DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
WASHINGTON, DC 20362-5101

IN REPLY REFER TO
NAVSEAINST 3960.2D
OPR 902
22 Apr 1988

NAVSEA INSTRUCTION 3960.2D

From: Commander, Naval Sea Systems Command

Subj: TEST AND EVALUATION

Ref: (a) OPNAVINST 3960.10C
(b) NAVSEAINST 4720.11B/NAVELEXINST 4720.4A

Encl: (1) Development of Test and Evaluation Master Plans (TEMPs)
(2) Assessment of Readiness for OPEVALs and FOT&E Exercises

1. Purpose. To revise and update the Test and Evaluation (T&E) policies and procedures for acquisition programs of the Naval Sea Systems Command (NAVSEA) to reflect the policies of reference (a).

2. Cancellation. NAVSEAINST 3960.2C of 11 January 1986.

3. Background. Within NAVSEA, T&E is used to provide assessments of technical risk, indications of program progress and the early exposure of problem areas in support of the acquisition of ships and systems. Secretary of Defense (SECDEF) and Navy policy requires the conduct of development, operational and production acceptance T&E, and the use of the results in major program approval decisions. Reference (a) describes Chief of Naval Operations (CNO) T&E policies; this instruction issues NAVSEA's policies and procedures.

4. Scope. The provisions of this instruction apply to all NAVSEA programs designated by the CNO as acquisition programs on the Acquisition Category (ACAT) list. Nuclear power plants and related systems under the cognizance of the Deputy Commander for Nuclear Propulsion (SEA 08) are exempt. Such systems are covered by joint Department of Defense (DOD) and Department of Energy agreements.

5. Policy. In implementing reference (a), NAVSEA will:

a. Ensure that each T&E program is integral to and supportive of the strategy of the acquisition program, including being tailored to its risks. T&E shall support development and engineering design, evaluate logistics supportability and verify the attainment of performance requirements. Top level T&E planning for each acquisition program shall be documented in a T&E Master Plan (TEMP), except for most ship programs. A TEMP is required for ship programs only when the conduct of Operational T&E (OT&E) by Commander, Operational Test and Evaluation Force (COMOPTEVFOR) is required for the ship or overall combat system. The TEMP shall be directly traceable to the program's requirements documents, e.g.,

the applicable Decision Coordinating Paper (DCP), Navy DCP (NDCP), Operational Requirement (OR) or ship Top Level Requirements (TLR). TEMPs shall be reviewed within NAVSEA in accordance with enclosure (1) prior to their release to other Commands for formal review.

b. Conduct a review of each system prior to certifying its readiness for major Operational Test and Evaluation events. For Operational Evaluations (OPEVALs) and applicable Follow-on Operational T&E (FOT&E) exercises, thorough, formal, preparatory Development T&E shall precede the certification and the results shall be used as a critical determinant in assessing readiness. The assessments will be made by an Operational Test Readiness
A) Review Board in accordance with enclosure (2). Other certifications of readiness and notifications of system availability for testing shall be made by the program manager (or other official within that directorate) after coordination with SEA 902.

D)

c. Operate a Test and Evaluation Division which is separate from the platform and engineering directorates. This division will advise the NAVSEA Deputy Commanders, program managers and shore activities on T&E policy and procedures and will review NAVSEA acquisition T&E programs at selected program milestones.

d. Review all system installations aboard naval ships accomplished for T&E purposes by alteration installation teams (AITs). Procedures for such reviews are contained in reference (b).

6. Action

R) a. NAVSEA acquisition program managers. Plan, conduct, and report on their Development T&E (DT&E) and Production Acceptance T&E (PAT&E), as well as integrate the necessary OT&E into their programs, in accordance with reference (a) and this instruction. Program managers who envision the need for new targets or range capabilities shall work with the cognizant offices as early in the program as possible to articulate those requirements and to ensure they are considered in Navy long-range test resource planning. The cognizant NAVSEA office for undersea targets and range matters is NAVSEA 63T; the NAVAIR office for aerial targets is NAVAIR APC 208, and for the Major Range and Test Facility Base is NAVAIR 421.

b. SEA 90:

(1) Sign all ACAT I, II, and III TEMPs for COMNAVSEA, prior to submittal to Chief of Naval Operations (CNO) for approval.

