.3.1.13 Quality assurance (QA). The QA procedures and management processes established to assure all work tasks are performed correctly and deliverables meet established criteria should be provided in this plan element. It is important to assure the QA system specifically addresses each and every work task in the SOW and all deliverable data identified in the CDRL.

    a.   The QA process should verify that related task activities are properly documented in applicable analysis reports and that technical procedures for tasks tentatively identified for ICW training have be validated prior to completion of the Instructional Media Design, Task 211.

    b.   The quality assurance plan should include control elements that address correlation of FEA documents to media and media features selection, and which address all policy and guidance requirements provided in the GFI (see 30.2).

40.4.3.1.14 Configuration control plan. The approach, procedures, and management process for follow-on configuration control of the interactive courseware and instructional software are acquired under this portion of the development and management plan. ICW configuration control requirements are described in 5.6.2 of the handbook, including descriptions about ICW hardware, software and the courseware. The configuration control

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plan contents and procedures should address those elements in 5.6.2, plus any others unique to the particular ICW training program being designed and developed.

40.4.3.1.15 New course materials/resources integration plan. This portion of the development and management plan is the integration plan. The integration plan defines the approach, procedures, and management controls that will be applied to integration of the final ICW into existing course curriculum. The plan should address new training equipment technologies and instructional technologies being integrated by the ICW materials being procured under the DD/I contract this plan supports.

40.4.3.1.16 IPR schedule. When you require the contractor to establish the in-process review schedule, it is delivered as a plan element in accordance with DI-ILSS-81070, paragraph 10.3.2.10. This element should not normally be required however, for the reasons cited in 40.4.1.6.

40.4.3.1.17 Key personnel. The key personnel plan element identifies both Government and contractor key personnel. It lists each key individual, and identifies their tasks and responsibilities in training program management. The personal actions required of each key person to ensure a successful DD/I effort is also identified. Interrelationships between the various personnel and their respective organizational elements is defined. The listing of key personnel should be easily compared to the management diagram described in 40.3.1.7.

40.4.3.1.18 Training system integration. The training system integration portion of the development and management plan is a schedule of activities and events outlined in the integration plan described in 40.4.3.1.15. The schedule includes all phases of development and delivery of the ICW training program.

40.4.3.1.19 Cost data. The cost data portion of the training program development and management plan provides a price/cost analysis with all necessary supporting data. Costing information should address all training program requirements applicable to the DD/I contract scope of work. Cost data in this portion of the development and management plan includes the price of training per student hour, instructor per diem and travel, overhead costs, administrative costs, and coordination and other direct and indirect costs. Required elements of the cost data include:

a. A price matrix representing both preparation and presentation of the ICW training program.

b. The price per student hour for each type and level of training.

c. The cost of required training materials including preparation, reproduction, handling and administration, new or modified facilities, and any other costs attributable to training program preparation. This portion of the cost data should

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clearly indicate any cost avoidance achieved through the Government furnished support items described in 30.4.

d. The estimated cost of new or modified facilities. Note that this particular element of cost data duplicates cost data provided in the preparation costs. You should review both of these data elements of DI-ILSS-81070 and tailor one or the other out.

e. The last cost data element concerns the estimated cost of modified or new training equipment required to support the training program. Since this data would be difficult to estimate without first completing the media and media features selection done by Task 204, and since the media features analysis includes a cost analysis, you may want to consider tailoring out this particular data element. Otherwise, you should probably defer delivery of this data until it can realistically be supplied.

40.4.3.2 Individual Training Plan, DI-ILSS-81071. The Individual Training Plan (ITP) results from performing Subtask 102.2.8 of Task 102. This particular data item is service-specific, for the most part. Unless your agency or service has established a requirement for ITPs, neither the subtask nor this DID would be required to support your ICW DD/I contract. In fact, this deliverable data has no bearing upon ICW design and development requirements.

40.5 Training Development Control, Task 103 (In-process review). Task 103 should be cited again at this point in the SOW when you: (a) determine an IPR will be conducted after completion of the Training Program Development and Management Plan, and (b) you want the contractor to support the IPR. Under these conditions, the following three (3) subtasks from Task 103 should be included at this point in the SOW. As shown in Table B-2, an IPR is recommended following completion of the training program development and management plan.

40.5.1 Subtask 103.2.8. Subtask 103.2.8, Develop conference agenda, tasks the contractor to prepare an agenda for the IPR. You may not desire and agenda for the IPR, however, and one isn't essential to the conduct of an effective IPR.

40.5.2 Subtask 103.2.10. When included in the SOW, this subtask requires the contractor to support and participate in the IPR. The SOW should clearly state whether the IPR will be conducted at the contractor's facilities or Government facilities.

40.5.3 Subtask 103.2.9. Subtask 103.2.9, Develop conference minutes, is cited to require the contractor to develop minutes of the IPR. A copy of the "red-lined" document(s) should be an attachment to these minutes. Be sure to include review and approval procedures for the minutes in the SOW.

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40.5.4 <u>Task performance data</u>. Data produced by the IPR will be the minutes of the IPR and a "red-lined" copy of the Training Program Development and Management Plan, DI-ILSS-81070. Requirements and procedures for correcting the marked up plan and routing of the corrected document for review and approval should be identified in the SOW paragraph that contains Task 102 requirements. Agency policy and guidance concerning approval and update procedures should also have been provided as GFI (see 30.2.5).

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50. ICW DESIGN TASK DESCRIPTIONS FOR THE DD/I CONTRACT SOW

50.1 Introduction. This section of Appendix B provides guidance and information on the process and decisions used to determine which MIL-STD-1379 task descriptions and data items are required for the design of ICW training programs. MIL-STD-1379 Tasks 204 through 211 are described in detail. Tailoring considerations for both the task descriptions and the data items produced by them are also presented. MIL-STD-1379 task description requirements are presented in the same sequence as they should appear in the DD/I contract SOW. In-process review (IPR), preliminary design review (PDR), and critical design review (CDR) requirements are presented and described within the sequence of MIL-STD-1379 task descriptions according to the sequence recommended in Table B-2.

50.2 Tests for Measurement of Personnel Achievement, Task 205. The purpose of this task is to develop the test items and tests required to measure personnel knowledge and skills.

50.2.1 Subtasks applicable to DD/I contracts. Additional subtasks are suggested to address test requirements unique to ICW electronically administered tests.

50.2.1.1 Subtask 205.2.1. This subtask requires the contractor to develop test items that measure personnel attainment of knowledge and skills, and prescribes parameters applicable to test item development. Test item parameters are prescribed in Subtasks 205.2.1.1 through 205.2.1.10.

a. Actual electronic test item development occurs in Task 301, Instructional Media Development. For knowledge test items, this process simply involves developing the video frames or graphic screens that present individual test items to the trainee, and programming the ICW testing routines that will select appropriate test items from the item pool, present them to the trainee, and score the response. Performance simulation tests will actually be designed and developed during Tasks 211 and 301 according to the design criteria and performance standards produced in Subtask 205.2.2.

b. Test items developed and validated during performance of Task 205 should be grouped according to individual and module/lesson objectives to form the test item pools required for development of the electronically administered tests during performance of Task 301.

50.2.1.2 Subtask 205.2.2. This subtask develops written, performance and electronically administered tests which have test parameters defined in Subtasks 205.2.2.1 through 205.2.2.7.

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a. Because of the way ICW training program materials are designed, developed, and implemented, ICW electronically administered performance tests (performance simulations) are not actually developed at this point in the ICW DD/I process.

b. ICW electronically administered performance test criteria is established during performance of this task description. Performance test simulations and performance standards should be described by performance of Task 205 subtasks, to include identification of appropriate simulation error criteria.

c. Criteria for the design and development of ICW electronically administered tests is input to Task 211, where the ICW tests are actually designed and incorporated into the course, and module/lesson flow diagrams. The ICW tests will also be addressed during design of the computer managed instruction (CMI) management system where test results are used to control trainee progress through the instructional materials, and to prescribe training paths according to trainee test results.

50.2.1.2.1 ICW specific clarification. There are several test parameters which should be clarified in this part of the ICW DD/I contract SOW. The following clarifying remarks should be contained within the SOW to identify these parameters.

"ICW Test Parameters. ICW tests shall conform to the requirements of MIL-STD-1379 Subtask 205.2.2, and shall have the following parameters.

a. Simulated performance tests. A simulated performance test shall provide a two-dimensional or three-dimensional simulation of the required job task performance. The test shall simulate the on-the-job environment, and require the trainee to interactively complete the simulation through the application and synthesis of knowledge and skill objectives presented in the instructional materials to perform the simulated job task to established performance standards.

b. Simulated part-task performance tests. Simulated part-task performance tests shall measure critical sub-sets of job task performance. Simulated part-task performance tests shall meet the same construction criteria as simulated performance tests.

c. Heuristic tests. Heuristic or discovery tests shall present problem-solving simulations which shall emulate the on-the-job environment, and shall present the trainee with stimulus information which is inadequate, incomplete, ambiguous, or irrelevant to the simulated environment. The trainee shall be

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required to synthesize knowledge and apply training received in order to solve the job performance simulation.

d.   Simple gaming tests. Simple gaming tests shall present the trainee with fill-in-the-blank, multiple choice, matching, completion, and true/false test items formatted and presented in a gaming style."

50.2.1.3 <u>Subtask 205.2.3</u>. This subtask requires the contractor to validate the test items developed in Subtask 205.2.1. Validation of the test items should be accomplished according to the validation plan developed in Task 102, and acquired by DI-ILSS-81070.

a.   When you require a formal report on test item validation results, you will have to include the appropriate subtasks from Task 402, and cite applicable portions of DI-ILSS-81105 which define test item validation data.

b.   Test item validation data is a discrete task output product which could be reviewed during an IPR and delivered later in conjunction with the test validation completed during Task 301, and acquired by DI-ILSS-81105 at that time.

50.2.1.4 <u>Subtask 205.2.4</u>. This subtask requires the contractor to validate tests. ICW electronically administered tests are validated following test development in Task 301. Subtask 205.2.4 should not be included in the SOW.

50.2.1.5 <u>Subtask 205.2.5</u>. Subtask 205.2.5 develops directions and definitions used by test administrators to conduct the test, and by trainees who are taking the test. This administrative information is used to develop test instruction screens for the trainee and test administration information provided in the ICW Manager's Guide developed in Task 303.

50.2.1.6 <u>Subtask 205.2.6</u>. This subtask requires the contractor to develop job performance improvement program test item prescriptions. When you include this subtask in the DD/I SOW, you have to provide guidance on how this task is to be accomplished (see 30.2.4.7d).

a.   Test item prescriptions identify tutorial and remedial information prescriptions based upon the trainee's answer to a specific test item. Test item prescriptions are necessary for development of pretests used to determine the trainee's instructional path through the ICW materials.

b.   Test item prescriptions can be obtained to support pretesting criteria without an established job performance improvement program by simply tailoring "job performance improvement program" out of this work statement. Test item prescriptions are among the identified deliverable data element in DI-ILSS-81085,

Test Package. It is also a discrete task output (Task Output 205.4.7) which can be input to Tasks 211 and 301 for design and development of the ICW tests.

50.2.1.7 Subtask 205.2.7. Performance of Subtask 205.2.7 produces a cross-reference matrix of test items to learning objectives to training tasks to job tasks. This cross-reference matrix is used throughout ICW DD/I task descriptions that remain to be accomplished.

50.2.1.8 Subtask 205.2.8. This subtask develops test answer keys capable of being scored manually or electronically. The test answer keys developed for ICW electronically administered tests should not include any of the simulated performance tests.

50.2.1.9 Subtask 205.2.9. This subtask is redundant to Subtask 205.2.1.10 requirements and should not be included in the DD/I SOW.

50.2.2 Proposed GFI. Performance of Task 205 work may require additional input data. Agency policy and guidance on test and measurement criteria (see 30.2.4.7) is required. The approved Media Selection Report, DI-ILSS-81084 is also needed because of the media features analysis data that pertains to performance test simulations and other testing strategies. The discrete Task Outputs 102.4.4, Training test design data, and 102.4.7, Planning data for test item, tests and training materials validation, may also be required to accomplish Task 205.

50.2.3 Task performance data. The deliverable data produced by performing Task 205 is the test package prescribed by DI-ILSS-81085. This DID will require considerable tailoring to prescribe the test items and electronically administered tests required for ICW programs.

a. Test booklets should be tailored to delete "booklets" throughout the DID paragraphs that will be retained.

b. DID paragraph 10.3.2, General test requirements, should be tailored to delete the second sentence. The last sentence in this paragraph "Administrator . . . include:", and subparagraphs a and b should also be tailored out. Test administrator information for ICW tests is included in the ICW manger's guide.

c. DID paragraph 10.3.3.2 should be tailored to delete "Written" from the phrase "Written test items" everywhere this phrase occurs. Subparagraphs c and d should also be deleted, as these type of test items are inappropriate for ICW.

d. DID paragraphs 10.3.4.1a and 10.3.4.1.1 should be deleted, since ICW tests do not require a cover.

e.   DID paragraphs 10.3.4.1.3 and 10.3.4.1.4 should be reviewed for applicability to your agency/activity. These paragraphs prescribe performance test materials based upon a written test package.

f.   DID paragraph 10.3.4.2.3.1 c and d, paragraph 10.3.4.2.3.1.3, and paragraph 10.3.4.2.3.1.4 pertaining to completion and essay test items should be deleted from the DID. ICW testing does not normally include these kinds of test items because of the complex computer programming required to support them.

g.   DID paragraph 10.3.4.2.3.1.2 b should be deleted. This paragraph prescribes a paper-based format.

h.   DID paragraph 10.3.5 should be tailored to correlate with tailoring actions in preceding DID paragraphs, and to meet agency requirements.

50.3 <u>Lesson Specifications Development, Task 210</u>. The work performed during lesson specifications development produces lesson specifications that identify subject matter content, training strategies, and learning activities required to achieve the training task requirements and learning objectives. The lesson specifications build upon the training task analysis and learning analysis accomplished during the FEA, and form the basis for (ICW) instructional media design in Task 211 and instructional media development in Task 301.

50.3.1 <u>Subtasks applicable to DD/I contracts</u>. The work descriptions contained in the subtasks of Task 210 are intentionally broad to accommodate differing service-specific requirements. The actual content of much of the data resulting from performing this task will be determined by the policy, guidance, and other GFI you provide to support the ICW DD/I contract effort (see 30.2, 30.3, 30.4).

50.3.1.1 <u>Subtask 210.2.1</u>. Performance of Subtask 210.2.1 produces an overview of each lesson in the training course, to include why the lesson is needed and how it is related to the total training system. The data produced by this subtask is identified in the Lesson Specification Report, DI-ILSS-81090, only in board terms. Consequently, it is recommended that you clearly state in the SOW the specifics relative to the desired output for the ICW program.

50.3.1.2 <u>Subtask 210.2.2</u>. This subtask produces top level flow diagrams showing the sequence and relationships among topics within the sections, and objectives within the lessons. These flow diagrams are not deliverable data, either, but are an identified discrete task output data element (Task Output 210.4.4). These diagrams support Task 211 instructional media design requirements.

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50.3.1.3 <u>Subtask 210.2.3</u>. Subtask 210.2.3 tasks the contractor to develop a training support requirements matrix. The matrix provides a summary of resource requirements related to the lesson specifications developed by Task 210.

50.3.1.4 <u>Subtask 210.2.4</u>. Performance of Subtask 210.2.4 results in a definition of the course substance required to support each of the learning objectives. These definitions should include the type of behavior and the training strategies required to achieve each learning objective. Since the term "substance" covers a wide variety of things, it is suggested that the user of this handbook create a statement in the SOW which calls for development of these specific tests using Subtask 205.2.2 as the authorizing document. The following wording is recommended:

"The term "substance" covers many things, we interpret this term to include:

- Specifications of examples, practice exercises, tests, and test items that support each lesson.

- Specifications of ICW testing conditions and criteria.

- A description of each type of instance to be included in ICW lesson examples, practices, and electronically administered tests. Instances should incorporate the results of common error analysis, and address the full range of possible situations feasible in the training and operational environments. Instances include examples and non-examples which are representative of the information, cues and procedures occurring in the training and operational environments." (This addresses the requirement for development of data specified by paragraph 10.3.3g of DI-ILSS-81090).

50.3.1.5 <u>Subtask 210.2.5</u>. This subtask requires the contractor to identify the potential for interservice use of the lesson specifications. Data produced by this subtask is a discrete task output (Task Output 210.4.3) and is deliverable data as defined by DI-ILSS-81090, Lesson Specification Report.

50.3.2 <u>Proposed GFI</u>. Input the approved versions of the indicated reports and documents, and the GFI identified in 30.2.

a. Input the approved Media Selection Report, DI-ILSS-81084. The entire report is preferred over discrete data because of the media and media features analysis data in the report. The analysis data should be available to support developing the lesson specification training strategies and specification data required by the three added work descriptions.

b. Input the approved Test Package, DI-ILSS-81085, to support development of the lesson specifications identified by the added work descriptions.

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c. Input the approved Training System Functional Characteristics Report, DI-ILSS-81088. This report contains information required to develop lesson specifications which is not contained in the discrete data elements.

50.3.3 **Task performance data**. Performance of Task 210 produces the data elements described in DI-ILSS-81090, Lesson Specifications Report. The data elements described in the DID parallel the work descriptions in the subtasks described in 50.3.1.

50.3.3.1 **Lesson overview data**. A part of discrete Task Output 210.4.2 supports performance of Tasks 211, 301 and 303. You should specifically call attention to this portion of the discrete task output in the DD/I SOW, as follows:

"Task Output 210.4.2. Lesson overview data (Subtask 210.2.1)
becomes a portion of discrete Task Output 210.4.2 and is required to
support the performance of Tasks 211, 301, and 303."

50.3.3.2 **Lesson Specifications Report, DI-ILSS-81090**. The Lesson Specifications Report data should be tailored to coincide with tailoring of the subtasks of Task 210. The lesson specifications produced by Task 210 provide the lesson content and instructional strategy information required to design and develop the ICW instructional media materials.

a. Most of the report content will be incorporated into and made available in the Instructional Media Design Report, DI-ILSS-81091; the Instructional Media Package, DI-ILSS-81092; the Instructional Media Data Files, DI-ILSS-81093; and the Training System Utilization Handbook, DI-ILSS-81096 (ICW Manager's Guide and and ICW User's Guide). You might want to consider not identifying the lesson specifications report in the CDRL as a deliverable document.

b. When the Lesson Specifications Report is not a deliverable, the discrete task outputs identified in Task Outputs 210.4.2 (see 50.3.3.1), 210.4.4, and 210.4.5 should be required inputs to Task 211, Instructional Media Design; Task 301, Instructional Media Development; and Task 303, Training Materials for Instructors.

50.4 **Training Development Control, Task 103 (In-process review)**. Task 103 should be cited at this point in the SOW to require contractor support of an IPR of the lesson specifications. As shown in Table B-2, an IPR is recommended following completion of the lesson specifications report. An IPR is recommended because these specifications are the basis for completing the ICW design in Task 211, and for development of the instructional materials. The lesson specifications will also be used to develop the ICW implementation and evaluation plans. Test items and test design and development criteria produced by Task 205 may be included in this IPR. Any other documents and reports produced since the last IPR can also be included.

50.4.1 <u>Subtask 103.2.8</u>. Subtask 103.2.8, Develop conference agenda, tasks the contractor to prepare an agenda for the IPR. You may not desire an agenda for the IPR, however, and one isn't essential to the conduct of an effective IPR. When an agenda will be developed, you should indicate in the SOW what specific areas are to be addressed during the IPR.

50.4.2 <u>Subtask 103.2.10</u>. This subtask requires the contractor to support and participate in the IPR. The SOW should clearly state whether the IPR will be conducted-at the contractor's facilities or Government facilities.

50.4.3 <u>Subtask 103.2.9</u>. Subtask 103.2.9 requires the contractor to develop minutes of the IPR. A copy of the "red-lined" document(s) should be an attachment to these minutes. Be sure to include minutes review and approval procedures in the SOW.

50.4.4 <u>Task performance data</u>. Data produced by the IPR will be the minutes of the IPR and a "red-lined" copy of the Lesson Specifications Report, DI-ILSS-81090. If the IPR also addressed test items and test design, a "red-lined" copy of the Test Package, DI-ILSS-81085, should also be an attachment. Requirements and procedures for correcting the marked up documents, and routing of the corrected document for review and approval should be identified in the SOW. Agency policy and guidance concerning approval and update procedures should also have been provided as GFI (see 30.2.5).

50.5 <u>Instructional Media Design, Task 211</u>. This is the principle ICW design task. Performance of this task results in the design of the ICW course, lessons, and electronically administered tests. This task defines computer managed instruction (CMI) requirements of the ICW. It also establishes the conventions that will be used in ICW design and development when you do not have any established agency ICW conventions policy and guidance, or an ICW style guide. Task 211 uses the approved design strategies, CMI requirements, and the design and development conventions to develop comprehensive flow diagrams (FD) of the approved courseware design and instructional strategies. The ICW Fds depict and define the instructional paths, and branching strategies of the ICW course, lessons and electronically administered tests.

50.5.1 <u>Subtasks applicable to DD/I contracts</u>. All Task 211 subtasks are normally included in an ICW DD/I contract. When tailoring to support specific ICW program requirements is necessary, it should usually be accomplished in the applicable DIDs rather than the subtasks, since the deliverable data content is much broader in scope. You will note that some subtasks are presented out of their MIL-STD-1379 task description numerical sequence. These subtasks are shown in the recommended work performance sequence to aid in developing the DD/I contract SOW.

50.5.1.1 <u>Subtask 211.2.1</u>. Subtask 211.2.1 requires the contractor to develop ICW conventions to be used in the ICW design and development. This task should be tailored out when you provide agency guidance or a style guide.

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50.5.1.2 Subtask 211.2.2. This subtask develops the ICW course map which will define how the instructional materials are interrelated to overall course objectives and to each other.

50.5.1.3 Subtask 211.2.4. Subtask 211.2.4 develops the ICW course design strategy. The course design strategy determines how the trainee will be allowed to proceed through the instructional program materials outlined in the course map.

50.5.1.4 Subtask 211.2.5. Performance of this subtask produces the lesson design strategies. Lesson design strategies identify the instructional strategies and methodologies required to achieve the lesson learning objectives. Lesson design strategies include instructional pathways, tutorial and remedial paths, and strategies for presenting knowledge and skill instruction and simulation.

50.5.1.5 Subtask 211.2.8. This subtask develops the electronically administered ICW test design strategies. It is performed after Subtask 211.2.5, and before Subtasks 211.2.3, 211.2.6, and 211.2.7 because the data produced by Subtask 211.2.8 is required to perform the work in Subtasks 211.2.3, 211.2.6, and 211.2.7. The work statement in Subtask 211.2.8 is very general and may not provide enough work description detail.

50.5.1.5.1 Subtask 211.2.8 tailoring. The following description, tailored to meet your specific agency requirements, is recommended for inclusion in your SOW. This tailored subtask description provides a more specific description of the work required to develop ICW electronically administered test design strategies.

"Subtask 211.2.8 (tailored). Develop electronically administered interactive courseware test design strategies. Test design strategies shall:

a. Conform with service specific testing criteria, and test design policy and guidance.

b. Incorporate test design criteria identified in Task Outputs 102.4.4, 205.4.7, 208.4.2, and 210.4.2.

c. Include diagnostic features that shall prescribe remediation according to trainee test item responses.

d. Randomly select test items from a pool of test items which are equivalent in format, content, degree of difficulty, and cumulative test validity. Identify the minimum number of test items to be selected from the pool which is necessary to assure adequate measurement of each learning objective.

e.   Randomly select variable elements of a performance scenario in order to provide a variety of scenario combinations. Performance scenario variables shall be consistent in degree of difficulty and shall be representative of common error analysis findings.

f.   Index individual test items to the module/lesson and learning objective using a test item discrete numbering system. Index numbering shall allow retrieval of test data for test item analysis, and test analysis by module, lesson, and learning objective."

50.5.1.6 Subtask 211.2.3. This subtask tasks the contractor to design an interactive courseware software system manager, or CMI function. It is best to have the CMI function design work performed after completion of the course, lesson and test design subtasks. This work sequence will assure that functional requirements of the CMI system have been identified. When available, agency policy and guidance information on CMI requirements would be addressed during performance of this work description.

50.5.1.7 Subtask 211.2.7. Subtask 211.2.7 is performed prior to Subtask 211.2.6 because the data produced by this subtask -- detailed Fds -- provide information necessary to accomplish the work of Subtask 211.2.6. Subtask 211.2.7 develops ICW detailed Fds with branching alternatives according to the design strategies developed by Subtasks 211.2.3, 211.2.4, 211.2.5, and 211.2.8.

50.5.1.8 Subtask 211.2.6. This subtask develops tentative media (ICW audio/video/graphics/art) production specifications. These specifications provide an estimate of the amount of production effort that will be necessary to develop the ICW.

50.5.1.9 Subtask 211.2.9. Subtask 211.2.9 requires the contractor to compile a listing of the reference materials used to develop the instructional strategies for the modules/lessons.

50.5.1.10 Subtask 211.2.10. Subtask 211.2.10 tasks the contractor to determine requirements for, and develop a listing of the adjunctive materials which will be necessary to support the ICW instructional designs.

50.5.1.11 Subtask 211.2.11. The ICW commands and interface mechanisms from the portability protocols contained in Appendix D, MIL-STD-1379 that are required and will be used to assure ICW portability are identified by this subtask. Because the portability protocols are susceptible to frequent updating, you should try to obtain a current version of the approved protocols and provide them as GFI.

50.5.1.12 Subtask 211.2.12. This subtask tasks the contractor to develop an abstract of the ICW training program.

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50.5.2 <u>Proposed GFI</u>. Performance of instructional media design work tasks may require more input information than is identified in Task Input 211.3 of Task 211.

50.5.2.1 <u>FEA documents</u>. When the ICW DD/I is accomplished separately from the FEA, the following FEA documents and reports should be provided:

a. The Mission, Collective, Individual and Occupational Training Task Analysis Report, DI-ILSS-81078; the Learning Analysis Report, DI-ILSS-81083, Training System Functional Characteristics Report, DI-ILSS-81088, and the Media Selection Report, DI-ILSS-81084, may be required to perform the ICW design and FD work descriptions.

b. Depending upon your particular service, you may also have to provide the Personnel Performance Profile (PPP) Tables, DI-ILSS-81079; Training Path Systems Report, DI-ILSS-81080; and Individual Training Standards, DI-ILSS-81081.

50.5.2.2 <u>ICW design documents</u>. The following approved ICW design documents should be used as data inputs instead of the discrete task output data identified in Task Input 211.3. These reports and documents contain analyses and other information beneficial to determining instructional design requirements. Approved documents you should consider are:

a. Approved Test Package, DI-ILSS-81085.

b. Approved Lesson Specifications Report, DI-ILSS-81090.

50.5.2.3 <u>ICW design task discrete outputs</u>. When you elect not to provide or identify the ICW design documents in 50.5.2.2 as input data for Task 211, the following discrete ICW design task outputs should be added to those listed in Task Input 211.3 of the task.

a. Task Output 102.4.4, training test design data.

b. Test items from Task Output 205.4.2 and tests from Task Output 205.4.3.

c. Test item prescriptions, whether or not the are developed to support the job performance improvement program, from Task Output 205.4.7.

d. Lesson overview data from Task Output 210.4.2 (see 50.3.3.1).

50.5.2.4 <u>Policy and guidance information</u>. Provide the available agency policy and guidance information described in 30.2.2, 30.2.3, 30.2.4, 30.2.5, 30.2.6, 30.2.7, and 30.2.8 as GFI to support the work requirements of Task 211.

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50.5.3 _Task performance data_. Performance of Task 211 produces a significant amount of data. While this data is prescribed in and acquired by a single DID, DI-ILSS-81091, management and control of the ICW design may require that the data be reviewed and approved incrementally. This would be especially important in DD/I contract SOWs that will result in large amounts of ICW training materials. An incremental review process should provide better control over the courseware design, and allow accomplishing these reviews in less time with fewer personnel. The overall quality of the reviews would also be improved.

50.5.3.1 _Intermediate preliminary design review_. Because the data produced by Task 211 is both critical to courseware development and significant in volume, you should consider conducting a preliminary design review (PDR) following Subtask 211.2.3 (see 50.5.1.6) which completes the work necessary to produce the data elements prescribed in paragraph 10.3.3, Design strategy, of DI-ILSS-81091.

a. If you elect to conduct a PDR following Subtask 211.2.3, the DD/I contract SOW should insert the appropriate subtasks from Task 103, Training Development Control, between Subtask 211.2.3 and Subtask 211.2.7. The purpose of the PDR would be to review and approve the ICW instructional design strategy.

b. An alternative approach to the review and approval of ICW design documents would be to prescribe the ICW design strategy as a separate deliverable document in the CDRL. The deliverable would consist of the content requirements in DI-ILSS-81091, paragraphs 10.3.1 – Front matter, and 10.3.3 -- Design strategy.

c. When an intermediate PDR is accomplished and a separate deliverable is specified, the remainder of Task 211 would be performed following the PDR, and the remaining data, ICW abstract and flow diagrams, would be deliverable after performance of the remaining Subtasks, 211.2.6 through 211.2.12.

d. An ICW design strategy PDR should assure the strategies are appropriate to the specific objectives. This PDR should assure that appropriate levels of interactivity are planned, and tutorial and remedial branching strategies are properly designed. The design strategy should be reviewed for logical order of the instructional presentation, and for appropriate and inappropriate student "cues" and feedback. The type and amount of student control over lesson progression should also be carefully evaluated to assure the design is not a simple yes or no, lock-step process. Be sure the design requires that students evaluate conditions and make decisions about the instructional materials being presented. Test designs should be checked to assure they conform to the test design criteria in 50.5.1.5.1 and 50.5.2.3.

