

# Aegis Ballistic Missile Defense

*Bell Dedication Ceremony*



NOVEMBER 13, 2003





## Agenda

Welcome and Introduction  
RADM K.K. Paige, USN

### Remarks:

- ↓ VADM J.D. Williams, USN (Ret.)
- ↓ VADM R.P. Rempt, USN
- ↓ CAPT J.J. Nittle, USN (Ret.)
- ↓ CAPT J.W. Allin, USN (Ret.)
- ↓ CAPT P.M. Grant, III, USN
- ↓ RADM W.E. Meyer, USN (Ret.)

R.K Turner Ship's Bell Ringing

Closing Remarks - RADM Paige

Cake Cutting & Reception



## History and Traditions of the Ship's Bell

Bells have a centuries-long tradition of varied use in the navies and merchant fleets of the world. They have been used for signaling, keeping time, and providing alarm. Their functional and ceremonial uses have made them a symbol of considerable significance to the United States Navy.



*Richmond K. Turner Bell*

The sounding of a ship's bell found a natural application as a warning signal to other vessels in poor visibility and fog. In 1676 one Henry Teonage serving as a chaplain in the British Mediterranean Fleet recorded, "so great a fog that we were fain to ring our bells, beat drums, and fire muskets often to keep us from falling foul one upon another."

Ringling a ship's bell in fog became customary. In 1858, British Naval Regulations made it mandatory in that function. Today, maritime law requires all ships to carry an efficient bell.

Before the advent of the chronometer, time at sea was measured by the trickle of sand through a half hour glass. One of the ship's crew had the duty of watching the glass and turning it when the sand had run out. When he turned the glass, he struck the bell to signal that he had performed this vital function. This evolved into the tradition of striking the bell once at the end of the first half hour of a four hour watch, twice after the first hour, etc., until eight bells marked the end of the four hour watch.

The bell is an essential link in a ship's fire alarm system. In the event of a fire, the bell is rung rapidly for at least five seconds, followed by one, two, or three rings to indicate the location of a fire - forward, amidship, or aft respectively.

In addition to continuing its role as a timepiece and alarm, the bell serves a ceremonial and memorial function. United States Navy bells, part of the many artifacts removed from decommissioned vessels, are preserved by the Naval Historical Center. They may be provided on loan to new namesake ships, naval commands with a historical mission or functional connection, and to museums and other institutions that are interpreting specific historical themes and displays of naval history. Bells remain the permanent property of the U.S. Government and the Department of Navy. They serve to inspire and to remind sailors of their honor, courage, and commitment to the defense of our nation. Bells remain a powerful and tangible reminder of history, heritage, and accomplishments of the Navy.

Today we use the bell from the USS RICHMOND K. TURNER (CG-20) to officially stand up the Aegis Ballistic Missile Defense Program. This bell was chosen because prior to her decommissioning on March 31, 1995, USS RICHMOND K. TURNER served as the test platform for the Navy's Lightweight Exo-atmospheric Projectile (LEAP) Program, firing the first ever LEAP test shot and launching the Navy into the future of ballistic missile defense.



## USS RICHMOND K. TURNER

RICHMOND K. TURNER was the last of nine LEAHY Class guided missile cruisers. She was built by New York Shipbuilding Corporation at Camden, New Jersey. Her keel was laid on January 9, 1961. She was launched on April 6, 1963 and was commissioned at Philadelphia Naval Shipyard on June 13, 1964 as DLG 20. Upon commissioning, she was sent west to join the Pacific Fleet. She completed five deployments, all of which included action during the Vietnam conflict.