(2) Approve all ACAT IV TEMPs for COMNAVSEA.

(3) Review the findings of the OT readiness reviews for each OPEVAL and applicable FOT&E and certify system readiness to the CNO and COMOPTEVFOR.

c. NAVSEA T&E Division, SEA 902: (D

(1) Submit all requests for new T&E Identification Numbers to the CNO.

(2) Conduct the review of TEMPs and submit TEMPs to COMOPTEVFOR and CNO for signature.

(3) Conduct the OT Readiness Reviews.

(4) Provide to the cognizant NAVSEA program manager an assessment of the adequacy of testing planned and accomplished and an evaluation of T&E program results at selected times during acquisition programs, such as initial program planning and TEMP development, preparation for OPEVAL and FOT&E, presentation to the NAVSEA Acquisition Review Board (ARB), and request for Approval for Full/Limited Production (AFP/ALP).

(5) Provide to SEA 90 an assessment of the adequacy of testing accomplished and an evaluation of T&E program results prior to each Milestone II and III ARB.

(6) Coordinate NAVSEA requests to the CNO for fleet ship and aircraft services to support T&E exercises.

(7) Publish and maintain the catalog of summary information on land-based test sites, in accordance with reference (a).

(8) Collect and disseminate "lessons learned" in T&E throughout NAVSEA and to shore activities.

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(See page 4)

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SEA 902 (5)
09B11 (5)
09B38 (50)

Development of Test and Evaluation Master Plans (TEMPs)

1. TEMPs for ACAT I, II and III Programs

a. TEMPS shall be prepared in accordance with reference (a) for all ACAT I, II, and III programs. In addition, TEMPs for ship acquisition programs shall include a description of Production Acceptance T&E efforts in accordance with the Total Ship Test Program: Ship Construction Test and Trials Manual (NAVSEA 0900-LP-095-2010). The NAVSEA T&E Division (SEA 902) is the focal point for collecting and disseminating lessons learned and emerging policy requirements in T&E throughout system acquisition programs and particularly during TEMP preparation and update.

b. Program managers shall initiate communication with OPTEVFOR during early program planning to facilitate a mutual understanding of T&E objectives. Preparation of the initial version of the TEMP shall be coordinated with OPTEVFOR in accordance with reference (a). Prior to the program manager forwarding the completed draft TEMP to the CNO (OP 098) and OPTEVFOR for formal review, the TEMP shall receive an internal NAVSEA review coordinated by SEA 902. The review shall include participation by selected staff codes: those responsible for Reliability and Maintainability, Integrated Logistics Support, Electromagnetic Environmental Effects and Survivability and Vulnerability. The program manager shall provide to SEA 902 six copies of the TEMP and one copy of the Decision Coordinating Paper (DCP), Navy DCP (NDCP), Operational Requirements (OR) or similar program requirements document. In order to minimize the length of time for processing TEMPs and to reduce the possibility of conflicting recommendations, the formal review of TEMPs for concurrence by cognizant NAVSEA staff codes shall take place only as part of this 902-coordinated review, and not separate from it. This is not intended to inhibit the staff codes' liaison with the program manager, but is intended to preclude a multi-stage review process within NAVSEA. TEMP reviewers shall be given 10 working days to provide comments to SEA 902. SEA 902 shall screen and provide the consolidated comments to the program manager within 14 working days of receipt of the TEMP.

c. After resolution of comments from the internal NAVSEA review, the program manager shall distribute the draft TEMP to CNO (OP 098) (10 copies), OPTEVFOR and other Commands as appropriate for review.

d. Following the resolution of all comments generated by the above reviews, the program manager shall route the TEMP (two copies) via the cognizant Deputy Commander to SEA 902 for approval processing. The program manager shall also provide to SEA 902 a copy of the CNO and OPTEVFOR comments at this time.