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50.5.3.2 Instructional Media Design Report, DI-ILSS-81091. This DID prescribes the content requirements of the ICW abstract -- paragraph 10.3.2, the ICW design strategy -- paragraph 10.3.3, and the ICW flow diagrams -- paragraph 10.3.4.

50.5.3.3 ICW design strategy. Content of the ICW design strategy document is defined in paragraph 10.3.3 of DI-ILSS-81091. This portion of the Instructional Media Design Report clearly describes the courseware to be developed in Task 301. The design strategy includes the following data.

a. Course data includes the specific individual and collective training tasks being supported by the ICW, an estimate of the time required for a trainee to complete the lesson, estimates of the video/audio/graphic production necessary to develop the lesson, and any recommendations concerning lesson technical or resource requirements.

b. The section on curriculum references provides a complete listing of the reference documents used during design of the ICW materials.

c. ICW conventions data similar to the information shown in Figure B-3 would be provided when Subtask 211.2.1 (original or modified version) is included in the SOW. Conventions should be established for trainee interactions/inputs, testing, screen design and layout, general course design, text screen language style and grammar, feedback and remediation, and ICW authoring (computer function keys, file naming standards, on-screen prompts, helps, and cues, data storage management, and so on). This element of the design strategy document (DI-ILSS-81091 paragraph 10.3.3.4) should be tailored out when Subtask 211.2.1 is excluded from the SOW.

d. Safety hazards and conditions as defined in Appendix C of MIL-STD-1379 and applicable to the ICW training program are identified.

e. A listing of all learning objectives addressed through the ICW instructional materials should be provided. These objectives should be listed in the order they will be trained according to the course design, and should be cross-referenced to the training task numbers each objective supports.

f. Evaluation criteria that will be used to measure personnel achievement of the learning objectives and minimum performance standards for each is provided. Performance measurement information is organized according to the learning objectives supported, by module and lesson. Agency review should assure that the evaluation criteria conforms with any policy and guidance provided, and that the criteria is appropriate to the objective and required category of learning (see 30.2.4.6).

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g. The individual lesson content data element provides a description of the instructional sequence for each lesson, to include enabling objectives, learning activities and events, knowledge and skills required to achieve the objectives, and test items. The purpose of each lesson is also described. Review of this data should assure the lesson content and procedural processes addressed in the lesson are technically correct and are complete. You should also check for a logical presentation sequence for the enabling learning objectives, and assure the lesson design accurately depicts the approved lesson specifications.

h. ICW interface design and controls are another element of the design strategy. The interface designs should conform to those requirements identified in the approved Training System Functional Characteristics Report, DI-ILSS-81088. Assure that all necessary interface requirements have been addressed.

   (1) Trainee controls and path/pace variables should be consistent with the known, entry-level knowledge and skills, trainee's position within the course, and the level of learning required of the learning objective.

   (2) Instructor interactivity with the lesson should be consistent with trainee controls and the lesson specifications. You should tailor out instructor interactivity data elements for ICW applications which do not involve instructor assistance or intervention.

   (3) Portability protocol interface requirements should be verified against mandatory commands and interface mechanisms prescribed by Appendix D, MIL-STD-1379.

i. The training design strategies data element addresses each of the design strategies developed in Task 211 -- course, lesson, and test strategies. CMI design is addressed in another data element.

   (1) Course design strategies should adequately address the program requirements identified by the learning analysis and lesson specifications, and be appropriate for the target population occupational skill levels and learning environment. Course design should also be responsive to task performance factors and conditions.

   (2) Lesson design strategies should be consistent with the lesson specifications and correctly address the terminal and enabling learning objectives identified by the learning analysis. Lesson design should conform to the approved design conventions and provide levels of interactivity appropriate for the levels of learning necessary to achieve the learning objectives. Task performance factors and related tasks criteria should be reflected in the lesson design. Any lesson prerequisites, such as completion of other

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lessons or possession of certain qualifications should be verified and validated.

(3)   Test design strategies should reflect agency test and measurement criteria, and should incorporate test design factors identified during performance of Tasks 102, 201, 203, 205, and 210. Testing strategies should provide measurement techniques appropriate to the level of learning required by the learning objectives. Task performance simulations should be consistent with required performance standards. The design of instructional sequence prescription pre-tests should be carefully evaluated to assure they will provide instructional pathways appropriate for the trainee's demonstrated ability. Test item prescriptions produced by Task 205 should be incorporated into the overall test design strategy.

j.   Abnormal conditions to be simulated is another data element of the design strategy. This data element describes those abnormal conditions that will be presented by the courseware.

(1)   The selected abnormal conditions should reflect the results of the common error analysis and be consistent in content and complexity with the trainee's status and position in the course. Abnormal conditions should also be reflected in the test design strategy to support measurement of analysis and synthesis levels of learning requirements.

(2)   Abnormal condition simulations should follow the material system and equipment, or function operational hierarchy, beginning with broad, system-level conditions and working through to more complex problems involving application of all learning objectives to the level of detail required by job responsibilities.

k.   The materials data element provides a listing of the material being presented in the ICW training program, such as job reference documents and specific items of equipment. This listing is used to develop course control documents and the ICW manager's guide. It is also useful for updating the DITIS data base for the ICW program.

l.   A listing of adjunctive materials required to support the ICW instructional design is included in the design strategy data. The adjunctive materials listing should indicate the specific module or lesson the materials will support.

m.   Another element of the design strategy data is the tentative production specification. When the development of ICW design strategies will be accomplished separate from flow diagrams, this data element will not be produced until after completion of the detailed flow diagrams. This data element

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provides estimates of the production requirements for ICW program video/audio/graphics development and production facility support requirements. This information compiles the individual lesson production estimates and is the basis for the video shot and production plan developed in Task 301.

n. The course map data element identifies each module and lesson in the ICW training program and defines the interrelationships between the modules and lessons, and to overall course objectives. The listing should present module and lesson information in the presentation sequence prescribed by the ICW course design strategy. The presentation sequence described in the data element should be carefully checked to assure a logical presentation sequence. The interrelationships being described should also be validated.

o. The last data element in the design strategy is the CMI functions and control features. These should track with the course, lesson, and test design strategies. The CMI function design should conform with any agency policy and guidance concerning required CMI data elements, trainee control over courseware presentation, and other instruction presentation management criteria.

50.5.3.4 ICW flow diagrams. The ICW detailed flow diagrams are developed by Subtask 211.2.7 and are acquired by DI-ILSS-81091, paragraph 10.3.4. The flow diagrams contain the detailed logic processes necessary to implement the design strategies. Flow diagrams are the "road maps" that depict the course design strategy, and each module and lesson design strategy. Flow diagrams also incorporate test design strategies, especially task performance simulation tests.

a. The course design flow diagrams pictorially show the course design strategy and the course map developed by Subtasks 211.2.2 and 211.2.4. This flow diagram should show how the ICW training program will implement and control the trainee's progress through the courseware using validated module/lesson prerequisites and the test design strategy criteria.

b. Lesson flow diagrams present the courseware logic for each module and lesson, to include lesson design strategies, related tasks, feedback and remediation branching, tutorial branching, prompts and cues, and tests and test item relationships to the overall module/lesson.

c. Flow diagrams should depict, in exact detail, all primary and alternate paths through the course and each module/lesson. All training task activity/step decisions points should be shown to include branching as a consequence of the any decision the trainee enters (makes) into the system.

d. Flow diagrams should graphically show how the course and modules/lessons will work as a training system to accomplish the learning objectives. The flow

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diagrams should not show course or module/lesson progress or branching based upon any assumptions that the trainee has a required knowledge or has performed any process or related task correctly. All necessary processes and decisions should be depicted in the flow diagrams.

e. Flow diagrams should show processes and procedures that are technically correct in content and process, to include any related task activities, skills, and knowledge.

f. Flow diagrams should include notes or coding that indicates any conditions or prerequisites that must exist to support the decision processes or present appropriate cues to the trainee.

50.6 Training Development Control, Task 103, (preliminary design review). Task 103 should be cited at this point in the SOW to require contractor support of a PDR of the ICW Flow diagrams or, if not accomplished by a separate PDR (see 50.5.3.1), both the ICW design strategy and the flow diagrams. This PDR should also address the ICW abstract and any other data previously produced, but not yet subjected to an in-process review. As shown in Table B-2, a PDR is recommended following completion of the Instructional Media Design, Task 211. Follow the guidance in paragraph 50.4.

50.6.1 Task performance data. Data produced by the PDR will be the minutes and a "red-lined" copy of the Instructional Media Design Report, DI-ILSS-81091. Requirements and procedures for correcting the marked up documents, and routing of the corrected document for review and approval should have been provided as GFI (see 30.2.5).

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60. ICW DEVELOPMENT SOW TASK DESCRIPTIONS

60.1 Introduction. This Section of Appendix B describes the MIL-STD-1379 task descriptions and related DIDs necessary to develop ICW training program materials. ICW development is accomplished by including 300-series MIL-STD-1379 task descriptions in the DD/I contract SOW. The process and decisions necessary to accomplish ICW development requirements definition are shown in Figure B-1. Recommended management control reviews are indicated in Table B-2.

60.2 Instructional Media Production, Task 301. Task 301 produces ICW instructional media materials and data files. Some subtasks of Task 205, Tests for Measurement of Personnel Achievement, are added during performance of the Task 301 subtasks. Subtasks of Task 205 are necessary at this point to develop the actual ICW electronically administered test materials in conjunction with the processes and procedures used to develop the ICW instructional materials. This merging of task descriptions is necessary because the electronically administered tests require video, audio, and graphics support materials produced by Task 301 work descriptions.

60.2.1 Subtasks applicable to DD/I contracts. Task 301 produces the instructional media materials through its subtask work requirements. Subtask work descriptions produce data which are identified in two DIDs, DI-ILSS-81092, Instructional Media Package, and DI-ILSS-81093, Instructional Media Data Files. However, management and control over work performance, and accomplishing appropriate scheduling actions should be done using a multiple delivery item and schedule approach. Because of this, the organization of the information presented for this task description will be different from that used in the preceding Appendix B paragraphs. When subtasks produce data that should be identified and scheduled as a separate deliverable element of data, the data element(s) will be discussed immediately following the work that produces it.

60.2.2 Video shot and production support plan. The video shot and production support plan is produced by Task 301. This plan should be developed and immediately deliverable to the Government, especially when the video production will be accomplished using Government production facilities and personnel.

60.2.2.1 Subtask 301.2.1. Subtask 301.2.1 tasks the contractor to develop a video shot and production support plan. This plan is developed using the tentative production specifications developed in Task 211 and acquired by DI-ILSS-81091 (see 50.5.3.3m). The video shot and production support plan should be deliverable as soon as it is completed, since this plan will determine video production support requirements and establish projected production dates.

60.2.2.2 Task performance data. Performance of Subtask 301.2.1 results in the instructional media Video Shot and Production Support Plan. The contents of this plan are defined by DI-ILSS-81092, paragraph 10.3.5. You should consider making this plan a

separate deliverable by citing DI-ILSS-81092 in the CDRL and tailoring out all DID paragraphs except 10.3.1, front matter, and 10.3.5, Video Shot and Production Support Plan. This action will cause the plan to be a separate deliverable by the CDRL, scheduled to be delivered in draft form immediately after it is completed.

a. Review of the video shot and production support plan should verify that the plan identifies all projected production equipment, props (operational systems/equipment, simulators, and so on.), and schedule requirements. It is especially important that any unique video shot support requirements are identified in the plan.

b. Plan content should provide estimates of the video, graphics, and audio production requirements, and identify production support requirements such as actors and facilities. Resource audio and video materials applicable to the ICW program, and existing ICW materials identified by the ICW data search should also be identified.

60.2.3 ICW scripts. ICW scripts may take the form of a normal video or motion picture script used to produce linear video segments, a multi-media script, audio only scripts, or an ICW script that includes the requirements for a video and motion picture script. The script data sheet/lecture guide may be appropriate to support integrated ICW applications, depending upon your agency's requirements.

60.2.3.1 Subtask 301.2.2. Subtask 301.2.2 tasks the contractor to develop instructional media scripts. Which scripts are developed and acquired will depend upon how DI-ILSS-81092 is tailored. Scripts are required to identify the specific content and direction of the video, audio, graphics, and computer programming requirements of the ICW program. Scripts are developed based upon the instructional requirements defined in the lesson specifications, ICW design strategies, and ICW flow diagrams.

60.2.3.2 Task performance data. Performance of Subtask 301.2.2 will produce the ICW scripts required to support development of the instructional media (video, audio, graphics, or combinations thereof) according to how you tailor DI-ILSS-81092 requirements. The tailoring will determine the specific kinds of scripts required. If you do not tailor out any script requirements, the contractor should develop and deliver only those scripts necessary to support the instructional program.

a. DID paragraph 10.3.2 specifies that scripts are prepared in the formats specified by the requiring agency. Script formats should be prescribed in the GFI (see 30.2.4.8). The ICW scripts should be cross-referenced to the specific flow diagrams and portions of flow diagrams which the script supports.

b. Paragraph 10.3.2.1 of the DID describes the video and motion picture script requirements. This script includes supporting audio script requirements. This

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script would normally be used to define linear motion video and audio requirements, but could be used to indicate video still frame (A single frame of video -- a single scene or picture) and still frame audio (digital audio that is recalled and played while a video still frame is displayed) requirements.

c. DID paragraph 10.3.2.2 specifies the content of the multi-media script. This script serves as a "master" script when two or more separate media are used to support the ICW lesson. The multi-media script should describe how and when each of the separate media are called into the ICW presentation.

d. Paragraph 10.3.2.2.1 defines the requirements for a (multi-media) script data sheet/lecture guide. This document would be used by instructors to introduce a particular media presentation, and contains information about the lesson content, objectives, and other information concerning the particular media segment. This document should only be required to support integrated ICW applications.

e. DID paragraph 10.3.2.3 prescribes the content of the audio only script. This script could provide audio content to support graphic lesson materials, and tutorial and remedial instructional material.

f. ICW script requirements are identified in DID paragraph 10.3.2.4. The ICW script contains the same information as the video and motion picture script, plus descriptions of the computer graphics and programming instructions supporting the ICW module or lesson content.

g. Regardless of the type of script used, the script should describe video, audio, graphics, and programming required to support the ICW design strategies, lesson specifications, and flow diagrams that specify the ICW program content requirements.

h. The ICW scripts should be reviewed during an IPR. The IPR for the scripts should, however, be deferred until after the supporting ICW storyboards have been developed.

60.2.4 ICW storyboards. Storyboards are developed to describe the specific scenes within the script and are provided in service specified formats (see 30.2.4.8).

60.2.4.1 Subtask 301.2.3. This subtask requires the contractor to develop the instructional media storyboards that describe the scene video, audio, and graphics programming requirements. Each section (video, audio, and graphics programming) of the storyboard provides detailed information about the content of the scene, and instructions and information used by video director, programmer and instructional designer.

60.2.4.2 Task performance data. Performance of Subtask 301.2.3 results in development of the ICW storyboards. The storyboards should contain the information specified in paragraph 10.3.3 of DI-ILSS-81092, as tailored to reflect specific agency requirements and specified storyboard format instructions. Each storyboard should be cross-referenced to the script and specific action point in the applicable flow diagram.

a. The video section of the storyboard describes the linear or still video scene to include any required treatments, such as graphic overlays, split screens, or character generations mixed with the video during production or editing. Information about camera set-ups, resource video locations, or other information required to support video acquisition is also included on the storyboard.

b. The audio section of the storyboard describes any narration, music and ambient sound requirements for the scene.

c. The graphics programming section of the storyboard describes programming requirements to support developing the graphics screens. The description should include any animation requirements and the script of any text in the graphics screen. Color requirements are identified.

d. The video, audio, graphics, and programming requirements described on the storyboard should reflect the ICW instructional requirements contained in the lesson specifications, ICW design strategies, and flow diagrams. The video, audio, graphics, and programming information should also conform with the ICW conventions developed in Task 211 (Subtask 211.2.1) or contained in the agency's ICW style guide (see 30.2.4.10).

60.2.5 ICW script-storyboard in-process review (IPR). Once the ICW script-storyboards have been developed to support the lesson specifications, ICW design strategies, and ICW flow diagrams produced by Tasks 210 and 211, respectively, you should consider conducting an IPR of the ICW script-storyboards. This IPR is your last check of the ICW course and module/lesson design prior to beginning the actual development process. Whether or not you conduct an actual IPR, you should plan on conducting a Government review and approval of the flow diagrams and supporting script-storyboards. If an IPR process will be used, you will need to include appropriate subtasks from Task 103, Training Development Control, at this point in the ICW DD/I contract SOW (see 50.4).

a. The IPRs or Government reviews should be scheduled to review groups of ICW lessons. Lesson group IPRs/reviews should evaluate the flow diagrams and script-storyboards for each lesson. These reviews should focus on the technical and procedural accuracy of the planned lesson and the instructional process. Specific tutorial and remedial branching designs, student "cues," and style consistency with previous lessons should also be reviewed.

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b. The type and amount of student interaction and the degree of student control over each lesson sequence should be reviewed for conformance with agency policy and guidance information provided as GFI, and the ICW conventions developed by the contractor or included in the agency ICW style guide. Review should verify that the level of interactivity is consistent with the design strategy and appropriate for the level of learning required by the specific learning objective(s).

c. Module/lesson reviews should assure each module and lesson flow diagram/script-storyboard conforms to the approved lesson specification, and correctly implements the approved ICW instructional design strategies. Both the lesson specifications and ICW design strategies should have been subjected to an in-process/preliminary design review, amended as necessary, and approved by the requiring activity.

d. The combined module/lesson flow diagram and script-storyboards should follow a visually consistent style and define video production requirements which are consistent with the capabilities of the production facility that will produce the video and audio materials. The scene descriptions on the storyboards should provide sufficient detail for accurate sorting of the video shots to support efficient video production.

60.2.6 Video shot list. The video shot list is developed to organize the video production according to camera set-ups, camera angles, and specific video composition requirements of the scene.

60.2.6.1 Subtask 301.2.4. This subtask requires the contractor to develop a video shot list of video motion and still frame shots in shot sequence order. The video shot list is developed from the script-storyboards developed by Subtask 301.2.3.

60.2.6.2 Task performance data. Subtask 301.2.4 produces the video shot list. The contents of the shot list are specified and acquired by DI-ILSS-81092, paragraph 10.3.4. The shot list should be cross-referenced to the flow diagrams and script-storyboards. The shot list should be delivered in draft to the Government immediately after it is developed for review by video production personnel.

a. Review of the shot list should assure it supports the video shot and production support plan developed by Subtask 301.2.1, and is logically organized according to shot location, shot support requirements, camera set-up, camera angles, and video composition requirements.

b. Any video resource materials that will be used during the video production should also be identified, to include the specific video tape number and SMPTE time code location of the required video segment(s).

c.   The shot list should provide enough detail and data sufficient to support design of the video production schedule, sort the video scenes, and efficient recording of video requirements.

60.2.7 <u>ICW program audio and video production</u>. After the video shot list is approved, actual acquisition of the program audio and video is accomplished.

60.2.7.1 <u>Subtask 301.2.5</u>. Subtask 301.2.5 produces the ICW program video materials. Video materials are acquired according the video shot and production support plan, video scripts, video portions of the storyboards, and the video shot list.

60.2.7.2 <u>Subtask 301.2.6</u>. This subtask produces the audio materials required by the ICW program. Audio materials are produced using either the audio portions of the motion video script or the audio only script, depending upon whether or not the program includes video materials.

60.2.7.3 <u>Task performance data</u>. Performance of Subtasks 301.2.5 and 301.2.6 produces the resource video and audio materials, usually a video tape that contains both the video and audio materials. When the audio is developed sperate from the video, an audio tape will contain the resource audio materials. Both the resource video and the resource audio delivery format and media will have to be specified by the requiring activity. The format and media are specified in the CDRL.

a.   Video and audio materials should be delivered several times before completion of Task 301. Each delivery (resource materials, edited premaster tape, final master tape, check videodiscs, master videodiscs, production videodiscs) serves a specific purpose in the ICW development process, which is explained as the deliverable requirement occurs in the ICW development process described by Task 301.

b.   Audio materials are prescribed and acquired by DI-ILSS-81092, paragraph 10.3.7. Audio materials are acquired in service specified formats and should be based upon the approved audio scripts. DID paragraph 10.3.7d prescribes digitized or still frame audio recording that conforms to ANSI C98.20M. When digital audio requirements are specified by ICW DD/I contract SOW and this paragraph is cited in the CDRL, the ANSI standard should be listed in Section 2, Applicable documents, of the SOW.

c.   Video materials are prescribed by paragraph 10.3.8 of DI-ILSS-81092, and includes resource, premaster, and master video materials. Video materials are based upon the applicable, approved video script, and may be delivered in video tape, videodisc, or digital medias. The delivery media of each video deliverable should be specified in the CDRL.

d.   Normally, resource video and audio are delivered on magnetic tape, and the audio is normally recorded on the same tape as the video for motion video requirements. Video still frames and still frame audio would normally be recorded on separate tapes.

e.   The DD/I contract should include video and audio tape specifications in Section C of the solicitation/contract package, except when conformance with an established, published standard is required. Published standards are cited in Section 2 of the SOW, as indicated earlier. The applicable format specification and delivery media should also be cited in the CDRL section that prescribes delivery of the video and audio materials.

60.2.8   Edit decision list. The edit decision list is developed to support editing of the resource audio and video materials. The edit decision list is produced after the resource materials are reviewed against the applicable flow diagram and script-storyboards. The review of resource audio and video materials is done to assure all audio and video requirements have been addressed during production, and to identify specific start and ending points of the video that will be included in the final courseware.

60.2.8.1   Subtask 301.2.7. This subtask develops the video and audio resource materials edit decision list.

60.2.8.2   Task performance data. Performance of Subtask 301.2.7 develops the edit decision list identified in and acquired by DI-ILSS-81092, paragraph 10.3.6.

a.   The edit decision list is reviewed to assure the edits produce video motion and stills, and audio segments which conform with the instructional design strategies, and which are technically complete and accurate.

b.   The edit decision list should also be reviewed by a video producer-director to assure the editing techniques conform to established industry standards and use correct editing techniques. A video engineer should review the edit decision list to verify compliance with video and audio engineering standards.

60.2.9   Pre-edit preliminary design review (PDR). Prior to actual editing of the resource audio and video materials, you should consider conducting a PDR of the resource materials using the edit decision list as a review guide.

a.   The PDR should be scheduled prior to final editing of the resource video and audio tape for ICW that will use interactive videodisc (IVD), or digital video devices. The PDR for ICW that will not use IVD should occur prior to beginning development of graphics screens.

b.   The PDR focus is verification of graphics frames, video stills and linear motion sequences against the flow diagrams and script-storyboards for all courseware modules/lessons. The PDR also assures that graphic frames, video stills and linear motion sequences necessary to support overall course management features (introductory materials, test items, menus, student critiques, student records) are included in the planned graphics and video materials.

c.   The PDR should review each and every module/lesson flow diagram and script-storyboard against the actual video and audio materials on the resource media that the edit decision list indicates will be retained on the premaster materials. This is the time to verify that each and every video motion sequence, video still frame, graphics screen, graphics overlay, linear audio and still frame audio requirement indicated in the flow diagrams and script-storyboards is available on the resource materials.

60.2.10 Develop interactive courseware (ICW). The next step in the development process is to develop the ICW. This step actually encompasses three separate steps: develop the ICW master video and audio materials, and check videodiscs (when the ICW includes IVD); develop and validate ICW electronically administered tests; and develop the lesson content and logic data files, and support software. The second step relating to the ICW tests is accomplished by citing a subtask of Task 301 and citing applicable subtasks from Task 205 immediately following this work description.

60.2.10.1 Subtask 301.2.8. This subtask requires the contractor to develop the interactive courseware. As written, this subtask work description could be used to cover all aspects of ICW development, but would not support conducting the necessary Government reviews of critical development control documents described earlier in Section 60.2. The subordinate Subtasks 301.2.8.1 and 301.2.8.2 provide the support for conduct of Government reviews.

60.2.10.2 Electronically administered tests. When the ICW will include electronically administered tests, these tests can not be developed until after the necessary support video, audio and graphics materials have been developed for each test item in the tests. This is especially true for test items that will use training task simulations to measure task performance. When it is desired that tests be administered electronically, it is recommended that the following statement be included in the SOW:

> "Electronically Administered Tests. Develop the electronically administered test content and logic data files, and support software using the approved and validated test items in accordance with the approved performance test criteria and test design data produced in Subtask 211.2.8.

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a. The ICW electronically administered tests shall be developed according to MIL-STD-1379 Task 205, Subtask 205.2.2. Test parameters shall be as specified in Subtasks 205.2.2.1 through 205.2.2.6.

b. Test items which include related tables, figures, or illustrations shall provide on-screen prompts that identify these materials are available and shall allow the trainee to alternate between the related information and the test item screens until an answer is selected and entered.

Electronically Administered Test Validation. Validate each ICW electronically administered test to ensure discrimination between the performer and non-performer.

60.2.10.3 Task performance data. Performance of the Subtasks 301.2.8.1 and 301.2.8.2 will support production of the electronically administered tests.

a. The test video and audio materials are deliverable as an integral part of the ICW instructional media package acquired by DI-ILSS-81092.

b. The test content and logic data files are included as an integral part of the ICW instructional media data files prescribed and acquired by DI-ILSS-81093.

c. Test validation data can be acquired in accordance with DI-ILSS-81105, Training Evaluation and Validation Report. When you will require delivery of the test validation results, you should include this DID in the CDRL and tailor the DID requirements to the minimum data necessary to provide essential test validation information.

60.2.10.4 Subtask 301.2.9. Subtask 301.2.9 is used in the DD/I contract SOW to task the contractor to develop and document the ICW lesson content and logic data files, and support software. This subtask produces the graphics screens identified on the script-storyboards and authors the ICW programs according to the lesson specifications, ICW course/module/lesson design strategies, flow diagrams, and script-storyboards. When the ICW includes IVD, authoring of the ICW modules and lessons is done using the check videodisc produced by performance of Subtask 301.2.8 (see 60.2.10.1).

60.2.10.5 Task performance data. The collective efforts of Subtasks 301.2.8 and 301.2.9 produce the ICW training program materials.

a. The ICW instructional media package audio, video and videodisc materials are identified in and acquired by DI-ILSS-81092, Instructional Media Package,

paragraphs 10.3.7 (audio materials), 10.3.8 (video materials), and 10.3.9 (videodiscs).

b. The content and logic data files, and support software developed to support the electronically administered ICW tests and instructional modules/lessons are identified in and acquired by DI-ILSS-81093, Instructional Media Data Files. DID paragraph 10.3.3 defines the lesson content and logic data file requirements. Paragraph 10.3.4 identifies the content requirements of the ICW support software document.

60.2.11 ICW support materials development. The subtasks remaining in Task 301 develop ICW support materials and control documents.

60.2.11.1 Subtask 301.2.10. This subtask results in development of a listing of the ICW instructional media and support materials. This listing of materials is used to develop course control documents.

60.2.11.2 Subtask 301.2.11. Subtask 301.2.11 develops those ICW adjunctive materials identified in the instructional media design process.

60.2.11.3 Subtask 301.2.12. This subtask requires the contractor to identify the ICW commands and interface mechanisms from Appendix D of MIL-STD-1379 that were used to ensure ICW portability. This information is also used to develop course control documents.

60.2.11.4 Subtask 301.2.13. Subtask 301.2.13 tasks the contractor to develop and document legal clearances applicable to the ICW. These legal clearances are related to copyright releases and licensing agreements.

60.2.11.5 Subtask 301.2.14. This subtask is cited in the SOW to require development of job aids. Normally, this subtask would not be required in an ICW DD/I contract and should be tailored out of the standard.

60.2.11.6 Subtask 301.2.15. Subtask 301.2.15 tasks the contractor to identify and document the ICW, hardware, and software integration and installation procedures. These procedures are not deliverable, but are an important input to development of the ICW implementation plan.

60.2.11.7 Task performance data. The data produced through performance of the subtasks identified in 60.2.11.1 through 60.2.11.6 are identified in and acquired by DI-ILSS-81092 and DI-ILSS-81093 with the exception of the data produced by Subtasks 301.2.10 and 301.2.15 which are discrete task outputs.

