# Audit Report

YEAR 2000 INITIATIVES AT THE NAVAL AIR WARFARE CENTER-AIRCRAFT AND WEAPONS DIVISIONS, AND THE ATLANTIC UNDERSEA TEST AND EVALUATION CENTER

Report No. 98-218 September 30, 1998

Office of the Inspector General
Department of Defense

**Additional Copies**

To obtain additional copies of this report, contact the Secondary Reports Distribution Unit of the Analysis, Planning, and Technical Support Directorate at (703) 604-8937 (DSN 664-8937) or FAX (703) 604-8932 or visit the Inspector General, DoD, Home Page at: WWW.DODIG.OSD.MIL.

**Suggestions for Future Audits**

To suggest ideas for or to request future audits, contact the Planning and Coordination Branch of the Analysis, Planning, and Technical Support Directorate at (703) 604-8908 (DSN 664-8908) or FAX (703) 604-8932. Ideas and requests can also be mailed to:

OAIG-AUD (ATTN: APTS Audit Suggestions)
Inspector General, Department of Defense
400 Army Navy Drive (Room 801)
Arlington, Virginia 22202-2884

**Defense Hotline**

To report fraud, waste, or abuse, contact the Defense Hotline by calling (800) 424 9098; by sending an electronic message to Hotline@DODIG.OSD.MIL; or by writing to the Defense Hotline, The Pentagon, Washington, D.C. 20301-1900. The identity of each writer and caller is fully protected.

**Acronyms**

| | |
|---|---|
| MRTFB | Major Range and Test Facility Base |
| NAWC | Naval Air Warfare Center |
| Y2K | Year 2000 |

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

September 30, 1998

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE)
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT AND COMPTROLLER)
DIRECTOR, TEST SYSTEMS ENGINEERING AND EVALUATION

SUBJECT: Audit Report on Year 2000 Initiatives at the Naval Air Warfare Center-Aircraft and Weapons Divisions, and the Atlantic Undersea Test and Evaluation Center (Report No. 98-218)

We are providing this report for review and comment. Because this report contains no recommendations, written comments are not required.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Raymond A. Spencer at (703) 604-9071 (DSN 664-9071), or Mr. Thomas S. Bartoszek at (703) 604-9014 (DSN 664-9014). See Appendix C for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman

Robert J. Lieberman
Assistant Inspector General
for Auditing

## Office of the Inspector General, DoD

**Report No. 98-218** **September 30, 1998**
(Project No. 8AS-0032.02)

# Year 2000 Initiatives at the Naval Air Warfare Center-Aircraft and Weapons Divisions, and the Atlantic Undersea Test and Evaluation Center

## Executive Summary


**Introduction.** This is one of 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. For a listing of audit projects addressing the issue, see the year 2000 webpage on the IGnet at <http://www.ignet.gov>.

Information technology systems have typically used two digits to represent the year, such as "98" representing 1998, to conserve electronic data storage and reduce operating costs. With the two-digit format, however, the year 2000 is indistinguishable from 1900. As a result of this ambiguity, computers and associated systems and application programs that use dates to calculate, compare, and sort could generate incorrect results when working with years after 1999.

**Audit Objectives.** The overall audit objective was to determine whether the major range and test facility year 2000 initiatives at the Naval Air Warfare Center-Aircraft and Weapons Divisions and the Atlantic Undersea Test and Evaluation Center were effective and whether they complied with the DoD Year 2000 Management Plan.

**Audit Results.** Officials from the major range and test facility bases at the Naval Air Warfare Center-Aircraft Division at Patuxent River, Maryland, and the Weapons Division at China Lake, California, and the Atlantic Undersea Test and Evaluation Center, West Palm Beach, Florida, initiated positive actions to accurately report year 2000 progress on their test and evaluation systems. After we informed Navy officials that they had not completed the assessment of their subsystems, the Aircraft Division moved its large area tracking range system back to the assessment phase from the renovation phase and the Weapons Division moved its slate range facility system from the validation phase back to the assessment phase. In addition, officials at the Naval Air Warfare Center-Weapons Division at Point Mugu, California, implemented several actions to improve their coordination and standardization process in making test and evaluation systems year 2000 compliant. The audit results are detailed in Part I.