On May 5, 1971, TURNER was decommissioned at Bath Iron Works for an extensive modernization of her anti-air capabilities and assigned to the Atlantic Fleet. It was during this period she received her new designation and was recommissioned at Bath Iron Works on May 27, 1972 as CG 20. After her recommissioning, RICHMOND K. TURNER was deployed on a UNITAS Cruise to South America in 1973 and participated in Operation 200, which included the International Naval Review in New York City, on the occasion of the Nation's Bicentennial Celebration on July 4, 1976. In 1978 she was assigned two special operations, the surveillance of a Soviet task group and surveillance operations off the coast of Nicaragua, for which she was awarded the Meritorious Unit Citation. She saw further Caribbean duty in the Grenadian Operation Urgent Fury.

RICHMOND K. TURNER completed six highly successful Mediterranean deployments as a unit of the United States Sixth Fleet. During her 1986 Mediterranean deployment, TURNER fired the first Harpoon missile in combat, while operating off the coast of Libya.



In 1988 TURNER sailed to Ingalls Shipyard in Pascagoula, Mississippi for an overhaul to receive the New Threat Upgrade (NTU) combat systems suite. After two years, RICHMOND K. TURNER sailed in December of 1990 to serve in the Persian Gulf during Operation Desert Storm, for which she received the Kuwait Liberation Medal.

TURNER subsequently participated in Operation Provide Comfort where she earned a Joint Meritorious Unit Commendation. During the summer of 1993, TURNER made her farewell overseas deployment to the Mediterranean region, where she served as the first Adriatic Cruiser / Red Crown / Anti-Air Warfare Commander for the THEODORE ROOSEVELT Battle Group. While in the Adriatic, TURNER participated in operations Deny Flight, Provide Promise and Sharp Guard.

Leading the Navy into the twenty-first century, on September 24, 1992 TURNER successfully fired the first at-sea test of the Navy's Lightweight Exo-Atmospheric Projectile (LEAP) Flight Test Vehicle (FTV-1). In the fall of 1993, TURNER was selected to perform the test firings for the Navy's Terrier LEAP demonstration program, a part of the Department of Defense's developmental anti-ballistic missile effort. On March 4, 1995, TURNER successfully fired FTV-3, the first launch of a four stage SM-2 (ER) missile.



TURNER's last duty prior to her decommissioning on April 4, 1995, was the FTV-4 test firing. This successful test capped the brilliant thirty-one year record of service to the nation by this battle-tested surface combatant.

RICHMOND K. TURNER was the namesake of Admiral Richmond K. Turner, one of the central figures in World War II's Pacific theater. As the head of the Navy's War Plans Division, he helped formulate the basic U.S. strategy for the Pacific. In August 1942, he took command of the amphibious forces tasked with carrying out the landing at Guadalcanal.

He retained this command under Admiral Bull Halsey and advanced his forces through 1943 to Rendova Island. After losing his flagship there, he turned command over to Theodore Stark Wilkinson and left for Pearl Harbor, there receiving command over yet another amphibious force, this time the entire forces of Admiral Spruance's Fifth Fleet.



*Richmond K. Turner*

He and Marine Major General Holland M. Smith formed a respectable team during the operations at Betio, Makin, Majuro, Kwajalein, Roi and Namur. Following these successful though sometimes bloody operations, Turner was made Vice Admiral. In this rank, he led the attacks on Saipan, Tinian and Guam.

After the successful landing of U.S. forces on Okinawa, he initiated destroyer picket operations to help repel kamikaze attacks. On May 17th 1945, Admiral Nimitz relieved Turner with Rear Admiral Harry Hill, and ordered him to plan for the projected landing on Kyushu, Japan. This assignment was canceled when the Japanese surrendered.

After the war, Admiral Turner was the United States' naval representative on the United Nations Military Staff Committee until 1947.



## History of the Aegis BMD Program

Today's Aegis Ballistic Missile Defense (Aegis BMD) Program traces its lineage to various organizations that stood up in the 1990's to develop the Navy component to ballistic missile defense, but it owes much to two cousin organizations, the Aegis Technical Division and the Standard Missile Program. Since the early 1960's, Aegis and Standard Missile and their predecessor organizations developed, built, and fielded the systems and processes that have allowed the Aegis BMD Program to stand where it does today, poised to deliver a broad spectrum of defensive capability against ballistic missiles of all ranges.