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a.   The legal clearances, job aids, and ICW adjunctive materials are acquired by
     paragraphs 10.3.14 (media production data), 10.3.15 and 10.3.16 of DI-ILSS-
     81092, respectively. When Subtask 301.2.15, job aids, is tailored out of MIL-
     STD-1379 Task 301, paragraph 10.3.15 of DI-ILSS-81092 should also be
     tailored out.

b.   ICW portability commands and interface mechanisms are acquired by paragraph
     10.3.3.3 of DI-ILSS-81093.

c.   The listing of instructional media and support materials is discrete Task Output
     301.4.4. The ICW installation and integration procedures are discrete Task
     Output 301.4.8. These discrete outputs are inputs to Tasks 303, 106 and 107.

d.   The data identified in DI-ILSS-81092, paragraphs 10.3.10 through 10.3.13 do
     not apply to ICW training program materials and should be deleted from the DID
     except when the DD/I contract will include instructional media other than ICW.

e.   The data identified by DI-ILSS-81093, paragraph 10.3.2, Instructional media
     generation programs, should be identified in the CDRL for preparation in
     accordance with the tailored requirements of DI-ILSS-81093. This data element
     describes commercial application software programs used in ICW design and
     development. The data described by DID paragraph 10.3.5, Development source
     materials, should be required in draft form along with the data in DID paragraphs
     10.3.3 and 10.3.4. The drafts should be reviewed and approved prior to being
     finalized.

60.2.12 Proposed GFI. Performance of the work described in MIL-STD-1379 Task
301 may require input information in addition to that which is identified in Task Input
301.3.

60.2.12.1 ICW design documents. The approved versions of the ICW design
documents you identify in the CDRL as deliverables should be identified as inputs to Task
301. This action occurs that the various analyses conducted and documented in these
documents are included in the ICW development process and decisions. This approach will
also assure that information necessary to support performance of the amended and added
subtasks is available. All approved deliverable ICW design documents and reports should
be identified.

60.2.12.2 Agency policy and guidance. You should identify that agency policy and
guidance information described in 30.2 as input to Task 301, to the extent that this
agency information is available.

60.2.12.3 Discrete task output data. In addition to the deliverables described in
60.2.11.1, there are also a number of discrete task outputs which may be necessary to

support performance of Task 301, but which is not included in the deliverable documents. These discrete task outputs should be identified in the DD/I contract SOW to assure these data are incorporated into the ICW development. Other discrete task outputs which may be needed are Task Outputs 205.4.6 and 205.4.7.

60.3 Training Materials for Instructors, Task 303. The work prescribed by Task 303 produces specific guidance and direction information to instructors and administrators of the training program. For ICW training programs, this task produces the ICW administrator's/manager's guide and the ICW user's guide. Development of the ICW user's guide was identified in this task because of the significant redundancy in the manager's guide and user's guide information requirements.

60.3.1 Subtasks applicable to DD/I contracts. Many of the subtasks contained in Task 303 develop information that is required in ICW manager and user guides. The data produced by these tasks is collectively documented in the manager and user guides, as appropriate. Where there are limitations applicable to a subtask, the limitation is identified in the applicable paragraph.

60.3.1.1 Subtask 303.2.1. Subtask 303.2.1 develops instructions and guidelines for instructor's use in a formal training environment. This subtask should only be included in the DD/I contract SOW for integrated ICW applications.

60.3.1.2 Subtask 303.2.2. This subtask develops instructions and guidelines for instructor's to use for training in an operational or laboratory environment. Like Subtask 303.2.1, this subtask would normally only be necessary to support integrated ICW applications. The exception would be stand-alone applications that employ a networked learning laboratory environment.

60.3.1.3 Subtask 303.2.3. Subtask 303.2.3 develops guidelines and instructions for instructor's use in guiding trainees in an OJT environment. This subtask should normally only be necessary to support stand-alone ICW applications.

60.3.1.4 Subtask 303.2.4. This subtask develops instructions and guidelines to support guiding trainees in a self-paced environment, and could be applicable to either integrated or stand-alone applications. The self-paced training mode would be the determinant rather than the ICW application.

60.3.1.5 Subtask 303.2.5. Instructions and guidelines for assisting trainees in a self-study training mode are developed by Subtask 303.2.5. Like the previous subtask, it is the training mode that determines the subtask requirement rather than the ICW application.

60.3.1.6 Subtask 303.2.6. This subtask produces Individual Training Publication Packages which are acquired by DI-ILSS-81097. Neither this subtask or the DID are

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required to support ICW training program requirements. Tailor this subtask out of MIL-STD-1379.

60.3.1.7 <u>Subtask 303.2.7</u>. Subtask 303.2.7 develops a Collective Task Training Package acquired by DI-ILSS-81098. Neither the subtask nor DID are ICW training program requirements. This subtask should be tailored out of the standard.

60.3.1.8 <u>Subtask 303.2.8</u>. This subtask develops procedures for performing all operational tasks on the (ICW) equipment in accordance with operational concepts described in Subtasks 303.2.8.1, 303.2.8.2 and 303.2.8.3. This subtask addresses operational procedures applicable to the ICW delivery device, which should be identified before invoking this work description. When the ICW device has not yet been specifically identified, this subtask should not be included in the DD/I contract SOW. When the ICW device is known and this subtask will be included in the SOW, the operational concept subparagraphs should be tailored to reflect the requirements normally associated with an ICW delivery device, as follows:

60.3.1.8.1 <u>Subtask 303.2.8.1</u>. This subtask should be tailored to delete "theory of operation" and "for the instructors." The resulting work description should read: "Describe the equipment subsystems and the leading particulars necessary to operate the equipment."

60.3.1.8.2 <u>Subtask 303.2.8.2</u>. Tailor this subtask to read: "Arrange the exercises in a logical sequential learning order."

60.3.1.8.3 <u>Subtask 303.2.8.3</u>. This subtask should be tailored out of the standard except where ICW instructional scenarios will require the capability for instructors to modify existing lessons, or develop new ICW lessons/ exercises. It will be very difficult to support this task requirement in ICW instructional materials based in interactive videodisc. Agency policy and guidance should be provided as GFI on when and how to accommodate this work task requirement for ICW based in IVD.

60.3.1.9 <u>Subtask 303.2.9</u>. Subtask 303.2.9 develops data that supports curriculum modification. Like the work described in Subtask 303.2.8.3, this may not be a valid requirement when included in ICW programs based in videodisc media. When IVD is to be used and this work task included in the SOW, be sure to provide guidance on how, when and why to include this capability in the ICW lesson materials.

60.3.1.10 <u>Subtask 303.2.10</u>. Subtask 303.2.10 develops the instructions and guidelines for ICW managers – the ICW manager's guide.

60.3.1.11 <u>Subtask 303.2.11</u>. This subtask develops the instructions and guidelines for users of ICW – the ICW user's guide.

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60.3.2 Proposed GFI. Performance of the subtasks in Task 303 to support ICW training programs may require additional input data.

a. Input the approved Instructional Media Design Report, DI-ILSS-81091 and tailor out those discrete task inputs from Task 211. The approved report provides more detailed and necessary information than is provided by the discrete inputs.

b. Input the approved Instructional Media Package from DI-ILSS-81092, and the approved Instructional Media Data Files from DI-ILSS-81093 in lieu of the discrete inputs from Task 301. These approved reports provide information above that provided by the discrete inputs.

c. Input the discrete Task Output 205.4.6 -- Test administration guidance -- Listing of supporting data and resources required to support test items -- Lesson overview data (see 50.3.3.1). These inputs may be required to develop information required in the ICW manager's and user's guides.

d. Input Service specific information and guidance on the format of the manager's and user's guides, and prescribe the title to be used for each document. Otherwise, the documents would be titled Training System Utilization Handbooks according to the DID.

60.3.3 Task performance data. Performance of Task 303 produces data elements that can be related to and acquired by five different DIDs. Only the DID, DI-ILSS-81096, Training System Utilization Handbook, is described here because this DID is the only one that describes and acquires data specifically related to ICW training program requirements. Whether or not other DIDs are applicable to your DD/I contract would be determined by the total contract scope and approved training modes.

60.3.3.1 ICW manager's guide. The ICW manager's guide is identified by paragraph 10.3.11 of DI-ILSS-81096 as the "Training System Administrator's Guide." The data elements prescribed in this DID paragraph are incomplete, which will require that you clarify the content requirements. In prescribing the ICW Manager's Guide deliverable in the CDRL, you should consider including the following statement in block 16:

"The data deliverable prescribed by this CDRL item shall be titled 'ICW Manager's Guide for (name of training program).' The ICW manager's guide shall consist of requirements of paragraph 10.3.11, and the data elements identified in paragraphs 10.3.2b, 10.3.3, 10.3.4, 10.3.5, 10.3.6, 10.3.7, 10.3.8, and 10.3.10. The information provided by the additional data elements shall be merged with those in paragraph 10.3.11 to the extent merging of this data is practical."

60.3.3.1.1 Tailoring ICW manager's guide requirements. The statement in 60.3.3.1 is intentionally broad because of the many variables affecting actual manager's guide

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content requirements. Each of the DID paragraphs cited above for inclusion in the ICW manager's guide should be carefully reviewed and tailored to the minimum requirements of your specific ICW program.

60.3.3.2 ICW user's guide. The ICW user's guide is prescribed by DI-ILSS-81096, paragraph 10.3.12, as the "Training system user's guide." Like the manager's guide, the user's guide contents identified in paragraph 10.3.12 are not complete. You should consider including the following statement of content requirements in block 16 of the CDRL item that requires delivery of the ICW user's guide.

"The data deliverable prescribed by this CDRL item shall be titled 'ICW User's Guide for (name of training program).' The ICW user's guide shall consist of requirements of paragraph 10.3.12, and the data elements identified in paragraphs 10.3.3a and b; 10.3.4c (2), (3), (4), (6), (8), (9), and (10); and 10.3.7. The data elements shall be logically organized within the ICW user's guide and merged with the data requirements of paragraph 10.3.12 to the extent merging of this data is practical."

60.3.3.2.1 Tailoring ICW user's guide requirements. The statement in 60.3.3.2 is intentionally broad because of the many variables affecting actual user's guide content requirements. Each of the DID paragraphs cited above for inclusion in the ICW user's guide should be carefully reviewed and tailored to the minimum requirements of your specific ICW program.

60.4 ICW Critical Design Review (CDR). The CDR is conducted prior to final mastering and replication of the ICW materials. When the ICW includes IVD, a check or proof video/data disc is used to conduct small group try-outs using the fully programmed courseware. The CDR is, essentially, a full-scale formative evaluation of all courseware materials before making the distribution copies and implementing the instructional program. The CDR should focus technical accuracy, ease of use, student control, student understanding of instructional and remedial materials, software tutorial/ remedial "loops" that lock up the system when an incorrect response is entered, and adequacy of the measurement items and courseware management designs. When your DD/I contract requires an ICW CDR upon completion of the development process, you should include the appropriate subtasks from Task 103, Training Development Control, in the SOW following completion of the work prescribed by Task 303.

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70. ICW IMPLEMENTATION SOW TASK DESCRIPTIONS

70.1 Introduction. This section of Appendix B describes the MIL-STD-1379 task descriptions required to plan for and implement the ICW training program. The implementation task descriptions include conducting the training for evaluation purposes, and performing the final courseware validation and training effectiveness evaluation.

70.2 Training Implementation Planning, Task 105. Task 105 contains the work descriptions necessary to plan for the implementation of the ICW training program.

70.2.1 Subtasks applicable to DD/I contracts. Many of the subtasks of Task 105 are written to support implementation of formal classroom instruction in either Government or contractor facilities. Consequently, stand-alone ICW applications should cause a careful review and tailoring of both the task description requirements and DI-ILSS-81074.

70.2.1.1 Subtask 105.2.1. Work performed by Subtask 105.2.1 requires the contractor to identify the type and locations of training, scope of the applicable training courses, resource and data requirements, procedures, milestones and time phasing of the conduct of training. This work description supports both integrated and stand-alone ICW applications.

70.2.1.2 Subtask 105.2.2. Subtask 105.2.2 identifies the personnel roles and responsibilities relating to training, procedures and techniques, communication, and coordination requirements to implement the training program. This subtask is more applicable to integrated ICW applications than to stand-alone.

70.2.1.3 Subtask 105.2.3. This subtask identifies the overall management structure and organization, and the functions required to implement the training program. ICW training program requirements would be related to establishing the courseware manager and configuration control program structure, rather than an extensive organization supporting formal, in-resident training courses.

70.2.1.4 Subtask 105.2.4. This subtask develops an implementation schedule, and contingency plans for any implementation milestones that have a significant risk of not being completed as scheduled (see 70.2.3i).

70.2.1.5 Subtask 105.2.5. Subtask 105.2.5 develops a training system integration schedule. This subtask would not be required to support a stand-alone ICW application.

70.2.1.6 Subtask 105.2.6. This subtask identifies the trainee prerequisites, scheduling, evaluation, and recording requirements. This subtask should be tailored to the specific training mode and ICW application. Stand-alone self-learning and OJT application modes, for example, should not require scheduling and recording requirements.

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70.2.1.7 <u>Subtask 105.2.7</u>. Subtask 105.2.7 identifies the instructor training, utilization, and scheduling requirements. Instructor requirements identification would normally only be applicable to an integrated ICW application.

70.2.1.8 <u>Subtask 105.2.8</u>. Training materials management requirements are identified by contractor performance of Subtask 105.2.8. Whether or not this subtask should be included in your DD/I contract SOW would be determined by whether or not your agency/activity has an established training materials management program. When there is an established program, you might consider providing the applicable agency directives as GFI.

70.2.1.9 <u>Subtask 105.2.9</u>. Subtask 105.2.9 tasks the contractor to identify training equipment storage, maintenance, supply support, and utilization requirements. When the ICW being developed and implemented will utilize existing delivery devices, this subtask should not be necessary. This would also be true if the device is being procured by a separate contract, since the contractor performing ICW development would not be able to identify the equipment support requirements.

70.2.1.10 <u>Subtask 105.2.10</u>. This subtask identifies facilities utilization requirements applicable to the ICW training program. It would only be applicable to integrated ICW applications, or stand-alone applications that employ larger, networked learning laboratory configurations.

70.2.1.11 <u>Subtask 105.2.11</u>. Subtask 105.2.11 produces a master listing of the ICW training program materials, to include the ICW manager and user guides, reference and adjunctive materials, applicable job aids, and technical documents.

70.2.2 <u>Proposed GFI</u>. You should identify the following as input data which may be required to support performance of Task 105.

   a.   The approved Learning Analysis Report, DI-ILSS-81083. This report input is
        necessary when separate FEA and ICW DD/I contracts are used.

   b.   Discrete Task Output 210.4.2, Lesson overview data (see 50.3.3.1).

   c.   Discrete Task Output 211.4.10, List of baseline reference materials used in
        lesson design strategies.

70.2.3 <u>Task performance data</u>. The product of Task 105 is the Training System Implementation Plan, DI-ILSS-81074, in addition to the discrete task outputs identified in Task Output 105.4 of the task. The Training System Implementation Plan requires a significant amount of data which may or may not be required to support your agency's implementation planning requirements. Consequently, DI-ILSS-81074 should be subjected to a thorough review and tailoring prior to being included in the CDRL.

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a. The course module/lesson data described in DID paragraph 10.3.2 contains many data elements which apply to formal classroom training modes and should be tailored to meet your ICW requirements.

b. DID paragraph 10.3.3 describes data that justifies course development, change or revision. Considering that courseware development is essentially complete, this data element may not be required.

c. The mission impact of not doing the ICW development, change or revision as prescribed by DID paragraph 10.3.4. This data element is probably not necessary in most DD/I contracts.

d. DID paragraph 10.3.5 prescribes a milestone chart depicting time phasing of implementation requirements, to include estimated start and completion dates for key events.

e. DID paragraph 10.3.6 requires identification of the training program resource requirements and contains an extensive listing of potential resource requirements to be addressed. This paragraph should be tailored to your specific, minimum data requirements.

f. DID paragraph 10.3.7 identifies a requirement to identify follow-on training recommendations. This data may not be applicable to stand-alone ICW applications and should be reviewed.

g. DID paragraph 10.3.8 provides a listing of key personnel and identifies their individual roles in the training program implementation. Unless you anticipate significant changes from the key personnel listing provided by the Training Program Development and Management Plan, DI-ILSS-81070, paragraph 10.3.2.18, this requirement may be redundant to the data provided earlier.

h. Paragraph 10.3.9 of the DID identifies a training system integration schedule. The schedule includes descriptions of how well the training system will support the course mission statements and the ease of integrating the courseware into any existing training system.

i. DID paragraph 10.3.10 prescribes course schedule data and provides a schedule of proposed courses and instructor training services, to include contingency plans for high risk milestones. This data relates primarily to establishing a contractor operated course or courses. It is doubtful the data will have any value in relation to ICW training programs. You should give this data element careful consideration before keeping it in the tailored DID.

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j. DID paragraph 10.3.11 prescribes general information requirements which are oriented toward contractor operated training systems. This data element should be reviewed and tailored to agency requirements.

70.3 <u>Training Implementation Control, Task 106</u>. This task develops the information necessary to establish course control and management procedures.

70.3.1 <u>Subtasks applicable to DD/I contracts</u>. Task 106 work descriptions develop and document course control information. The subtask work description are very broad and can produce a significant amount of course control data. The scope of work applicable to Task 106 will be determined by agency tailoring of the supporting DID, DI-ILSS-81075, to meet the minimum requirements of the ICW application(s) and training modes.

70.3.1.1 <u>Subtask 106.2.1</u>. Subtask 106.2.1 develops course descriptive data according to service specific guidance. The service guidance will largely determine the actual work required by this subtask.

70.3.1.2 <u>Subtask 106.2.2</u>. This subtask develops a utilization schedule of the training course resources. This subtask should normally be excluded from DD/I contract SOWs supporting stand-alone ICW applications.

70.3.1.3 <u>Subtask 106.2.3</u>. Subtask 106.2.3 develops a course presentation schedule chart. A presentation schedule chart is not a data element within the supporting DID, DI-ILSS-81075. However, presentation schedules are addressed in the DID. This subtask is normally not required to support stand-alone ICW applications.

70.3.1.4 <u>Subtask 106.2.4</u>. This subtask develops a description of the training program content, duration of instruction, and resources required to conduct both peacetime and mobilization training in an instructional setting. Depending upon the ICW applications and training modes, this subtask may require some tailoring to be appropriate for ICW training programs.

70.3.2 <u>Proposed GFI</u>. Performance of Task 106 to support ICW training programs should address the data provided by the following input data.

a. Learning Analysis Report, DI-ILSS-81083. When the FEA and ICW DD/I are accomplished through separate contracts, the learning analysis report is needed to provide information about course content, class sizes and course length. This type of delivery may enhance the contractor's ability to perform the work.

b. Discrete Task Output 210.4.5 identifies the course substance that supports each learning objective, to include the type of behavior required, training strategy,

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common error analysis and instance types. This information is needed to develop the course descriptive data and description of the training content.

c. Discrete Task Output 210.4.2 provides lesson overview data (see 50.3.3.1). This data supports developing the course descriptive data and training content.

d. Discrete Task Output 211.4.6, Instructional media lesson design strategies, -provides information required to develop the course descriptive data.

70.3.3 Task performance data. Performance of the work required by Task 106 produces the data identified and acquired by DI-ILSS-81075, Training Course Control Document. Much of the data prescribed by this DID is directed toward and related to establishing course control documentation for formal classroom instructional settings. Consequently, this DID will require extensive tailoring when it will provide course control information for stand-alone ICW applications. Significant tailoring will also be needed when the ICW will be integrated into existing courses of instruction, but not to the degree required by stand-alone applications.

a. DID paragraphs 10.3.3, 10.3.4, and 10.3.5 will require tailoring for ICW applications.

b. DID paragraph 10.3.6 relates to formal classroom instruction and is probably not required to support ICW training programs.

c. DID paragraphs 10.3.7, 10.3.8, 10.3.9, and 10.3.10 have some applicability to ICW applications, but should be reviewed and tailored.

d. DID paragraph 10.3.11, resource support, is aimed at resources required by and consumed in formal instruction. Portions of this paragraph are also redundant to the requirements of paragraph 10.3.9. This paragraph should be carefully reviewed for tailoring requirements.

70.4 Training Evaluation Planning, Task 107. Performance of Task 107 develops a plan for independent evaluation of training effectiveness and training capability, and identifies the personnel, organizational functions, procedures, and schedules related to performing the evaluations.

70.4.1 Subtasks applicable to DD/I contracts. All of the subtasks listed for Task 107 are required to support evaluation of ICW training program materials.

70.4.1.1 Subtask 107.2.1. This subtask identifies the evaluation methodology and data to be collected, and the procedures for collecting, analyzing, and reporting the evaluation data.

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70.4.1.2 Subtask 107.2.2. Subtask 107.2.2 identifies the personnel, materials, and special equipment resources necessary to support the evaluation.

70.4.1.3 Subtask 107.2.3. This subtask identifies those activities that will be assigned responsibilities for accomplishing the evaluation.

70.4.1.4 Subtask 107.2.4. Subtask 107.2.4 is cited to have the contractor identify the roles of any personnel involved in the evaluation.

70.4.1.5 Subtask 107.2.5. This work description develops a schedule for conducting the tests and conducting critical evaluation events.

70.4.1.6 Subtask 107.2.6. Contractor performance of this subtask produces the data collection instruments that will be used in the test and evaluation process. Instruments might include questionnaires, checklists, structured interview guides, and job performance indicators for personnel evaluations.

70.4.2 Proposed GFI. Development of the evaluation plan and evaluation instruments for ICW program evaluation may require input data not presently identified in Task Input 107.3. You should identify the following data as input requirements.

a. Agency test and measurement criteria (see 30.2.4.7).

b. Agency scheduling procedures and coordination requirements (see 30.2.6).

c. Government furnished support (personnel, facilities) (see 30.4.1).

d. Discrete Task Outputs 205.4.2, 205.4.3, 205.4.4, 205.4.5, 205.4.7, and 205.4.8 from Task 205, Tests for Measurement of Personnel Achievement.

e. Learning Analysis Report, DI-ILSS-81083. This report provides test design data and personnel performance criteria.

f. Instructional Media Design Report, DI-ILSS-81091. The instructional media (ICW) design report provides information about course, module/lesson, and test design needed to develop evaluation plan elements.

70.4.3 Task performance data. Performance of Task 107 produces the training evaluation plan prescribed and acquired by DI-ILSS-81076. The data elements described in this DID are applicable to ICW evaluation plans and, generally, require little tailoring. Two areas you should review to determine tailoring requirements are:

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a. DID paragraph 10.3.2, Introduction. This DID paragraph describes program background, history, and training problem descriptions which may not be necessary to meet your agency's evaluation plan requirements.

b. DID paragraph 10.3.3o requires identification of the agencies and decision authorities who will receive the evaluation plan. Since distribution of the evaluation plan will be determined by the distribution you identified in the CDRL, you may want to delete this data requirement.

70.5 <u>Training Development Control, Task 103 (In-process review)</u>. You should consider conducting an IPR following completion of the course control document, and the implementation and evaluation plans. When an IPR is planned, you should include the applicable subtasks from Task 103 at this point in the DD/I contract SOW. Subtasks and task performance data are not included here, since this information would be redundant to previous IPR discussions.

70.6 <u>Conduct of Training, Task 401</u>. This task description requires that the ICW training be presented according to the instructional design to meet the specified training requirements. Training is also conducted to evaluate the course training effectiveness.

70.6.1 <u>Subtasks applicable to DD/I contracts</u>. The subtasks of Task 401 are, generally, applicable to both integrated and stand-alone ICW applications. Those subtasks which specifically address instruction conducted in a formal classroom environment (Subtasks 401.2.3 and 401.2.5, and to a lesser degree, 401.2.2 and 401.2.6) would only apply to integrated ICW applications.

70.6.1.1 <u>Subtask 401.2.1</u>. This subtask requires that the ICW training be conducted in accordance with the approved Training Implementation Plan, DI-ILSS-81074.

70.6.1.2 <u>Subtask 401.2.2</u>. Subtask 401.2.2 tasks the contractor to provide counseling and remediation instruction to solve training deficiencies. This work description would be more appropriate for integrated ICW applications, since counseling and remediation for training deficiencies in stand-alone applications would usually be contrary to the instructional design parameters.

70.6.1.3 <u>Subtask 401.2.3</u>. This subtask requires recommendations for trainee drop out/set back for academic reasons. This subtask should not be germane to the ICW materials, regardless of the application. The feedback and remediation branching of the ICW lessons should provide sufficient reinforcement of the learning objectives to overcome individual student problems. Otherwise, supervisory personnel should be alerted to provide additional trainee assistance.

70.6.1.4 <u>Subtask 401.2.4</u>. Trainees are provided an ICW training course evaluation sheet when this subtask is invoked by the SOW.

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70.6.1.5 <u>Subtask 401.2.5</u>. Subtask 401.2.5 requires identification of the individual trainee's grade level attained and other information about the trainee's performance in the course and demonstrated attitude. The data produced by this subtask is generally, not necessary to support ICW programs. The CMI function of the courseware should provide all necessary student information.

70.6.1.6 <u>Subtask 401.2.6</u>. This subtask requires preparation of a course completion certificate. Whether or not this would be a valid requirement for your particular ICW program would be determined by agency directives.

70.6.1.7 <u>Subtask 401.2.7</u>. Subtask 401.2.7 identifies changes required in the courseware to correct any training program deficiencies surfaced during the conduct of training.

70.6.2 <u>Proposed GFI</u>. Performance of Task 401 may require the input of the Instructional Media Data Files from DI-ILSS-81093 to support the conduct of training. The Instructional Media Data Files include the lesson content and logic data files, and the support software necessary to run the Instructional Media Package in DI-ILSS-81092. These two deliverables constitute the ICW training program materials.

70.6.3 <u>Task input data not required for task performance</u>. Many of the discrete task inputs identified in Task Input 401.3 of the task are not required when the training program being conducted consists only of ICW training materials. These data elements are as follows:

a. The test data identified in Task Inputs 401.3.3 through 401.3.7, and 401.3.1.10 are not required. All test materials are in the ICW media and media data files.

b. The data described in Task Inputs 401.3.1.11, and 401.3.2 through 401.3.11 are redundant to the data provided by task inputs identified in 401.3.1. The inputs in Task Input 401.3.1 are approved versions of deliverable documents and reports. However, the discrete task inputs related to any documents and report listed in Task Input 401.3.1 which were not identified as deliverables would be necessary.

c. The inputs identified in Task Inputs 401.3.1.9, 401.3.1.11, and 401.3.10 do not apply to ICW training programs.

70.6.4 <u>Task performance data</u>. Performance of Task 401 produces the data identified in DI-ILSS-81104, Trainee and Training Course Completion Report. The data elements identified in this DID include many elements which are only required to support formal classroom instruction. The requirements of the DID should be reviewed and carefully tailored to delete nonessential and inappropriate data.

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a. Much of the data identified in DID paragraph 10.3.2 is not appropriate for ICW programs. Most of the trainee identification and performance information identified in this data element is collected by the ICW system CMI function.

b. DID paragraph 10.3.3 should be tailored to data applicable to ICW.

c. The requirements of DID paragraph 10.3.4 are unique to the U.S Air Force Air Training Command. All other agencies should delete this requirement.

d. Whether or not a training certificate is required should be determined by agency directives, when completion of the ICW training program might warrant issuing a certificate of training.

70.7 <u>Training Evaluation, Task 402</u>. Task 402 validates the training materials and evaluates the courseware capabilities and training effectiveness. The results of the evaluation are used to correct deficiencies in the ICW training program, or, when the ICW is integrated into other curricula, all instructional materials used to support all required training modes and ICW applications. Training program evaluation is usually conducted in conjunction with the initial conduct of training required by Task 401 (see 70.6).

70.7.1 <u>Subtasks applicable to DD/I contracts</u>. The subtasks of Task 402 that are required to validate the ICW training program materials and evaluate the program training capabilities and effectiveness are identified and described in subsequent paragraphs.

70.7.1.1 <u>Subtask 402.2.1</u>. This subtask executes the Training Evaluation Plan, DI-ILSS-81076, developed by performance of Task 107.

70.7.1.2 <u>Subtask 402.2.2</u>. Subtask 402.2.2 develops a description of how the training program was evaluated. The description should address the methodology and procedures used during the evaluation.

70.7.1.3 <u>Subtask 402.2.3</u>. This subtask identifies the personnel who conducted the evaluation, and the personnel, materials, and special equipment resources that were used.

70.7.1.4 <u>Subtask 402.2.4</u>. Subtask 402.2.4 describes any training deficiencies found in the training materials during the evaluation.

70.7.1.5 <u>Subtask 402.2.5</u>. This subtask identifies changes to the training materials that are necessary to correct the deficiencies identified by Subtask 402.2.4.

70.7.1.6 <u>Subtask 402.2.6</u>. Performance of this subtask requires the contractor to provide guidance and assistance to service instructors during the initial conduct of the training (see 70.6). This subtask would only apply to integrated ICW applications.

