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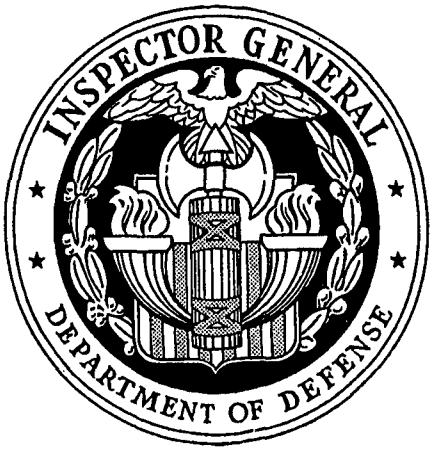

YEAR 2000 STATUS OF THE
COMBAT CONTROL SYSTEM MARK 2 BLOCK 1 A/B

Report No. 99-204 July 9, 1999

Office of the Inspector General
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Acronyms

CCS MK2	Combat Control System Mark 2 Block 1 A/B
NAVSEA	Naval Sea Systems Command
NUWC	Naval Undersea Warfare Center Division
Y2K	Year 2000

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

July 9, 1999

MEMORANDUM FOR ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT AND COMPTROLLER)

SUBJECT: Audit Report on Year 2000 Status of the Combat Control System Mark 2 Block 1 A/B (Report No. 99-204)

We are providing this report for review and comment. We considered management comments on a draft of this report in preparing the final report. Accordingly, one recommendation was deleted and the other was revised. We conducted the audit in response to the requirement in both the National Defense Authorization Act and the DoD Appropriations Act for FY 1999.

DoD Directive 7650.3 requires that all recommendations be resolved promptly. Therefore, we request that the Chief Information Officer, Navy, provide comments on the revised recommendation by July 30, 1999.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Ms. Kathryn M. Truex at (703) 604-9045 (DSN 664-9045) (kmtruex@dodig.osd.mil) or Ms. Virginia G. Rogers at (703) 604-9041 (DSN 664-9041) (vrogers@dodig.osd.mil). See Appendix B for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-204 **July 9, 1999**
(Project No. 9AS-0090.01)

Year 2000 Status of the Combat Control System Mark 2 Block 1 A/B

Executive Summary

Introduction. This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge. In addition, the National Defense Authorization Act and DoD Appropriations Act for FY 1999 require the Inspector General, DoD, to selectively audit information technology and national security systems certified as year 2000 compliant to evaluate the ability of systems to successfully operate during the actual year 2000, including the ability of the systems to access and transmit information from point of origin to point of termination.

The Combat Control System Mark 2 Block 1 A/B provides the primary means for weapon control, contact motion analysis, and sensor data management residing on a Ship Submarine Nuclear 688I platform. The Combat Control System Mark 2 Block 1 A/B provides improved performance in Strike Warfare, enhanced Battle Group interoperability, and increased effectiveness of the shallow water anti-submarine warfare. It supports operational requirements for improvement of navigational capability of the Conventional Tomahawk Land Attack Missile, the Advanced Tomahawk Weapon Control System, the Joint Maritime Command Information System, and the Mark 48 Advanced Capability Torpedo Propulsion Upgrade.

Objectives. Our objective was to evaluate the ability of the Combat Control System Mark 2 Block 1 A/B to operate successfully in the year 2000, including the ability of the system to access and transmit information from point of origin to point of termination. Additionally, the audit was to determine whether an adequate contingency plan existed to ensure continuity of operations.

Results. The Naval Sea Systems Command certified the Combat Control System Mark 2 Block 1 A/B as year 2000 compliant in October 1997, using criteria that were subsequently superceded. As a result, system level testing was still incomplete when the Combat Control System Mark 2 Block 1 A/B was reported as compliant in the DoD year 2000 database. Additional testing was performed after certification. Although the additional testing was sufficient to alleviate concerns about this particular system, the methodology used for its certification raises concerns that 127 other Naval Sea Systems Command systems certified as of September 1998 may have been prematurely and inappropriately certified. See the Finding for details of the audit results.

Summary of Recommendations. We recommend that the Chief Information Officer, Navy, review the adequacy of system level testing as a prudent risk mitigation step for the other Naval Sea Systems Command mission-critical systems certified as of September 1998, other than the Combat Control System Mark 2 Block 1 A/B.

Management Comments. The Chief Information Officer, Navy, nonconcurred with the draft recommendation and stated that recertification was not necessary for the other Naval Sea Systems Command mission-critical systems certified as of September 1998 based on the extensive testing performed by the Naval Sea Systems Command. A discussion of the management comments is in the Finding section of the report, and the complete text is in the Management Comments section.

Audit Response. We concluded that the testing of the Combat Control System Mark 2 Block 1 A/B performed as of April 1999 appeared adequate to justify its classification as year 2000 compliant now. This does not change the fact that compliance certification was made in October 1997 before system level testing was completed. Comments from the Chief Information Officer, Navy, on whether recertification is necessary for the other Naval Sea Systems Command mission-critical systems certified as of September 1998, were nonresponsive. The Navy has inadequate assurance that other Naval Sea Systems Command project managers completed sufficient system level testing, before or after their systems were certified. The inclusion of systems in higher level testing is not a substitute for rigorous system level testing. Accordingly, the Navy needs to take prudent action to minimize risk by double checking whether adequate system certification testing occurred to ensure compliance of the 127 other Naval Sea Systems Command mission-critical systems.

We request that the Chief Information Officer, Navy, reconsider his position and provide comments on the final report by July 30, 1999.

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The National Defense Authorization Act and DoD Appropriations Act for FY 1999 requires the Inspector General, DoD, to selectively audit information technology and national security systems certified as year 2000 (Y2K) compliant to evaluate the ability of systems to successfully operate during the actual Y2K, including the ability of the systems to access and transmit information from point of origin to point of termination.

Background

DoD Year 2000 Management Plan. The Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued the "DoD Year 2000 Management Plan" (DoD Management Plan), Version 1.0, in April 1997. The Senior Civilian Official, Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), in his role as the DoD Chief Information Officer issued the DoD Management Plan, Version 2.0, in December 1998. The DoD Management Plan provides the overall DoD strategy and guidance for inventorying, prioritizing, fixing, testing, and implementing compliant systems and monitoring their progress.

Certification Guidance. The DoD Management Plan requires system certification as an exit criterion for the validation phase. According to the DoD Management Plan, a completed and signed checklist constitutes certification of Y2K compliance for a system. The Y2K compliance checklist, in the appendix of the DoD Management Plan, contains questions regarding a system's ability to accurately recognize and process Y2K dates, including the leap year; usage of dates internally; external system interfaces; date field type, Y2K testing information; and commercial off-the-shelf products and Government off-the-shelf products.

Testing Guidance. The DoD Management Plan requires that DoD Components conduct testing to validate that the systems are Y2K compliant and perform as intended. The DoD Management Plan requires that executive software and hardware used by an application is compliant for certification. The DoD Management Plan requires all interfaces to be tested and certified as an exit criterion for the validation phase. Acceptance testing is the final stage of the multiphase testing and validation process. During this phase, DoD Components test the entire information system, including data interfaces, with operational data. The DoD Management Plan also requires DoD Components to analyze all code to determine whether it handles dates.

Contingency Plan Guidance. System Y2K contingency plans address the technical aspects of potential disruptions and the processes and procedures for restoring functionality to a disrupted system that is believed to be Y2K compliant. The sources of disruptions may include the following:

- interface failures,
- transmission or receipt of corrupt data,

- utilities or other infrastructure elements necessary for operations, or
- other items that could result in a Y2K-related failure.

The DoD Management Plan requires that contingency plans be prepared for all mission-critical systems. All contingency plans were to be exercised or validated by June 30, 1999, to ensure that alternate procedures were realistic and executable, and should be reviewed regularly and modified, if required.

Navy Y2K Action Plan. The Department of the Navy Year 2000 Action Plan, Version 1.4, September 1998, (Navy Y2K Action Plan) provides guidance for planning and implementing all information technology, software, and systems in the Department of the Navy. The Navy Y2K Action Plan describes the Navy's implementation of the DoD Management Plan. Prior to September 1998, Department of Navy Year 2000 guidance was contained in the Department of Navy, Chief Information Officer, Guidance and Policy Paper No. 001-97, August 29, 1997.