Aegis BMD and its predecessor organizations have always maintained a strong link to the Navy's operational forces - the surface combatants charged with carrying out the long line of developmental tests. During the course of the past decade, ships like USS RICHMOND K TURNER (CG 20), USS JOUETT (CG 29), USS JOHN PAUL JONES (DDG 53), USS RUSSELL (DDG 59), USS SHILOH (CG 67), USS ANZIO (CG 68), USS VICKSBURG (CG 69), USS LAKE ERIE (CG 70), and USS PORT ROYAL (CG 73) have successfully demonstrated the ability of the Aegis Weapon System to detect, track, and engage ballistic missiles in the upper atmosphere and in the exo-atmosphere.

Today we honor that link to the operational forces as the Ship's Bell from the decommissioned RICHMOND K TURNER is once again made part of the Aegis BMD Program. The RICHMOND K TURNER was the first ship to fire a surface-to-air missile as part of the Navy Theater Wide Program, launching the Navy into the era of sea-based ballistic missile defense.

### The Early Years

In 1992, the Navy's Strategic Systems Program under the sponsorship of the Strategic Defense Initiative Office (SDIO), the predecessor to today's Missile Defense Agency (MDA), initiated the Navy's Terrier/LEAP (or Lightweight Exo-Atmospheric Projectile) demonstration project under the leadership of CAPT Bill Bassett. In June 1993, the Navy established the Program Executive Office Theater Air Defense (PEO TAD), and CAPT Jerry Nittle as PEO TAD-B assumed responsibility for the execution of the project. Upon his retirement, CAPT Nittle was succeeded by CAPT Jim Barron. During this period, several tests were conducted to prove out the capabilities of the LEAP Kinetic Kill Vehicle (KKV) and the program entered the DoD acquisition cycle.

### Navy Theater Wide/Aegis LEAP Intercept (ALI)

In 1997, the Navy Theater Wide (NTW) Program Office was created within PEO TAD as PMS 452, and CAPT Mac Grant was named as the first NTW Program Manager. As the Navy underwent various reorganizations, the NTW Program came under the purview of PEO Theater Surface Combatants (PEO TSC) and then PEO Integrated Warfare Systems (PEO IWS). During this period, NTW was an integral part of the Ballistic Missile Defense Organization's (BMDO) Theater Missile Defense Initiative. In January 2002, BMDO became MDA, and NTW was renamed the Sea-based Midcourse Program, an element of

MDA's Ballistic Missile Defense System (BMDS). In November 2002, the program was renamed the Aegis BMD Program.

The establishment of the NTW program recognized the progress in sea-based ballistic missile defense achieved through the Terrier/LEAP program. NTW had the goal of producing modifications to the existing Standard Missile designed for the ballistic missile defense mission. The result was the SM-3 missile with its Kinetic Warhead (KW), an improvement over the LEAP KKV. Under CAPT Grant's guidance, the program conducted a series of Aegis LEAP Intercept (ALI) test firings that proved out the capabilities of the SM-3 missile and its KW.

### Aegis BMD Program Directorate

In March 2003, RADM Kate Paige became the first Program Director, Aegis BMD. Aegis BMD is differentiated from its earlier organizational instantiations in that it is a service program selected for transition to MDA. It is envisioned that after it completes this transition, Aegis BMD will continue under the control of MDA throughout its developmental period. Upon determination of its readiness for full-scale fielding, the program will transition back to Navy control.

As part of MDA's response to President Bush's call to field an initial defensive capability by September 2004, Aegis BMD will equip three destroyers of the ARLEIGH BURKE class with a Long Range Surveillance & Track (LRS&T) capability. The ships equipped with LRS&T will be able to detect and track ICBMs, transmit target data to the Ground Based Midcourse (GMD) system, generate target acquisition cues for the GMD radar, and support the development of a fire control solution for the GMD interceptor. Along with LRS&T, as a contingency, LAKE ERIE will be able to provide an organic engagement capability using SM-3. By December 2005, this capability will be deployable in LAKE ERIE and one other TICONDEROGA class cruiser, with plans for additional installations in the out years.