R) e. After approval, the program manager shall distribute the TEMP as follows:

(1) CNO program coordinator, CNO development coordinator and OP 098R.

(2) COMOPTEVFOR.

(3) Space and Naval Warfare Systems Command (SPAWAR 30) for systems requiring warfare systems integration.

(4) Fleet Commanders-in-Chief, when OT IV is scheduled in the TEMP.

(5) Naval Air Systems Command, if aerial targets (AIR APC 208) or Major Range and Test Facilities Base (MRTFB) facilities (AIR 421) are to be used.

(6) SEA 63T if underwater targets or ranges are to be used.

(7) Navy shore activities, as appropriate.

(8) SEA 902.

f. All updates of TEMPs shall be prepared and staffed in the same manner as paragraphs 1.a through 1.e above.

A) g. NAVSEA certifications of currency of the TEMP for each program on the SECDEF T&E oversight list are made by SEA 902, after coordination with the program manager.

2. <u>TEMPs for ACAT IVT programs</u>. TEMPs for ACAT IVT programs shall be prepared in accordance with the same procedures as in paragraph 1 except: (a) they are not forwarded to CNO for review while in draft form; and (b) their approval is constituted by SEA 90 and COMOPTEVFOR signatures (i.e., CNO approval is not required).

3. <u>TEMPs for ACAT IVM programs</u>. TEMPs for ACAT IVM programs shall be prepared in accordance with the same procedures as paragraph 1, except: (a) there are no OT&E thresholds in Part I and there is no

Part IV, OT&E Outline, since COMOPTEVFOR does not conduct OT&E on ACAT IVM systems; (b) they are not forwarded to CNO or OPTEVFOR for review; (c) approval is constituted by SEA 90's signature alone; and (d) they need not be distributed to COMOPTEVFOR unless fleet services are required to support the T&E program. (D

Assessment of Readiness for OPEVALs and FOT&E Exercises

1. Overview. Reference (a) establishes the requirement for the Systems Commands' certification to the CNO and COMOPTEVFOR of each system's readiness to enter OPEVAL. (This certification is also required for each FOT&E exercise which has as the objective to conduct testing deferred from OPEVAL or to demonstrate the correction of deficiencies observed in OPEVAL.) In addition, NAVSEA shall review and certify readiness for the OT III exercises of ships and overall combat systems in order to ensure the readiness of subordinate and interfacing systems to support the exercise. NAVSEA certification shall be based on the results of an Operational Test Readiness Review (OTRR) described below, including the analysis of the results of earlier T&E, particularly Technical Evaluation (TECHEVAL). The certification is made to the CNO (OP 098) and COMOPTEVFOR by a message which addresses each of the criteria set forth in reference (a). NAVSEA will request waivers for only minor items and only if there is appropriate justification. Prior to the start of the OPEVAL, the program manager must correct the deficiencies that would jeopardize successful completion of the exercise. If such corrections cannot be made prior to the usual release date for the certification message, but NAVSEA is confident that the correction will be properly made prior to the scheduled commencement of OPEVAL, the message shall identify the status as such.

2. Technical Evaluation (TECHEVAL). A critical determinant in the assessment of readiness for OPEVALs shall be the results of TECHEVAL, the preparatory Development T&E (DT&E). TECHEVAL shall be treated as rehearsal for OPEVAL, conducted on the same system and generally under the same conditions as the OPEVAL to follow. TECHEVAL is not a test-and-fix exercise, but is primarily a demonstration that the entire system, including its logistics support and its operators and maintenance personnel, is ready for OPEVAL. The test plans and test reports therefore shall compare actual performance to the DT&E and OT&E thresholds identified in the TEMP. Provision shall be made in the test plan for meaningful evaluations to be made in each of the following areas, as applicable:

a. system effectiveness
b. survivability/vulnerability
c. reliability

d. maintainability
e. availability
f. compatibility, including electromagnetic environmental effects
g. interoperability
h. spare parts support
i. technical manuals
j. training
k. transportability
l. safety
m. human factors

These areas shall be evaluated while fleet operator and maintenance personnel (vice engineering technical representatives) are in control of the system. This is necessary for two reasons: so the assessments reflect operational conditions and so that the operators and maintenance personnel can improve their proficiency. The test report shall address each of these areas separately.