Certification Guidance. The Navy Y2K Action Plan requires Navy commands or organizations use the DoD compliance checklist to ensure Y2K compliance of all its systems. However, if a Navy command or organization adopts a compliance checklist that is substantively different from the DoD compliance checklist, the command or organization must obtain Department of Navy, Chief Information Officer, approval for that checklist.

Combat Control Systems. The Combat Control System Mark 2 Block 1 A/B (CCS MK2) provides the primary means for weapon control, contact motion analysis, and sensor data residing on a Ship Submarine Nuclear 688I platform. The Naval Sea Systems Command (NAVSEA) is the system manager, and the Naval Undersea Warfare Center Division (NUWC) in Newport, Rhode Island, is the technical agent. For CCS MK2 to direct and control weapons, the system performs target motion analysis, weapon and attack controls, ballistic data determination, and initiation of weapon-firing sequences. The system supports the operational requirements to improve the navigational capability of the Conventional Tomahawk Land Attack Missile, the Advanced Tomahawk Weapon Control System, the Joint Maritime Command Information System, and the Mark 48 Advanced Capability Torpedo Propulsion Upgrade.

The CCS MK2 is 1 of 156 NAVSEA mission-critical systems reported in the DoD Y2K database. The Navy reported 128 of the 156 NAVSEA mission-critical systems as compliant as of September 1998.

Objectives

Our objective was to evaluate the ability of CCS MK2 to operate successfully in the year 2000, including its ability to access and transmit information from point of origin to point of termination. Additionally, the audit was to determine whether an adequate contingency plan existed to ensure continuity of operations. See Appendix A for a discussion of the audit scope and methodology.

Year 2000 Status of the Combat Control System Mark 2 Block 1 A/B

NAVSEA certified CCS MK2 as Y2K compliant on October 31, 1997, using criteria that have now been superceded. NAVSEA did not have documentation to support that the following steps took place before system certification:

- confirming that the system was Y2K compliant through date testing,
- determining that the system software and hardware were Y2K compliant, and
- testing and certifying all system interfaces as Y2K compliant.

The NAVSEA checklist differed substantially from the DoD Management Plan checklist and did not comply with the Navy Y2K Action Plan.

As a result, system level testing was still incomplete when CCS MK2 was reported as compliant in the DoD Y2K database. Additional testing was performed after certification. Since the testing appears to be adequate, the Y2K compliance status of the CCS MK2 is no longer at issue. Although the additional testing was sufficient to alleviate concerns about this particular system, the methodology used for its certification raises concerns that 127 other NAVSEA systems certified as of September 1998 may also have been prematurely and inappropriately certified as Y2K compliant. Whereas the audit verified that additional system level testing was conducted for the CCS MK2, there is no assurance that sufficient testing has been performed on the other 127 systems.

System Certification

NAVSEA certified CCS MK2 as Y2K compliant on October 31, 1997, using the checklist, "NAVSEA Y2K System Certification Format." According to the DoD Management Plan, a completed and signed checklist constitutes certification of Y2K compliance for a system. The NAVSEA guidance on Y2K computer systems compliance, dated September 2, 1997, requires program managers and systems managers to certify their systems using the checklist, "NAVSEA Y2K System Certification Format."

The signed certification checklist differed substantially from the DoD Management Plan Y2K compliance checklist. NAVSEA authorized its program offices to use the one-page checklist despite the guidance in the September 1998 Navy Y2K Action Plan that requires a Navy command or organization to revise its checklist accordingly if it adopts a compliance checklist with substantive

differences from the DoD Y2K compliance checklist. The checklist completed for the system differed substantially from that of the DoD Management Plan.

Because the DoD Management Plan Y2K compliance checklist covers many more Y2K items to be reviewed than does the NAVSEA checklist, it is much more useful for ensuring the Y2K compliance of the system.

In addition to the checklist, the CCS MK2 system program manager signed the "NAVSEA Y2K System Certification Verification" on December 3, 1998. The one-page document is not a checklist but indicates the level of certification for CCS MK2.

Date Testing Documentation

Although it appears that NUWC adequately tested CCS MK2, NAVSEA did not provide documentation supporting that it performed the date testing before the October 31, 1997, certification. The DoD Management Plan requires complete system testing as a minimum criterion for exiting the validation phase and certifying a system as Y2K compliant. The test plan was dated November 6, 1998, and the test results were dated January 29, 1999. Because the test results for CCS MK2 did not state when the tests were conducted, the documentation does not support that the date testing took place before the system was certified.

Individuals within NUWC but independent of CCS MK2 performed the system date testing. The program manager for the system reviewed the test results. NUWC tested the system twice in a laboratory and once on a ship. The system, including external data interfaces, was tested with operational data, but some interfaces used simulated data. The testing included rolling the clocks forward to test the system functioning at a number of critical dates. The review by a computer system engineer for the Inspector General, DoD, determined that the system's date testing appeared to have been adequate.

System Software and Hardware Documentation

Before certifying CCS MK2 on October 31, 1997, NAVSEA did not obtain vendor certifications or individually test hardware and software to determine Y2K compliance. According to the DoD Management Plan, executive software and computer hardware used by an application must be compliant for certification. Additionally, the process that NAVSEA used for certifying CCS MK2 was done in reverse order. System testing was conducted before the major hardware and software components were reviewed. The CCS MK2 program manager obtained the test results for the main processor, AN/UYK-43A, at the request of auditors in March 1999. The test results were dated May 1998, which was 7 months after the NAVSEA certified CCS MK2. Additionally, the CCS MK2 program manager obtained the test results for the operating system, at the request of auditors, in March 1999. The test results for

the operating system were dated November 1998. NAVSEA did not provide a vendor certification or test results for individually testing the Generic Front End Communications Processor. NAVSEA did provide documentation dated July 1998 supporting a renovation of the Generic Front End Communications Processor to correct a Y2K problem. NAVSEA did not determine whether the four processor subsystems belonging to the CCS MK2 System (the Weapon Launch Controller, the Common Display Console, the Data Transfer System, and the Tactical Weapon Simulator) performed date-related processing until a computer system engineer requested information for the Inspector General, DoD, in April 1999.

NAVSEA also did not review the system code to identify any date data, as required by the DoD Management Plan. NAVSEA stated that the design documents were reviewed instead and were an adequate substitute for code review.

Interface Testing

NAVSEA did not provide documentation to support that the Navy tested and certified all system interfaces as Y2K compliant before certifying CCS MK2. The DoD Management Plan requires that all system interfaces be tested and certified before exiting the validation phase and certifying a system as Y2K compliant. The NAVSEA checklist, signed October 31, 1997, for CCS MK2 indicated that each interface that exchanged data had been reviewed, corrected if necessary, and verified to work for date data passed between systems. However, the November 1998 NUWC test plan reflected Y2K problems with the Joint Maritime Command Information System, the Submarine Fleet Mission Program Library, and the Advanced Tomahawk Weapon Control System, which are interfacing systems to CCS MK2. Further, the test plan stated that renovations to these systems were ongoing when the plan was issued, and testing was to be conducted as the renovated systems became available. The January 29, 1999, NUWC test report indicated that the CCS MK2 interfaces were tested and that they performed satisfactorily.

Contingency Plans

In response to the Navy Y2K Action Plan, September 1998, and Navy Y2K contingency plan guidance of November 1998, NAVSEA prepared a system contingency plan for its combat systems that was initially dated December 18, 1998. The contingency plan did not address Y2K scenarios for specific components of the system, such as the main processor and local area networks. The contingency plan did include three Y2K scenarios for the Generic Front End Communications Processor which, according to the system diagram, is different from the main processor, AN/UYK-43A. However, according to NAVSEA, the detailed procedures for restoring functionality to

disrupted system components are contained in the technical manuals for the CCS MK2.

The DoD Management Plan states that unless system contingency plans have been updated to include Y2K contingencies, they should not be considered adequate because they may not be effective when responding to a Y2K-related disruption. The NAVSEA had existing technical manuals providing specific step-by-step procedures to follow in the event of a system disruption. Should operators of the CCS MK2 encounter an operational problem, they are required to first treat it as a non-Y2K problem and use normal operational troubleshooting procedures before referring to the Y2K contingency plan. Navy personnel held that contingency plans are to assist the Afloat and Ashore operators to complete their continuity-of-operations plan.