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70.7.1.7 <u>Subtask 402.2.7</u>. The ICW training materials are validated by performance of Subtask 402.2.7. Training materials validation assures the instructional materials are technically accurate and current.

70.7.2 <u>Subtasks not required for ICW evaluation</u>. The following two subtasks of Task 402 are not required to support evaluation of the ICW training materials.

    a.   Subtask 402.2.8 supports validation of test items and tests. Test item validation was accomplished during performance of task description 205. Test validation was accomplished during performance of task description 301. Test item and test validation is accomplished prior to validation and evaluation of the courseware because the validated test items and tests are used to measure and quantify trainee achievement of the learning objectives through completion of the instructional program.

    b.   Subtask 402.2.9 supports planning for and develop of training program changes required to correct program deficiencies discovered during a training effectiveness evaluation conducted subsequent to training program implementation and completion of the initial program evaluation and validation.

70.7.3 <u>Proposed GFI</u>. The following inputs may be necessary to support validation and evaluation of the ICW training program materials. These are in addition to those inputs identified in Task Input 402.3 of Task 402.

    a.   Input the approved Instructional Media Package, DI-ILSS-81092, which contains the ICW program media materials.

    b.   Input the approved Instructional Media Data Files, DI-ILSS-81093, which provide the content and logic data files necessary to run the ICW instructional media program.

    c.   Input the approved Training System Utilization Handbook, DI-ILSS-81096, which provides the ICW Manager's Guide and the ICW User's Guide applicable to the ICW training program.

    d.   Input the approved Instructional Media Design Report, DI-ILSS-81091, which provides critical course, lesson, and test design parameters, and the functional design parameters of the system CMI programs.

70.7.4 <u>Task performance data</u>. Performance of the work described by Task 402 produces the training program validation and evaluation data identified in and acquired by DI-ILSS-81105, Training Evaluation and Validation Report. The data elements of this DID provide a comprehensive documentation of the evaluation methodology, procedures, deficiency findings, and recommendations to correct courseware deficiencies. While the

data described by DI-ILSS-81105 is applicable to any training program evaluation and validation, there may be data elements which are not required to support your agency's requirements. You should review the DID requirements and tailor out those which are not necessary.

70.7.4.1 <u>Discrete task output data</u>. Performance of Task 402 produces two discrete task output data elements which are important to preparation of the finalized ICW training program and other program deliverables.

a. Discrete Task Output 402.4.3, "red-lined" instructional media materials is produced by Subtask 402.2.5. This data output should be input back into Tasks 211, 301, and 303 for correction of design and development deficiencies attributable to performance of applicable subtasks of these task descriptions.

b. Discrete Task Output 402.4.4, Training materials validation results data, is also input into Tasks 211, 301 and 303 to be used in correcting any ICW program deficiencies.

70.7.4.2 <u>Training Evaluation and Validation Report distribution requirements</u>. A copy of the Training Evaluation and Validation Report, DI-ILSS-81105, should be forwarded to the Defense Technical Information Center in accordance with DoD Instruction 1322.20. An abstract of the training effectiveness evaluation should be forwarded to OASD (FM & P), as prescribed by this DoD instruction.

70.8 <u>Training Development Control, Task 103 (Critical design review)</u>. A final critical design review (CDR) is recommended immediately following completion of the initial conduct of the ICW training program, and the training program evaluation and validation.

a. This CDR is recommended to perform a thorough and final review of the ICW instructional program based upon the deficiencies discovered during the initial conduct, and the evaluation and validation of the courseware.

b. The CDR should focus on the ICW video, audio, graphics, and instructional media data files to detect errors that should be corrected prior to reproducing the instructional media. This CDR should also evaluate the results of the evaluation and validation to determine whether or not another evaluation and validation should be accomplished before finalizing the courseware materials.

c. When a CDR is necessary following completion of the courseware evaluation and validation, appropriate subtasks from Task 103 should be included in the DD/I contract SOW. These subtasks should occur immediately following Task 402 SOW requirements.

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70.9 Correcting deficiencies in ICW training program materials. Correction of the deficiencies in ICW training program materials is an implied requirement of the DD/I contract, and the provisions of the quality assurance and internal surveillance programs established by the approved Training Program Development and Management Plan, DI-ILSS-81070. You may want to consider including additional work statements in the ICW DD/I contract SOW, however, which would clearly identify this requirement.

70.9.1 Additional ICW DD/I contract SOW task descriptions. Because of the many deliverable data items associated with ICW design and development and the importance of these documents and materials to future courseware maintenance actions, additional SOW task descriptions are suggested which should assure that all critical elements of the ICW program are current and valid upon final acceptance of the program materials.

70.9.1.1 Correct errors in ICW instructional design. Include the following additional task description in the DD/I contract SOW to assure correction of ICW design errors discovered during the courseware evaluation and validation.

> "Re-accomplish applicable subtasks of MIL-STD-1379 Task 211, Instructional Media Design, necessary to correct program design errors identified during program evaluation and validation. Correct and update pertinent data elements of the Instructional Media Design Report, DI-ILSS-81091, to reflect all design changes."

70.9.1.2 Correct errors in ICW instructional media. Include the following additional task description to correct errors in the instructional media.

> "Re-accomplish applicable subtasks of MIL-STD-1379 Task 301, Instructional Media Production, necessary to correct errors in the instructional media materials identified during program evaluation and validation. Correct and update pertinent data elements of the Instructional Media Package, DI-ILSS-81092, and the Instructional Media Data Files, DI-ILSS-81093, to reflect all changes made to the instructional materials."

70.9.1.3 Correct errors in ICW manager's and user's guides. Add the following task description to correct errors in the ICW manager's guide and ICW user's guide.

> "Re-accomplish applicable subtasks of MIL-STD-1379 Task 303, Training Materials for Instructors, necessary to correct errors in the ICW manager's and user's guides identified during evaluation and validation of the ICW program materials. Correct and update applicable data elements of the Training System Utilization Handbook, DI-ILSS-81096, to reflect all changes made to the ICW manager's and user's guides."

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70.9.1.4 <u>Re-evaluate and validate corrected ICW training program materials</u>. Add the following task description to require re-evaluation and validation of the ICW training program materials subject to service specific guidance (determined at the CDR, 70.8).

> "Re-evaluate and validate the ICW training program materials in accordance with the approved Training Evaluation Plan, DI-ILSS-81076, when instructed by the Government. Document the evaluation and validation results by addendum to the approved Training Evaluation and Validation Report, DI-ILSS-81105, conforming to the content and format of the basic report."

70.9.2 <u>Task input</u>. Performance of the additional work required by the suggested SOW statement identified in 70.9.1.4 may require the following input data.

a. Input the approved Instructional Media Design Report, DI-ILSS-81091, and those inputs identified in Task Input 211.3 of MIL-STD-1379 Task 211. Also input the data identified in 50.5.2.

b. Input the approved Instructional Media Package, DI-ILSS-81092, and Instructional Media Data Files, DI-ILSS-81093; and those inputs identified in Task Input 301.3 of MIL-STD-1379 Task 301. Also input the data identified in 60.2.3.

c. Input the approved Training System Utilization Handbook (manager's and user's guides), DI-ILSS-81096, and the inputs in Task Input 303.3 of MIL-STD-1379 Task 301. Also input the data identified in 60.3.2.

d. Input discrete Task Output 402.4.3, "red-lined" copies of the ICW instructional materials.

e. Input discrete Task Output 402.4.4, Training materials validation results data.

f. Input the approved Training Evaluation and Validation Report, DI-ILSS-81105.

70.9.3 <u>Task performance data</u>. Performance of the additional task descriptions in paragraph 70.9.1 should produce updated versions of the specific documents, reports, and instructional media materials which required correction due to deficiencies discovered during program evaluation and validation.

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APPENDIX B

80. ICW TRAINING PROGRAM ACCEPTANCE

80.1 Introduction. This section of Appendix B briefly describes some, but not all, factors and considerations relating to acceptance of the completed ICW training program. This section offers general guidelines which should be compared and merged with established agency procedures.

80.2 Compliance with program requirements. The first and most obvious consideration to evaluate is compliance with the approved design strategies, flow diagrams, and script-storyboards. Conformance to established and approved ICW conventions should also be verified. While this should have been accomplished during the critical design review (see 70.8), it should be verified again during the final acceptance process.

a. Final acceptance of the ICW program materials should include a review of those DD/I documents and reports that had to be changed and updated to incorporate changes resulting from the training program evaluation and validation.

b. You should consider developing some form of checklist to guide the final acceptance process by noting key points in the various DD/I deliverables as they were received. A sample quality assurance ICW evaluation checklist is provided in Figure B-5. The checklist incorporates the same style guide conventions used in Figure B-3.

80.2.1 Delivery media. The delivery media for the final, approved versions of all DD/I contract deliverables should be addressed in the CDRL. As described in 4.4.2.4 of the handbook, the final delivery media should be in digital form due to the vast amount of data produced during the ICW design, development and implementation process. This is an especially important factor for delivery of the approved flow diagrams and script-storyboards. Storyboards may be provided in a graphics format due to the content requirements. When this occurs, be sure the appropriate graphics program used to develop or capture the storyboards is also provided as indicated by DI-ILSS-81093, paragraph 10.3.2.

80.2.2 Distribution requirements. Depending upon the Government furnished support being provided for the ICW DD/I contract (see 30.4), distribution of the final courseware may be either a Government responsibility or one assigned to the contractor. ICW training program materials reproduction, packaging, and distribution requirements, and procedures for accomplishing acceptance of the deliverable quantities should be addressed in the contract. At this point in the contract, you should be concerned with verifying compliance with the contract requirements. When the Government will accept responsibility for any portion of the reproduction, packaging and distribution of the ICW program materials, suitable management controls should be established to assure complete distribution and accurate accounting for the program materials.

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80.2.3 <u>Storage facilities</u>. Final inspection and acceptance of the ICW program materials may include several reels of resource video and audio tape, premaster video tape, and master video and audio tapes. Depending upon how you tailored the requirements of DI-ILSS-81092, you may also receive the actual glass master copy of the videodisc. These deliverable data items will require a climate controlled storage environment to prevent them from environmental damage. You should assure that an adequate storage facility has been identified to receive and store these deliverable items. You visual Information manager should help identify a suitable facility.

APPENDIX B

90. PROGRESS REPORTS

90.1 <u>Progress Reports</u>. Your requirements for training development contract progress reports should be addressed in Section 4 of the SOW. Progress reports are contract management tools. Program progress reports provide management indicators and work progress status necessary to manage contractor performance, schedules and deliverables. MIL-STD-1379 Task 103, Training Development Control, includes Subtask 103.2.11 for contractor development of program progress reports.

90.2 <u>Progress report schedules</u>. Progress report requirements are established within the SOW, Section 4, to include reporting schedules. You should consider establishing a reporting schedule that combines with but does not duplicate in-process review schedules. This appendix recommends in-process reviews (IPR), preliminary design reviews (PDR), and critical design reviews (CDR) throughout the ICW design, development, and implementation process. Report scheduling should not require a program progress report within the same time frame as an IPR/PDR/CDR will occur. A suggested approach to progress report scheduling is to require monthly reports, but not within 20 calendar day of a scheduled IPR/PDR/CDR. The monthly schedule should commence one month after the kick-off meeting and continue until the first IPR is scheduled to occur within 20 days of the scheduled IPR. Monthly progress reports would begin again one month after the this first IPR and continue until within 20 days of the next scheduled IPR/PDR/CDR. Reporting would commence again one month after that IPR/PDR/CDR, and so on.

90.3 <u>Progress report content</u>. The content and format of training development contract program progress reports is prescribed by DI-MGMT-80555, Program Progress Report. Report content should be tailored to reflect your minimum reporting requirements. Be sure to include distribution requirements in the CDRL, as well as review and approval procedures.

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
Task 102, Training Program Development and Management Planning [1]				102.4.1	DI-ILSS-81070, Training Program Development and Management Plan
102.2.1	YES	YES	102.3 (All)		Paragraphs 10.3.2.7, 10.3.2.8, 10.3.2.18 and 10.3.2.19.
102.2.2	YES	YES	102.3 (All)	102.4.3	
102.2.3	YES	YES	102.3.1		Paragraph 10.3.2.15
102.2.4	YES	YES	102.3 (All)		Paragraph 10.3.2.16
102.2.5	YES	YES	102.3 (All)	102.4.4	
102.2.6	YES	YES			Paragraph 10.3.2.17
102.2.7	YES	YES	102.3 (All)	102.4.5	Paragraph 10.3.2.10
102.2.8	YES	YES	102.3 (All)	102.4.2 and 102.4.6	DI-ILSS-81071, Individual Training Plan
102.2.9	YES	YES	102.3 (All)	102.4.7	DI-ILSS-81070, Paragraph 10.3.2.6
102.2.10	YES	YES		102.4.8	Paragraph 10.3.2.3
102.2.11	YES	YES	102.3.1		Paragraph 10.3.2.14
102.2.12	YES	YES	102.3 (All)	102.4.9	Paragraphs 10.3.2.11, 10.3.2.12 and 10.3.2.13.
102.2.13	YES	YES			Paragraph 10.3.2.4
102.2.14	YES	YES			Paragraphs 10.3.2.2, 10.3.2.3, 10.3.2.5, 10.3.2.9 and 10.3.3.

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[1] Task 102 is also cited in Table A-1, Appendix A. It is included here to assure inclusion of task planning requirements in ICW design and development contracts separate from the front end analysis effort.

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
Task 103, Training Development Control (In-process, Preliminary Design, and Critical Design Reviews (IPR/PDR/CDR))				103.4.2 103.4.3 103.4.4	DI-ADMIN-81249, Conference Agenda DI-ADMIN-81250, Conference Minutes DI-MGMT-80555, Program Progress Report
103.2.8	YES	YES		103.4.2	DI-ADMIN-81249, Conference Agenda
103.2.9	YES	YES		103.4.3	DI-ADMIN-81250, Conference Minutes
103.2.10	YES	YES			
103.2.11	YES	YES		103.4.4	DI-MGMT-80555, Program Progress Report
Task 105, Training Implementation Planning				105.4.1	DI-ILSS-81074, Training System Implementation Plan
105.2.1	YES	YES	105.3 (All)	105.4.2	Paragraphs 10.3.2, 10.3.5 and 10.3.6
105.2.2	YES	YES	105.3 (All)		Paragraph 10.3.8
105.2.3	YES	YES	105.3 (All)		Paragraph 10.3.10n
105.2.4	YES	YES	105.3.1, 105.3.2, 105.3.5, 105.3.6 and 105.3.14		Paragraph 10.3.10
105.2.5	YES	NO	105.3.1, 105.3.2, 105.3.6, 105.3.7, 105.3.19 and 105.3.21	105.4.3	Paragraph 10.3.9
105.2.6	YES	YES	105.3.1, 105.3.2, 105.3.6 and 105.3.14		Paragraph 10.3.2e

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
105.2.7	YES	NO	105.3.1, 105.3.2, 105.3.6 and 105.3.14		DI-ILSS-81074, Paragraphs 10.3.2l and m, and 10.3.6f
105.2.8	YES	YES	105.3.1, 105.3.2, 105.3.6, 105.3.7, 105.3.15, 105.3.16, 105.3.17 and 105.3.20		Paragraph 10.3.10
105.2.9	YES	YES	105.3.1, 105.3.2, 105.3.3, 105.3.6, 105.3.7, 105.3.17 and 105.3.20		Paragraph 10.3.10
105.2.10	YES	NO	105.3.1, 105.3.2, 105.3.6, 105.3.7, 105.3.9 and 105.3.18		Paragraphs 10.3.10m, 10.3.6e and 10.3.11c
105.2.11	YES	YES	105.3.1, 105.3.3, 105.3.18 and 105.3.20	105.4.4	Paragraph 10.3.6d
Task 106, Training Implementation Control				106.4.1	DI-ILSS-81075, Training Course Control Document [2]

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[2] The deliverable data identified within this DID results from performance of more than one work task. The task outputs, therefore, affect and appear in more than one paragraph of the course control document.

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
106.2.1	YES	YES	106.3.1, 106.3.6, 106.3.8, 106.3.9, and 106.3.17	106.4.2	DI-ILSS-81075, Paragraphs 10.3.3, 10.3.4, 10.3.5, 10.3.6, 10.3.7, 10.3.8 and 10.3.10 [3]
106.2.2	YES	NO	106.3.3, 106.3.17, and 106.3.18		DI-ILSS-81075, Paragraphs 10.3.9 and 10.3.11
106.2.3	YES	NO	106.3.7 and 106.3.17		Paragraph 10.3.6
106.2.4	YES	YES	106.3.1, 106.3.2, 106.3.4, and 106.3.5; 106.3.10 through 106.3.17.	106.4.2	Paragraphs 10.3.3, 10.3.4, 10.3.5, 10.3.6, 10.3.9, and 10.3.11 [3]
Task 107, Training Evaluation Planning.				107.4.1	DI-ILSS-81076, Training Evaluation Plan.
107.2.1	YES	YES	107.3 (All) Also Input task 205 outputs 205.4.2, 205.4.3, 205.4.4, 205.4.5 and 205.4.8	107.4.2	Paragraphs 10.3.3c through 10.3.3i, and 10.3.3p and q
107.2.2	YES	YES	107.3.2		Paragraph 10.3.3l
107.2.3	YES	YES			Paragraph 10.3.3m
107.2.4	YES	YES			Paragraph 10.3.3n
107.2.5	YES	YES			Paragraph 10.3.3k

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[3] Each of these cited paragraphs provide course descriptive data. Each paragraph should be reviewed to select the one or two formats which meet your requirements (see 70.3.3).

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
107.2.6	YES	YES	107.3 (All) Also Input task 205 outputs 205.4.2, 205.4.3, 205.4.4, 205.4.5 and 205.4.8	107.4.2	DI-ILSS-81076, Paragraph 10.3.3j
Task 205, Tests For Measurement of Personnel Achievement				205:4.1	DI-ILSS-81085, Test Package.
205.2.1	YES	YES	205.3 (All)	205.4.2	Paragraph 10.3.4.2.3
205.2.2	YES	YES	205.3 (All) (See 50.2.1.2.1)	205.4.3	Paragraph 10.3.4
205.2.3	YES	4		205.4.4	DI-ILSS-81105, Training Evaluation and Validation Report, Paragraph 10.3.5
205.2.4	YES	5		205.4.5	Paragraph 10.3.5
205.2.5	YES	6	205.3.2, 205.3.3, 205.3.6 and 205.3.9	205.4.6	DI-ILSS-81085, Test Package, Paragraphs 10.3.4.2.2 and 10.3.5.2
205.2.6	7	7	205.3 (All)	205.4.7	
205.2.7	YES	YES		205.4.8	Paragraph 10.3.5.2.5

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4. Required for ICW knowledge test items only. Performance tests/simulations are validated after development of instructional media, Task 301.

5. ICW test validation occurs after development of instructional media, Task 301.

6. Directions and definitions are needed only to the extent they apply to electronically administered tests.

7 Job performance improvement program test item prescriptions - selected answer-specific remediation - require service specific guidance when included in the SOW. Guidance should address depth and detail requirements of remedial prescriptions so prospective vendors can accurately determine the associated ICW design and development workload.

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
205.2.8	YES	YES		205.4.9	DI-ILSS-81085, Paragraphs 10.3.5.2.4 and 10.3.5.6
205.2.9	YES	NO			
Task 210, Lesson Specifications Development				210.4.1	DI-ILSS-81090, Lesson Specifications Report
210.2.1	YES	YES	210.3 (All)	210.4.2	
210.2.2	YES	YES	Also input 205.4.2, 205.4.3, 205.4.7 and 205.4.8 from task 205, and 208.4.2 and 208.4.3 from task 208.	210.4.2 and 210.4.4	Paragraph 10.3.3c
210.2.3	YES	YES		210.4.2	Paragraph 10.3.3l
210.2.4	YES	YES		210.4.2 and 210.4.6	Paragraph 10.3.3 Paragraph 10.3.3f Paragraph 10.3.3g Paragraph 10.3.3h
210.2.6	YES	YES		210.4.3	
Task 211, Instructional Media Design				211.4.1	DI-ILSS-81091, Instructional Media Design Report.
211.2.1	YES	YES	211.3.1, 211.3.16	211.4.2	Paragraph 10.3.3.4
211.2.2	YES	YES	* 211.3.1/4/8/ 10/11/13/17/ 18/22/23/24/ 26 Also input 205.4.7 and 210.4.2	211.4.3	DI-ILSS-81091, Paragraph 10.3.3.16

* The slash (/) should be read as "and 211.3" for all Task 211 input blocks. The "/" is used to conserve space due to the number of inputs required for each subtask.

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
211.2.3	YES	YES	211.3.1/5/6/ 7/12/17/20/ 22/27 Also input 205.4.7 and 210.4.2	211.4.4	DI-ILSS-81091, Paragraph 10.3.3.16
211.2.4	YES	YES	211.3.1/4/8/ 10/16/22/23/ 24/27 Also input 205.4.7 and 210.4.2	211.4.5	Paragraphs 10.3.3.10 and 10.3.3.10.1
211.2.5	YES	YES	211.3.1/15/ 22/23/27/28 Also input 210.4.2	211.4.6	Paragraphs 10.3.3.10 and 10.3.3.10.2
211.2.6	YES	YES	211.3.2/15/ 19/26	211.4.7	Paragraph 10.3.3.14
211.2.7	YES	YES	211.3 (All) Also input 210.4.2	211.4.8	Paragraph 10.3.4
211.2.8	YES	YES	211.3.1/20/ 22/23/24/27 Also input 102.4.4 and 210.4.2	211.4.9	Paragraphs 10.3.3.10 and 10.3.3.10.3
211.2.9	YES	YES	Input 210.4.2 from task 210.	211.4.10	Paragraph 10.3.3.3
211.2.10	YES	YES		211.4.11	Paragraph 10.3.3.13
211.2.11	YES	YES	211.3.15/16/ 18/19/29	211.4.12	Paragraph 10.3.3.9f
211.2.12	YES	YES	211.3.13	211.4.13	Paragraph 10.3.2
Task 301, Instructional Media Production				301.4.1	DI-ILSS-81092, Instructional Media Package.
				301.4.2	DI-ILSS-81093, Instructional Media Data Files

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
301.2.1	YES	YES	301.3.1, 301.3.26		DI-ILSS-81092, Paragraph 10.3.5
301.2.2	YES	YES	301.3 (All)		Paragraph 10.3.2
301.2.3	YES	YES	301.3 (All)		Paragraph 10.3.3
301.2.4	YES	YES			Paragraph 10.3.4
301.2.5	YES	YES	301.3.1, 301.3.32	301.4.5, 301.4.7	Paragraph 10.3.8
301.2.6	YES	YES	301.3.1, 301.3.32	301.4.5, 301.4.7	Paragraph 10.3.7
301.2.7	YES	YES			Paragraph 10.3.6
301.2.8	YES	YES	301.3 (All)	301.4.3, 301.4.5	Paragraphs 10.3.7, 10.3.8, and 10.3.9
				301.4.5	DI-ILSS-81093, Paragraphs 10.3.3 and 10.3.4
301.2.9	YES	YES	301.3 (All)	301.4.3, 301.4.5.	Paragraphs 10.3.3, 10.3.4, and 10.3.5
301.2.10	YES	YES	301.3.1/12/13 /14/17/29/33	301.4.4	
301.2.11	YES	YES	301.3.1, 301.3.29 and 301.3.30		DI-ILSS-81092, Paragraph 10.3.16
301.2.12	YES	YES	301.3.1, 301.3.31	301.4.6	DI-ILSS-81093, Paragraph 10.3.3.3
301.2.13	YES	YES			DI-ILSS-81092, Paragraph 10.3.14
301.2.14	NO	NO			Paragraph 10.3.15
301.2.15	YES	YES	301.3.1, 301.3.31	301.4.8	
Task 303, Training Materials For Instructors				303.4.2	DI-ILSS-81096, Training System Utilization Handbook.

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TABLE B-1. <u>MIL-STD-1379 tasks applicable to ICW DD/I contracts</u> - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE- GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
303.2.1	YES	NO	• 303.3.1 and the following ouputs: 201.4.1, 203.4.1, 204.4.1, 205.4.1, 210.4.1, 211.4.1, 301.4.1 and 301.4.2.	303.4.6	DI-ILSS-81096, Training System Utilization Handbook.
303.2.2	YES	NO	See 303.2.1	303.4.6	
303.2.3	NO	YES	See 303.2.1	303.4.6	
303.2.4	YES	YES	See 303.2.1	303.4.6	
303.2.5	YES	YES	See 303.2.1	303.4.6	
303.2.6 (Army)	NO	NO	See 303.2.1	303.4.3	
303.2.7 (Army)	NO	NO	See 303.2.1	303.4.4	
303.2.8	YES	YES	See 303.2.1		
303.2.9	NO	NO	See 303.2.1	303.4.5	
303.2.10	YES	YES	See 303.2.1	303.4.7	Paragraph 10.3.12 to include the information requirements of paragraphs 10:3.1, 10.3.2, 10.3.3, 10.3.4, 10.3.5, 10.3.7, 10.3.8, and 10.3.10. [10]

• Inputs required to perform the subtasks of Task 303 are dependent upon the availability of approved reports and documents generated by earlier work tasks. Most of the inputs prescribed in Task Input 303.3 are redundant to the information available in the approved reports and documents. For ease of input identification, only the approved report and document task output numbers are identified here. Where the actual report or document was not a deliverable or is not available, the individual, discrete inputs will have to be identified.

[10] The ICW Manager's Guide is identified in paragraph 10.3.12 of the DID, but does not incorporate the requirements of the other cited paragraphs through reference. The SOW should identify the requirement to include the information required by the additional paragraph references after each is tailored to meet agency requirements.

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TABLE B-1. MIL-STD-1379 tasks applicable to ICW DD/I contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
303.2.11	YES	YES	See 303.2.1	303.4.8	**DI-ILSS-81096** Paragraph 10.3.13 to include the information requirements of paragraphs 10.3.1, 10.3.2, 10.3.3, 10.3.4, 10.3.6, 10.3.7, 10.3.8 and 10.3.10.1. [11]
Task 401, Conduct of Training				401.4.1	**DI-ILSS-81104**, Trainee and Training Course Completion Report.
401.2.1	YES	YES	401.3.1, 401.3.2. Also input 301.4.2		
401.2.2	YES	NO			Paragraph 10.3.2
401.2.3	NO	NO	401.3.1		Paragraph 10.3.2
401.2.4	YES	YES	401.3.1		Paragraph 10.3.3
401.2.5	NO	NO	401.3.1		Paragraph 10.3.2
401.2.6	NO	NO	401.3.1		Paragraph 10.3.6
401.2.7	YES	YES	401.3.1, 401.3.2. Also input 301.4.2		Paragraph 10.3.6
Task 402, Training Evaluation (TEST VALIDATION)				402.4.1	**DI-ILSS-81105**, Training Evaluation and Validation Report
402.2.8	YES	YES	402.3.2, 402.3.4 and 402.3.6	402.4.6	Paragraphs 10.3.3, 10.3.4 and 10.3.6.
Task 402, Training Evaluation (ICW EVALUATION/VALIDATION)				402.4.1	**DI-ILSS-81105**, Training Evaluation and Validation Report

[11] The ICW User's Guide requires that information cited in the additional paragraphs be included in order to develop a complete guide. The requirements of each paragraph will have to be tailored to meet agency and agency user applications.

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TABLE B-1. <u>MIL-STD-1379 tasks applicable to ICW DD/I contracts</u> - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
402.2.1	YES	YES	402.3.1.2		DI-ILSS-81105, Training Evaluation and Validation Report All paragraphs apply, subject to tailoring to meet specific agency report requirements.
402.2.2	YES	YES	402.3.1, 402.3.2, 402.3.3 and 402.3.7		
402.2.3	YES	YES	402.3.1, 402.3.2, 402.3.3, 402.3.4, 402.3.6 and 402.3.7		
402.2.4	YES	YES	402.3.1, 402.3.2, 402.3.3 and 402.3.7. Also input 301.4.1, 301.4.2, 303.4.7 and 303.4.8.		
402.2.5	YES	YES	402.3.1, 402.3.2, 402.3.3, 402.3.4, 402.3.6 and 402.3.7. Also input 301.4.1, 301.4.2, 303.4.7 and 303.4.8.	402.4.3	
402.2.6	YES	NO			

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TABLE B-1. <u>MIL-STD-1379 tasks applicable to ICW DD/I contracts</u> - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED COURSE	STAND ALONE COURSE	TASK INPUT	TASK OUTPUT	
402.2.7	YES	YES	402.3.1, 402.3.2, 402.3.3, 402.3.4, 402.3.6 and 402.3.7. Also input 301.4.1, 301.4.2, 303.4.7 and 303.4.8.	402.4.4	DI-ILSS-81105, Training Evaluation and Validation Report All paragraphs apply, subject to tailoring to meet specific agency report requirements.
402.2.8	NO	NO			
402.2.9	NO	NO			
Task 70.9.1 (Added -- see text paragraph 70.9.1) Additional task descriptions added to support incorporation of ICW training program materials changes necessary to correct training materials deficiencies identified during training evaluation/validation.				(See text paragraph 70.9.3)	Tailored versions of: DI-ILSS-81091, Instructional Media Design Report;
70.9.1.1	YES	YES	(See 70.9.2)		DI-ILSS-81092, Instructional Media Package;
70.9.1.2	YES	YES			DI-ILSS-81093, Instructional Media Data Files; and
70.9.1.3	YES	YES			DI-ILSS-81096, Training System Utilization Handbook (ICW Manager's and User's Guides)
70.9.1.4	YES	YES			

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TABLE B-2. Sequence of DD/I deliverables and IPRs.

