DATA ITEM DESCRIPTION

Title: CRITICAL TASK ANALYSIS REPORT

Number: DI-HFAC-81399B
AMSC Number: 8337
DTIC Applicable:
Office of Primary Responsibility: MI/AV PA
Applicable Forms: N/A

Approval Date: 20130206
Limitations: N/A
GIDEP Applicable: N/A

Use/relationship: A critical task is one requiring human performance which, if not accomplished in accordance with system requirements, will likely have adverse effects on cost, system reliability, efficiency, effectiveness, or safety. The Critical Task Analysis Report (CTAR) describes the results of analyses of critical tasks performed by the end user and provides a basis for identifying high risk tasks affecting human-system performance, mission accomplishment, system suitability, and safety. The analyses and results described support verification that human engineering technical risks have been identified, minimized, or mitigated and that human-system performance has been adequately addressed from early design development through test and evaluation of the system, equipment, or facility.

a. This data item description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

b. Terms are defined in accordance with MIL-HDBK-1908.

c. This DID supersedes DI-HFAC-81399A.

Requirements:

1. Format. The CTAR format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions

2. Tailoring. The CTAR shall be tailored to reflect the SOW, system specification, and the scope of the user interface development. The proposed tailoring of the CTAR content shall identify the paragraph, the proposed changes, and a rationale. Tailoring specified by the procuring agency shall also be included. If no tailoring is proposed beyond that specified by the procuring agency, this shall be stated.

3. Content. The CTAR shall document whether system performance and maintenance requirements can be met by the combination of anticipated equipment, software, associated user

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interfaces, and personnel, and in ensuring that human performance requirements do not exceed human capabilities. The critical tasks defined shall be documented with regard to task duration versus time availability, task sequencing, and task simultaneity. Task requirements shall be documented, as applicable, for criticality, accuracy, precision, completeness, and the effects of task feedback and error tolerance/error recovery on performance. The report shall document the effects of sustained and continuous operations on human performance.

a. The CTAR shall identify the criteria and methods used to classify the task as "critical", the task analysis methodology followed to gather the information below (e.g., in accordance with MILSTD 46855), and identify personnel associated with the critical task interacting with the system, to include users (e.g. operational personnel, trainees, instructors, maintainers, and support personnel) as relevant to the system.

b. For all human related tasks deemed critical, the report shall identify the following:

(1) System/Subsystem name,
(2) Support equipment or ancillary devices to which the system interfaces,
(3) Mission(s) and phase(s) including degraded modes of operation,
(4) Scenario,
(5) Function,
(6) Task performance standards (e.g., including time, accuracy, precision, completeness),
(7) Task,
(8) Subtask,
(9) Time requirements for tasks with regard to task duration versus time availability,
(10) Task sequencing,
(11) Task simultaneity,
(12) Task criticality,
(13) The effects of task feedback and error tolerance/error recovery on performance,
(14) The effects of sustained and continuous task performance on human performance, and
(15) Task assignment (e.g., who will perform the task and what cognitive or physical characteristics are required).

c. For each critical task, the report shall include the following details to a level sufficient to identify potential problem areas:

(1) Preconditions that must be met before the task can be attempted, if any;

(2) Information required and presented via the system, equipment, and software or associated user interfaces to the user(s), including support equipment and ancillary devices, that is relevant for performing the critical task/subtask, including cues for task initiation; the method of gathering information required to accomplish the task or subtask; and the type of information that is gathered;

(3) Information available to the user(s);

(4) Information required but not presented via the system or available from other sources;

(5) Information processing, including cognitive demands (workload), and decision evaluation process;

(6) Sense modalities (e.g., visual, auditory) required to successfully complete the task(s);

(7) Possible decisions that could be reached;

(8) All possible actions that might be taken depending on the decision reached; responding to specific information and combinations of information; and self-initiated responses and behaviors;

(9) The performance consequences of each critical task with respect to the effects upon both the immediate subsystem functions and the overall system mission;

(10) Body movements (e.g., eye, head, hand, foot) or a definition of actions which each user might complete to accomplish the critical task/subtask;

(11) Modality through which information is conveyed, and modality of user action;

(12) Workspace envelope required by all actions that might be taken;

(13) Workspace available;

(14) Location of user within the workspace with relationship to the task interfaces;

(15) Location and condition, including environmental, of the work environment;

(16) Frequency and tolerances of all actions that might be taken;

(17) Time available for completion of the task;

(18) Feedback informing user(s) of the adequacy of actions taken or the failure to take an action;

(19) Tools and equipment required, and their timely availability;

(20) Number of personnel required, their skills, aptitude requirements, recommended ranks, rates, and ratings;

(21) Probability, consequences, and severity of human error (e.g., downtime incurred);

(22) Potential for error recovery (e.g., resources required to recover and time until return to fully mission capable);

(23) Job aids, training, or references required, and their timely availability;

(24) Communications required, including type of communication;

(25) Hazards involved;

(26) Personnel interaction where more than one person is involved;

(27) Performance limits of personnel;

(28) Operational limits of hardware and software and associated user interfaces;

(29) Concurrent tasks and the associated potential workload and attention management; and

(30) Impact of operating and maintaining equipment while wearing personnel protective equipment (e.g., chemical biological radiological gear, exposure suits).

d. Evaluation of proposed corrective actions for identified problem areas.

4. End of DI-HFAC-81399B.