**Management Comments**. The draft report was issued August 7, 1998. Because the report contained no recommendations, written comments were not required, and none were received. Therefore, we are publishing this report in final form.

# Table of Contents

**Executive Summary** i

**Part I - Audit Results**

Audit Background 2
Audit Objectives 4
Major Range and Test Facility Base Year 2000 Initiatives at the Naval Air Warfare Center-Aircraft and Weapons Divisions 5

**Part II - Additional Information**

Appendix A. Audit Process
Scope 10
Methodology 11
Summary of Prior Coverage 11
Appendix B. Navy Major Range and Test Facility Bases Reviewed 12
Appendix C. Report Distribution 13

# Part I - Audit Results

## Audit Background

**Year 2000.** The year 2000 (Y2K) problem is rooted in the way dates are recorded and computed in information technology systems. For the past several decades, computer systems have typically used two digits to represent the year, such as "98" representing 1998, to conserve on electronic data storage and reduce operating costs. With the two-digit format, however, the Y2K is indistinguishable from 1900.

**DoD Y2K Management Plan.** In his role as the DoD Chief Information Officer, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued the "DoD Year 2000 Management Plan" (DoD Management Plan) in April 1997. The DoD Management Plan provides the overall DoD strategy and guidance for inventorying, prioritizing, repairing, or retiring systems, and monitoring their progress. The DoD Management Plan states that the DoD Chief Information Officer has overall responsibility for overseeing the DoD solution to the problem. The DoD Management Plan includes a description of the five-phase Y2K management process. The DoD Management Plan For Signature Draft Version 2.0, June 1998, accelerates the target completion dates for renovation, validation, and implementation phases. The new target completion date for implementing mission-critical systems is December 31, 1998. The DoD Management Plan also states the criteria for DoD Components to determine the appropriate Y2K phase for each system noted in the quarterly report. Each phase listed below represents a major Y2K program activity or segment. Target completion dates range from December 1996 through March 1999. Each system must meet defined exit criteria before proceeding into the next phase.

- Awareness Phase. Organization and planning take place. Target completion date: December 31, 1996.

- Assessment Phase. Scope of Y2K impact is identified and system level analysis takes place. Target completion date: June 30, 1997.

- Renovation Phase. Required system fixes are accomplished. Target completion date: June 30, 1998 (mission critical) September 30, 1998 (all others).

- Validation Phase. Systems are confirmed as Y2K compliant through assorted testing-and-compliance processes. Target completion date: September 30, 1998 (mission critical) January 31, 1999 ( all others).

- Implementation Phase. Systems are fully operational after being certified as Y2K compliant. Target completion date: December 31, 1998 (mission critical) March 31, 1999 (all others).

In a January 20, 1998, memorandum for the heads of the executive departments and agencies, the Office of Management and Budget established a new target date of March 1999 for implementing all corrective actions to all systems. The new target completion dates are September 1998 for the renovation phase and January 1999 for the validation phase.

The Secretary of Defense issued the memorandum "Year 2000 Compliance" on August 7, 1998, and stated that the Y2K computer problem is a critical national Defense issue. He also stated that Military Departments will be responsible for ensuring that they list of mission-critical systems under their respective purview is accurately reported in the DoD Y2K database effective October 1, 1998. The DoD Components must report and explain each change in mission-critical designation to the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) within 1 month of the change.

The Deputy Secretary of Defense issued the memorandum "Year 2000 (Y2K) Verification of National Security Capabilities" on August 24, 1998. The memo states that the Chief of Naval Operations must certify that they have tested the information technology and national security system Y2K capabilities of their respective Component's systems in accordance with the DoD Management Plan.