### At Sea Operations

#### **FTV-1 (Functional Technology Validation or Flight Test Vehicle): September 24, 1992**

A modified Terrier (SM-1) missile was fired from RICHMOND K. TURNER. This flight test successfully demonstrated the high altitude guidance and control of a Standard Missile.

#### **FTV-2: September 1993**

This test involved an SM-2 Block 3 interceptor launched from JOUETT. This flight test successfully demonstrated nose cone and KKV ejection at exo-atmospheric altitudes.

#### **FTV 3: March 4, 1995**

The third flight test was the first to attempt an intercept of a SCUD-like ballistic missile from RICHMOND K. TURNER. All the KKV initialization procedures were successfully performed. The KKV acquired the target at a range of 136 km and the LEAP seeker tracked the target for over 15 seconds.

#### **FTV 4: March 28, 1995**

The fourth flight test was a repeat of FTV-3 from the RICHMOND K. TURNER, except with a Rockwell LEAP KKV and corrective changes to the second stage guidance software. During this test, the first and second stages flew the desired trajectory. The third



stage operated exceptionally well in delivering the KKV to within 170 meters of the and with sufficient pointing accuracy for acquisition. While the KKV was still attached to the third stage, the target was visible in the seeker's field of view.

**CTV-1A (Control Test Vehicle): September 24, 1999**

This test was the first launch of the SM-3 missile. It demonstrated a successful second and third stage separation and flight endurance.

**FTR-1A (Flight Test Round-1A): January 25, 2001**

This test was conducted to evaluate the SM-3's airframe stability and control through a nominal kinetic warhead separation. The test launch achieved third-stage separation, third-stage motor burn, and attitude control through nominal KW separation.

**FM-2: January 25, 2002**

This flight mission was the first successful Navy BMD intercept in space. FM-2 was a complete success and exceeded the test objectives by hitting the target.

**FM-3: June 13, 2002**

The FM-3 mission repeated the FM-2 scenario and hit the Aries target in the exo-atmosphere as planned. The mission was a complete success.

**Glory Boost: September 19, 2002**

After efforts to develop a missile defense capability were freed from the constraints imposed by the Anti-Ballistic Missile (ABM) Treaty, LAKE ERIE tracked an ICBM with its SPY-1 radar. This was the first instance of an Aegis-equipped ship tracking an ICBM. All test objectives were met.

**IFT-9: October 14, 2002**

Stationed 350 nautical miles off of the West Coast of the U.S., JOHN PAUL JONES tracked another ICBM target missile providing precise target tracking information to the Joint National Integration Center (JNIC). This test demonstrated SPY-1's ability to generate track data with sufficient accuracy and latency to direct ground based interceptor engagements.

**FM-4: November 21, 2002**

The Aries target missile was successfully intercepted by the SM-3's KW during the ascent phase of its flight. This was the first instance of an engagement in the ascent phase.

**FM-5: June 18, 2003**

This mission was the first flight of an upgraded version of the SM-3 KW engine - the monolithic SDACS. As such, the primary objective was to characterize the SM-3 KW's guidance, navigation, and control in outer space. After nominal ejection, stabilization, target acquisition, and tracking, the KW entered a spin and lost track of the target. The joint government and industry post-test investigation team identified the most likely cause to be a stuck yaw control valve, probably caused by a cracked diverter ball.

**Future Tests**

The Aegis BMD test program is scheduled to continue in December 2003 with the FM-6 flight test followed by FM-7 in late spring or early summer of 2004.