During the audit, NAVSEA updated the December 1998 CCS MK2 contingency plan. The NAVSEA added and revised the described procedures to address Y2K scenarios in the March 17, 1999, update. Further, NAVSEA added references to external interface contingency plans and provided procedures for external interfaces in the event of a Y2K failure. The contingency plan considers the impact on performance if individual system clocks are not synchronized with real time.

Conclusion

NAVSEA certified CCS MK2 as Y2K compliant on October 31, 1997, using criteria that have now been superceded. Although NUWC later performed date testing on the CCS MK2 and it appeared to be adequate, the testing occurred after the system was certified as compliant. Additionally, the CCS MK2 program manager did not obtain the test results from individually testing the hardware and software of CCS MK2 until March 1999. The NAVSEA test plan, dated November 6, 1998, also indicated that three interfacing systems needed renovation. Additionally, NAVSEA completed a Y2K compliance checklist that differed substantially from and was not as thorough as the DoD Management Plan Y2K compliance checklist and did not comply with the Navy Y2K Action Plan. As a result, the system was prematurely reported as compliant in the DoD Y2K database, although additional testing done after the certification appears adequate and the Y2K compliance status of the CCS MK2 therefore is no longer at issue. The lack of documentation to support the CCS MK2 certification raises concerns that 127 other NAVSEA systems certified as of September 1998 may also have been prematurely and inappropriately certified as Y2K compliant. Whereas the audit verified that additional system level testing was conducted for the CCS MK2, there is no assurance that sufficient testing has been performed on the other 127 systems. The inclusion of systems in higher level testing is not an acceptable substitute for rigorous system level testing. We do not agree that the certification status of these systems, specifically the sufficiency of system level testing, has been reviewed at any time since certification by the Navy.

Recommendations, Management Comments, and Audit Response

Deleted, Revised and Renumbered Recommendations. As a result of the management comments, we deleted draft Recommendation 1. because we agree that the system certification testing of the Combat Control System Mark 2 Block 1 A/B performed as of April 1999 appeared adequate, although the testing occurred after October 31, 1997. Our concerns pertaining to the overall Naval Sea Systems Command systems certification process prior to September 1998 is addressed in the remaining recommendation and audit response. We revised the remaining recommendation in recognition that higher level tests are already ongoing.

We recommend that the Chief Information Officer, Navy, review the adequacy of system level testing as a prudent risk mitigation step for the other Naval Sea Systems Command mission-critical systems that were certified as of September 1998, other than the Combat Control System Mark 2 Block 1 A/B.

Navy Comments. The Chief Information Officer, Navy, nonconcurred with the draft recommendation, which was to determine if recertification was necessary. He stated that recertification was not necessary for the other mission-critical systems certified as of September 1998 because of the extensive testing performed by NAVSEA.

Audit Response. We consider the comments of the Chief Information Officer, Navy, to be nonresponsive. We agree that the testing of CCS MK2 performed as of April 1999 appeared adequate. However, the testing was performed after the October 31, 1997, certification. The issue raised in this report is whether the system level testing for all other NAVSEA systems, whether performed before or after certification, was adequate. To focus attention on that issue, and not on the formalities of certification, we have reworded the recommendation.

Contrary to the stated position of NAVSEA, the DoD Management Plan requires executive software and hardware used by an application to be compliant for certification and suggests obtaining vendor certifications from the internet or individual testing. NAVSEA agreed that the Y2K certifications of individual hardware and software were not obtained before the system was certified, and that individual component testing was not done because an integrated test was considered sufficient. We maintain that there exists an additional risk if the individual components are not tested individually in conjunction with the application testing. We do not believe that individual component testing should be performed instead of an integrated test.

Further, we maintain that the checklist used to certify the system contained substantive differences from the DoD Management Plan Y2K Compliance Checklist, which covers more Y2K compliance issues than the NAVSEA checklist. The NAVSEA checklist does not include questions on crossing FY 2000 successfully, indirect date usage, usage of dates internally, communicating with the responsible organization regarding each interface, date

field type, testing information, and commercial and Government off-the-shelf products included in the DoD Management Plan Y2K Compliance Checklist.

Primary Y2K assurance is derived from individual system certification tests, which serve as a foundation for higher level tests. Accordingly, the Navy needs to determine whether adequate system certification testing occurred for the other 127 NAVSEA mission-critical systems, regardless of when it occurred.

We ask the Navy to reconsider its position on the revised Recommendation.

Appendix A. Audit Process

This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a list of audit projects addressing the issue, see the Y2K webpage on Ignet at http://www.IGnet.gov.

Scope

We obtained documentation to support the testing and certification of CCS MK2. The Technical Assessment Division, Office of the Inspector General, DoD, reviewed the test plan and test results to determine whether CCS MK2 had been adequately tested. We compared the Y2K efforts of certifying and testing CCS MK2 with the requirements in the DoD Management Plan. Additionally, we reviewed the testing and certification requirements in the Navy Y2K Action Plan dated September 1998 and the NAVSEA guidance dated September 1997. We also reviewed the CCS MK2 contingency plan and compared it with the system-level contingency plan requirements in the DoD Management Plan.

DoD-Wide Corporate-Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, the Department of Defense established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting the objectives. This report pertains to achievement of the following objective and goal.

> **Objective:** Prepare now for the uncertain future. **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. **(DoD-3)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals.

Information Technology Management Functional Area.

- **Objective:** Become a mission partner. **Goal:** Serve mission information users as customers. **(ITM-1.2)**
- **Objective:** Provide services that satisfy customer information needs. **Goal:** Modernize and integrate DoD information infrastructure. **(ITM-2.2)**
- **Objective:** Provide services that satisfy customer information needs. **Goal:** Upgrade technology base. **(ITM-2.3)**

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Information Management and Technology high-risk area.

Methodology

Use of Computer-Processed Data. We did not use computer-processed data to perform the audit.

Audit Type, Dates, and Standards. We performed this program audit from January through April 1999, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available upon request.

Management Control Program. We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1998 Annual Statement of Assurance.

Summary of Prior Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. General Accounting Office reports can be accessed over the Internet at http://www.gao.gov. Inspector General, DoD, reports can be accessed at http://www.dodig.osd.mil.

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House Committee on Government Reform
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House Subcommittee on Technology, Committee on Science

Department of the Navy Comments

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF INFORMATION OFFICER
1000 NAVY PENTAGON
WASHINGTON, DC 20350-1000

JUN 14 1999

MEMORANDUM FOR THE DEPARTMENT OF DEFENSE ASSISTANT INSPECTOR GENERAL FOR AUDITING

Subj: DODIG DRAFT REPORT: YEAR 2000 STATUS OF THE COMBAT CONTROL SYSTEM MARK 2 BLOCK 1 A/B (Report No. 9AS-0090)

Ref: (a) DODIG memo of 14 May 99

Encl: (1) COMNAVSEASYSCOM memo 7500 Ser OON3B/199 of 4 Jun 99

I am responding to the draft audit report forwarded by reference (a), concerning the perceived failure of the Naval Sea Systems Command (NAVSEA) to properly certify the Combat Control System Mark 2 Block 1 A/B (CCS MK2). Enclosure (1) is NAVSEA's response to the recommendations contained in reference (a).

Based on the facts set forth in enclosure (1), we non-concur with Recommendation 1 of reference (a). We believe adequate documentation existed at the time to properly certify the CCS MK 2 as Y2K compliant on 31 October 1997. Further, in accordance with Recommendation 2 of reference (a), and based upon our knowledge of the extensive testing performed by NAVSEA on the combat systems in question, we have determined that recertification is not necessary for the other mission-critical systems certified as of September 1998.