**Major Range and Test Facility Base (MRTFB).** An MRTFB consists of test installations, and facilities used for DoD test and evaluation missions. An MRTFB conducts test and evaluation programs to integrate developmental tests, operational tests, live fire tests, and modeling and simulation activities. The tests provide information on risk and provide empirical data for the validation of modeling and simulation activities. The tests permit an assessment of technical performance specifications and system maturity. The testing results also determine whether systems are operationally effective, suitable, and survivable for their intended use. The Director, Test, Systems Engineering and Evaluation is responsible for the oversight of the MRTFBs. Each Service manages and operates its assigned MRTFB installation and activities. The Navy has five MRTFBs located at the following sites:

- Naval Air Warfare Center (NAWC)-Weapons Division, China Lake, California;
- NAWC-Weapons Division, Point Mugu, California;
- NAWC-Aircraft Division, Patuxent River, Maryland;
- Atlantic Undersea Test and Evaluation Center, West Palm Beach Florida; and
- Atlantic Fleet Weapons Training Facility, Naval Station Roosevelt Roads, Puerto Rico.

The Navy consolidated its technical capabilities in 1991 to improve its services and products by creating three separate divisions within the NAWC including the aircraft division, the weapons division and the training division. The NAWC-Aircraft and Weapons Divisions provides many services including test

and evaluation support. We reviewed only the test and evaluation systems at the three Navy NAWCs and at the Atlantic Undersea Test and Evaluation Center. The MRTFBs reviewed are described in Appendix B. All of the test and evaluation systems reported by the MRTFBs were non-mission critical.

## Audit Objectives

The overall audit objective was to determine whether the planning and management of the MRTFBs at the NAWC-Aircraft and Weapons Divisions and the Atlantic Undersea Test and Evaluation Center to address the year 2000 computer problems were effective and whether they complied with the DoD Year 2000 Management Plan. Specifically, we determined whether the NAWC-Aircraft and Weapons Divisions and the Atlantic Undersea Test and Evaluation Center resolved and reported on date-processing issues for potential Y2K-related system failures that could affect the test and evaluation activities of the Navy. See Appendix A for a discussion of the scope and methodology and a summary of prior coverage.

# Major Range and Test Facility Base Year 2000 Initiatives at the Naval Air Warfare Centers-Aircraft and Weapons Divisions

Navy Officials from the MRTFB at the NAWC-Aircraft and Weapons Divisions and Atlantic Undersea Test and Evaluation Center, West Palm Beach, have initiated positive actions to resolve and accurately report on date-processing issues for potential Y2K-related failures that could affect the test and evaluation activities of the Navy. Navy officials took these actions after we identified that division personnel had not completed their assessment of the subsystems. The NAWC-Aircraft Division moved the large area tracking range system back to the assessment phase from the renovation phase. In addition, the NAWC officials at the Weapons Division, China Lake, moved the slate range facility system from the validation phase to the assessment phase. Also, officials at the NAWC-Weapons Division, Point Mugu, implemented several actions that will improve the coordination and standardization process for making all weapon division systems Y2K compliant. As a result, resolution of and reporting on the Y2K progress for MRTFB test and evaluation systems at the NAWC-Aircraft and weapons Divisions is improving.

## Y2K Quarterly Report

A June 19, 1998, memorandum from the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) requires DoD Components to submit monthly reports to DoD and the Office of Management and Budget, which allows them to oversee and monitor the DoD compliance effort, to identify and prioritize risks, and to solve Y2K problems quickly because, if erroneous information goes unrecognized, computers and weapon systems may fail, and the problem will perpetuate through interfaces and other automated information systems.

## Assessment Phase Requirements

In his role as DoD Chief Information Officer, the Assistant Secretary of Defense (Command, Control, Communication, and Intelligence) issued the DoD Management Plan, Version 1.0, April 1997, which states that the purpose of the assessment phase is to gather and analyze information to determine the size and scope of the Y2K problem. The management plan requires the Service or DoD Component to perform an assessment to determine which system components, if any, must be replaced, redeveloped or retired.