**J. D. WILLIAMS**  
**Vice Admiral, United States Navy (Ret.)**

Since 1993, Vice Admiral Williams has served as a private consultant in advanced warfare systems to both industry and government. In addition to several defense companies, he is currently a consultant to the Defense Science Board, MIT Lincoln Laboratory, Lawrence Livermore National Laboratory, and Office of Naval Research (ONR). He is also serving on the MIT Lincoln Laboratory Advisory Board, Ballistic Missile Defense Office Advisory Committee and is a Senior Advisor to the Global Wargames conducted at the Naval War College. VADM Williams has participated in four recent Defense Science Board Summer Studies (Cruise Missile Defense, Technology Investments for 21st Century Military Superiority, Technology and Tactics for 21st Century Military Superiority, and Underwriting Joint Vision 2010 and Beyond).



He retired with the rank of Vice Admiral in 1992 having served 45 years of distinguished service. From 1990-1992, VADM Williams served as Deputy Chief of Naval Operations for Naval Warfare where he was responsible for advising the Chief of Naval Operations and Secretary of the Navy. It was during this period that VADM Williams obtained funding for and convinced the Navy to enter the Theater Ballistic Missile Defense arena. He initiated the advanced Tomahawk land attack cruise missile development and was instrumental in saving CEC (Cooperative Engagement Capability).

Previously, he served as Commander of the U.S. SIXTH Fleet & Commander, NATO Striking Force Southern Europe. He commanded the U.S. SIXTH Fleet that was composed of 25-30 ships, 100-200 aircraft, 20,000 personnel, and a large support establishment operating throughout the Mediterranean Sea. VADM Williams started his Naval career as a staff assistant to Admiral H. G. Rickover for enlisted personnel and training and oversaw the education and training of personnel for the joint Navy / Department of Energy, Naval Nuclear Propulsion Program. He also served on a destroyer, two Nuclear Attack submarines, a Ballistic Missile submarine, and various U.S. Navy commands involving operational staffs.

Vice Admiral Williams graduated with honors from the U.S. Naval Academy with a Bachelor of Science in Engineering. He also attended the U.S. Navy Submarine School and U.S. Navy Nuclear Power Training Courses (consisting of graduate level training in Nuclear Engineering). He currently lives in Arlington, VA.



**VICE ADMIRAL RODNEY P. REMPT**  
**United States Navy**  
**Superintendent of the United States Naval Academy**

Vice Admiral Rempt was raised in the Los Angeles suburb of Van Nuys and graduated from the U.S. Naval Academy with the Class of 1966. Initial assignments at sea included deployments to Vietnam aboard USS COONTZ (DLG-9) and USS SOMERS (DDG-34) followed by command of USS ANTELOPE (PG 86), one of four missile-armed patrol gunboats homeported in Naples, Italy.

Vice Admiral Rempt commanded USS CALLAGHAN (DDG 994) during two WEST-PAC/Indian Ocean deployments, and the USS BUNKER HILL (CG 52) homeported in Yokosuka, Japan. While on BUNKER HILL, Rear Admiral Rempt served for 18 months as the Anti-Air Warfare Commander (AAWC) for SEVENTH Fleet.

Duties ashore included three years in the Weapon Prototyping office of the Naval Sea Systems Command as the initial project officer for the MK 41 Vertical Launch system, and both the Program Coordinator for the AEGIS Weapon System, and the Director, Anti-Air Warfare Requirements Division (OP-75) on the CNO's staff. Admiral Rempt also worked in the Ballistic Missile Defense Organization (BMDO) where he initiated the development of Naval Theater Ballistic Missile Defense (TBMD).

Initial Flag assignments were as Director, Theater Air Defense (N865), followed by Program Executive Officer, Theater Air Defense (PEO TAD), concurrently serving as the U.S. Steering Committee Member for the NATO Sea Sparrow and Rolling Airframe Missile multi-national programs. Admiral Rempt subsequently served as the first Deputy Assistant Secretary of the Navy for Theater Combat Systems and as the first Assistant Chief of Naval Operations for Missile Defense. In this position, Admiral Rempt additionally served as Director, Surface Warfare (N76), responsible for all Surface Warfare people initiatives, ship programs and combat systems.