3. OT Readiness Review

a. The process whereby NAVSEA assesses the readiness of systems to commence OPEVALs and FOT&E exercises is through the convening of an OTRR Board. The board is chaired by the Deputy Commander or Assistant Deputy Commander of the directorate responsible for the acquisition program. Board members include a senior person who is authorized to take a position in the respective functional area and make commitments on behalf of the staff director from each of the following staffs:

(1) Program manager's office
(2) Test and Evaluation - SEA 902
(3) Reliability and Maintainability - SEA 05MR or 06Q
(4) Integrated Logistics Support - SEA 904

b. SEA 902 is the Executive Secretary of the OTRR Board and coordinates all Board administrative actions. Program Managers shall contact SEA 902 6 to 8 weeks prior to the planned certification date to schedule and define the scope of the Board review.

c. Approximately 1 month prior to the planned certification, SEA 902 contacts the Board chairman (cognizant Deputy Commander) to confirm the method of the review and issue a memorandum convening the review. The preferred and usual method of completing the review is with a formal meeting of all Board members. However, the Board chairman may determine that a formal meeting is not necessary and elect a "route sheet" review coordinated by SEA 902.

d. At least 3 weeks prior to the OTRR Board meeting (or if no meeting is scheduled, 3 weeks prior to the planned certification date), the program manager provides to the working level Board members the applicable documents to enable them to evaluate the readiness of the system. The specific documents will be identified in the Board chairman's memorandum and will normally include:

(1) The proposed certification message, addressing the criteria contained in reference (a).

(2) The system TEMP.

(3) The requirements document (e.g. Decision Coordinating Paper (DCP), Navy DCP (NDCP), or Operational Requirements (OR)).

(4) TECHEVAL/DT III plan. (NOTE: Such exercises must have as stated objectives not only the demonstration of design requirements but also the demonstration of readiness for the OPEVAL/FOT&E.)

(5) DT&E report(s).

(6) OPEVAL/FOT&E plan.

(7) Previous OT&E report(s).

(8) Integrated Logistics Support (ILS) Plan.

(9) Navy Training Plan.

(10) Technical manuals (samples of operators, maintenance and Illustrated Parts Breakdown manuals).

(11) Planned Maintenance System (PMS) documentation.

(12) Allowance Parts List (APL) (preliminary).

(13) Reliability and Maintainability plans and reports.

(14) System safety assessment.

In the event that some of these documents cannot be available 3 weeks before the Board meeting, they, along with their anticipated delivery date, will be identified in the Board chairman's memorandum convening the review.

e. The OTRR Board meeting includes a presentation by the program manager which addresses the topics contained in the certification message. Board members discuss program issues and risk areas as well as corrective actions for any deficiencies. The program manager may invite personnel from the CNO program coordinator's and development coordinator's offices, the OPTEVFOR Operational Test Director, and any technical advisors desired. After the meeting or at the conclusion of the "route sheet" review, if the Board chairman (cognizant Deputy Commander) concurs, he forwards the certification message with a recommendation to SEA 90. SEA 90 either approves the certification and releases the message, or disapproves it and recommends additional action. If agreement cannot be reached between the Board chairman and SEA 90, resolution is requested of SEA 00/09.

f. Prior to the full Board meeting, a preview meeting is held for working-level members of the Board. At this time, the program manager delivers the presentation to these members, who advise of their concerns so that the program manager will be better prepared for the meeting with the Board chairman. The program manager may invite personnel from organizations outside NAVSEA as desired.

g. When a system undergoing OPEVAL or FOT&E has been placed in deficiency status, NAVSEA must review and certify the system's readiness to recommence the exercise. In this case, the Board's Executive Secretary and the program manager shall tailor the scope of the revision and the time frame to the extent and nature of the deficiencies.