A system must complete the assessment phase before moving to a later Y2K phase. The DoD Management Plan, For Signature, Draft Version 2.0, June 1998, accelerates the target completion dates for the renovation, validation, and implementation phases. The new target completion date for implementation of mission-critical systems is December 31, 1998.

## Progress Reported

We reviewed 30 test and evaluation systems at the NAWC-Aircraft Division and at the Weapons Division, China Lake and Point Mugu, and the Atlantic Undersea Test and Evaluation Center, West Palm Beach. Of the 30 systems reviewed, the Navy appeared to have correctly reported the status of 28 systems, however, the Navy incorrectly reported the progress of the large area tracking range system at the Aircraft Division and the slate range facility system at the Weapons Division, China Lake, in solving the Y2K problem.

**Large Area Tracking Range System.** The large area tracking range system is an offshore time-and-space-positioning aircraft information tracking system that supports tactical training for the NAWC-Aircraft Division. The system consists of seven subsystems. The Navy reported the large area tracking range system in the renovation phase in the July 14, 1998, quarterly report to DoD; however; the Navy did not complete its review of six of the seven subsystems to determine whether the systems are date dependent and Y2K compliant.

**Slate Range Facility System.** The slate range facility system is a network of computers used to measure the radio frequencies of radar systems, targets, and aircraft and consists of 10 subsystems. The Navy reported that the slate range facility system was in the validation phase in the July 14, 1998, quarterly report to DoD; however, Navy officials did not complete the assessment of three subsystems to determine whether they are date dependent and Y2K compliant.

In July 1998, we informed officials that the Navy should move both systems back into the assessment phase until they complete the Y2K assessment for all subsystems. Navy officials agreed to reclassify the systems until they complete their assessments. The reclassification will provide an accurate reflection of the system's Y2K progress and status in the quarterly report to DoD.

## Other Positive Actions Taken

During the audit, Navy MRTFB officials at the NAWC-Weapons Division, Point Mugu, recognized the need for improved oversight and procedures to ensure more accurate reporting of Y2K program progress.

On June 1, 1998, the Navy established a Year 2000 Program Office to provide a central point within the Weapons Division for Y2K requirements and information. The Navy is also creating an action plan to specify tools, processes, and documentation needed to achieve Y2K compliance for all Weapons Division systems. The action plan will define Y2K concepts such as subsystem, interface, and mission critical; will recommend testing processes for various computer platforms and software applications; and provide a checklist for each Y2K phase to address key questions and exit criteria contained in the DoD Y2K Management Plan. The action plan will be completed by October 30, 1998.

## Conclusion

We commend the Navy MRTFB officials at the NAWC-Aircraft and Weapons Divisions for taking prompt action to reclassify the systems that were in the wrong Y2K reporting phase. As a result, DoD officials will have an accurate representation of the status of the Navy system being reported and the Y2K progress made. In addition, other actions taken by the Weapons Division at Point Mugu recognize the need for improving the Y2K resolution process and for documenting actions taken to solve the Y2K problem. These actions will all help to ensure that no test and evaluation system at the MRTFBs NAWC-Aircraft and Weapons Division is adversely affected by the Y2K problem. Because management took corrective action during the audit, no recommendations are necessary.

# Part II - Additional Information

# Appendix A. Audit Process

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 Y2K computing challenge. For a listing of audit projects addressing this issue, see the Y2K webpage on IGnet at <http://www.ignet.gov>.

## Scope

We reviewed material dated from December 1997 through June 1998. We evaluated Navy policies and procedures for identifying, planning. We reviewed four MRTFBs located at the NAWC Weapons Division, China Lake; the NAWC Weapons Division, Point Mugu; the NAWC Aircraft Division, Patuxent River; and the Atlantic Undersea Test and Evaluation Center, West Palm Beach. As shown below, we reviewed 30 out of 134 test and evaluation systems.