His education includes Masters Degrees in Systems Analysis from Stanford University and in National Security and Strategic Studies from the Naval War College. He served one year as the Director of the PCO/PXO Department at the Surface Warfare Officers Schools Command and two years as the 48th President of the Naval War College.

His personal awards include the Distinguished Service Medal, the Legion of Merit (Third award), the Meritorious Service Medal (Third award), and the Navy Commendation Medal (Third award with Combat "V").



**JEREMY J. NITTLE**  
**Captain, United States Navy (Ret.)**

Mr. Nittle is the Group Senior Vice President and General Manager for Anteon Corporation's Missile Defense Engineering Group, an element of Anteon's Systems Engineering (SEG). He is responsible for all SEG operations relating to cruise and ballistic missile defense including overall technical, cost, and personnel management of 5 divisions: Maritime Defense, Theater Ballistic Missile Defense, Center for Missile Defense, Marine Corp Systems Engineering and Engineering Management Division.

Mr. Nittle is a retired U.S. Navy Captain with 27 years of diversified and progressive experience including research, design, development, test and evaluation, production, operational introduction, and project management of high technology combat systems. His last assignment prior to retirement was Director of Theater Ballistic Missile Defense in the Program Executive Office for Theater Air Defense PEO(TAD). He was responsible for both the Area and Theater Wide Programs and the Navy's Command and Control (C2) system development to support Theater Ballistic Missile Defense (TBMD). In addition, he was responsible for directing the addition of the TBMD capability in the AEGIS Combat System (ACS), the world's most advanced and highly integrated combat system.

During Mr. Nittle's Navy tours, he was responsible for all aspects of the acquisition of the AEGIS Combat System at an annual expenditure of over \$1 billion. Additionally, he has extensive knowledge and expertise in AEGIS cruiser and destroyer ship construction, AEGIS weapon system development, production and maintenance and was the AEGIS Department Head at Naval Ship Weapons Systems Engineering Station (NSWSES) (now known as Port Hueneme Division of the Naval Surface Warfare Center). He was responsible for a budget of over \$47 million and led a workforce of over 170 highly skilled engineers and technicians. He also was the Cruiser Combat Systems and Test Officer for AEGIS Shipbuilding Project (PMS400), with responsibility of all combat system testing during the shipbuilding period, including unprecedented missile firings during new construction trials.

Mr. Nittle graduated from the Naval Destroyer School and has had several tours as a destroyer division officer and department head, making numerous deployments to the Mediterranean Sea and Indian Ocean. He holds an MS in Electrical Engineering from the Naval Postgraduate School and a BS in Metallurgy and Materials Science from the University of Pennsylvania.



**John W. Allin**  
**Captain, United States Navy (Ret.)**

John W. Allin is a technical director with Anteon Corporation and has worked with the Missile Defense Agency since 1996. Recently, he was assigned as the lead support contractor for the MDA Initial Defensive Operations Communications Connectivity Task Force, to plan and test end-to-end connectivity from AEGIS warships and other sensors to the command nodes and fire control elements of the Ballistic Missile Defense System.



He retired from the Navy as a Captain in 1994 and was retained on active duty until 1995 to continue serving as Commanding Officer, USS RICHMOND K. TURNER (CG 20). Shortly after he assumed command in 1992, USS RICHMOND K. TURNER conducted the first flight test of the Lightweight Exo-Atmospheric Projectile (LEAP), a four-stage developmental missile based on the Standard Missile-2 (SM-2), designed to destroy theater missiles by kinetic intercept. The last two missile firings were held in 1995, completing this Navy and Ballistic Missile Defense Organization-sponsored initiative. The LEAP missile has now successfully evolved into the SM-3.