As NAVSEA clearly sets forth in enclosure (1), it has expended countless man-hours in careful, well-documented testing of its systems. Additionally, its procedures were verified using the most proven testing methodology by a credible testing source over a considerable period of time. Careful follow up after initial certification of the systems failed to identify any Y2K problems. This confirms our finding that no recertification is necessary in this case. Part of the problem in this case, which has led to the initial confusion about whether the CCS MK 2 was properly certified in October 1997, arose because NAVSEA was, in fact, ahead of schedule in testing for Y2K problems. Having begun their testing program in the context of scant guidance as to the kind of certification required under DoD guidelines, they sought early guidance from

the DON CIO. In full accordance with this guidance, NAVSEA properly tested their systems. Finally, NAVSEA systems receive Flag level review and certification. This level of scrutiny reaffirms the adequacy of the NAVSEA certification process and the CCS MK2 Y2K validation status.

My point of contact is Captain Cray Coppins, JAGC, USNR, (703) 602-6799.

D. M. Wennergren
Deputy for Y2K and
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Naval Sea Systems Command Comments

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Ser OON3B/199
4 June 1999

MEMORANDUM FOR THE DEPARTMENT OF THE NAVY CHIEF INFORMATION OFFICER

Subj: DODIG DRAFT REPORT: YEAR 2000 STATUS OF THE COMBAT CONTROL SYSTEM MARK 2 BLOCK 1A/B (Report No. 9AS-0090)

Ref: (a) DODIG Memo of 14 May 1999

Encl: (1) NAVSEA comments w/Attachments A-C

1. We have reviewed the findings and recommendations provided by reference (a). Detailed comments are provided by enclosure (1).

2. We non-concur with Recommendation 1, and the conclusion that NAVSEA certified the Combat Control System Mark 2 Block 1A/B as Y2K compliant without sufficient documentation to support the 31 October 1997 certification. Adequate documentation did exist, as of 31 October 1997, to support the certification of the system in accordance with the requirements at the time. Attachments (A) through (C) of enclosure (1) provide additional supporting documentation.

G. P. NANOS, JR.
Commander

Copy to:
OAS FMO-31 (Attn: Mike Tracht)

NAVY RESPONSE TO
DoDIG DRAFT AUDIT REPORT ON
YEAR 2000 STATUS OF THE
COMBAT CONTROL SYSTEM MARK 2 BLOCK 1A/B
PROJECT NO. 9AS-0090.01 OF 14 MAY 1999

I. Overall Navy Comment on the Draft Report

The report concludes that the NAVY certified CCS MK2 BLK 1 A/B as Y2K compliant without having sufficient documentation to support the October 31, 1997 certification. The test plan was dated November 6, 1998 and the test report was dated January 29, 1999. The DoDIG concluded that the CCS MK 2 Block 1A/B was prematurely certified and recommended that the CCS MK 2 Block 1A/B be re-certified.

Testing conducted by the Technical Direction Agent (TDA), Naval Undersea Warfare Center (NUWC) Division Newport prior to certification showed that all requirements for certification were satisfied. Test results were documented in various internal test logs and reports at NUWC, in briefings presented to the Program Manager and to Commander, Operational Test and Evaluation Force (COMOPTEVFOR), in a brief presented by an independent Red Team reviewing CCS MK2 BLK 1 A/B testing, and in the COMOPTEVFOR report on Follow-on Operational Testing (FOT&E) of CCS MK2 BLK 1 A/B. A timeline of the testing and reports on test results for CCS MK2 BLK 1 A/B is included as ATTACHMENT A.

The 6 November 1998 test plan and 29 January 1999 test report cited by the audit report were consolidated documents that rolled up the Y2K testing of nine submarine combat systems. Contemporaneous notes and logs that existed prior to 31 October 1997 were not provided to the audit team because the issue of the timing of the certification relative to the dates of the test documents was not raised until after the audit outbrief and after the last meeting with audit personnel. The 29 January 1999 consolidated report provided the best documentation for the discussion of what testing was conducted, and was used in discussions with the audit team.

Additionally, after certification, shipboard testing of CCS MK2 BLK 1 A/B and five other submarine combat systems managed by the same program office and TDA have not identified any Y2K problems in submarine combat systems, thus reaffirming that the testing methodology was adequate.

ENCLOSURE(4)

II. Navy detailed response to specific audit comments in the conclusion of the report

Audit comment #1: Page 9, paragraph 1, line 1-5, 7-9, 11, 13-14.

NAVSEA certified CCS MK2 as Y2K compliant without having sufficient documentation to support the October 31, 1997 Y2K certification. The date testing on the CCS MK2 appeared to be adequate, albeit late. The test plan was dated November 6, 1998, and the test results were dates January 29, 1999. Documentation was lacking because NAVSEA did not comply with the testing and certification requirements of the DoD Management Plan. As a result the system was prematurely reported in the DoD Y2K database as compliant… NAVSEA still has not demonstrated that the system fully complies with the certification requirements of the DoD management plan.

Navy Response: Non-Concur.

The CCS Mk 2 Block 1A/B Y2K testing was conducted beginning in January 1997 prior to the advent of any formal NAVSEA or DOD Y2K guidance. Specifically, at that time, there was no requirement for formal Y2K test documentation. Y2K test plans were prepared by modifying existing operability test plans. NUWC and NAVSEA worked together with COMOPTEVFOR, NAVAIR PMA282, and other agencies to focus on Y2K during developmental and operational testing of CCS Mk 2 BLK 1A/B and external interfaces. NUWC modified its standardized test methodology to include validation of Y2K requirements for all fleet products.

The system was certified as Y2K compliant based on the results of Y2K testing conducted as part of the following tests (see Attachment A):

*13-25 Jan 1997 300-hour System Design Certification Test (SDCT).
*6 April 1997 System Operation and Reliability Test (SORT).

The results from these tests are documented in CCS MK 2 Block 1A/B test logs and test summary reports. Additionally, the following materials described results of Y2K testing (see Attachment A):

*Presentation to Program Manager, "Operational Test Readiness Review" dated 10 February 1997.
*Presentation to COMOPTEVFOR, "CCS MK2 Block 1A/B RCI Year 2000 Test Results" dated 16 April 1997.

ENCLOSURE(1)

*CCS MK2 BLK 1 A/B RCI System Certification Red Team Review dated 30 June 1997.

*Presentation to Program Manager, "Follow-on Operational Test and Evaluation Brief" dated 29 June 1997.

*Follow-on Operational Test Report for CCS MK2 BLK 1A/B, COMOPTEVFOR ltr 3960 (234-10-OT-III) Ser 433/C045 20 Aug 97.

Following issuance of the DoD Y2K Management Plan in April 1997 NAVSEA issued a letter in September 1997 directing activities to document Y2K certification of systems using the NAVSEA Certification form (see Attachment B). Mr. Frank Fowler, who was the NUWC Lead System Engineer for CCS MK2 BLK 1 A/B and a Test Director for the Y2K tests, reviewed test director logs and results compiled during the test and subsequent analysis. His review determined that all requirements for certification had been met except for testing of 31 December 2000. A team consisting of Mr. Fowler, Mr. Guay (NUWC), and Mr. Parker (INRI) conducted testing of 31 December 2000 in October 1997, and Mr. Fowler signed the certification form on 27 October 1997. The Program Manager, PMS 425 signed the certification on 31 October 1997 based on the signature of his Technical Direction Agent and his own ongoing knowledge of the test program.

Following the issuance of Y2K policy, and specifically while preparing for the Flag/SES level review of Y2K certification, NUWC drafted a consolidated test plan and test report to summarize Y2K testing for all Submarine Combat Control Systems (9 different configurations of FCS/CCS/BSY1) which were tested and certified on different occasions. CCS MK2 BLK 1 A/B is one of these nine systems. The Y2K test report was signed 27 January 1999 and printed on 29 January 1999.

The CCS MK2 BLK 1 A/B certification was reviewed on 29 January 1999 as required CNO message 131717Z JAN, which directed that a flag officer or SES review/recertify all Mission Critical systems. By his review and signature the Deputy Director, Submarine Directorate (an SES) upheld and reaffirmed the 31 October 1997 certification (see Attachment C).