| System Location | Number of Test and Evaluation Systems | Systems Reviewed |
|---|---|---|
| NAWC-Weapons Division, China Lake | 40 | 10 |
| NAWC-Weapons Division, Point Mugu | 34 | 8 |
| NAWC-Aircraft Division, Patuxent River | 42 | 7 |
| Atlantic Undersea Test and Evaluation Center, West Palm Beach | 18 | 5 |
| Total | 134 | 30 |

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

- **Objective:** Prepare now for an uncertain future.
- **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war fighting 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 for the following functional area objective and goal:

**Information Technology Management Functional Area.**

- **Objective:** Provide services that satisfy customer information needs.
- **Goal:** Upgrade technology base. **(ITM-2.3)**

**General Accounting Office High-Risk Area.** In its identification of risk areas, the General Accounting Office has specifically designated risk in resolution of the Y2K problem as high. This report provides coverage of that problem and of the overall Information Management and Technology high-risk area.

## Methodology

**Audit Type, Dates, and Standards.** We performed this economy and efficiency audit from June through July 1998 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not use computer processed data to perform this audit.

**Contacts During the Audit.** We visited or contacted individuals and organizations within the DoD. Further details are available on 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 1997 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 over the Internet at HTTP://www.dodig.osd.mil.

# Appendix B. Navy Major Range and Test Facility Bases Reviewed

**NAWC-Weapons Division, China Lake.** The Weapons Division provides test and evaluation and technical support for air-to-air and air-to-surface missiles; fuses; free-fall weapons; and antiradiation missiles. The Division also supports parachute systems; avionics hardware and software; operational flight programs for combat systems in Navy aircraft; and electronic warfare and countermeasure systems.

**NAWC-Weapons Division, Point Mugu.** The Weapons Division provides test and evaluation and technical support for air-to-air and air-to-surface missiles and avionics hardware and software. The Division also supports combat system operational flight programs for the Navy F-14 and EA-6B tactical aircraft; electronic and information warfare systems and test and evaluation systems.

**NAWC-Aircraft Division, Patuxent River.** The Aircraft Division provides test and evaluation services for air vehicles and their associated weapon systems, air weapons, sensor systems, and related training and support systems.

**Atlantic Undersea Test and Evaluation Center, West Palm Beach.** The Center is a comprehensive undersea warfare system-testing complex. It is a deep water test and evaluation facility for making underwater acoustic measurements; testing and calibrating sonars; and providing accurate underwater, surface and in-air tracking data on surface ships, submarines, aircraft, and weapons in support of the Navy anti-submarine warfare and undersea research and development programs for fleet assessment and operational readiness.

# Appendix C. Report Distribution

## Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
  Director, Defense Logistics Studies Information Exchange
  Director, Test, Systems, Engineering and Evaluation
Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)
  Year 2000 Oversight and Contingency Planning Office
Assistant Secretary of Defense (Public Affairs)

## Department of the Army

Assistant Secretary of the Army (Financial Management and Comptroller)
Auditor General, Department of the Army
Chief Information Officer, Army
Inspector General, Department of the Army

## Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy
Chief Information Officer, Navy
Inspector General, Department of the Navy

## Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Air Force Audit Agency
Chief Information Officer, Air Force
Inspector General, Department of the Air Force

## Other Defense Organizations

Director, Defense Information Systems Agency
  Inspector General, Defense Information Systems Agency
Director, National Security Agency
  Inspector General, National Security Agency

## Non-Defense Federal Organizations and Individuals

Office of Management and Budget
  Office of Information and Regulatory Affairs
Technical Information Center, National Security and International Affairs Division, General Accounting Office
Director, Defense Information and Financial Management Systems, Accounting and Information Management Division, General Accounting Office

Chairman and ranking minority member of each of the following congressional committees and subcommittees:

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Senate Special Committee on the Year 2000 Problem
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on Government Management, Information, and Technology, Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
House Committee on National Security

# Audit Team Members

The Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, produced this report.

Thomas F. Gimble
Patricia A. Brannin
Raymond A. Spencer
Thomas S. Bartoszek
Julius L. Hoffman
Robin G. McCoy
Eric Broderious
Noble White
Karen Layton
Bernice M. Lewis