DID NUMBER	DID TITLE	MIL-STD-1379 TASK OUTPUT	TYPE OF IPR SUGGESTED
DI-ADMIN-81249	Conference Agenda [1]	103.4.2	NONE
DI-ADMIN-81250	Conference Minutes [1]	103.4.3	NONE
DI-MGMT-80555	Program Progress Report	103.4.4	[2]
DI-ILSS-81070	Training Program Development and Management Plan	102.4.1	YES/IPR
DI-ILSS-81085	Test Package	205.4.1	NONE
DI-ILSS-81105	Training Evaluation and Validation Report (Test Item Validation)	402.4.1	NONE
DI-ILSS-81090	Lesson Specification Report	210.4.1	YES/IPR
DI-ILSS-81091	Instructional Media Design Report	211.4.1	YES/PDR [3]
DI-ILSS-81092	Instructional Media Package	301.4.1	YES/CDR [4]
DI-ILSS-81093	Instructional Media Data Files	301.4.2	YES/CDR [5]
DI-ILSS-81105	Training Evaluation and Validation Report (ICW test validation)	402.4.1	NONE
DI-ILSS-81096	Training Materials for Instructors	303.4.2	NONE
DI-ILSS-81074	Training System Implementation Plan	105.4.1	[6]
DI-ILSS-81075	Training Course Control Documents	.106.4.1	[6]

[1] Only necessary if the contractor will be required to set up and conduct the contract management planning team (Kick-off) meeting and in-process review meetings.

[2] The progress report should be scheduled to occur between the various IPRs, PDRs and CDRs conducted during the ICW design, development and implementation phases.

[3] This PDR should address the ICW lesson specifications, test items and instructional design strategies, and the various flow diagrams produced to show the instructional logic and flow of the ICW lessons.

[4] The critical design review is conducted using the "draft" instructional media materials prior to mastering and replicating the media. Several interim IPRs of deliverable plans and development documents are also suggested (See paragraph 60.2).

[5] Ibib

[6] An IPR to review the implementation plan, evaluation plan and the course control documents is suggested prior to beginning the implementation and evaluation phase.

APPENDIX B

TABLE B-2. Sequence of DD/I deliverables and IPRs - Continued.

DID NUMBER	DID TITLE	MIL-STD-1379 TASK OUTPUT	TYPE OF IPR SUGGESTED
DI-ILSS-81076	Training Evaluation Plan	107.4.1	YES/IPR [6]
DI-ILSS-81104	Trainee and Training Course Completion Report	401.4.1	NONE
DI-ILSS-81105	Training Evaluation and Validation Report	402.4.1	YES/CDR [7]
ALL	FINAL VERSION [8]	N/A	NONE

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[7] A final critical design review of all ICW instructional materials is suggested following completion of the Training Evaluation and Validation Report. The CDR should focus on the deficiencies identified in the materials, determine whether or not the additional task descriptions is paragraph 70.9.1 should be invoked, and determine whether the ICW video/audio/graphics materials and instructional media data files should be mastered and reproduced without another evaluation and validation.

[8] The final version of all deliverable data should be deferred until after the ICW training program has been evaluated, errors corrected and the design and development documents updated to reflect these changes. The final version of all deliverables should be delivered in a CALS-compliant digital form.

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FIGURE B-1. ICW Design requirements definition.

FIGURE B-1. ICW Design requirements definition - Continued.

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FIGURE B-2. ICW Development and implementation requirements definition.

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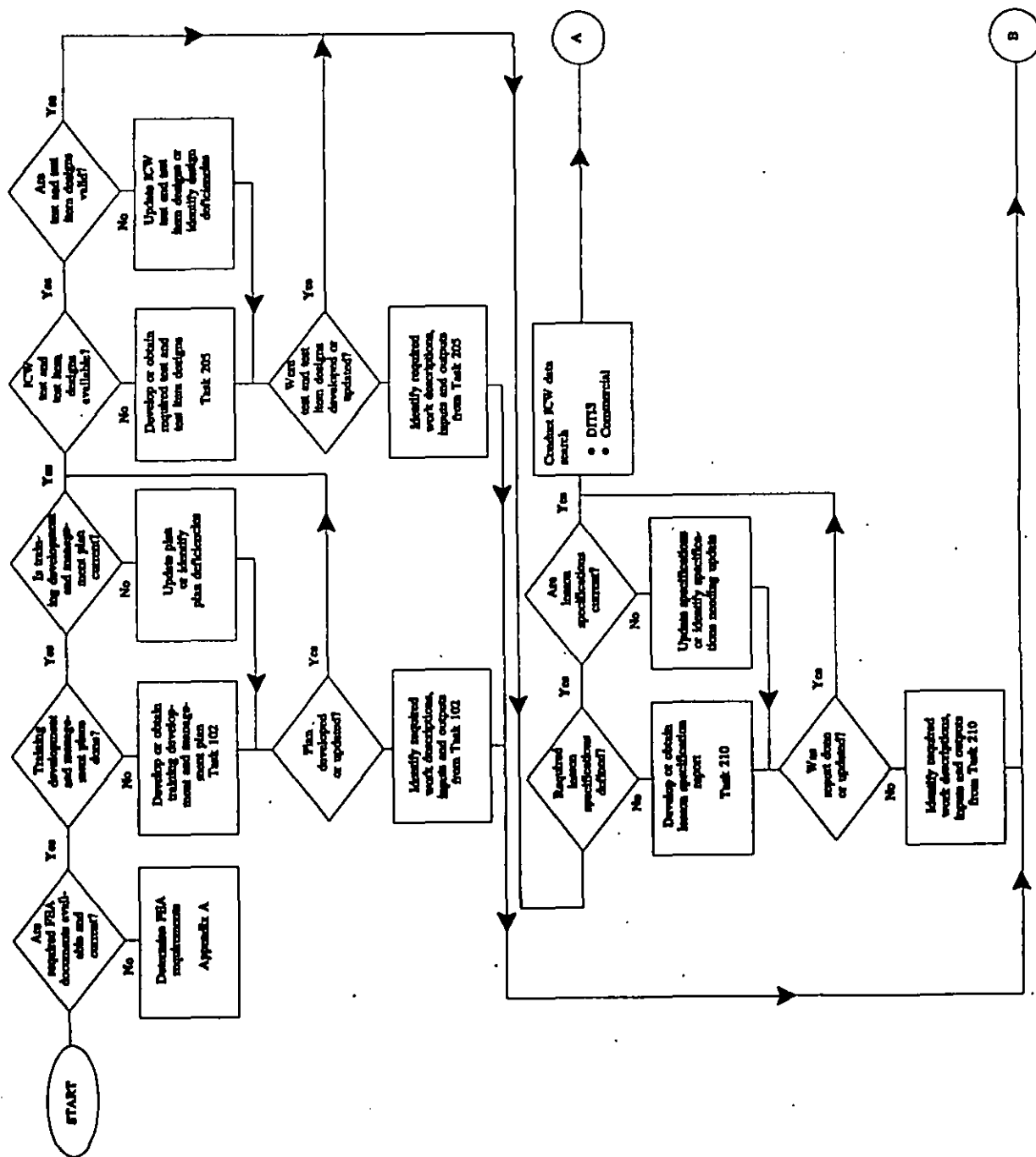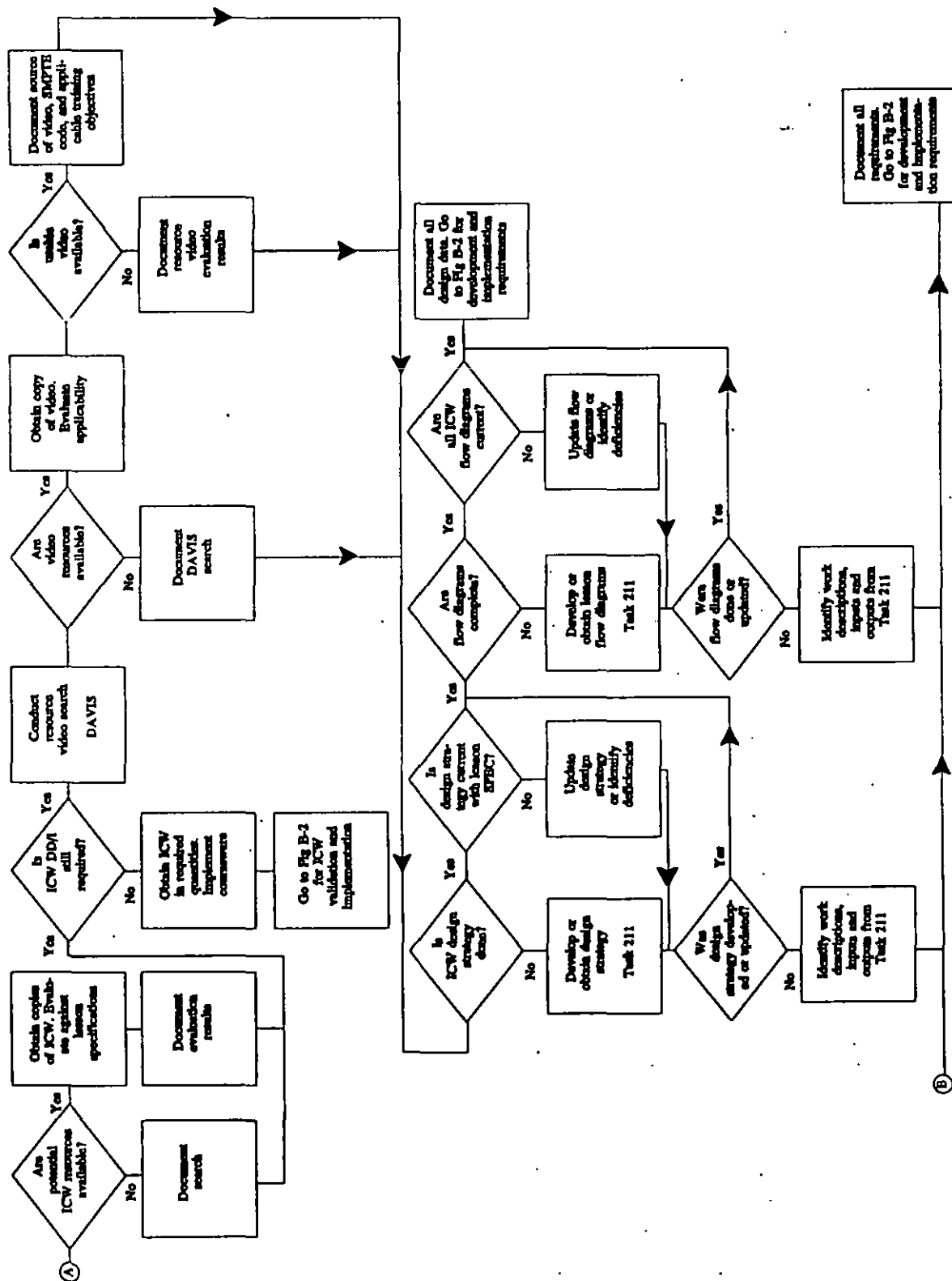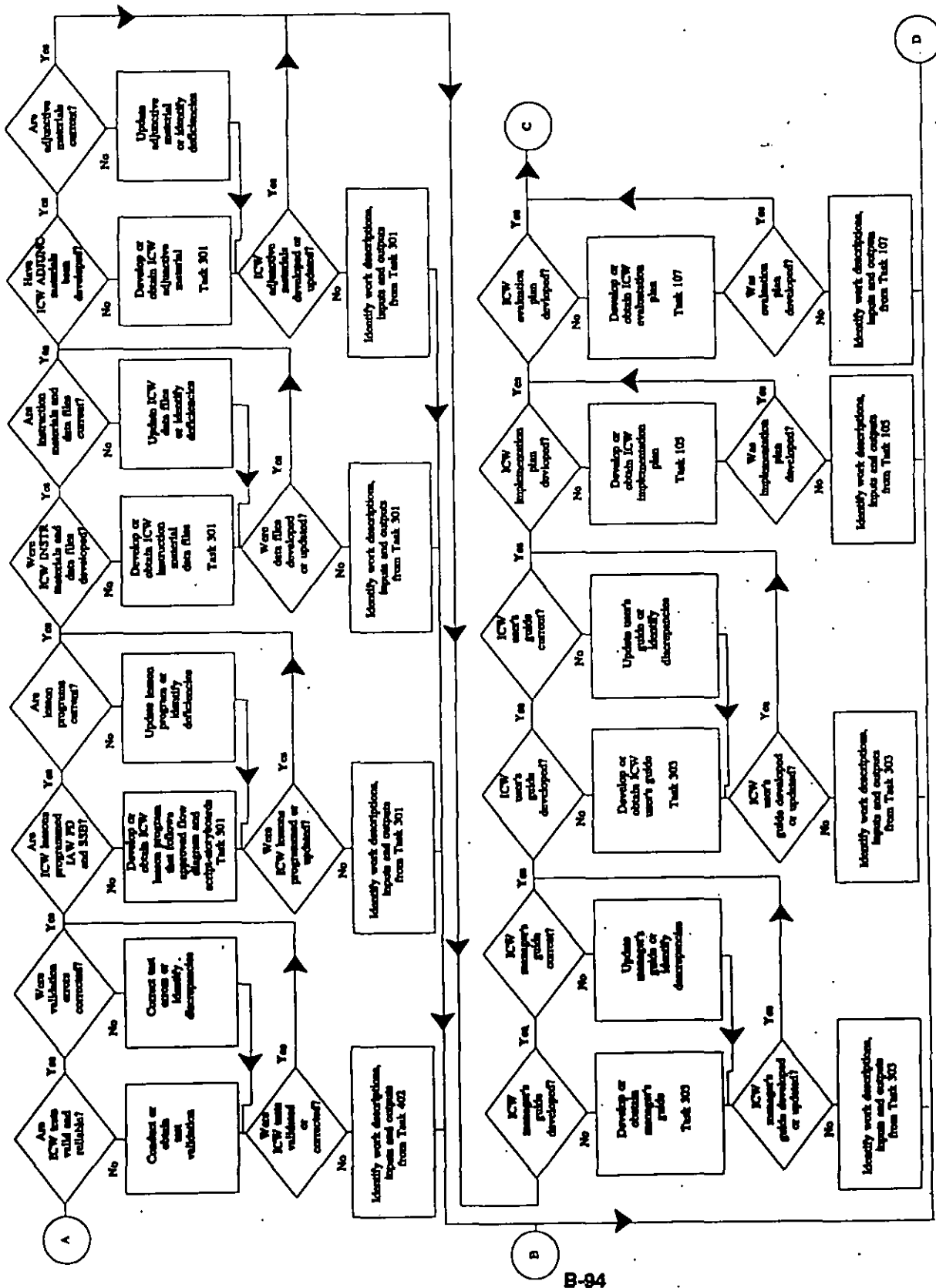
FIGURE B-2. ICW Development and implementation requirements definition - Continued.

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FIGURE B-2. ICW Development and implementation requirements definition – Continued.

3.2 PRETEST. The pretest is usually a knowledge based test specific to a module or lesson of instruction. It shall be structured according to the learning objectives hierarchy applicable to the module/lesson.

3.2.1 The diagnostic pretest score shall determine a trainee's track through the instruction. Trainee responses to individual test items shall be analyzed and appropriate instructional prescriptions and lesson sequences established based upon the analysis.

3.2.2 A 100 percent score on the pretest shall be interpreted as mastery of the subject and shall allow the trainee to bypass or proficiency advance around the applicable module or lesson.

3.2.3 Comprehensive pretests, covering all modules of the course in one test, are recommended. Use pretests for each major module of instruction instead.

3.2.4 If possible, use pretests of 15 questions or less. This will avoid intimidating the trainee and improve their very important "first impressions" of the course. The pretest shall, however, adequately measure all objectives within the applicable module/lesson objectives hierarchy.

3.2.5 Trainees shall take each pretest once and only once. Pretest scores shall be stored within the student records in a manner that will allow retrieval for inclusion within various trainee progress and management reports.

3.2.6 Display the trainee's score at the end of the pretest and print score on the pretest score sheet. Translate all test scores to 100 point scale ((Score/PScore) X 100) for display and printed reports. The score shall be written to the trainee's record data file.

3.2.7 Use an introductory screen for each pretest that states the number of questions and the approximate time required to take the pretest. Provide the trainee the option to "back out" without beginning the test.

3.2.8 In the pretest, the trainee shall not have help or remediation available. If the trainee misses a question or a step in a procedure, the answer or performance shall be considered incorrect and the trainee is advanced to the next question.

3.2.9 Feedback for incorrect responses (either immediate feedback or at the end of the pretest) is optional but strongly recommended. Responses on trainee critiques overwhelmingly indicate that the trainees want to know what they missed.

5. LANGUAGE CONVENTIONS

5.1 WRITING STYLE

5.1.1 Use the active voice whenever possible.

5.1.2 Avoid introductory adverbial clauses unless the content of the clause requires special emphasis.

FIGURE B-3. Sample style guide.

5.1.3 Define a new term the first time it appears in the module or lesson. Use terms and definitions consistently throughout the course.

5.2 PUNCTUATION. Use standard rules of punctuation such as those in the U.S. Government Printing Office Style Manual.

5.2.1 Do not use superfluous commas.

5.2.2 Use the semicolon only between parts of equal ranking.

6. SCREEN DESIGN CONVENTIONS

6.1 GENERAL CONVENTIONS

6.1.1 When using military personnel as "stars" or talent in video productions, they shall conform with service uniform and appearance standards. Military personnel shall appear in the same uniform consistently throughout the video production. Civilian actors who portray military personnel in a uniform shall conform with appropriate military standards for dress and appearance.

6.1.2 Icons shall appear at the bottom of the screen in consistent locations throughout the course.

6.1.3 The meaning of Icons shall be readily apparent to the trainee. Standard Icons shall be used to the maximum extent possible. Non-standard icons shall be approved before they are used.

6.1.4 Provide trainee instructions at the top of the video screen.

6.1.5 Provide transition or supplemental information in the center of the screen.

6.2 COMPUTER TEXT COLOR CONVENTIONS

6.2.1 Trainee instructions shall be in yellow text on a blue bar at the top of the screen. Place a contrasting boarder around the bar.

6.2.2 Warnings shall be red text on a white bar with a red boarder around the bar. The caption "WARNING" shall appear in all capitals, centered on the top line.

6.2.3 Technical data notes shall be in yellow text on a blue bar at the top of the screen. Place a contrasting border around the bar. The caption "NOTE" shall be all capitalized, centered on the top line, and CYAN in color.

6.3 COMPUTER GENERATED GRAPHICS

6.3.1 Colors of equipment shall reflect the color of the actual equipment as closely as possible.

6.3.2 The trainee shall control initiation of animation sequences and shall have the ability to repeat them.

FIGURE B-3. Sample style guide - Continued.

6.3.4 Use similar, but distinctive colors to convey similarity.

6.3.5 Unnecessary ornamentation, patterns, or effects shall be avoided.

7. TESTING CONVENTIONS

Testing shall be electronically administered by the ICW delivery device. The question types to be used shall include multiple choice, matching, and performance. True/false, or yes/no questions shall not be used in tests, since these can easily bias a test due to trainee guessing. True/false and yes/no questions are only acceptable when imbedded in simulations, practice, or branching decisions.

7.1 GENERAL STANDARDS

7.1.1 Response methods shall be consistent throughout any given test. If a test includes screen interaction (e.g., mouse), then all questions in that test shall require screen interaction responses.

7.1.2 Trainees shall be required to answer test questions in the order presented. They shall only be allowed to move forward in the test -- never backwards to a previous test item.

7.1.3 When a trainee selects an item as an answer, they shall be provided some indication of the answer they selected. (EXAMPLES: check marks, circles, box, color change.) Whichever method is used to provide an indication of the selected answer, that method shall be consistently applied throughout the course.

7.1.4 Provide the capability for the trainee to review the questions that they missed. When this capability is not supported by the authoring system being offered, the vendor shall develop support software to meet this requirement.

7.2 TEST CONSTRUCTION

7.2.1 Each test item shall be directly related to a learning objective and training task. Each test item shall be independent and shall not require information from another test item to answer it. Nor should it provide the answer for a subsequent test item.

7.2.2 Create test items which are relevant to the trainee's job environment. Do not use classroom-type questions such as "What are the three main ideas ...," or test items that measure trivial information.

7.2.3 Test items should measure understanding. Remember that "why" is just as important as "how," if not more important.

7.2.4 Create more than one question per objective for use in random test generation or other test versions. Questions shall be appropriate for the type of learning required by the objective being measured. If the objective only requires locating an item, do not test knowing its use. Likewise, if the objective is to apply information, test items which measure recall, locating the item, or defining it would be inadequate for the objective.

FIGURE B-3. <u>Sample style guide</u> - Continued.

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7.2.5 Sequence the test items within the test so the more difficult test items are toward the end of the test.

7.2.6 Generally, about 75 percent of the test questions should be of average difficulty or below. The remaining 25 percent should be key questions that discriminate between the weak, average and strong trainees. Test design should focus on these key questions.

7.2.7 An effective technique for testing understanding is "nested" multiple choice questions. The first question is designed like any other. The second question asks why they chose the particular answer given in the first question. The trainee must answer both correctly to demonstrate the required level of understanding. The second question should be weighted the same or more than the first. When this technique is used with different weights given to each question, the scoring criteria for these questions shall be explained to the trainee prior to beginning the test.

FIGURE B-3. Sample style guide - Continued.

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CATEGORIES OF INTERACTIVITY	ICW PRESENTATION REQUIREMENTS	LEVEL(S) OF LEARNING
CATEGORY 1. Baseline presentation. The lowest category of interactivity. The trainee has little control over the lesson presentation sequence. Simple feedback is provided	Little or no branching is required. Presentation includes video and minor text, or graphics and minor text.	Knowledge Familiarization Introduce an idea or concept
CATEGORY 2. Medium category of interactivity. Trainee has some control over presentation sequence through multiple input devices. Includes simulation of simple processes and moderate branching and feedback.	Moderate trainee control over presentation sequence. Drill and practice lessons with remedial paths. Moderate simulations. CMI tracks and analyzes student performance. Uses multimedia approach that combines digital/analog linear video, still video, graphics, graphics over video, audio over video.	Recall Application Rules
CATEGORY 3. Highly interactive. The highest category entails aspects of both categories 1 and 2 while using the fullest abilities of ICW. Trainee has broad control over presentation sequence, but presentation is monitored and guided by the management system. Includes complex simulation and gaming with complex tutorial and remediation branching.	Highly trainee centered allowing trainee to determine presentations. Extensive branching capability. Real time event simulations. Extensive CMI capability. Full on screen interaction using multiple input devices.	Analysis Synthesis Problem solving

FIGURE B-4. ICW Interactivity categories.

SAMPLE ICW EVALUATION CHECKLIST

The following checklist will be used during preliminary courseware reviews and acceptance testing. Its purpose is to ensure that the instructional design guidelines specified in the style guide are followed. It will serve as an indirect measure of the quality of the courseware and indicate the "maintainability" of the ICW.

GENERAL COURSE STRUCTURE

START-UP

Yes	No	N/A		
—	—	—	1.	The course is self-booting.
—	—	—	2.	A course introduction is used.
—	—	—	3.	Student self-registration is used.
—	—	—	4.	Students register and logon using last name/employee number. Passwords or nicknames/signon names are NOT used.
—	—	—	5.	Date screen available after registration, to enter day, month and year.
—	—	—	6.	Students logon each time they enter the course.
—	—	—	7.	The "new" student sees a course overview.
—	—	—	8.	The "old" student is taken directly to the main course menu.
—	—	—	9.	Students do NOT automatically see the overview on second or subsequent entries into the course.
—	—	—	10.	Students are able to repeat the overview if desired. An option to repeat the overview is available on the main course menu.

PRETEST

Yes	No	N/A		
—	—	—	11.	The pretest score determines a student's track through the course.
—	—	—	12.	A 100 percent score on the pretest allows the student to bypass the applicable lesson or module.
—	—	—	13.	Students can take each pretest once and only once.

FIGURE B-5. Sample ICW evaluation checklist.

Yes	No	N/A	
—	—	—	14. Pretest scores are stored in a student data file unique for each student.
—	—	—	15. The student's score is displayed and printed at the end of each pretest.
—	—	—	16. An introductory screen for each pretest states the number of questions and the approximate time required to take the test. The student can "back out" without beginning the test.
—	—	—	17. The student does NOT have help or remediation available.
—	—	—	18. The student can review any questions missed.
—	—	—	19. All student answers to the pretest are appended to a test specific file.

DEMONSTRATION

Yes	No	N/A	
—	—	—	20. Demonstrations are provided.
—	—	—	21. The demonstration is optional for those students who show a high degree of proficiency on the pretest.
—	—	—	22. The student has options to pause, end (skip) or repeat the demonstration.
—	—	—	23. Demonstration segments cover "bite-sized" increments of instruction. Student interacts at the end of each segment.

PROMPTED SIMULATION

Yes	No	N/A	
—	—	—	24. It provides a highly realistic, visual simulation of the procedure.
—	—	—	25. It also provides information NOT contained in the technical data, such as explanations of when and why to perform the procedure.
—	—	—	26. The prompted simulation is mandatory for all students who do NOT proficiency advance.
—	—	—	27. The prompted simulation is tailored for each student.
—	—	—	28. Adequate interim summaries and transitional material is used to present a "smooth flow" of instruction.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

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Yes	No	N/A	
—	—	—	29. No steps in the technical data procedures are skipped.
—	—	—	30. Appropriate feedback and remediation are provided.
—	—	—	31. Help or hints are provided.
			PRACTICE
—	—	—	32. Practice is provided until the students demonstrate the required proficiency to enter the progress check.
—	—	—	33. Simple repetition of the prompted simulation is NOT used as practice.
—	—	—	34. The practice is relevant to the training objective in both content and the type of learning desired.
—	—	—	35. Practice is timely, based upon the nature of the information to be learned.
—	—	—	36. Differing quantities of practice are provided based upon the nature and criticality of the information to be learned.
—	—	—	37. Practice questions or exercises are sequenced from easy to difficult.
—	—	—	38. The criteria for determining when the student is ready to take the progress check can be easily changed.
			PROGRESS CHECK
—	—	—	39. Students can take the progress check as many times as they desire.
—	—	—	40. The same test questions as used in the pretest are NOT used in the progress check.
—	—	—	41. Feedback outlining recommended additional study references or practice is provided at the end of the progress check.
—	—	—	42. Results can be correlated to the applicable module. Answers are stored in the test specific data file.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

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Yes	No	N/A	
—	—	—	43. Progress check scores, correlated to the applicable module, can be printed with remarks recommending further study. First and latest progress check scores are stored in a student data file.
—	—	—	44. Help or hints that apply to the subject matter are NOT available during the progress check.
—	—	—	45. The student can review only those questions that he/she missed.

POSTTEST

Yes	No	N/A	
—	—	—	46. The posttest is entirely stand-alone, separate and distinct from the course.
—	—	—	47. Randomly generated questions and performance exercises are used.
—	—	—	48. Students may take the posttest only twice. Scores and student answers will be appended to the test specific files.
—	—	—	49. The student can review those questions that he/she missed. The correct answer is NOT provided.

CRITIQUE

Yes	No	N/A	
—	—	—	50. A critique is available to the student.
—	—	—	51. The student can "rate" both the instructional design and the course content.
—	—	—	52. The responses, by the student and the applicable questions, are permanently stored for later extraction and analysis.

COURSE DESIGN

Yes	No	N/A	
—	—	—	53. The course is consistent in appearance and operation.
—	—	—	54. The student can place a bookmark and cleanly exit the course with minimal keystrokes/touches.
—	—	—	55. Exit points are as frequent as possible.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

Yes	No	N/A	
—	—	—	56. The student can exit as no more than five minute intervals.
—	—	—	57. The student can skip, pause and/or restart video sequences (timed series of stills or motion).
—	—	—	58. The student can review previous material, where possible.
—	—	—	59. The student can browse or review information in any sequence, once mandatory portions of the course have been completed.
—	—	—	60. The student can control when the next screen is presented. Timed overlays of text information or instructions are NOT used.
—	—	—	61. Icons appear on the screen only when active.
—	—	—	62. There is a logical and apparent course structure.
—	—	—	63. The student is made aware of the time required for each test and module.
—	—	—	64. The student sees an advance organizer for each module.
—	—	—	65. The student sees a summary screen for each module.
—	—	—	66. Control lockout feedback is provided.
—	—	—	67. The student can readily identify the mandatory portions or sequences of instruction. If sequence is NOT mandatory, the student can control it, and move freely from one module to another.