Documentation notwithstanding, the adequacy of CCS MK 2 Block 1A/B date testing is indicated by the Audit Report which states that "The review by a computer system engineer of the Inspector General, DoD, determined that the system date testing seemed to have been adequate." The Y2K methodology used on CCS MK 2 BLK 1A/B has been validated in numerous Y2K tests. Five of the Combat Systems managed by the PMS 425 Program Office and NUWC Technical Direction Agent, including

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two of the other systems covered in the 6 November 1998 test plan and the 29 January 1999 test report have been tested on submarines in a ship-wide Y2K operational scenario. One of those systems, BSY-1, completed a four day at-sea Y2K test as part of the Constellation Battle Group System Interoperability Test (BGSIT) in March 1999. CCS MK2 BLK 1 A/B along with renovated versions of three interfacing systems (Submarine Fleet Mission Program Library (SFMPL), Joint Maritime Command Information System (JMCIS) and Advanced Tomahawk Weapon Command System (ATWCS); see audit comment #3) was successfully tested for Y2K compliance onboard USS Alexandria 28-29 December 1998. In all of these tests, no Y2K problems were identified in Submarine Combat Systems.

Audit comment #2: Page 9, paragraph 1, line 5.

Test results from individually testing the hardware and software of CCS MK2 [Block 1A/B] were not obtained until March 1999.

Navy Response: Partial Concur.

It is correct that the Y2K certification of individual hardware and software was not obtained prior to certification of CCS MK 2 Block 1A/B. Certification of individual components is not required by the DoD Management Plan.

The DoD Management Plan section A.4.6 requires that "executive software/hardware used by an application must be compliant for certification" as an exit criteria for the Validation phase. All software including executive software and hardware of the CCS MK2 BLK 1 A/B was included in Y2K testing. There is no requirement that this testing be done independently of other testing. The Technical Direction Agent believes that an integrated test with all components of the system operating together is a more valid test than independent component testing.

Audit comment #3: Page 9, paragraph 1, line 7.

The NAVSEA test plan indicated that three interfacing systems needed renovation.

Navy Response: Partial-Concur.

Page 9-2 of the test report incorrectly states that three interfaces were not tested. These three interfaces were actually tested during the 13-25 January 1997 and 6 April 1997 testing. Workarounds for the three interfacing systems were

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developed and tested at that time. These workarounds allowed CCS MK2 BLK 1 A/B to perform its mission.

During the January 1997 and April 1997 Y2K testing, Y2K problems were verified for three external interfacing systems: ATWCS, JMCIS and SFMPL. These Y2K problems were inherent in the HP UNIX Operating System (O/S) version 9.0.7 employed by these three interfacing systems.

During the January and April 1997 Y2K testing workarounds for these three systems were developed and tested which allowed CCS MK2 BLK 1 A/B to perform its functions. These workarounds are discussed in CCS MK2 BLK 1 A/B test logs and in the "CCS MK2 BLK 1 A/B Year 2000 Test Results" brief to COMOPTEVFOR of 16 April 1997. One of the workarounds is discussed by COMOPTEVFOR in the Follow-on Operational Test Report for CCS MK2 BLK 1A/B, COMOPTEVFOR ltr 3960 (234-10-OT-III) Ser 433/C045 20 Aug 97 (page 4-4).

The testing showed that with use of workarounds in the three interfacing systems, CCS MK2 BLK 1 A/B could perform its mission despite the Y2K problems in the interfacing systems. This result addresses the worst-case possibility: if the three interfacing systems had never been successfully renovated to be Y2K compliant CCS MK2 BLK 1 A/B would still be able to function. Thus the certification is supported.

On 28-29 December 98, after renovation of the SFMPL, ATWCS and JMCIS was completed and renovated versions had been installed onboard the USS Alexandria, a test of CCS MK2 BLK 1 A/B, SFMPL, ATWCS and JMCIS was conducted. This regression test verified that the CCS MK2 BLK 1A/B and the three renovated interfacing systems performed correctly together in a shipboard environment. Test results in the form of test logs and presentations are still available at NUWC.

Page 9-2 of the 29 January 1999 test report incorrectly shows these three interfaces as not tested. Page 11-3 of the report correctly shows the three interfaces tested satisfactorily onboard USS Alexandria.

Audit comment #4: Page 9, paragraph 1, line 10.

NAVSEA completed a Y2K compliance checklist that differed substantially from the DoD Management Plan compliance checklist.

ENCLOSURE(1)

Navy Response: Non-concur.

The Naval Sea Systems Command (NAVSEA) established its Y2K Program Office in April 1997. This action coincided with the release of the DOD Management Plan, which contained a Year 2000 Compliance checklist. Based on discussions with the DON CIO Y2K office, the NAVSEA Y2K Project Office adopted the DOD Y2K Guidance and the Air Force Y2K Certification Sheet format, which was provided as a good example. NAVSEA published its own NAVSEA Management Plan and Y2K guidance based on these discussions. NAVSEA Activities were directed to use the DOD Management Plan guidance and to record the System Certification on the NAVSEA Certification sheet.

The DON Action Plan stated "any DON Command/Activity which has adopted and implemented a compliance checklist different from that found in the Appendix C, should coordinate with the DON CIO to determine if the differences are substantive." NAVSEA discussed this issue with the DON CIO Y2K Project Office and received concurrence that the differences are not substantial. The differences included administrative system information, planning dates which are available in the Navy Y2K Tracking System (NY2KTS), and other indirect or internal date usage verification that would be identified in the system assessment and validated in the system compliance testing.

Recommendation 1: We recommend that the Commander, Naval Sea Systems Command:

a. Re-certify the Combat Control System Mark 2 Block 1 A/B.

Navy Response: Non-Concur.

As discussed in the overall comments and in detailed responses, adequate documentation of the 13-25 January 1997 300-hour SDCT test and the 6 April 1997 SORT test existed to support certification on 31 October 1997 (see Audit Comment #1). This documentation was referred to by Mr. Frank Fowler when he signed the certification form for the Technical Direction Agent (NUWC). The program office signed the certification based on the technical expertise and Independent Verification and Validation (IV&V) role of NUWC. Additionally, briefings describing the results of Y2K testing had been presented to the program office and to COMOPTEVFOR, and an independent Red Team had reviewed the test results, including Y2K functionality (see Attachment A).

ENCLOSURE(1)

All components of the CCS MK2 BLK 1 A/B, including hardware and software, were included in the January 1997 and April 1997 testing (see Audit Comment #2).

At the time of certification the Y2K problems identified in three interfacing external systems had been shown not to prevent the CCS MK2 BLK 1 A/B from performing its mission if workarounds were used in the three interfacing systems (see Audit Comment #3).

The CCS MK2 BLK 1 A/B certification was reviewed on 29 January 1999 as required CNO message 131717Z JAN 99, which directed that a flag officer or SES review/recertify all Mission Critical systems. By his review and signature the Deputy Director, Submarine Directorate (an SES) upheld and reaffirmed the 31 October 1997 certification (see Attachment B).

The Navy believes that the Y2K date testing conducted on CCS MK2 BLK 1 A/B is adequate, and in fact the DoDIG report states that "The review by a computer system engineer for the Inspector General, DoD determined that the date testing on the CCS MK2 appeared to be adequate". To date, five submarine combat systems managed by the same program office and the same Technical Direction Agent have been tested in dockside ship-wide Y2K operational scenarios, with no Y2K deficiencies identified. Two of these systems, CCS MK1 C4.2V2 and BSY-1, were among the nine systems included in the roll-up test report dated 29 January 1999. BSY-1 has also completed at-sea testing as part of Battle Group System Interoperability Test (BGSIT) Y2K testing. In addition, CCS MK2 BLK 1 A/B along with renovated SFMPL, JMCIS and ATWCS was successfully tested for Y2K compliance onboard USS Alexandria on 28-29 December 1998. No Y2K problems were identified in the submarine combat system in any of these shipboard tests.

Additionally, concurrently with this audit, three other submarine combat systems (AN/BSY-2, TRIDENT CCS Rev 5.5 and TRIDENT CCS Rev 6.3) were audited by DoDIG to evaluate their ability to operate in the year 2000. The systems were tested for Y2K certification by the same Technical Direction Agent, operating under the same Y2K methodology administered by the same Program Office and TEAM SUB NAVSEA Y2K managers as CCS MK 2 BLK 1 A/B. Draft DoDIG audit reports for the AN/BSY-2 and the TRIDENT CCS Rev 5.5 and Rev 6.3 systems contained no adverse findings or recommendations and concluded that "the program manager followed the Navy certification process and documented the system verification, testing, interfaces, implementation and contingency plan."