His first major command was Service School Command Great Lakes, the Navy's largest training command. Between 1989 and 1992, about 60,000 Sailors received Surface Warfare technical training as electronics technicians, gas turbine propulsion plant operators, missile gunners' mates, and other specialties. Computer-based training initiatives were implemented which reduced attrition while improving training quality and enabling reductions in training timelines.

In Washington, he served as Assistant to the Chief of Naval Operations for Joint Manpower, Personnel and Training Matters (OP-01B1), and as a branch head on the staff of the Deputy Chief of Naval Operations for Plans, Policy and Operations (OP-611). His sea-going experience includes command of USS MARVIN SHIELDS (FF 1066) from 1980 to 1983, Commander SEVENTH Fleet staff, Commander Cruiser-Destroyer Group ONE staff, and service in a guided missile destroyer, a cruiser, and other warships. He served in Vietnam from 1966 to 1968.

He entered the Navy through the Navy ROTC program, graduating from The University of Michigan, and later received two Masters degrees. His awards include the Defense Superior Service Medal, two Legion of Merit medals, two Meritorious Service medals, the Navy Commendation Medal, and other decorations and campaign medals.

Mr. Allin is married to the former Gail Laubach of Chappaqua, NY.

**Captain Peter McPherson Grant III**  
**United States Navy**  
**Deputy Director for System Engineering and Integration**

Since March 2003, Captain Grant has been serving as the Missile Defense Agency Deputy Director for System Engineering and Integration. In this position, he is responsible for the Ballistic Missile Defense System performance, design, integration, and verification.



Captain Grant is a native of Santa Barbara, CA. He enlisted in the Navy in 1971 and attended the Naval Academy Preparatory School (NAPS), Bainbridge, MD. He is a 1976 graduate of the United States Naval Academy and a 1982 graduate of the Naval Postgraduate School where he received his Master's Degree in Ordnance Engineering.

Early sea tours as a department head were in Engineering and Weapons Officer billets in Pacific Fleet Destroyers. Selected for Engineering Duty in 1985, CAPT Grant served in several positions at the Naval Sea Systems Command, Washington, D.C. from 1985 to 1992. Positions included Deputy Technical Director Shipboard Electromagnetic Compatibility Program, and Assistant Program Manager for In-Service Aircraft Carriers. From 1992 to 1995 he served as the Aegis Program Manager's Representative and New Construction Project Officer, Bath, Maine. In this capacity, he was responsible for the construction, fitting out and delivery to the Navy of all Aegis Cruisers and Arleigh Burke Class Destroyers built at Bath Iron Works. From 1995 to 2003, CAPT Grant served in several Navy Ballistic Missile Defense Program Management positions, culminating in his assignment as Program Director Aegis Ballistic Missile Defense.

CAPT Grant's service education includes Surface Warfare Officer Department Head School, Newport, RI, Naval Guided Missiles School, Dam Neck, VA, the Engineering Duty Officer Basic and Mid-career Courses and the Advanced Program Manager's Course at the Defense Systems Management College. He is a certified Acquisition Professional. His Engineering Duty specialty is as an Ordnance and Weapon System Acquisition Manager. He is a member of the AIAA, Naval Institute, Surface Navy Association and the American Society of Naval Engineers.

CAPT Grant's personal awards include the Meritorious Service Medal (with Gold Star), the Navy Commendation Medal and the Navy Achievement Medal.

He is married to the former Sara Louise Moore of Lakewood, OH. They live in Lake Ridge, VA.



**Rear Admiral Kathleen K. Paige**  
**United States Navy**  
**Program Director, Aegis Ballistic Missile Defense**

Rear Admiral Kathleen K. Paige is the Program Director, Aegis Ballistic Missile Defense (BMD), the sea-based element of the Ballistic Missile Defense System (BMDS) under development by the Missile Defense Agency (MDA). Born in Schenectady and raised in Scotia, NY, Rear Adm. Paige is a 1970 graduate of the University of New Hampshire and received her commission in 1971. She completed her Master of Science Degree from the Naval Postgraduate School in 1976 in Monterey, Calif. She was designated an Engineering Duty Officer (EDO) in 1981.