MENUS

Yes	No	N/A	
—	—	—	68. Menus are concise, logical and easy to use.
—	—	—	69. The course is menu driven.
—	—	—	70. Menus reflect only those options the student can access or the "active options" are clearly represented via color coding.
—	—	—	71. All menus provide a means of exiting the course "cleanly," either directly or by backing out to the main menu.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

Yes	No	N/A		
—	—	—	72.	Submenus allow the student to return to the previous higher level of menu.
—	—	—	73.	Confirmation and feedback of which option was selected is provided.
—	—	—	74.	Titles are used on all menu screens, main and submenu.
—	—	—	75.	Status indicators are used to show a student the lessons, modules, etc., which they have completed plus any optional or mandatory items.
—	—	—	76.	Status indicators also reflect a recommended "path" or sequence.

HELPS

Yes	No	N/A		
—	—	—	77.	The student can obtain assistance by selecting the HELP function.
—	—	—	78.	Helps are complete, easy to access, and easy to understand.
—	—	—	79.	The method of obtaining help is consistent throughout the entire course.
—	—	—	80.	The help returns the student to the exact point in the course where they initiated the request for help.
—	—	—	81.	The information provided by help is relevant, correct and complete.

MOTIVATION FACTORS

Yes	No	N/A		
—	—	—	82.	The course is designed in small enough increments or modules so that the student can perceive that they are making progress in completing the course.
—	—	—	83.	The course is designed in small enough increments or modules so that the students can easily leave the training sessions when they get tired.
—	—	—	84.	The course is challenging, NOT boring or repetitive of things they already know.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

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Yes	No	N/A	
—	—	—	85. The course is designed so that a "typical student" from the correct target audience can successfully complete the course.
—	—	—	86. The course is designed so that there are frequent opportunities for the student to experience success.
—	—	—	87. The training is clearly relevant to the student.
—	—	—	88. Varying touchpoints and interactions are used to focus the student's attention. Frequent "Touch to continue" or "Next" interactions are NOT used.

<div align="center">AUDIO</div>

Yes	No	N/A	
—	—	—	89. The sound complements the text/visual.
—	—	—	90. Visuals illustrate or reinforce the sound.
—	—	—	91. Key words and phrases stand out.
—	—	—	92. Complex issues are simplified.
—	—	—	93. No extraneous information, unwanted sounds or inappropriate pauses.
—	—	—	94. Volume, pace, tone or voice changes used.
—	—	—	95. Narration is attractive and credible.
—	—	—	96. Music and background does NOT compete with narration.
—	—	—	97. Music sets proper tone for the presentation.
—	—	—	98. Music does NOT compete for the student's attention.
—	—	—	99. Sound effects are used.
—	—	—	100. Narration is NOT subject to frequent change.
—	—	—	101. Still Frame Audio (SFA) is NOT used without prior approval.

<div align="center">LANGUAGE CONVENTIONS</div>

Yes	No	N/A	
—	—	—	102. Active voice is used whenever possible.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

Yes	No	N/A	
—	—	—	103. The imperative mode with the subject understood or implied is used to address the student.
—	—	—	104. A new term is defined the first time it appears in the module.
—	—	—	105. Terms and definitions are used consistently throughout the course.
—	—	—	106. Words are NOT hyphenated at the end of a line.
—	—	—	107. Slang and nontechnical jargon are NOT used.
—	—	—	108. All capital letters are used to emphasize switch names. Different colors and capitals are used to emphasize switch positions.
—	—	—	109. Only abbreviations known to be common knowledge to the target population are used, or after having defined them in the main instructional flow.
—	—	—	110. Affirmative sentence structure is used whenever possible.
—	—	—	111. Sentence length is as short as possible without sounding simplistic.
—	—	—	112. The course is written to the target audience.
—	—	—	113. Non-sexist language is used.
—	—	—	114. The tone is clear, concise and courteous.

SCREEN DESIGN CONVENTIONS

GENERAL CONVENTIONS

Yes	No	N/A	
—	—	—	115. Military personnel used as "stars or talent" comply with service dress and appearance directives, and wear the same uniform combination throughout the video production.
—	—	—	116. All "stars or talent," military or civilian, use safe procedures and comply with Occupational Safety and Health Act (OSHA) standards.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

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Yes	No	N/A	
—	—	—	117. Courseware that requires more than one videodisc side has a still video frame that identifies which disc side it is that occupies the same physical location (SMPTE time code and disc frame number) on each disc side for the entire course.
—	—	—	118. Icons appear at the bottom of the screen in consistent locations.
—	—	—	119. Their meaning is readily apparent to the student and standard icons are used as much as possible.
—	—	—	120. Systematic, logically organized screens are used.
—	—	—	121. Each screen presents one main point, idea, concept, step or action.
—	—	—	122. Text is used to emphasize the visuals, where needed.
—	—	—	123. Headings are used when necessary to clarify the display.
—	—	—	124. Video stills are used to depict all procedures that involve actual equipment to the fullest extent possible.
—	—	—	125. Captions on switch names, positions, etc. are legible.
—	—	—	126. Text or icons stored on video stills is limited.
—	—	—	127. Split-screens are used for comparisons, where possible.
—	—	—	128. Changes from one screen to the next are limited, in order to emphasize what changed.
—	—	—	129. Titles, captions or highlights over motion video, with the exception of learner control prompts, are done with video post-production techniques, NOT the authoring system.
—	—	—	130. "Fade to black" and "up from black" are used for the end and beginning of linear video segments.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

Yes	No	N/A	
—	—	—	131. The first and last screens of a module are used to introduce and reinforce the key points of what will be/has been presented.
—	—	—	132. Screen designs help build a "mental image or model" of the item, event or idea.
—	—	—	133. "Lean" displays are used to focus attention.
—	—	—	134. Transition screens are used when moving from wide-angle to extreme closeup views.
—	—	—	135. Transition screens are used when moving from one physical area to another.

SCREEN DESIGN FOR TEXT

Yes	No	N/A	
—	—	—	136. Upper and lower cast letters are used.
—	—	—	137. All text overlays are "overlaid" on a contrasting color bar or box, NOT directly on the video image.
—	—	—	138. A border around text bars or boxes is used.
—	—	—	139. Consistent text format (font, spacing, color, etc.) is used.
—	—	—	140. Consistent text and background colors are used to differentiate types of screens.
—	—	—	141. Text appears "left justified" with "ragged" right margins.
—	—	—	142. Text is NOT underlined.
—	—	—	143. The screens are NOT crowded.
—	—	—	144. No more than 10 lines of text appear on the screen at any one time.
—	—	—	145. The text appears in wide columns, 40-50 characters wide, NOT thin "news type" columns. 80-column text screens are NOT used.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

Yes	No	N/A	
—	—	—	146. A full text screen is NOT overlaid upon another text screen unless it is a HELP overlay.

COMPUTER TEXT COLOR CONVENTIONS

Yes	No	N/A	
—	—	—	147. Student instructions are in yellow text on a blue bar at the top of the screen.
—	—	—	148. Feedback and remediation are towards the bottom of the screen.
—	—	—	149. Correct feedback is in dark green text on a green bar with a dark green border around the bar.
—	—	—	150. Incorrect feedback and remediation are in red text on a blue bar with a red border around the bar.
—	—	—	151. Warnings are in red text on a white bar with a red border around the bar. The caption WARNING is in all capitals, centered, on the top line.
—	—	—	152. Cautions are in yellow text on a salmon bar with a yellow border around the bar. The caption CAUTION is in all capitals, centered, on the top line.
—	—	—	153. Technical data notes are in yellow text on a blue bar at the top of the screen, with a contrasting border around the bar. The caption NOTE is in all caps, centered, on the top line, and cyan in color.
—	—	—	154. Transition screens and/or phrases are in blue text on a cyan bar with a blue border around the bar.
—	—	—	155. Computer-generated text menus, if used, are green as the predominant color with a contrasting text color.
—	—	—	156. Test questions are white or gray text on an ash blue background, with boxes or bullets to differentiate the answers.
—	—	—	157. Critiques use a color bar, similar to a palette, as the rating scale.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

Yes	No	N/A	

HIGHLIGHTING

— — — 158. When color is used for highlighting, standard color conventions are used.

— — — 159. Highlighting of key words in text information other than captions, switch names or switch positions is minimized.

— — — 160. Flashing text is NOT used.

— — — 161. Text is NOT underlined.

COMPUTER-GENERATED GRAPHICS

— — — 162. The student is in control of initiating animation sequences or is able to repeat them.

— — — 163. Computer graphics are limited to those areas where they are essential.

— — — 164. Unnecessary ornamentation, patterns or effects are NOT used.

— — — 165. Graphics/text are used for small things that are subject to multiple uses within the course or frequent change.

— — — 166. The CG, medium-resolution, 16 color mode is used for PIX files, as much as possible.

— — — 167. The use of the HG, high-resolution mode, and the 256 color palette are limited as much as possible.

— — — 168. Legends are provided for any nonstandard color coding.

TESTING CONVENTIONS

GENERAL STANDARDS

— — — 169. Response methods are consistent throughout any given test.

— — — 170. Students must answer the questions in the order of their presentation.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

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Yes	No	N/A	
—	—	—	171. When a student selects an item as an answer, there is an indication to identify his/her selection.
—	—	—	172. The student can change his/her answer before it is scored.
—	—	—	173. There are enough questions per learning objective to ensure comprehensive evaluation of the subject matter.
—	—	—	174. The student is informed of how many questions will be given, the approximate amount of time that will be needed to complete the test, and if any questions are weighted differently (i.e, count more points than others).
—	—	—	175. The student is given a sample question for practice automatically — or provided the option to see a practice question. It is NOT counted in their score.
—	—	—	176. The student is shown their results following each test, and provided the opportunity to review the questions that they missed.
—	—	—	177. All scores are calculated on a 100 point scale.

TEST CONSTRUCTION

Yes	No	N/A	
—	—	—	178. Each question is directly related to a training objective.
—	—	—	179. The questions are concise and clear with no irrelevant words.
—	—	—	180. There is only one question on a screen, unless it is a matching exercise.
—	—	—	181. Each question is totally independent.
—	—	—	182. Questions address key points.
—	—	—	183. All safety related items are tested one time per type of test.
—	—	—	184. Information that is on an "optional track" through the instruction is NOT tested.
—	—	—	185. The test questions are sequences so that the more difficult questions are toward the end of the test with the exception of randomly generated test questions.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

Yes	No	N/A	
—	—	—	186. Test questions are NOT numbered on the screen.
—	—	—	187. Options such as "all of the above," "none of the above," or "both b and c" are NOT used.
—	—	—	188. The position of the correct answer varies.

FEEDBACK AND REMEDIATION

—	—	—	189. Negative feedback in the form of abuse or ridicule is NOT used.
—	—	—	190. Feedback or remediation is specific to the action the student is trying to perform, where possible.
—	—	—	191. "Cute" feedback is NOT used.
—	—	—	192. The level of feedback or remediation compares to the difficulty of the action or question.
—	—	—	193. Positive feedback is NOT given too frequently or for trivial accomplishments.
—	—	—	194. Feedback and remediation of safety-related actions is given in terms of the consequences.
—	—	—	195. Students having considerable difficulty with the material receive immediate remediation.
—	—	—	196. Remediation is provided throughout all modules other than tests.

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—	—	—	197. Diskette "A" contains the MS-DOS operating system and lesson files. Disk "B" contains student data files and lesson files. Any additional lesson file disks are labeled "B2", "B3," "B4," etc.
—	—	—	198. There is a "clean and easy" way for the student to change floppy disks.
—	—	—	199. There is a "parent lesson" which: contains the main menu; performs initialization of all defined variables; and initiates calls to those lessons and modules that satisfy learning objectives.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

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Yes	No	N/A	
—	—	—	200. There are NO End branches in the parent lesson.
—	—	—	201. The exit command is redefined to the ESC key for the parent lesson, and to an unlikely keystroke combination for all other lessons.
—	—	—	202. Lesson, frame and variable names follow the prescribed mnemonics.
—	—	—	203. Temporary student data files are limited to one per student.
—	—	—	204. All external support software is provided in source (uncompiled) code with annotations and documentation.

FIGURE B-5. Sample ICW evaluation checklist - Continued.

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APPENDIX C

INTEGRATED LOGISTICS SUPPORT

10. SCOPE

10.1 <u>Scope</u>. The information and guidance contained in this appendix is intended to assist acquisition and program managers in defining contract requirements for inclusion in an interactive courseware (ICW) integrated logistics support (ILS) -- ICW maintenance -- acquisition package statement of work. The requirements definition process described in this appendix is designed to identify task descriptions, inputs and outputs of MIL-STD-1379 that are necessary to acquire ICW ILS and life cycle management products required to maintain and support ICW materials for military training programs. MIL-STD-1379 DIDs which define deliverable products applicable to ICW training programs are also described. This appendix provides suggestions for tailoring MIL-STD-1379 requirements and associated DIDs to acquire courseware maintenance without an excessive amount of deliverable data.

10.2 <u>How to use this appendix</u>. This appendix is written to support the acquisition of ICW training programs, maintenance and updates. MIL-STD-1379 task descriptions applicable to an ICW ILS acquisition are presented and described in their recommended statement of work (SOW)/contract performance sequence. The requirements described by this appendix are SOW task descriptions derived from MIL-STD-1379, rather than actual training program deficiency and change requirements. The work effort resulting from these SOW task descriptions should define the training program deficiencies and changes necessary to correct them. The SOW task performance sequence is reflected in the logic diagram provided in Figure C-1. This figure should be used to determine the MIL-STD-1379 task descriptions needed to support your particular ICW maintenance requirement. Once you have identified the applicable task descriptions, this appendix is designed to help you apply MIL-STD-1379 task descriptions and DIDs to develop the SOW and CDRL for your particular program.

a. Section 30 discusses Government furnished information, property, and support (GFI/GFP/GFS), and subject matter expert (SME) support that should be provided to the contractor when it is available. SME support will normally be required throughout the ICW ILS acquisition process.

b. Section 40 discusses MIL-STD-1379 Task 102, Training Program Development and Management Planning, and Task 103, Training Development Control subtasks to support the kick-off meeting and an in-process review of the development and management plan. Tasks are presented and described in the sequence in which they should appear in Section 3 of the SOW. The applicability and purpose of subtasks required to identify and document ICW program development and management planning data are presented. Development and management planning data resulting from performance of MIL-STD-1379 Task 102 and its subtasks are also identified and described. Discussions of task

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performance data should help you determine your minimum data requirements and tailor the applicable DID. This section also discusses the use of Task 402 to conduct training effectiveness evaluation of ICW.

c. Section 50 discusses those tasks and DIDs necessary to identify training program deficiencies and develop an appropriate ICW materials change package. Figure C-1 shows the process and decisions necessary to identify SOW task descriptions for the ICW ILS contract.

d. ICW training program deficiencies which warrant a courseware revision also require a more in depth evaluation of the program deficiencies. MIL-STD-1379 task descriptions which provide a clearer definition of the ICW courseware, hardware, and software deficiencies, and perform the work necessary to develop the courseware material revisions are described in Section 60. Implementation, validation and evaluation requirements for the revised ICW training program are also presented in this section. Courseware implementation begins by developing the implementation and evaluation plans identified in MIL-STD-1379 100-series task descriptions. Actual ICW training program implementation, validation and training effectiveness evaluation (TEE) tasks are in the 400-series of MIL-STD-1379.

e. Section 60 suggests additional SOW task descriptions that address deficiencies in the revised courseware that are identified during courseware implementation, validation, and evaluation. These task descriptions are not in MIL-STD-1379, but accomplishment of the work addressed by these additional task descriptions is an implied requirement of the standard. These suggested task descriptions clarify requirements to correct the noted deficiencies and update applicable course control documents.

f. Section 60 discusses acceptance of the revised ICW training program in very general terms. Acceptance of the revised courseware should be very similar to the process used to accept the original ICW training program (see Section 80 of Appendix B).

g. Section 70 discusses progress report requirements and recommends an integrated progress report and IPR schedule to minimize redundant contract management activities. This section is intended to aid in preparing Section 4, Progress Reports, of the contract SOW.

h. Tables C-1 and C-2, in conjunction with Figure C-1 are provided to assist in determining work task and deliverable data requirements outlined and described in Sections 40 through 60. Table C-1 lists the MIL-STD-1379 task descriptions applicable to ICW ILS. Each subtask of the task description is also listed in the table. Subtasks are referenced to the specific task inputs required to accomplish

the subtask and the specific output data it produces. Finally, Table C-1 references each task description and subtask to the MIL-STD-1379 Data Item Description (DID) and specific DID paragraph that defines the deliverable task output data. This is intended to help you identify and tailor data requirements for preparation of the ILS contract CDRL. Table C-2 lists all DIDs applicable to ICW ILS in the suggested data delivery sequence. Table C-2 also indicates those deliverable products which are recommended to be jointly reviewed with the contractor during an In-Process Review (IPR).

10.2.1 Terms, abbreviations, and acronyms used in this appendix. Key terms, abbreviations, and acronyms used in this appendix are defined as specified in Section 3 of the basic handbook.

20. APPLICABLE DOCUMENTS.

20.1 Government documents.

20.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this appendix to the extent specified herein.

STANDARDS

MILITARY

MIL-STD-1379   Military Training Programs

(Unless otherwise specified, copies of military specifications, standards and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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

DATA ITEM DESCRIPTIONS

DI-MGMT-80555   Program Progress Report

DI-ILSS-81069   Training Situation Analysis Report

DI-ILSS-81070   Training Program Development and Management Plan

DI-ILSS-81071   Individual Training Plan

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DI-ILSS-81072	Media Selection Model Report
DI-ILSS-81073	Training Equipment Requirements Document
DI-ILSS-81076	Training Evaluation Plan
DI-ILSS-81078	Mission, Collective, Individual, and Occupational Training Task Analysis Report
DI-ILSS-81082	Training Technology Assessment Report
DI-ILSS-81083	Learning Analysis Report
DI-ILSS-81084	Media Selection Report
DI-ILSS-81085	Test Package
DI-ILSS-81087	Trainer System Modification Report
DI-ILSS-81088	Training System Functional Characteristics Report
DI-ILSS-81090	Lesson Specifications Report
DI-ILSS-81091	Instructional Media Design Report
DI-ILSS-81092	Instructional Media Package
DI-ILSS-81093	Instructional Media Data Files
DI-ILSS-81096	Training System Utilization Handbook
DI-ILSS-81097	Individual Task Training Package
DI-ILSS-81105	Training Evaluation and Validation Report
DI-ILSS-81106	Training Material Change Package
DI-ADMIN-81249	Conference Agenda
DI-ADMIN-81250	Conference Minutes

(Copies of DIDs are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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30. INPUT DATA AND SUPPORT.

30.1 <u>Introduction</u>. The Government should identify and provide all available information, property, and support necessary to change or revise the ICW training program. A thorough review of available documentation pertinent to the ILS effort using the process in Figure C-1 will prevent SOW efforts that result in data that duplicates existing information. When this information is not available, MIL-STD-1379 includes task descriptions which will produce the information necessary to accomplish the ICW requirements. The Government will provide qualified subject matter experts (SMEs) throughout the ILS process to assist in defining and validating courseware change or revision requirements.

30.2 <u>Government-furnished information (GFI)</u>. The MIL-STD-1379 identifies specific GFI input requirements of each task description. GFI input requirements which only apply to a single task description are described as part of that task in Sections 40, 50, and 60 of this appendix. GFI that is significant and applicable to more than one ICW logistics support task are described in the following paragraphs.

30.2.1 <u>ICW course and configuration control documents</u>. Handbook paragraph 5.6.2 discusses courseware control and configuration management requirements, to include maintaining critical analysis, design, development, and implementation documents and reports. The following ICW documents and reports should be provided as GFI to support change or revision to the courseware.

30.2.1.1 <u>FEA documents and reports</u>. The Training Technology Assessment Report, DI-ILSS-81082; Media Selection Model Report, DI-ILSS-81072; Mission, Collective, Individual, and Occupational Training Task Analysis Report, DI-ILSS-81078; and the Learning Analysis Report, DI-ILSS-81083 are required to provide the contractor with the basis and rationale for the program's training requirements. The basis and rationale for the media and media features selection process provided by the technology assessment and media model reports are needed to assure change or revision materials are developed using the same selection criteria.

a. These reports should either be provided as GFI or, if not available, the appropriate task descriptions described in Appendix A should be included in the ILS SOW. If these documents are not available, it may also be necessary to include several other FEA task descriptions that develop input data critical to producing the missing reports.

b. When the required FEA reports are available but do not address the ICW-unique requirements described in Appendix A, paragraphs 30.2, 40.7.3, 40.8.1, 40.8.3, 40.9.1, 40.9.3.2, 40.10.1, and 40.10.2; you should include those ICW-unique task descriptions presented in Appendix A at the beginning of your ILS contract

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SOW. It will be necessary to gather the missing information and update the FEA reports before ICW ILS work performance can begin.

30.2.1.2 Course and configuration control documents. Courseware configuration management requirements are described in 5.6.2 of the handbook to include identification of documents and reports maintained to support maintenance and update of the ICW materials.

a. The Media Selection Report, DI-ILSS-81084; Training System Functional Characteristics Report, DI-ILSS-81088; and the Equipment Requirements Document, DI-ILSS-81073 are necessary to provide the basis for courseware development.

b. The Lesson Specifications Report, DI-ILSS-81090; Test Package, DI-ILSS-81085; Instructional Media Design Report, DI-ILSS-81091; Instructional Media Package, DI-ILSS-81092; Instructional Media Data Files, DI-ILSS-81093; and Training System Utilization Handbook, DI-ILSS-81096 are required to support understanding the ICW course, module, and lesson design and development. These documents and reports should assure that modifications required to update the ICW program materials are consistent with the design, style, and presentation architecture of the existing courseware.

30.2.2 Material (weapon) system and equipment data. All Government information about the material/weapon system and equipment that is available and germane to the ICW ILS effort should be collected and provided as GFI (see Appendix A, 30.2.4).

30.2.2.1 Material (weapon) system and equipment mission and characteristics. The operational mission of the system and equipment can significantly affect decisions about media selection, instructional modes, and instructional design. Identify any mission and characteristic changes that have occurred since the ICW was completed or last updated. System/equipment configurations and capabilities may also be important factors when selected training modes including on-the-job training (OJT) and self learning (see Appendix B, 30.2.2).

30.2.2.2 Technical data currency, validity and stability. Define any known or potential problems with technical data currency, procedural validity, and stability. Task procedures for tasks selected for ICW should have been validated during training task analysis (see Appendix B, 30.2.2). Any changes which altered task performance procedures supported by the ICW training materials should be identified.

30.2.3 ICW device specifications. The ICW device specifications of the device(s) the courseware runs on should be provided to the contractor as GFI. Existing ICW delivery device data should include the capabilities and configurations, and any configuration upgrade potential (see 5.6.2).

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30.2.4 <u>Agency/activity policy and guidance</u>. There are additional GFI input requirements not identified by MIL-STD-1379 which are necessary to support ICW change/revision materials design, development and implementation. You should collect and provide applicable and available agency and activity policy and guidance information (see Appendix A, 30.2.6; and Appendix B, 30.2.4).

30.3 <u>Government-furnished property (GFP)</u>. Depending upon your specific ICW change/revision requirements, existing ICW devices, and production capabilities, you should provide the ICW hardware devices to be used for courseware development. This is necessary to support developing and validating the ICW change/revision materials.

30.4 <u>Government-furnished support (GFS)</u>. It may be beneficial for the Government to provide other ICW ILS contract support functions. Those support capabilities which are cost effective should be identified in the ICW ILS solicitation/contract package. Some support functions that may be more cost effective are described in Appendix B, 30.4.

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40. ICW ILS CONTRACT SOW TASK DESCRIPTIONS

40.1 <u>Introduction</u>. This section discusses the purpose, application, and data produced by MIL-STD-1379 task descriptions applicable to the general program planning and management tasks usually included at the beginning of an ICW ILS contract statement of work. Task descriptions necessary to identify ICW training program deficiencies are also described in this Section. This section discusses the initial (kick-off) planning meeting between Government and contractor management personnel actively involved in the contract. In-process reviews (IPR) of the development and management plans and the courseware deficiencies report are also described. Courseware ILS -- ICW maintenance -- task descriptions to develop a change package are described in Section 50. Section 60 addresses task descriptions appropriate when the ICW requires a complete revision.

40.2 <u>How to apply Appendix C Tables and Figures in SOW development</u>. Figure C-1, ICW ILS Requirements Definition; Table C-1, MIL-STD-1379 Tasks Applicable to ICW ILS Contracts; and Table C-2, Sequence of ILS Contract Deliverables and IPRs, are provided to aid you in determining ILS contract requirements.

40.2.1 <u>ICW ILS requirements definition</u>. Figure C-1 is a logic diagram of the decision processes necessary to determine which MIL-STD-1379 task descriptions may be necessary based upon the availability and currency of ICW program analysis, and course and configuration control documents. The logic diagrams support both in-house development of these documents or contractor development through appropriate MIL-STD-1379 task descriptions. When the documents identified by the logic process are available and current, you should provide them as GFI to support ILS contract performance.

40.2.2 <u>Applicable MIL-STD-1379 task descriptions</u>. Table C-1 presents each MIL-STD-1379 task description applicable to ICW ILS in task number sequence. This table is designed to aid you in tailoring MIL-STD-1379 task descriptions and data requirements by relating each subtask to the applicable DID and DID paragraph that defines the data.

    a. When you determine that a particular subtask is not required to support your contract requirements, those subtask data inputs and DID paragraphs which should be reviewed for tailoring are readily apparent in the table.

    b. The table lists each task description subtask and indicates whether or not that subtask is required to support integrated or stand-alone ICW applications. The table further identifies data inputs required to perform the subtask, and both discrete and deliverable data produced by subtask performance. Deliverable subtask performance data is identified to the MIL-STD-1379 DID and specific DID paragraph which specifies the data content and format.

    c. In some cases, the subtask may produce data that is identified and defined by a separate, stand alone DID. Other subtask data may apply to more than one DID

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or more than a single paragraph within a specific DID. These situations are described in the paragraphs relevant to the specific task descriptions and subtasks.

40.2.3 Data delivery and IPR sequences. Table C-2 lists MIL-STD-1379 DIDs applicable to ICW ILS contracts. This table is intended to help you determine contract delivery and IPR schedule sequence requirements.

40.3 Training Development Control, Task 103 (Conference). Task 103 is called for several times in a ICW ILS contract because it includes the work descriptions for producing conference agendas, conference minutes, and program progress reports. Task 103 also includes contractor support for and participation in the in-process reviews.

40.3.1 Task purpose. Task 103 should be included at the beginning of the contract SOW to plan the contract management team (Kick-off) meeting. Two subtasks of Task 103 are included in the SOW to require contractor kick-off meeting planning: Subtask 103.2.8, develop conference agenda; and Subtask 103.2.9, develop conference minutes. The only input required to support task performance is the signed contract.

40.3.2 Task performance data. Performance of Subtasks 103.2.8 and 103.2.9 will produce the agenda and minutes of the kick-off meeting, respectively.

40.3.2.1 Meeting agenda. Performance of Subtask 103.2.8 will produce an agenda for the kick-off meeting. The agenda is documented in accordance with DI-ADMIN-81249, Conference Agenda. Review the DID and tailor out any agenda data you do not require, and stipulate in the CDRL that a draft of the agenda is required for review and comment prior to the actual meeting. Review the draft agenda to assure the agenda includes all areas you wish to address during the meeting. Depending upon specific program requirements, the agenda should address the applicable areas identified in Appendix B, paragraph 40.3.2.1.

40.3.2.2 Meeting minutes. Minutes of the kick-off meeting are developed by performing Subtask 103.2.9 and are documented in accordance with DI-ADMIN-81250, Conference minutes. If you intend that these minutes should be approved, this requirement should be identified in the SOW and the CDRL.

40.4 Training Program Development and Management Planning, Task 102. This task and its subtasks establish contract requirements for developing those plans necessary to perform and manage ILS contract work requirements. Planning actions establish minimum quality assurance and internal surveillance programs. Plans that define the management structure and processes necessary to assure performance schedules and quality standards are met are also developed using Task 102.

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40.4.1 <u>Subtasks applicable to ILS contracts</u>. Task 102 subtasks address several planning actions which are applicable in a stand- alone ILS contract. Task output data items are identified in Table C-1. Subtasks of Task 102 that are required in an ICW ILS contract SOW are described in the following paragraphs. Paragraph 40.4.2 identifies those subtasks of Task 102 that are not required in an ILS contract.

40.4.1.1 <u>Subtask 102.2.1</u>. This subtask requires the contractor to define and describe those contractor activities necessary to perform the contract. This definition and description of contractor activities is often referred to as the "technical approach." Interrelationships between these activities and resource requirements are also defined. Data produced by this subtask is identified and defined as indicated in Table C-1.