ENCLOSURE(2)

Recommendation 1: We recommend that the Commander, Naval Sea Systems Command:

b. Obtain all supporting documents to support the certification.

Navy response: Non-Concur.

All supporting documentation pertaining to the Y2K certification of the CCS MK 2 Block 1A/B is available at NUWC Newport and at NAVSEA. Logs, notes and other contemporaneous documentation were not provided during the audit because the issue of timing of documentation supporting the 31 October 1997 certification was not raised until the 6 May draft report. This was after the 9 March Exit Conference and after the last meeting with auditors.

Recommendation 1: We recommend that the Commander, Naval Sea Systems Command:

c. Make the documentation readily available.

Navy Response: Non-Concur.

All supporting documentation pertaining to the Y2K certification of the CCS MK 2 Block 1A/B is available at NUWC Newport and at NAVSEA. Logs, notes and other contemporaneous documentation was not provided during the audit because the issue of timing of documentation supporting the 31 October 1997 certification was not raised until the 6 May draft report. This was after the 9 March Exit Conference and after the last meeting with auditors.

ENCLOSURE(1)

8

CCS MK2 BLK 1 A/B
Y2K Certification
Timeline

Late 96 Meetings with COMOPTEVFOR established requirement and plan to conduct Y2K testing of CCS MK2 BLK 1 A/B, SFMPL, ATWICS, and JMCIS, as part of DT/OT for CCS MK 2 BLK 1 A/B.

13-25Jan 97 300-Hour Endurance Test (System Design Certification Test (SDCT)) conducted in NUWC; includes Y2K functionality tests and demonstrates workarounds for JMCIS, SFMPL, and ATWCS.

10 Feb 97 CCS MK2 BLK 1 A/B Operational Test Readiness Review briefing material prepared by NUWC provided to Program Manager - includes results of Y2K test.

6 Apr 97 System Operability/Reliability Test (SORT) #27 conducted in NUWC; includes Y2K functionality tests and demonstrates workarounds for JMCIS, SFMPL, and ATWCS.

16 Apr 97 "CCS MK2 BLK 1 A/B Year 2000 Test Results" brief presented to COMOPTEVFOR.

Apr 97 DOD Y2K Management Plan Rev 1 issued.

30 Jun 97 Independent red team review of CCS MK 2 readiness for FOT&E, including Y2K functionality.

20 Aug 97 COMOPTEVFOR releases Follow-on Operational Test and Evaluation (FOT&E) Report for CCS MK2 BLK 1A/B. In Y2K results, p 4-4, report describes workaround required for the interfacing JMCIS system.

2 Sep 97 NAVSEA letter on Y2K cert policy issued, provides NAVSEA Cert form, directs certifications.

27 Oct 97 Mr. Fowler (NUWC Lead Test Director) signs CCS MK2 BLK 1 A/B cert as NUWC test director. Based on review of test logs, records from Jan and Apr tests. Determined that all required test conditions had been conducted except 31 Dec 2000. Mr. Fowler personally tested 31 Dec 2000 date in Oct.

Attachment A

31 Oct 97 PM signs CCS MK2 BLK 1 A/B cert, based on signature of Technical Direction Agent and his own on-going management of development and testing over the past year.

6 Nov 98 Roll-up test plan for nine systems signed by NUWC.

28-29Dec 98 Dockside test of CCS MK2 BLK 1A/B on USS Alexandria, with renovated SFMPL, ATWICS and JMCIS. Results SAT.

29 Jan 99 Roll-up test report for nine systems signed by NUWC.

29 Jan 99 FLAG level Certification signed; based on Certification forms, certification level forms, and test report. Reaffirms 31 October 1997 certification.

Attachment A

DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
2531 JEFFERSON DAVIS HWY
ARLINGTON VA 22242-5160

IN REPLY REFER TO
5230
Ser 04X/060
2 Sep 97

From: Commander, Naval Sea Systems Command

Subj: YEAR 2000 COMPUTER SYSTEMS COMPLIANCE

Ref: (a) DON CIO Guidance and Policy Paper No. 001-97 of 29 Aug 97

Encl: (1) OSD Y2K Functional Areas
(2) Y2K Compliance Phases and Codes
(3) NAVSEA Y2K Certification Format
(4) Activity Systems
(5) DIST Reporting Data Sheet

1. This letter updates you on our current Command situation relative to the Year 2000 functional compliance in our automated information systems and our ship, weapons and combat systems. Reference (a) increases Navy emphasis on the Year 2000 problem and sets Navy Policy as follows: (Summarized)

a. The Y2K is to be the highest priority behind life-threatening and mission failure repairs.

b. Y2K compliance requirements must be funded; all nonessential sustainment requirements and systems enhancements are to be postponed until analysis and compliance with Y2K are implemented.

c. Y2K fixes are to be deployed in calendar year 1998 if at all possible.

d. Identification of all systems interfaces must be completed and entered into the DIST by 31 Oct 97.

e. Status reports must be provided to the DON CIO as required.

As a result of the above, increased reporting requirements are being placed on claimants, and I must ask your activities and programs to expand the data available on your systems. In the past, I have asked your support and activity's participation to identify all our systems and to identify and track their progress through the several phases from awareness through implementation and completion. With their support, I have periodically reported our progress during the major claimant reviews with the DoN CIO, Dr. Langston. Up to this point our database of your systems has been sufficient to keep track of our scope and progress. With the increased emphasis on the Year 2000 problem, both DoD and DoN have shifted to the use of the Defense Integration Support Tool

Attachment B

Subj: YEAR 2000 COMPUTER SYSTEMS COMPLIANCE

(the DIST) to host the data on all systems being tracked for the Year 2000 problem. Enclosure (1), for example, lists the 22 functional area categories that are now being reviewed and reported to higher authority. Enclosure (2) contains the Y2K program phases and status codes definitions.

2. Although many of our systems are recorded in the DIST, their status and other required information is not yet available there. In some cases we cannot be certain of the accuracy of the current DIST data since it predates the Year 2000 emphasis. Recently the DIST completed an improved data entry system which permits us to rapidly improve our data recording. In the following paragraphs, I have identified several ways for our system owners, with support of my Year 2000 coordinators, to identify and update the data previously provided. We need to complete our data entry, to the DIST by 31 October 1997. We will make the entry into the DIST centrally with your support.

3. Discussions during a recent update to Dr. Langston points to a need for systems "owners" to adopt and certify a set of common assessments of their systems' ability to function properly through the Year 2000 transition. This certification is included in enclosure (3).

4. This data call applies to all Command and PEO's tactical, business, and support Systems. The following specific actions must be taken:

a. System Certification. Upon completion of system assessments and corrective actions, all Program Managers and AIS System Managers will certify, using the format in enclosure (3), that their systems have been assessed and are Year 2000 compliant, (the System will not fail when the date rolls beyond 31 December 1999 and into 1 January 2000). Prior to completion of assessment and correction, use the phases of enclosure (2) to identify the planned actions to ensure the system will be compliant and by when. This information will be collected by the NAVSEA Year 2000 coordinator, Mr. Robert Dofner.

b. DIST Reported Systems. Activities that have already reported their Systems to the Defense Integration Support Tool (DIST) will send the Systems DIST Identification Number and either, the system certification of compliance, (enclosure 3), or the system status using enclosure (2) phases, to the NAVSEA Year 2000 coordinator.

Attachment B

Subj: YEAR 2000 COMPUTER SYSTEMS COMPLIANCE

c. NAVSEA Web Reported Systems. Activities that have complied with earlier guidance and registered their system on the NAVSEA Y2K Web Site will be contacted to gather the additional information required to complete the DIST reporting requirements. The SEA 04IT Y2K points of contact identified in paragraph 5 will update the DIST. Those program managers with systems that are compliant will be asked to prepare and forward the certification of completion using the format in enclosure (3), to the NAVSEA Year 2000 coordinator.

d. NAVSEA Mission Critical Programs. Program Managers with Systems listed in enclosure (4) that have not reported their systems as mentioned above, must collect and forward their system information in the format of enclosure (5) and, if the system(s) are compliant, a certification using the format in enclosure (3) forwarded to the NAVSEA Year 2000 coordinator.