Rear Admiral Paige's first tour of duty was at VFP-63 San Diego, CA. Subsequent tours of duty included: Fleet Combat Direction System Support Activity, San Diego; Acquisition Manager in the Navy's Standard Embedded Computer Resource Office, Arlington, VA.; Aegis C3 Warfare Officer and Combat Systems Baseline Manager for the Aegis Shipbuilding Program; Chief Engineer, Naval Surface Warfare Center, Port Hueneme, CA.; and Technical Director, Aegis Program Office.

Her first Flag Officer assignment was as Commander, Naval Surface Warfare Center, Arlington, VA, in July 1996. In June 1998, she assumed duties as the Director, Theater Air and Missile Defense and Systems Engineering (TAMD&SE) in the Program Executive Officer for Theater Surface Combatants (PEO TSC). As Director, TAMD&SE, she led the Interoperability Task Force, which coordinated the joint efforts of five program offices across three Systems Commands to complete a successful Operational Evaluation of the Cooperative Engagement Capability (CEC). In April 1999, she was concurrently assigned as the first ASN (RDA) Chief Engineer, the Department of Navy's senior technical authority for the development of system and technical architectures designed to improve the integration and interoperability of Navy and Marine Corps weapon, combat, and C4I systems. In July 2001, she became MDA's first Ballistic Missile Defense System Technical Director, the principle advisor to the MDA Director on all matters related to the planning and technical performance of the BMDS. In August 2002, she became the Navy's senior EDO. She assumed her present duties in March 2003.

Rear Admiral Paige's personal decorations include the Legion of Merit (3 awards), the Meritorious Service Medal (3 awards), and the Navy Achievement Medal.



**Rear Admiral Wayne Meyer**  
**United States Navy (Ret.)**

Rear Admiral Wayne Meyer, USN (Ret.) is the founder and President of the W. E. Meyer Corporation, Arlington, VA, a company engaged in consulting services.

He enlisted in the U.S. Navy in 1943 as an apprentice seaman. After being commissioned Ensign U.S. Naval Reserve in 1946, he rose through the ranks over the next 30 years retiring in 1985 as Deputy Commander for Weapons and Combat Systems, Naval Sea Systems Command and Ordnance Officer of the Navy.

After sailing for twenty years and serving in atomic weapons, guided missiles and ordnance fields, afloat and ashore, he was appointed as founding manager in 1970, serving 13 years as Project Manager Aegis Shipbuilding. Aegis is the largest, longest continuously running War Shipbuilding Program in U.S. Naval History, there being some 27 major guided missile cruisers and 27 guided missile destroyers at sea with 25 on the building ways.

The W. E. Meyer Corporation provides consulting services in engineering, research, project management, strategic planning. Clients have included Martin Marietta, RCA, General Electric, Raytheon, Hughes, General Dynamics, and a host of others in industry, laboratories, universities and government. Overseas has included Republic of China, Japan and several NATO countries. His services include analysis related to strategic research and development technology, tactical computer program management, geothermal power, electric power, rocketry, radar and mining ventures.

He holds Bachelor of Science degrees in Electrical Engineering from University of Kansas, U.S. Naval Post Graduate School and MIT. He also holds a Master of Science in Astronautics and Aeronautics from MIT.

Widely decorated militarily and professionally, he is active in engineering societies and in high demand for speaking, writing and teaching. He is a recipient of several medals from American Society of Naval Engineers and American Institute of Aeronautics and Astronautics along with being designated Pioneer in U.S. Navy's newly-created Acquisition Hall of Fame in the Pentagon, Washington, D.C.





*"Custos Custodum Ipsorum"*  
Guard of the Guardians, Themselves