40.4.1.2 <u>Subtask 102.2.3</u>. Subtask 102.2.3 would not normally be included in an ILS contract because the task output -- the courseware configuration management plan -- should already exist. You may want the contractor to update this plan element, however. This subtask does not establish a hardware configuration control program. Hardware requirements are addressed through other standards and directives. When an updated configuration control plan is necessary, it is recommended that you insert the following paragraph in the SOW:

> "Updated Courseware Configuration Control Plan. Update the existing approach, procedures, and management controls as necessary to maintain follow-on configuration controls over the modified ICW training program courseware and instructional software materials."

40.4.1.3 <u>Subtask 102.2.4</u>. Subtask 102.2.4 tasks the contractor to develop the approach, procedures and management controls that will be required to properly integrate the ICW changes or revisions resulting from this ILS contract into the existing course materials. This planning should also address integration of new training resources and technologies into the existing course materials and instructional methodologies. The subtask produces a training system integration plan element.

40.4.1.4 <u>Subtask 102.2.7</u>. Subtask 102.2.7 produces a milestone and time phase chart of the requirements in Subtask 102.2.1. The chart and the narrative produced by Subtask 102.2.1 are somewhat redundant. You might consider deleting milestones and time phasing discussions from Subtask 102.2.1 in favor of Subtask 102.2.7. If Subtask 102.2.1 will not be tailored, your should consider whether or not Subtask 102.2.7 is necessary. The data produced by Subtask 102.2.7 is not deliverable data. Training development milestones is a discrete output of Subtask 102.2.7, (Task Output 102.4.5), which is input to other ILS task descriptions when necessary.

40.4.1.5 <u>Subtask 102.2.9</u>. Performance of Subtask 102.2.9 results in a plan for validation of all training materials, test items and tests. This subtask may not be required when training deficiencies are expected to be correctable through a change package. The

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validation plan establishes the contractor's on-going, continuous review and validation of training materials, test items, and tests throughout the training program change/revision design and development process.

40.4.1.6 Subtask 102.2.10. This work description requires the contractor to develop an internal surveillance plan for assuring complete and accurate performance of SOW work descriptions, and delivery of a quality product. This plan is deliverable data and should correlate with the quality control program developed under Subtask 102.2.11.

40.4.1.7 Subtask 102.2.11. This subtask requires the contractor to develop a quality control (QC) program and identify quality indicators and controls which will assure work performance and deliverables meet contract requirements. The QC program description is deliverable data and should work in conjunction with the internal surveillance program.

40.4.1.8 Subtask 102.2.13. This subtask is required when the prime contractor intends to subcontract some ILS work requirements. It would also apply to "teaming" arrangements between contractors, since one would be the prime and the others subcontractors. The intent of this subtask is to identify all subcontractors and the major work tasks each will perform. It should also define the management procedures and controls that will be used to administer subcontractor performance. This information is deliverable.

40.4.1.9 Subtask 102.2.14. This subtask is necessary to identify and document the relationship between SOW task requirements and the contractor's work breakdown structure. It also defines the management processes and controls for cost and progress reporting. Data produced by this subtask is deliverable data when specified in the CDRL.

40.4.2 Subtasks not required in an ICW ILS contract. Several subtasks of MIL-STD-1379 Task 102 should not be necessary to develop and manage an ICW training program change or revision. You should review the following subtasks to determine whether or not they should be included in the contract SOW: (a) 102.2.2, make or buy analysis; (b) 102.2.5, test management planning; (c) 102.2.6, in-process review planning; (d) 102.2.8, individual training plans; and (e) 102.2.12, logistic support analysis integration requirements planning.

40.4.3 Proposed GFI. Because this is an ICW ILS contract, those documents, reports, and other GFI identified in 30.2 should be identified as inputs that may be necessary for performance of Task 102.

40.4.4 Task performance data. Contractor performance of Task 102 produces planning data. Each subtask in Task 102 results in or supports development of specific plan elements that are defined in DI-ILSS-81070, Training Program Development and Management Plan. The data in DI-ILSS-81071, Individual Training Plan, is not required

because Subtask 102.2.8 should not be included in the ILS contract SOW. The planning elements necessary to support a ILS contract are related to the management of work performance, and cost and progress reporting — contract management planning elements -- and training program change/revision development plan elements. Plan elements produced by the work tasks described in 40.4.1 and the kinds of information these elements should contain are described in subsequent paragraphs. The relationships between specific subtasks and the DID paragraphs are shown in Table C-1.

40.4.4.1 Government and contractor coordination process. This plan element describes the process to used in planning, developing and acquiring program resources necessary for accomplishing contract requirements. It should clearly define information flow established and necessary for effective communication between Government and contractor personnel, and identify decision authorities within the program management hierarchy. This element should define Government SME support requirements and scheduling, and identify requirements for validation of technical data procedures supporting tasks which may require ICW training materials.

40.4.4.2 Contractor's management system. This element should clearly define the contractor's internal management, surveillance, and production control system that will be used to manage and control performance of SOW requirements. This section of the Training Program Development and Management Plan is often referred to as the "technical approach" element -- how the contractor intends to comply with the specifications and statements of work in the contract. This portion of the development and management plan should be carefully reviewed to assure the technical approach and management processes are realistic to the contract requirements. Also assure the contractor's methods reflect up to date commercial practices for applying current ICW design and development technologies to producing the change/revision materials necessary to update the ICW. You should refer to Appendix B, 40.4.3, for more information about this plan element.

40.4.4.3 Subcontractor management. Subcontractor management planning information includes identification of each subcontractor, the work tasks each will be responsible to perform and the prime contractor's management and quality control system for assuring subcontractor work meets schedule and quality requirements. This plan element should include provisions for periodic audit of both the subcontractors and contractor's activity responsible to manage subcontractor performance.

40.4.4.4 Management system and SOW requirements cross-reference. The cross-reference plan element graphically depicts the relationship(s) between each element of the contractor's management system to each contract performance requirement. This element should clearly show the relationship of each management system requirement to a contract performance need without undue management layering or redundant/duplicative management structures.

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40.4.4.5 Incremental training program validation system. This portion of the plan is developed by Subtask 102.2.9 and may not be required in the ILS contract. This plan element establishes the training materials, test item, and test validation process and management system.

40.4.4.6 Resource requirements. This element should identify and describe the resources (contractor or Government supplied), data requirements, procedures, and milestones and time phasing required to perform each contractor training development task, and the interrelationship of each task to other contractor tasks. This plan element should be an overall "master plan" of the activities and resources that will be applied to the contract effort, and the results of that effort.

40.4.4.7 Management diagram. This plan element should be a block diagram of the contractor's management and control activities involved in accomplishing contract requirements. This element, described in paragraph 10.3.2.8 of DI-ILSS-81070, graphically shows information presented in the narrative description of the management system and, therefore, may not be needed to support your ILS contract management requirements.

40.4.4.8 Responsible authority. Identification of the contractor's organizational element having the overall responsibility and authority for accomplishing contract requirements should be in this element. It should separately identify the elements that have technical authority and those which have contractual authority when these lines of authority are separate entities.

40.4.4.9 Milestone chart. A milestone and time phasing chart (such as, Gantt or PERT chart) depicting all program task requirements is provided by this plan element. Since this chart is redundant to other plan elements, you might consider either tailoring DI-ILSS-81070, paragraph 10.3.2.7, to delete (the narrative description of) milestones and time phasing data requirements, or completely tailor out this chart requirement (DID paragraph 10.3.2.10).

40.4.4.10 Data interchange management. This plan element should normally be tailored out of the DID when supporting an ICW ILS contract requirement. This element describes the methods and procedures that will be used to assure appropriate interchange of logistics support analysis and design data.

40.4.4.11 Requirements integration. This plan element describes how the integration of training program development requirements with the material system and equipment development and SOW requirements will be accomplished. This plan element should not be required in an ICW ILS contract.

40.4.4.12 LSA data integration. This plan element should not be included in the ICW ILS contract without a careful review of the LSA data to verify integration is appropriate. DI-ILSS-81070, paragraph 10.3.2.13 should be tailored out in the CDRL.

40.4.4.13 Quality assurance (QA). The QA procedures and management processes established to assure all work tasks are performed correctly and deliverables meet established criteria should be provided in this plan element. It is important to assure the QA system specifically addresses each and every work task in the SOW and all deliverable data identified in the CDRL (see Appendix B, 40.4.3.1.13).

40.4.4.14 Configuration control plan. The approach, procedures, and management process for follow-on configuration control of the interactive courseware and instructional software are delivered under this portion of the development and management plan. This plan element should only be necessary when you use the alternate subtask description in 40.4.1.2.1.

40.4.4.15 New course materials/resources integration plan. This portion of the development and management plan is the integration plan. The integration plan defines the approach, procedures, and management controls that will be applied to integrate the ICW change/revision materials into the existing course curriculum. The plan should address new training equipment technologies and instructional technologies being integrated by the ICW materials being procured under the ILS contract this plan supports. This plan element should be related to the training system integration requirements (see 40.4.4.18).

40.4.4.16 IPR schedule. When you require the contractor to establish the in-process review schedule, it is delivered as a plan element in accordance with DI-ILSS-81070, paragraph 10.3.2.10. This element should not normally be required.

40.4.4.17 Key personnel. The key personnel plan element identifies both Government and contractor key personnel. It lists each key individual, and identifies their tasks and responsibilities in training program management. The personal actions required of each key person to ensure a successful ILS effort is also identified. Interrelationships between the various personnel and their respective organizational elements is defined. The listing of key personnel should be easily compared to the management diagram described in 40.4.4.7.

40.4.4.18 Training system integration. The training system integration portion of the development and management plan is a schedule of activities and events outlined in the integration plan described in 40.4.4.15. The schedule includes all phases of development and delivery of the ICW training program.

40.4.4.19 Cost data. The cost data portion of the Training Program Development and Management Plan provides a price/cost analysis with all necessary supporting data.

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Costing information should address all training program requirements applicable to the ILS contract scope of work. Cost data elements of DI-ILSS-81070 should be reviewed and tailored to reflect only the cost data necessary for the ICW ILS effort. Cost data in this portion of the development and management plan includes the price of training per student hour, instructor per diem and travel, overhead costs, administrative costs, and coordination and other direct and indirect costs. Required elements of the cost data are described in Appendix B, 40.4.3.1.19.

40.4.5 Training Development Control, Task 103 (In-process review). Task 103 should be cited at this point in the SOW when you plan to conduct an IPR after completion of the Training Program Development and Management Plan, DI-ILSS-81070. The following three (3) subtasks from Task 103 should be included at this point in the SOW.

40.4.5.1 Subtask 103.2.8. Subtask 103.2.8, Develop conference agenda, tasks the contractor to prepare an agenda for the IPR. You may not desire and agenda for the IPR, however, and one isn't essential to the conduct of an effective IPR.

40.4.5.2 Subtask 103.2.10. When included in the SOW, this subtask requires the contractor to support and participate in the IPR. The SOW should clearly state whether the IPR will be conducted at the contractor's facilities or Government facilities.

40.4.5.3 Subtask 103.2.9. Subtask 103.2.9, Develop conference minutes, is cited to require the contractor to develop minutes of the IPR. A copy of the "red-lined" development and management plan should be an attachment to these minutes. Be sure to include review and approval procedures for the minutes in the SOW.

40.4.5.4 Task performance data. Data produced by the IPR will be the conference agenda prescribed and acquired by DI-ADMIN-81249, the conference minutes of the IPR prescribed and acquired by DI-ADMIN-81250, and a "red-lined" copy of the Training Program Development and Management Plan, DI-ILSS-81070. Requirements and procedures for correcting the marked up plan and routing of the corrected document for review and approval should be identified in the SOW paragraph that contains Task 102 requirements. Agency policy and guidance concerning approval and update procedures should also have been provided.

40.5 Training Evaluation, Task 402. Task 402 is used to prescribe a training effectiveness evaluation (TEE) of the ICW when actual training program deficiencies have not, yet, been identified. The results of the evaluation are used to correct deficiencies in the ICW training program, or, when the ICW is integrated into other curricula, all instructional materials used to support all required training modes and ICW applications.

40.5.1 Subtasks applicable to ILS contracts. The subtasks of Task 402 that are required to evaluate the ICW program training capabilities and effectiveness are identified and described in subsequent paragraphs.

40.5.1.1 <u>Subtask 402.2.1</u>. Subtask 402.2.1 would not usually be called for an ICW TEE. This subtask executes the Training Evaluation Plan, DI-ILSS-81076, developed by performance of Task 107.

40.5.1.2 <u>Subtask 402.2.2</u>. Subtask 402.2.2 develops a description of how the training program was evaluated. The description should address the methodology and procedures used during the evaluation.

40.5.1.3 <u>Subtask 402.2.3</u>. This subtask identifies the personnel who conducted the evaluation, and the personnel, materials, and special equipment resources that were used.

40.5.1.4 <u>Subtask 402.2.4</u>. Subtask 402.2.4 describes any training deficiencies found in the training materials during the evaluation.

40.5.1.5 <u>Subtask 402.2.5</u>. This subtask identifies changes to the training materials that are necessary to correct the deficiencies identified by Subtask 402.2.4.

40.5.2 <u>Subtasks not required to support an ICW TEE</u>. The following subtasks of Task 402 are not required to support conducting the ICW training program TEE. These subtasks would possibly apply later in the ICW maintenance process (see 40.5.5, and 50.1).

40.5.2.1 <u>Subtask 402.2.6</u>. Performance of this subtask requires the contractor to provide guidance and assistance to service instructors during the initial conduct of the training. This subtask would not apply to an ILS contract TEE.

40.5.2.2 <u>Subtask 402.2.7</u>. Performance of Subtask 402.2.7 validates the ICW training materials.

40.5.2.3 <u>Subtask 402.2.8</u>. Subtask 402.2.8 supports validation of test items and tests.

40.5.2.4 <u>Subtask 402.2.9</u>. This subtask tasks the contractor to develop and submit a plan for developing ICW change materials.

40.5.3 <u>Proposed GFI</u>. Inputs that may be necessary to support the training effectiveness evaluation of the ICW training program materials are those inputs identified in 30.2.

40.5.4 <u>Task performance data</u>. Performance of the work described by Task 402 produces the training program validation and evaluation data identified in and acquired by DI-ILSS-81105, Training Evaluation and Validation Report. The data elements of this DID provide a comprehensive documentation of the evaluation methodology, procedures, deficiency findings, and recommendations to correct courseware deficiencies. Of

particular importance to the TEE will be the "red-lined" versions of all ICW training program course control and instructional materials. All data elements described in DI-ILSS-81105 are not necessary to document the results of the ICW TEE. You should review the DID requirements and tailor out those data elements which are not necessary.

40.5.5 <u>Training Development Control, Task 103 (in-process review)</u>. Task 103 would be cited here in the SOW to conduct an IPR after completion of the training effectiveness evaluation. The purpose of this IPR should be to evaluate the TEE data and determine whether or not the ICW training program requires only a change or a complete revision. If the ILS contract was written to support either a change or revision, the IPR should review the TEE results to assure the deficiencies and corrective actions documented in the TEE report are properly arrived at. Follow the guidance in 40.4.5.

40.5.5.1 <u>Task performance data</u>. Data produced by the IPR will be the agenda and minutes of the IPR (see 40.4.5.4) and a "red-lined" copy of the Training Evaluation and Validation Report, DI-ILSS-81105. Requirements and procedures for correcting the marked up plan and routing of the corrected document for final review and approval should be identified in the SOW.

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50. ICW CHANGE TASK DESCRIPTIONS FOR AN ILS CONTRACT SOW

50.1 Introduction. This section identifies those MIL-STD-1379 task descriptions and associated DIDs which should be used to acquire ICW training program change materials. This approach to maintenance of the ICW materials should only be used when the scope of program deficiencies and change requirements is small. Known, significant training deficiencies should use the maintenance approach in Section 60.

50.2 Training Evaluation, Task 402. Task 402 is used at this point in the ICW ILS contract SOW to prescribe development of ICW change control procedures and the change materials package.

50.2.1 Subtasks applicable to ILS contracts. The subtasks of Task 402 that are required to develop the ICW training program change control procedures, develop the change materials, and conduct necessary validation and evaluation of the resulting ICW training program are identified and described in subsequent paragraphs. Task 402 subtasks are listed in the sequence in which the work should be performed, rather than by subtask number.

50.2.1.1 Subtask 402.2.9. This subtask requires the contractor to develop and submit for approval the ICW materials change control procedures. You may use this subtask to ensure development of the change control procedures. Agency procedures for review and approval of the change control procedures should also be provided.

50.2.1.2 Program Change Package. The following work description should be added to the SOW to task the contractor to develop the ICW training program change package. This SOW task supports development of the data prescribed by DI-ILSS-81106, Training Material Change Package.

> "Training Program Change Package. Develop instructional media and program change materials to correct training program deficiencies."

50.2.1.3 Subtask 402.2.8. Subtask 402.2.8 requires validation of test items and tests. ILS contracts for ICW maintenance should tailor this subtask in order to ensure that only those test items and tests affected by the change are validated. Doing so eliminates validation of unchanged and previously validated test items and tests. The following tailoring statement is recommended for the SOW:

> "Subtask 402.2.8 (Tailored). Conduct test validation and test item validation and reliability."

50.2.1.4 Subtask 402.2.7. Performance of Subtask 402.2.7 validates the ICW training materials.

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50.2.1.5 <u>Subtask 402.2.1</u>. Subtask 402.2.1 executes the Training Evaluation Plan, DI-ILSS-81076, developed by performance of Task 107. Since an evaluation plan is not recommended for an ICW training program change requirement, a SOW work description is recommended. This work description will require the use of service specific evaluation guidance. This service specific guidance in the SOW should refer to Task 107. A recommended SOW statement follows:

> "ICW Courseware Evaluation. Evaluate the training program in accordance with service specific guidance provided in reference to Task 107."

50.2.1.6 <u>Subtask 402.2.2</u>. Subtask 402.2.2 develops a description of how the training program was evaluated. The description should address the methodology and procedures used during the evaluation.

50.2.1.7 <u>Subtask 402.2.3</u>. This subtask identifies the personnel who conducted the evaluation, and the personnel, materials, and special equipment resources that were used.

50.2.1.8 <u>Subtask 402.2.4</u>. Subtask 402.2.4 describes any training deficiencies found in the training materials during the evaluation. You might consider not including this subtask a second time (see 40.5.1.4).

50.2.1.9 <u>Subtask 402.2.5</u>. This subtask identifies changes to the training materials that are necessary to correct the deficiencies identified by Subtask 402.2.4. This subtask would probably be redundant and unnecessary (see 40.5.1.4 and 40.5.1.5).

50.2.2 <u>Subtasks not required to support an ICW TEE</u>. The following subtask is probably not required to support developing and validating the ICW training program change package.

50.2.2.1 <u>Subtask 402.2.6</u>. Performance of this subtask requires the contractor to provide guidance and assistance to service instructors during the initial conduct of the training. This subtask might be applicable to integrated ICW applications.

50.2.3 <u>Proposed GFI</u>. Inputs that may be necessary to support developing the ICW training program change control procedures and the change materials package are:

a. The "red-lined" version of ICW training program course control documents, instructional media materials, adjunctive materials, and other program materials resulting from the ICW TEE (see 40.5.4).

b. Those GFI inputs identified in 30.2.

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50.2.4 <u>Task performance data</u>. Performance of Task 402 subtasks identified in 50.2.1 produces the training program change control procedures, the Training Material Change Package, DI-ILSS-81106, and the training evaluation and validation data identified in and acquired by DI-ILSS-81105, Training Evaluation and Validation Report.

50.2.4.1 <u>Change control procedures</u>. It is recommended that you develop a statement in the SOW that clearly defines the content of this item through tailoring of the subtasks of Task 402.

50.2.4.2 <u>Training materials change package</u>. The Training Materials Change Package, DI-ILSS-81106, prescribes the data content of the change package. This data description is very broad, so you should review it carefully to tailor out any unnecessary materials.

50.2.4.3 <u>Training evaluation and validation</u>. Training evaluation and validation data may or may not be required to support the training materials change package. Evaluation is normally necessary to assure the deficiencies identified by the TEE have been corrected. You should refer to agency policy and directives to determine whether or not a courseware evaluation and validation is required subsequent to developing a change package. When evaluation and validation is required and the appropriate subtasks of Task 402 are included in the ILS contract SOW, the results are documented and acquired in accordance with DI-ILSS-81105, Training Evaluation and Validation Report. Be sure you tailor this DID to eliminate unnecessary data elements.

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60. ICW REVISION TASK DESCRIPTIONS FOR AN ILS CONTRACT SOW

60.1 Introduction. This Section discusses the MIL-STD-1379 task descriptions required to revise an ICW training program. The work and data requirements for a courseware revision should be more specific than is necessary to accomplish a courseware change. This is because of the amount of course materials and control documentation that would be affected by a major revision.

60.2 Training Situation Analysis, Task 101. Whether or not you include the requirements to perform a training situation analysis in the ICW ILS contract SOW should be based upon the using activity's estimate of the amount of revision necessary to update the ICW training program. The training effectiveness evaluation described in 40.5 will identify the ICW training deficiencies and changes necessary to correct them. The TEE may not, however, be adequate for determining the full scope of the ICW revision. Your review of the potential revision requirements should give adequate consideration to the ICW delivery device capabilities and known, new training and training equipment technologies which may be applicable and required.

60.2.1 Subtasks applicable to ILS contracts. Task 101 contains three subtasks. All are necessary to accomplish the TSA, regardless of the training program or ICW applications. When you determine a training situation analysis is necessary, cite all subtasks in the SOW. Input data identified in 30.2 of this appendix and the results of the TEE (see 40.5.4) are required to support the analysis.

60.2.2 TSA task performance data. Data produced by performance of the TSA is identified in and acquired by DI-ILSS-81069, Training Situation Analysis Report. This DID will require a thorough review to identify your agency's data requirements. Extensive tailoring of this DID may be necessary.

a. DID paragraphs 10.3.2, Study background; 10.3.3, Introduction; and 10.3.4, Organization development, contain data requirements which may not be important or necessary to your agency, and which should receive significant tailoring. Many of the data elements may not apply to the training program being analyzed. Many of the data elements pertain to established in-resident courses, for example, and would not apply to an analysis of field unit or on-the-job training programs.

b. DID paragraph 10.3.5 contains the actual situation analysis data elements. As noted for other DID paragraphs, this DID section includes data elements pertaining to specific types of training situations which may or may not apply. Careful review of these elements should be accomplished and unnecessary data elements tailored out.

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60.2.3 Training Development Control, Task 103 (In-process review). Task 103 should be cited here to conduct an IPR after completion of the training situation analysis. The purpose of this IPR should be to evaluate the analysis data and recommendations to determine the extent to which the ICW training program courseware, hardware, and software requires revision. The IPR should review the TEE and TSA results to assure all program deficiencies are documented and necessary corrective actions have been identified. Follow the information and guidance in 40.4.5.

60.2.3.1 Task performance data. Data produced by the IPR will be the conference agenda and minutes of the IPR (see 40.4.5.4) and a "red-lined" copy of the Training Situation Analysis Report, DI-ILSS-81069. If you elect to conduct an IPR of both the TEE (see 40.5) and the TSA, a "red-lined" copy of the training effectiveness evaluation would also be part of the minutes. Requirements and procedures for correcting the marked up TSA and TEE reports and routing of the corrected documents for final review and approval should be identified in the SOW.

60.3 Training System Modification Requirements, Task 207. This MIL-STD-1379 task is included in the ICW ILS contract SOW to identify the courseware modification requirements to be integrated into the existing ICW training course. The work performed by Task 207 is more appropriate for a courseware revision because of the depth and detail of the work performed to identify and correct training system problems.

60.3.1 Subtasks applicable to ILS contracts. The following subtasks should be include in the ICW ILS contract SOW.

60.3.1.1 Subtask 207.2.1. This subtask defines the training system changes required to correct known deficiencies within the existing courseware. Deficiencies to be addressed are those identified by the training effectiveness evaluation (TEE) and, if accomplished, the training situation analysis (TSA).

60.3.1.2 Subtask 207.2.2. Subtask 207.2.2 develops the training system modifications required to correct the training deficiencies, and identifies the impact these modifications will have on the training system.

60.3.1.3 Subtask 207.2.3. An analysis of the emerging training technologies to be employed in the training system compared to the life expectancy of the materials system/equipment is accomplished by this subtask. This subtask may not be necessary when the ICW training system is relatively new and incorporates current training and training equipment technologies.

60.3.1.4 Subtask 207.2.4. Performance of this subtask defines anticipated savings, improvements in training effectiveness, and gains in the mission operational readiness that are expected to be realized as a result of the training system modifications.

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60.3.1.5 Subtask 207.2.5. This subtask develops a projection of the training system logistics support requirements resulting from the ICW training system modifications.

60.3.1.6 Subtask 207.2.6. Contractor performance of this subtask will produce a definition of the scope of the required training system modifications.

60.3.1.7 Subtask 207.2.7. Subtask 207.2.7 develops budget estimates, and detailed justification for the required training system modifications.

60.3.1.8 Subtask 207.2.8. This subtask requires the contractor to identify or define the potential interservice applications of the training system modifications. The results of this subtask can be significant when the system modifications involve a large amount of ICW which does, in fact, have application in other services training programs. ICW interservice applications identification should focus on the very specific content of the ICW modules/lessons rather than the material weapon) system and equipments the training supports The specific jet engine rather than the aircraft, the specific radio rather than the integrated communications system).

60.3.2 Proposed GFI. The documents and information identified in 30.2 should be input data provided to support accomplishment of Task 207. The results of the TEE and TSA should also be identified inputs to this task description. In addition, you should identify any known potential for inter-service use of the ICW, and identify the agency or activity that has overall logistics support management responsibility for the supported system or equipment. The system/equipment logistics manager should be able to identify any other services using the particular equipment or component addressed by the training materials.

60.3.3 Task performance data. Performance of Task 207 produces the Training System Modification Report, DI-ILSS-81097. The modification report includes a complete description of the ICW training system modifications required to correct the identified training deficiencies. More information about the data elements of this DID is provided in Appendix B, 50.5.3.

60.3.4 Training Development Control, Task 103 (In-process review). Task 103 should be cited here to conduct an IPR after completion of the Training System Modification Report. The purpose of this IPR should be to evaluate the report data and recommendations to determine the extent to which the ICW training program courseware, hardware, and software requires revision. The approach to the courseware modification, expected benefits, new logistics support requirements, and cost projections should also be evaluated. Refer to 40.4.5 for additional information and guidance.

60.4 Correcting deficiencies in ICW training program materials. Correction of the deficiencies in ICW training program materials is an implied requirement of the ILS contract, and the provisions of the quality assurance and internal surveillance programs

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established by the approved Training Program Development and Management Plan, DI-ILSS-81070. You may want to consider including additional work statements in the ICW ILS contract SOW, however, which clearly identify this requirement.

60.4.1 <u>Additional ICW ILS contract SOW task descriptions</u>. Because of the many deliverable data items associated with ICW design and development and the importance of these documents and materials to future courseware maintenance actions, additional SOW task descriptions are suggested which should assure that all critical data elements of the ICW program are current and valid upon final acceptance of the revised program materials. An alternate approach might be to include the complete, tailored task descriptions in the ILS contract SOW. When you select this alternative, refer to Appendix B for information and guidance on specific task description requirements.

60.4.1.1 <u>Analyze new system training requirements</u>. Include the following task description in the ILS contract SOW to require conducting necessary analyses and developing updated versions of the training system training task analysis, learning analysis, media selection, and lesson specification documents.

> "Accomplish applicable subtasks of MIL-STD-1379 Tasks 201, 203, 204, 205, and 210 which are required to identify new training task requirements, develop appropriate learning objectives, select the appropriate media and media features, develop necessary test items, and develop the lesson specifications required to achieve the learning objectives. Correct and update pertinent data elements of the Missions, Collective, Individual and Occupational Training Task Analysis Report, DI-ILSS-81078; Learning Analysis Report, DI-ILSS-81083; Media Selection Report, DI-ILSS-81084; Test Package, DI-ILSS-81085; and Lesson Specifications, DI-ILSS-81090."

60.4.1.2 <u>Correct ICW instructional design deficiencies</u>. Include the following additional task description in the ILS contract SOW to assure correction of ICW course, module and lesson design deficiencies identified in the training system modification report.

> "Accomplish applicable subtasks of MIL-STD-1379 Task 211, Instructional Media Design, necessary to correct program design errors identified by the training effectiveness evaluation and training situation analysis. Correct and update pertinent data elements of the Instructional Media Design Report, DI-ILSS-81091, to reflect all instructional design and flow diagram changes."

60.4.1.3 <u>Correct ICW instructional media deficiencies</u>. Include the following additional task description to correct deficiencies in the instructional media.

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"Accomplish applicable subtasks of MIL-STD-1379 Task 301, Instructional Media Production, necessary to correct deficiencies in the instructional media materials identified by the training effectiveness evaluation and training situation analysis. Correct and update pertinent data elements of the Instructional Media Package, DI-ILSS-81092, and the Instructional Media Data Files, DI-ILSS-81093, to reflect all revisions/changes made to the instructional materials."