5. The NAVSEA Year 2000 points of contact for this action are: Mr. Robert Dofner, SEA 04IT2, (703) 602-8738 (ext.201) (Dofner_Robert@HQ.NAVSEA.Navy.Mil); FAX (8744), or Ms. Diane Wildy SEA 04IT2 (703) 602-5555 (ext.6). 602 8738 x206 (Wildy_Diane@HQ.NAVSEA.Navy.Mil).

PETER F. BROWN
Chief Information Officer

Attachment B

13

Year 2000 OSD Functional Areas

Command and Control
Communications
Finance
Environment Security
Health Affairs
Intelligence
Logistics
Science and Technology (Including Wargaming, Modeling and simulation)
Test and Evaluation (Development Testing and Evaluation, Operational Test and Evaluation)
Weapon Systems
Military Personnel and Readiness
Nuclear, Chemical and Biological (NCB)
Procurement/Contract Administration
Reserve Affairs
Civilian Personnel
Information Management
Space
Transportation
Meteorology
Systems Acquisition Management
Industrial Affairs and Installations
Training

Enclosure (1)
Attachment B

Y2K Compliance Phases and Codes

Y2K Program Compliance Phases:

- "Awareness" - The process of educating and maintaining visibility about the Year 2000 date processing problem.
- "Assessment" - The process of identifying costs and preparing plans to solve the problem.
- "Renovation" - The process of solving the problems.
- "Validation" - The process of testing and verifying the solution work and system is compliant.
- "Implementation" - The process of fielding the solution for operational use.
- "Completed" - The period when all "Systems" have finished the deployment of the corrected version of the system.

Y2K Program Problem Status Codes:

A = assessment complete; no known problem with year 2000
B = known problem; fix already in place
C = known problem; fix in next release
D = known problem; fix under development
E = known problem; will fix before year 2000
F = known problem; fix dependent on tools (software engineering environment)
G = known problem; fix dependent on COTS (hardware or software)upgrade
H = known problem; will not fix
I = system to be terminated before fiscal year 2000
J = assessment not completed

Enclosure (2)
Attachment B

15

NAVSEA Y2K System Certification Format

1. System/Subsystem: _____

2. DIST Identification Number: _____

3. The Subject System (s) has the following characteristics:

		VERIFIED	N/A	ACCEPTABLE
a.	Accurately process dates in the 1900's			
b.	Accurately process dates in the 2000's			
c.	Accurately process dates between 1900's and 2000's			
d.	Crosses from 1999 to 2000 successfully			
e.	Recognizes 29 Feb 00 as a valid date			
f.	Recognizes Julian date 00060 as 29 Feb 00			
g.	Recognizes Julian date 00366 as 31 Dec 00			
h.	Arithmetic operations recognize year 2000 has 366 days			
i.	Each Interface that exchange data has been reviewed corrected if necessary, and verified to work for date data passed between systems			
j.	Support equipment and test equipment have been verified to work for date data passed between systems			

4. Certification:

_____ I certify the systems(s) meets all Y2K operating criteria or has acceptable operational workarounds as indicated above.

_____ I certify I have no system(s) effected by the Y2K problem as indicated above.

_____ (date)

(System Manager, Central Design Agency Commander, Directorate or equivalent designated staff)

_____ (date)

Customer or User Requirement Approval Official, User, Operator, or Representative

Enclosure (3)
Attachment B

DEPARTMENT OF THE NAVY
PROGRAM EXECUTIVE OFFICER, SUBMARINES
2531 JEFFERSON DAVIS HIGHWAY
ARLINGTON VA 22242-5160

5000 IN REPLY REFER TO
Ser TSUB/020
29 Jan 99

MEMORANDUM

From: Deputy Commander for Submarines
Program Executive Officer, Submarines

To: SEA 00IY

Subj: NAVY YEAR 2000 (NY2K) CERTIFICATION SIGNATURE

Ref: (a) CNO MSG 131717Z JAN 99

1. Reference (a) issued policy requiring NY2K flag or SES certification of all Mission Critical systems. Team Submarine has 44 Mission Critical systems in the Navy Y2K database. All 44 have been Y2K certified. Listed below are the final certification levels and certification dates for these systems.

NY2KTS System ID No.	System Name	Certification Level	Certification Date
8410	AN/BQN-17 DEPTH SOUNDER	5	26-Nov-97
8424	RADIO DIRECTION FINDER SET(AN/BRD-7)	5	2-Sep-98
8426	AN/BSY-1 COMBAT CONTROL/ACOUSTIC C4.2V2A	1a	23-Dec-98
8428	AN/BSY-1 COMBAT CONTROL/ACOUSTIC C4.2V2	1a	31-Oct-97
8430	AN/BSY-2 SUBMARINE COMBAT SYSTEM	1b	2-Dec-98
8471	SILENT KNIGHT (AN/WLQ-4(V)1)	2a	1-Sep-98
8473	HIGH PROBABILITY OF INTERCEPT(HPI)RECEIVER (AN/WLR-8A)	2b	2-Sep-98
8474	ELECTRONIC COUNTERMEASURE RECEIVING SET (AN/WLR-8(V)5)	5	2-Sep-98
8505	RADIO DIRECTION FINDER SET (AN/BRD-7B)	2b	2-Sep-98
8514	COMBAT CONTROL SYSTEM MK2 ECP6R3	1b	24-Sep-98
8517	COMBAT CONTROL SYSTEM MK2 BLOCK 1A/B	1b	31-Oct-97
8519	COMBAT CONTROL SYSTEM MK2 ECP6R2	1b	31-Oct-97

Attachment C

Subj: NAVY YEAR 2000 (NY2K) CERTIFICATION SIGNATURE

8520	CCS REV 5.5	1a	16-Sep-98
8522	CCS REV 6.3	1a	16-Sep-98
8549	AN/WLQ-4(V) SEA NYMPH	2a	2-Sep-98
9174	AN/WLR-1H	2a	2-Sep-98
9191	COMBAT CONTROL SYSTEM MK1 C4.2V2	1b	31-Oct-97
9267	TYPE 2F PERISCOPE	5	2-Sep-98
9289	AN/BSY-1 ACOUSTIC SET	1a	19-May-98
9801	ELECTRONIC COUNTERMEASURE RECEIVING SET (AN/WLR-8(V)2)	5	2-Sep-98
9904	TYPE 18B PERISCOPE	5	2-Sep-98
9999	TYPE 18D PERISCOPE	5	2-Sep-98
10002	TYPE 18H MOD 1 PERISCOPE	2a	1-Sep-98
10031	DF ANTENNA AN/BLA-4	5	15-Sep-98
11395	FIRE CONTROL SYSTEM MK 117 C4.1V1	1b	6-Oct-98
11397	COMBAT CONTROL SYSTEM MK1 C4.1V2	1b	31-Jul-98
11398	MK 113 MOD 9 FIRE CONTROL SYSTEM (FCS)	1b	20-Aug-98
11466	RADIO DIRECTION FINDER SET (AN/BRD-7A)	5	1-Sep-98
11467	AN/BSY-1 COMBAT CONTROL/ACOUSTIC C4.2V1A	1a	6-Oct-98
12126	AN/BQR-21 DIGITAL MULTI BEAM SONAR	5	31-Aug-98
12827	AN/BQS-4E SONAR SET	5	31-Aug-98
12947	TYPE 2D PERISCOPE	5	2-Sep-98
12953	TYPE 8B MOD 3 PERISCOPE	5	2-Sep-98
12956	TYPE 8J MOD 3 PERISCOPE	5	1-Sep-98
13004	AN/BQQ-5E(V)3 SONAR SYSTEM	1a	26-Nov-97
13034	AN/BQQ-5D SONAR SYSTEM	5	26-Nov-97
13036	AN/BQQ-5C(V) SONAR SYSTEM	5	26-Nov-97
13207	DATA DISTRIBUTION SYSTEM	5	7-Jul-98
13210	SHIP CONTROL SYSTEM	2a	27-Oct-98
13226	AN/UQN-1 SOUNDING SET	5	31-Aug-98
13238	AN/WSQ-7 NOISE VIBRATION MONITORING SYSTEM	1a	14-Apr-98
13298	CIRCUIT D	5	26-Aug-98
13319	SEAWOLF WEAPONS LAUNCH CONSOLE (WLC)	5	9-Oct-98
13485	AN/BQQ-5B SONAR SYSTEM	5	26-Nov-97

Attachment C

Subj: NAVY YEAR 2000 (NY2K) CERTIFICATION SIGNATURE

I certify that the information provided above is true and correct to the best of my knowledge and belief:

(Flag or SES Certification) Date 1-29-99

Attachment C

Ref.(A)

UUUUUUUUUUUUUUUUUUUUUUUUUUUUU
U-UNCLASSIFIED--UNCLASSIFIED-U
UUUUUUUUUUUUUUUUUUUUUUUUUUUUU

RTTUZYUW RUENAAA8130 0131809-UUUU--RULSSEA.
ZNR UUUUU
R 131717Z JAN 99 ZYB PSN 927304M25
FM CNO WASHINGTON DC//N6Y2K//
TO RULSFAN/COMNAVAIRSYSCOM PATUXENT RIVER MD//00/8.0Y//
RULSNCB/COMNAVCOMTELCOM WASHINGTON DC//00/N4//
RUCCNOM/COMNAVRESFOR NEW ORLEANS LA//00//
RULSSEA/COMNAVSEASYSCOM WASHINGTON DC//00/00IY//
RULSAMX/COMNAVSUPSYSCOM MECHANICSBURG PA//00/09//
RUNDNFG/COMSPAWARSYSCOM SAN DIEGO CA//00/053//
RUEOGRB/COMNAVSPACCOM DAHLGREN VA//00//
RUCCBMF/COMNAVRESCOM MILLINGTON TN//00/33//
RULSNSC/COMSC WASHINGTON DC //00//
RUCTPOA/CNET PENSACOLA FL//00//
RUCCFLD/COMNAVMETOCCOM STENNIS SPACE CENTER MS//00/N14/N52//
RULSACL/NAVOBSY WASHINGTON DC//00//
RULSFAD/FEDARNAVM PATUXENT RIVER MD//00//
RULSFAQ/FEDCMPANDUAV PATUXENT RIVER MD/00//
RULSFAF/FEDTACAIR PATUXENT RIVER MD//00//
RUEACMF/DRPM AAA WASHINGTON DC//JJJ//
RULSDSA/DIRSSP WASHINGTON DC//JJJ//
INFO RUENAAA/UNSECNAV WASHINGTON DC//AAUSN//
PAGE 02 RUENAAA8130 UNCLAS
RUENAAA/CNO WASHINGTON DC//N1/N2/N3/5/N4/N6/N7/N8/N09B/
N093/N095/N096//
RUENAAA/DON CIO WASHINGTON DC//N00D1//
RUEACMC/CMC WASHINGTON DC //C4I/CIO/LF//
RUCBCLF/CINCLANTFLT NORFOLK VA//00/N6/N46//
RHHMHAH/CINCPACFLT PEARL HARBOR HI//00/N6/N46//
RHDLCNE/CINCUSNAVEUR LONDON UK//00/N4/N6/N7//
RUCOPAN/COMNAVSAFECEN NORFOLK VA//JJJ//
RUNDMCK/COMNAVAIRWARCENWPNDIV CHINA LAKE CA//JJJ//
RULSOCA/CNR ARLINGTON VA//00//
RHFJCMC/NAVAIRWARCENTRASYSDIV ORLANDO FL//00
RULSADG/NRL WASHINGTON DC//JJJ//
RUDHNIS/DIRNAVCRIMINVSERV WASHINGTON DC//00//
RHFJJBF/NAVAVNDEPOT JACKSONVILLE FL//00//
RHFJJBF/NAVAVNDEPOT JACKSONVILLE FL//00//
RUWFADP/NAVAVNDEPOT NORTH ISLAND CA//00//
RUCKFDA/NAVAVNDEPOT CHERRY PT NC //00//
BT
UNCLAS //N02000//
MSGID/GENADMIN/CNO Y2K//
PAGE 03 RUENAAA8130 UNCLAS
SUBJ/NY2K CERTIFICATION SIGNATURE POLICY//
REF/A/MSG/DON CIO/172230ZDEC98//
AMPN/REF A IS THE DON CIO MESSAGE DISCUSSING FY 99 DOD APPROPRIATIONS
ACT Y2K COMPLIANCY CERTIFICATION REQUIREMENTS//
POC/FRAUNFELDER/LINDA/CNO-Y2KB/WASHINGTON DC/TEL: DSN 332-3120/TEL:
COML 703-602-3120//
RMKS/1. REF A PROMULGATES THE FY1999 APPROPRIATION ACT REQUIREMENT
THAT DATE-RELATED DATA PROCESSING CAPABILITIES OF ANY INFORMATION
TECHNOLOGY OR NATIONAL SECURITY SYSTEM OF THE DEPARTMENT OF DEFENSE

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(BOTH MISSION CRITICAL AND MISSION SUPPORT SYSTEMS) MUST MEET CERTIFICATION LEVEL 1A, 1B, OR 2 IAW THE APRIL 1997 DOD YEAR 2000 MANAGEMENT PLAN. THIS MESSAGE PROVIDES ADDITIONAL POLICY REGARDING SIGNATURE CERTIFICATION REQUIREMENTS FOR MISSION CRITICAL SYSTEMS ONLY.
2. THE YEAR 2000 COMPLIANCY AND LEVEL OF CERTIFICATION OF ALL MISSION CRITICAL SYTEMS (AS LISTED IN THE NY2KTS) MUST BE CERTIFIED BY A FLAG OFFICER, GENERAL OFFICER, OR SES IN THE PROGRAM MANAGER?S CHAIN OF COMMAND. IF THE PROGRAM MANAGER IS A FLAG OFFICER OR SES, HIS CERTIFICATION WILL MEET THIS REQUIREMENT.
3. ALL COMMANDS DEVELOPING AND FIELDING MISSION CRITICAL SYSTEMS
PAGE 04 RUENAAAB130 UNCLAS
SHOULD IMPLEMENT THIS POLICY IMMEDIATELY AND REPORT COMPLETION OF FLAG LEVEL CERTIFICATION SIGNATURES FOR ALL PREVIOUSLY CERTIFIED SYSTEMS TO THE CNO N6Y2K PROJECT OFFICE AS COMPLETED AND, IN ANY EVENT, NLT 1 FEB 1999. REPORTS MAY BE BY MESSAGE OR E-MAIL: ASHBROOK@SPAWAR.NAVY.MIL. DO NOT CHANGE THE STATUS OF ANY SYSTEM SHOWN AS COMPLETE IN THE NY2KTS DATABASE AS PART OF THIS EFFORT UNLESS THE FLAG LEVEL REVIEW RESULTS IN THE SYSTEM BEING DETERMINED NOT TO HAVE BEEN PROPERLY CERTIFIED. FUTURE REPORTS OF COMPLETION OF VALIDATION SHALL NOT BE ENTERED INTO THE NY2KTS DATABASE WITHOUT FLAG OFFICER/GENERAL OFFICER/SES CERTIFICATION SIGNATURES.
4. THE NY2KTS DATABASE IS BEING MODIFIED TO ACCOMMODATE DOCUMENTING FLAG LEVEL CERTIFICATION FOR MISSION CRITICAL SYSTEMS. GUIDANCE ON HOW TO DO THIS WILL BE PROVIDED TO ALL Y2K COORDINATORS WHEN THIS MODIFICATION IS COMPLETE.//
BT
#8130
NNNN

GO ....ACT FOR COMNAVSEASYSCOM
03W 00I 09T 91C PMS312 PMS378P PMS378ED PMS378E1 PMS378C2 PMS378A1
PMS387E PMS377 01G 03K 04M1 04M4 00IT2K 00IT1 05 05A
05C 04 91K31 91K4B 91Q PMS308 PMS325E PMS385

Attachment C

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INTERNET DOCUMENT INFORMATION FORM

A . Report Title: Year 2000 Status of the Combat Control System Mark 2 Block 1 A/B

B. DATE Report Downloaded From the Internet: 08/05/99

C. Report's Point of Contact: (Name, Organization, Address, Office Symbol, & Ph #): **OAIG-AUD (ATTN: AFTS Audit Suggestions)**
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D. Currently Applicable Classification Level: Unclassified

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