60.4.1.4 Correct ICW manager's and user's guide deficiencies. Add the following task description to correct ICW manager's guide and ICW user's guide deficiencies.

"Accomplish applicable subtasks of MIL-STD-1379 Task 303, Training Materials For Instructors, necessary to correct deficiencies in the ICW manager's and user's guides identified by the training effectiveness evaluation and training situation analysis. Correct and update applicable data elements of the Training System Utilization Handbook, DI-ILSS-81096, to reflect all revisions/changes made to the ICW manager's and user's guides."

60.4.2 Proposed GFI. Performance of the task descriptions identified in 60.4.1 may require the following input data.

a. Input the approved versions of the ICW analysis, design, and development documents identified in 30.2.1.

b. Input the all applicable data identified in 30.2.2 through 30.2.4, 30.3, and 30.4.

60.4.3 Task performance data. Performance of the additional task descriptions in 60.4.1 should produce updated versions of the specific documents, reports, and instructional media materials which required correction due to deficiencies identified by the training program TEE and TSA reports. The methods and procedures for accomplishing the corrections should have been identified in the Training System Modification Report, DI-ILSS-81087.

60.4.4 Training Development Control, Task 103 (Preliminary design review). You may wish to conduct a preliminary design review PDR) -- IPR -- of the corrected and updated documents, reports, and instructional media materials produced by performance of the task descriptions described in 60.4.1. When a PDR is required, include the appropriate subtasks from Task 103 to develop the PDR agenda and minutes, and to conduct the actual PDR (see 40.4.5, 40.5.5 and 60.2). This PDR should carefully evaluate all updated documents and reports produced by work descriptions in 60.4.1. The revised instructional media design documents, and instructional media materials should be an especially careful evaluation to assure they conform to established and approved conventions, and are consistent in style and presentation to the original courseware.

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60.5 <u>Implementation of the revised ICW training program</u>. Implementation and evaluation of the revised ICW instructional materials should be accomplished using the same process and procedures used to implement the original courseware. The MIL-STD-1379 task descriptions, task inputs, and task performance data applicable to ICW implementation are identified and described in Section 70 of Appendix B. You should tailor the task descriptions and related DIDs according to your agency's requirements and requirements dictated by the actual courseware and amount of revision accomplished.

60.6 <u>Acceptance of the revised ICW training program</u>. Procedures and requirements for acceptance of the revised ICW training program instructional materials are as defined in Section 80 of Appendix B for the original courseware. Whether the ICW materials are original or revised, they should conform to the same instructional design, development, and implementation requirements. The major difference will be that only those instructional materials that were revised will require evaluation and acceptance. Be sure to include the revised and updated ICW analysis, design, and development documents in the acceptance evaluation. Also assure those documents necessary for configuration control (see 5.6.2 in the Handbook) are available and current, especially if the ICW delivery devices where upgraded or modified to accommodate ICW revision requirements.

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70. PROGRESS REPORTS

70.1 <u>Progress Reports</u>. Requirements for contract progress reports should be addressed in Section 4 of the SOW. Progress reports are contract management tools. Program progress reports provide management indicators and work progress status necessary to manage contractor performance, schedules and deliverables. MIL-STD-1379 Task 103, Training Development Control, includes Subtask 103.2.11 for contractor development of program progress reports.

70.2 <u>Progress report schedules</u>. Progress report requirements are established within the SOW, Section 4, to include reporting schedules. The approach to progress report scheduling is the same as that suggested in Appendixes A and B (see Appendix A, Section 50; and Appendix B, Section 90).

70.3 <u>Progress report content</u>. The content and format of training development contract program progress reports is prescribed by DI-MGMT-80555, Program Progress Report. Report content should be tailored to reflect your minimum reporting requirements. Be sure to include distribution requirements in the CDRL, as well as review and approval procedures.

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TABLE C-1. MIL-STD-1379 tasks applicable to ILS contracts.

| MIL-STD-1379 TASKS AND WORK DESCRIPTIONS | SUPPORTS | | MIL-STD-1379 | | DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT |
	INTE-GRATED ICW	STAND ALONE ICW	TASK INPUT	TASK OUTPUT	
Task 101, Training Situation Analysis.				101.4.1	**DI-ILSS-81069, Training** Situation Analysis Report
101.2.1	YES	YES	101.3.1, 101.3.2	101.4.2, 101.4.3, 101.4.4	Paragraph 10.3.5.1 through 10.3.5.6
101.2.2	YES	YES	101.3.1, 101.3.2	101.4.5	Paragraph 10.3.5.6
101.2.3	YES	YES	101.3.1, 101.3.2	101.4.6	Paragraph 10.3.5.5
Task 102, Training Program Development and Management Planning [1]				102.4.1	**DI-ILSS-81070, Training** Program Development and Management Plan
102.2.1	YES	YES	102.3.1, 102.3.2 and 102.3.3		Paragraphs 10.3.2.7, 10.3.2.8, 10.3.2.18 and 10.3.2.19.
102.2.2	NO	NO	102.3 (All)	102.4.3	
102.2.3	NO	NO	102.3.1		Paragraph 10.3.2.15
102.2.4	YES	YES	102.3 (All)		Paragraph 10.3.2.16
102.2.5	NO	NO	102.3 (All)	102.4.4	
102.2.6	NO	NO			Paragraph 10.3.2.17
102.2.7	YES	YES	102.3.1 and 102.3.2	102.4.5	Paragraph 10.3.2.10
102.2.8	NO	NO	102.3 (All)	102.4.2 102.4.6	**DI-ILSS-81071, Individual** Training Plan

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[1] When Task 102 will be used in an ICW training program maintenance contract, the subtask, task inputs, and task outputs will require very careful review and tailoring. Otherwise, excessive development and management planning will result. Several subtasks are shown as not required because the outputs from these tasks should already be available. Where these outputs are not available or sufficiently current, you should consider including the work tasks necessary to obtain them.

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TABLE C-1. MIL-STD-1379 tasks applicable to ILS contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED ICW	STAND ALONE ICW	TASK INPUT	TASK OUTPUT	
102.2.9	²	²	102.3.1 and 102.3.2	102.4.7	DI-ILSS-81070, Paragraph 10.3.2.6
102.2.10	²	²		102.4.8	Paragraph 10.3.2.3
102.2.11	²	²			Paragraph 10.3.2.14
102.2.12	NO	NO	102.3 (All)	102.4.9	Paragraphs 10.3.2.11, 10.3.2.12 and 10.3.2.13.
102.2.13	YES	YES			Paragraph 10.3.2.4
102.2.14	YES	YES			Paragraphs 10.3.2.2, 10.3.2.3, 10.3.2.5, 10.3.2.9 and 10.3.3.
Task 105. Training Implementation Planning ³				105.4.1	DI-ILSS-81074, Training System Implementation Plan
105.2.1	YES	YES	105.3 (All)	105.4.2	Paragraphs 10.3.2, 10.3.5 and 10.3.6
105.2.2	NO	NO	105.3 (All)		Paragraph 10.3.8
105.2.3	³	³	105.3 (All)		Paragraph 10.3.10n
105.2.4	YES	YES	105.3.1, 105.3.2, 105.3.5, 105.3.6 and 105.3.14		Paragraph 10.3.10
105.2.5	YES	YES	105.3.1, 105.3.2, 105.3.6, 105.3.7, 105.3.19, and 105.3.21	105.4.3	Paragraph 10.3.9

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² Whether or not this subtask is required must be determined by the expected/anticipated scope of the training program revision or change. Task 102 is a significant cost driver; assure unnecessary requirements are tailored out for the SOW.

³ Training implementation planning and training evaluation planning subtasks may be required when there will be extensive revision to the ICW training program, and to course control and configuration management documents. Whether you require delivery of the resulting plans or cite applicable discrete outputs will be determined by agency policy and the potential impact of the revision on the training program.

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TABLE C-1. MIL-STD-1379 tasks applicable to ILS contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED ICW	STAND ALONE ICW	TASK INPUT	TASK OUTPUT	
105.2.6	⁴	⁴	105.3.1, 105.3.2, 105.3.6, 105.3.14		DI-ILSS-81074, Paragraph 10.3.2e
105.2.7	⁴	⁴	105.3.1, 105.3.2, 105.3.6, 105.3.14		Paragraphs 10.3.2 l and m, and 10.3.6 f
105.2.8	⁴	⁴	105.3.1, 105.3.2, 105.3.6, 105.3.7, 105.3.15, 105.3.16, 105.3.17, and 105.3.20.		Paragraph 10.3.10
105.2.9	⁴	⁴	105.3.1, 105.3.2, 105.3.6, 105.3.7, 105.3.17, and 105.3.20.		Paragraph 10.3.10
105.2.10	⁴	⁴	105.3.1, 105.3.2, 105.3.6, 105.3.7, 105.3.9, 105.3.18		Paragraphs 10.3.6e, 10.3.10m and 10.3.11c.
105.2.11	⁴	⁴	105.3.1, 105.3.3, 105.3.19, and 105.3.20.	105.4.4	Paragraph 10.3.6d
Task 107, Training Evaluation Planning ⁴				107.4.1	DI-ILSS-81076, Training Evaluation Plan

---

⁴ Training implementation and evaluation planning subtasks may be required when there will be extensive revision to the ICW training program, and to course control and configuration management documents. Whether you require delivery of the resulting plans or cite applicable discrete outputs will be determined by agency policy and the potential impact of the revision on the training program.

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APPENDIX C

TABLE C-1. MIL-STD-1379 tasks applicable to ILS contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED ICW	STAND ALONE ICW	TASK INPUT	TASK OUTPUT	
107.2.1	YES	YES	107.3 (All). Also input 205.4.2, 205.4.3, 205.4.4, 205.4.5 and 205.4.8	107.4.2	DI-ILSS-81076, Paragraphs 10.3.3 c through i, p and q.
107.2.2	YES	YES	107.3.2		Paragraph 10.3.3 l
107.2.3	YES	YES			Paragraph 10.3.3m
107.2.4	YES	YES			Paragraph 10.3.3 n
107.2.5	YES	YES			Paragraph 10.3.3 k
107.2.6	YES	YES	107.3 (All). Also input 205.4.2, 205.4.3, 205.4.4, 205.4.5 and 205.4.8	107.4.2	Paragraph 10.3.3 j
Task 207, Training System Modification Requirements				207.4.1	DI-ILSS-81087, Training System Modification Report
207.2.1	YES	YES	207.3.1, 207.3.2. Also input 202.4.2, 202.4.3, 204.4.2, 204.4.6 and 402.4.1.		Paragraph 10.3..3 a
207.2.2	YES	YES	207.3.1, 207.3.2. Also input 202.4.2, 202.4.3, 204.4.2, 204.4.6 and 402.4.1.		Paragraphs 10.3.3 b, c and d.
207.2.3	YES	YES	207.3.1, 207.3.4	207.4.3	Paragraph 10.3.3 f
207.2.4	YES	YES	207.3.1		Paragraph 10.3.3 g
207.2.5	YES	YES	207.3.1		10.3.3 i

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TABLE C-1. <u>MIL-STD-1379 tasks applicable to ILS contracts</u> - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED ICW	STAND ALONE ICW	TASK INPUT	TASK OUTPUT	
207.2.6	YES	YES	207.3.1	207.4.2	DI-ILSS-81087, Paragraph 10.3.3 h
207.2.7	YES	YES	207.3.1		Paragraph 10.3.3 j
207.2.8	NO	NO	207.3.1		Paragraph 10.3.3 k and l
Task 402, Training Evaluation * (Training Effectiveness Evaluation)				402.4.1	DI-ILSS-81105, Training Evaluation and Validation Report
402.2.1	*	*	402.3.1.2		All paragraphs of the evaluation and validation report are applicable, subject to agency tailoring.
402.2.2	YES	YES	402.3.1.1, 402.3.2, 402.3.7 and 402.3.9.		
402.2.3	YES	YES	402.3.1, 402.3.2, 402.3.7 and 402.3.9.		
402.2.4	YES	YES	402.3 (All). Also input task outputs 301.4.1, 301.4.2, 303.4.7 and 303.4.8 products.		
402.2.5	YES	YES	402.3 (All)	402.4.3	
402.2.6	NO	NO			
402.2.7	NO	NO			
402.2.8	NO	NO			

---

*   Task 402 should not be used to determine the adequacy and currency of the ICW if a training situation analysis was accomplished. The determining factor as to whether Task 402 or Task 101 should be used is the amount and significance of the estimated deficiencies within the training system.

*   Only required when the contract SOW prescribes performance of Task 107.

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TABLE C-1. MIL-STD-1379 tasks applicable to ILS contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED ICW	STAND ALONE ICW	TASK INPUT	TASK OUTPUT	
402.2.9	7	7			DI-ILSS-81105, Training Evaluation and Validation Plan All paragraphs of the evaluation and validation report are applicable, subject to agency tailoring.
Task 402, Training Evaluation 8 (ICW Materials Change Package)				402.4.1	DI-ILSS-81105, Training Evaluation and Validation Plan All paragraphs of the evaluation and validation report are applicable, subject to agency tailoring.
402.2.1	NO	NO	(See task 402 inputs cited above for TEE)		
402.2.2	NO	NO			
402.2.3	NO	NO			
402.2.4	NO	NO			
402.2.5	9	9		402.4.3	
402.2.6	NO	NO			
402.2.7	YES 10	YES 10		402.4.4	

---

[7] This task description would be appropriate when the scope of the ICW changes is known to be relatively small and only a training materials change package will be required to update the training program.

[8] The work descriptions indicated as necessary to support ICW training materials change package assume that program deficiencies have already been identified through a TEE or similar evaluation method. This use of Task 402 is most appropriate when used in conjunction with the Task 402 TEE, above. Task 402 work descriptions to propose and develop changes to ICW materials should not be used if Task 207, Training System Modification Requirements, has or will be specified.

[9] This task should not normally be required. Performance of this work description is only required when necessary training material change requirements have not been specifically identified through a TEE or similar evaluation.

[10] Task is required to validate those training materials developed or changed because of ICW instructional materials deficiencies.

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TABLE C-1. MIL-STD-1379 tasks applicable to ILS contracts - Continued.

MIL-STD-1379 TASKS AND WORK DESCRIPTIONS	SUPPORTS		MIL-STD-1379		DATA ITEM DESCRIPTION AND PARAGRAPH WHICH IDENTIFIES AND DEFINES THE TASK OUTPUT
	INTE-GRATED ICW	STAND ALONE ICW	TASK INPUT	TASK OUTPUT	
402.2.8	YES [11]	YES [11]		402.4.5	DI-ILSS-81105, Training Evaluation and Validation Plan All paragraphs of the evaluation and validation report are applicable, subject to agency tailoring.
402.2.9	YES	YES	402.4.1	[12]	

---

[11] Subtask is required to validate those training materials developed or changed because of the ICW instructional materials deficiencies.

[12] The SOW will have to specify the format and procedures for preparation and submission of the Change control procedures. Task 402 nor cited DIDs address this requirement.

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APPENDIX C

TABLE C-2. Sequence of ILS deliverables and IPRs.

DID NUMBER	DID TITLE	MIL-STD-1379 TASK OUTPUT	TYPE OF IPR SUGGESTED
ICW CHANGE PACKAGE REQUIREMENTS			
DI-ADMIN-81249	Conference Agenda [1]	103.4.2	NONE
DI-ADMIN-81250	Conference Minutes [1]	103.4.3	NONE
DI-MGMT-80555	Program Progress Report	103.4.4	NONE [2]
DI-ILSS-81105	Training Evaluation and Validation Report (TEE)	402.4.1 [3]	YES/IPR
DI-ILSS-81106	Training Material Change Package	402.4.2	YES/PDR [4]
DI-ILSS-81105	Training Evaluation and Validation Report [5]	402.4.1	YES/IPR
ICW REVISION REQUIREMENTS			
DI-ADMIN-81249	Conference Agenda [1]	103.4.2	NONE
DI-ADMIN-81250	Conference Minutes [1]	103.4.3	NONE
DI-MGMT-80555	Program Progress Report	103.4.4	NONE [2]
DI-ILSS-81105	Training Evaluation and Validation Report (TEE)	402.4.1	NO [6]
DI-ILSS-81070	Training Program Development and Management Plan [7]	102.4.1	YES/IPR [8]

---

[1] Required if the contractor will be responsible to establish and conduct the contract management team (Kick-off) meeting.

[2] Progress reports should be scheduled at appropriate times when an IPR/PDR/CDR is not due.

[3] SOW task description should include the requirement to develop change control procedures as outlined in Task 402.2.9.

[4] The PDR should review all proposed changes to the instructional media materials prior to actual development of the changes.

[5] The ICW will require evaluation and validation subsequent to development of the ICW change materials. Evaluation results ("Red-lined" documents) will require correction prior to acceptance of the final change package.

[6] Program progress reports should be scheduled at appropriate times when an IPR/PDR/CDR is not due within a 20 day period.

[7] The Development and managment plan may be required when the revision work effort will be extensive. This DID will require very careful evaluation and tailoring to preclude unnecessary work effort and excessive control.

[8] An IPR should be considered so that Government managers can discuss all necessary program modification requirements with the contractor. This IPR will provide better insight into the amount of effort necessary to accomplish the ICW revision.

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APPENDIX C

TABLE C-2. <u>Sequence of ILS deliverables and IPRs</u> - Continued.

DID NUMBER	DID TITLE	MIL-STD-1379 TASK OUTPUT	TYPE OF IPR SUGGESTED
DI-ILSS-81069	Training Situation Analysis Report	101.4.1	YES/IPR
DI-ILSS-81087	Training System Modification Report	207.4.1	YES/IPR [9]
As Req'd	Select FEA deliverables using Figures A-1 and B-1.	As Req'd	See Table A-2
As Req'd	Select DD/I deliverables using Figure B-2.	As Req'd	See Table B-2
DI-ILSS-81074 [9]	Training System Implementation Plan	105.4.1	NO
DI-ILSS-81076 [10]	Training Evaluation Plan	107.4.1	NO
[11]	ICW FEA and DD/I documents and instructional media materials according to MIL-STD-1379 task descriptions included in the ICW ILS contract SOW.	As required to support applicable tasks	YES/IPR/CDR depending upon approach to revision. (See 60.6 of appendix)
ALL	FINAL VERSION [12]	N/A	NONE

---

[9] Depending upon the nature and scope of the ICW revision, you may need to consider requiring the contractor to develop an implementation plan. Delivery of the plan may not be required, however. The implementation planning data can be a discrete input to performance of Task 301.

[10] A training program evaluation plan may be necessary when the ICW materials have undergone an extensive revision. When the scope of the revision warrants an evaluation plan, performance of both MIL-STD-1379 Task 401 and Task 402 should also be specified in the SOW. Tasks 401 and 402 implement the implementation and evaluation plans, respectively.

[11] The DID numbers of any other deliverables identified in the CDRL to support the ICW ILS (Maintenance) contract will be determined by the actual MIL-STD-1379 task descriptions included in the ILS contract SOW. Additional deliverable data may be appropriate to support obtaining the data produced by the additional task descriptions.

[12] The final version of all deliverable data should be deferred until after the ICW training program has been revised and evaluated, errors corrected, and the appropriate analysis, design, development, and implementation documents updated to reflect the courseware revisions. The final version of the deliverables should be delivered in a CALS-compliant digital form.
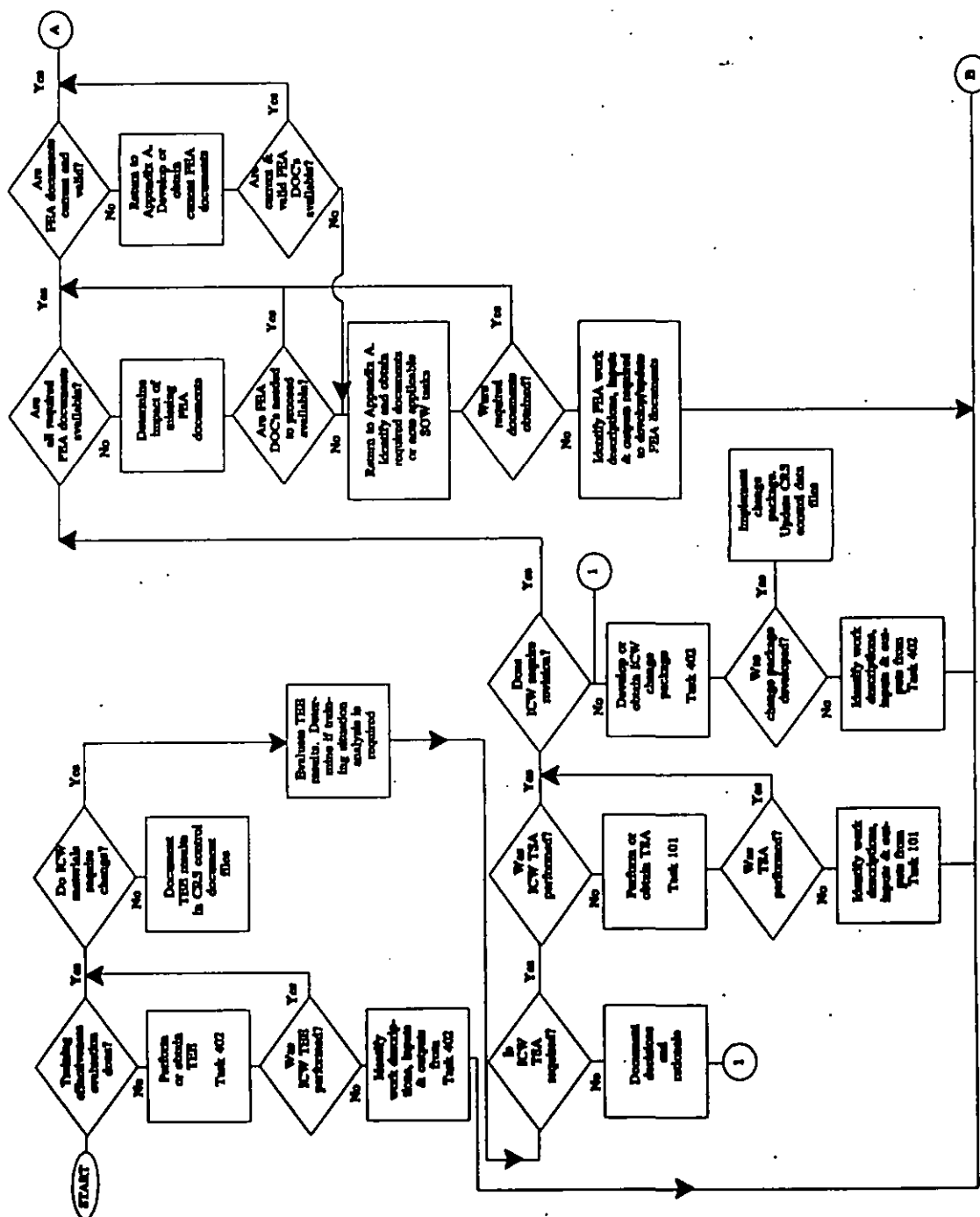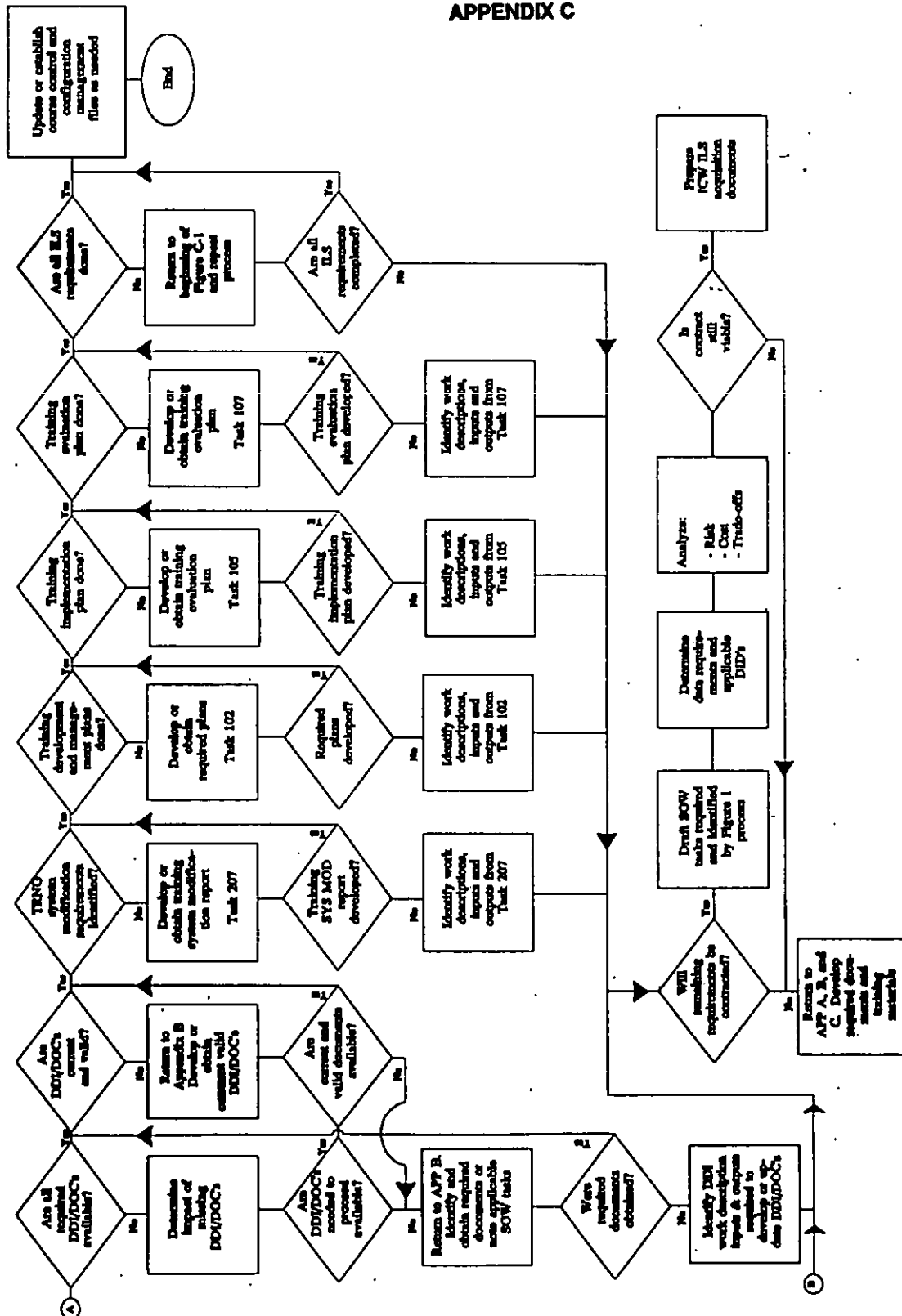
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APPENDIX C

FIGURE C-1. ICW ILS Requirements definition.

FIGURE C-1. ICW ILS Requirements definition - Continued.

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APPENDIX D

INTERACTIVE COURSEWARE (ICW)
CATALOGING AND REPORTING SYSTEMS

10. SCOPE

20. APPLICABLE DOCUMENTS

30. GENERAL REPORTING GUIDANCE

40. DEFENSE AUTOMATED VISUAL INFORMATION SYSTEM (DAVIS)

50. DEFENSE INSTRUCTIONAL TECHNOLOGY INFORMATION SYSTEM (DITIS)

(This appendix to be added later)

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APPENDIX D

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete blocks 4, 5, 6, and 7.

3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER **MIL-HDBK-284-1**	2. DOCUMENT DATE (YYMMDD) **920722**

3. DOCUMENT TITLE Interactive Courseware (ICW) for Military Training, Managers Guide for Development, Acquisition, and Management Of (Part 1 of 3 Parts)

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION

c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (if applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME **Commander, Naval Sea Systems Command (SEA 55Z3)**	b. TELEPHONE (Include Area Code) (1) Commercial **(703)602-0160** (2) AUTOVON **332-0160**

c. ADDRESS (Include Zip Code) **Department of the Navy Washington, DC 20362-5101**	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340

DD Form 1426, OCT 89 Previous editions are obsolete. 198/290

NOTICE OF
CANCELLATION

MIL-HDBK-284/1
NOTICE 1
3 September 1999

MILITARY HANDBOOK

**INTERACTIVE COURSEWARE (ICW) FOR MILITARY TRAINING,
MANAGER'S GUIDE FOR DEVELOPMENT,
ACQUISITION, AND MANAGEMENT OF
(PART 1 OF 3 PARTS)**

MIL-HDBK-284/1, dated 22 July 1992, is hereby canceled. Guidance on the development of interactive multimedia instruction is contained in MIL-HDBK-1379/3, "Development of Interactive Multimedia Instruction (IMI) (Part 3 of 4 Parts)."

(Copies of MIL-HDBK-1379/3 are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

Custodians:
 Army-AV
 Navy-SH
 Air Force-11

Review activities:
 Army-TM2
 Navy-AS, EC, MC, TD
 Air Force-13, 94

Preparing activity:
 Navy-SH
 (Project ALSS-0070)

AMSC N/A

AREA ALSS

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