

August 3, 2005

AUG 04 2005

Received

Dear Congressman Chris Smith:

Much has been documented, and rightfully so, regarding the potential impact to the employees, the surrounding communities and the state of New Jersey on the proposed closing of Fort Monmouth. However, the BRAC proposal of realigning the Naval Packaging, Handling, Storage & Transportation (PHS&T) Center from Naval Weapons Station (NWS) Earle to Picatinny Arsenal has gone relatively unnoticed by the general public and the press. Sadly, except for your staff office involvement, our respective elected officials in Washington tasked with representing the state of New Jersey, have done little or nothing to question this proposal. It is because of this lack of attention that this letter is written to you for your review and assistance for endorsement to the BRAC Commission. As advised by your district director, Mrs. Charbonneau, a copy of this letter will be mailed to the BRAC Commission staff for their review and consideration. Finally, it is requested that your office contact the BRAC Commission staff to schedule a possible meeting with them to hear this case.

This letter summarizes the strong concerns on the proposed BRAC recommendation to relocate the Naval Packaging, Handling, Storage and Transportation (PHS&T) Center from Naval Weapons Station (NWS) Earle, Colts Neck, NJ to Picatinny Arsenal, Dover NJ.

Three main issues of concern addressed in the enclosure are:

- (1) Location – the location of the Naval PHS&T Center enhances both the effectiveness of the Center as well as the military value of NWS Earle.
- (2) BRAC Methodology – numerous flaws and inconsistencies exist in the BRAC proposal to realign the Naval PHS&T Center, as well as in the stated cost estimates and projected savings.
- (3) Synergy – joint synergy is already present between the Naval PHS&T Center and the Joint Super-Base of Naval Lakehurst/Fort Dix/McGuire Air Force Base. Further enhancement of this synergy has great potential if realignment of the Naval PHS&T Center is a necessity.

Additionally three attachments are included with this enclosure for further amplification describing NWS Earle and its mission, the complete capabilities of the Naval PHS&T Center, and the strategic initiatives and tactical improvements in PHS&T published by the Chief of Naval Operations (CNO).

Your continued support is requested in order to make the BRAC Commission aware of these facts. If the BRAC Commission is able to closely examine this situation, they should also reach the conclusion that this proposed relocation will be detrimental to NWS Earle, the Department of the Navy, and, more importantly and ultimately, the war-fighter. Thank you for your time and attention on this very important matter.

Sincerely,



Robert Van Schaack

Enclosure: "Relocating Naval PHS&T Center From NWS Earle To Picatinny Arsenal"  
(with 3 attachments)

## RELOCATING NAVAL PHS&T CENTER FROM NWS EARLE TO PICATINNY ARSENAL

Three attachments are provided as follows:

- (1) Naval Weapons Station Earle (Monmouth County, New Jersey) Website – provides a background history of this base, its capabilities and overall mission to the Department of the Navy (DoN).
- (2) Naval Packaging, Handling, Storage and Transportation (PHS&T) Center Website – detailing the specific Center's overall capabilities, Materials Handling Equipment (MHE) responsibilities, test and evaluation functions, and hazardous material (HAZMAT) transportation knowledge relating to PHS&T.
- (3) The May 2005 edition of the Navy Packaging Board Report - prepared by the Director of Supply, Ordnance and Logistics Operations Division of the Chief of Naval Operations (CNO) detailing strategic initiatives and tactical improvements in PHS&T.

References to a particular attachment or a specified page from an attachment are documented in this letter for your review and for further amplification.

Please consider the following points:

1. **Location** – The Naval PHS&T Center is not located at NWS Earle by chance. The Center has been in existence since 1943. In 1950, the Bureau of Ordnance decided to locate the Center at NWS Earle to enhance its military capability and visibility with regard to railcar, truck and ship loading operations of ammunition and explosives. In 1988, a state-of-the-art building was constructed specifically tailored for the PHS&T mission. The strategic location at NWS Earle allows the Naval PHS&T Center personnel easy access onto the ships berthed at the Earle piers, access to the ordnance areas on station and access to other station facilities, such as the connected replenishment and shipboard magazine simulators (refer to attachment 1 for a complete background history of NWS Earle).

As a result of being located at NWS Earle, the Center can support the complete Ordnance Logistics Cycle (“cradle to grave”) of PHS&T within the boundaries of NWS Earle. This includes design, prototype fabrication, environmental testing and shipboard simulations (refer to attachment 2 for complete Naval PHS&T Center capabilities). Likewise, Fleet feedback is obtained and ship suitability requirements can be evaluated while the ships are berthed at the piers. This process is applied to new or modified packages (shipping containers), handling equipment (slings, beams, forklift trucks), storage requirements (shipboard and shore based magazine load plans) and transportation requirements (truck and rail loading documentation).

PHS&T is one of ten Naval Integrated Logistics Support (ILS) (functional logistics processes) elements required to completely support ordnance from the manufacturer to the end user (the Fleet) (refer to page 20 of attachment 3). The Naval PHS&T Center is very unique because it is the only DoD organization that possesses the full responsibility for all four of these elements. Because of this capability, COMNAVSEASCOM, Naval Surface Warfare Center (SEA-00) has granted individual technical warrant authority to the Naval PHS&T Center to be responsible for and accountable to establish, monitor and approve technical products and policies, and to make technically sound engineering PHS&T decisions (see page 17 of attachment 3). Finally, because of its prime location and its role as the Navy's design agent, the base personnel rely on the Naval PHS&T Center and frequently seek immediate technical support and resolution relating to the storage, handling and transportation of ordnance on-station and for the loading or offloading of ordnance aboard ships.

In 2004, the Naval PHS&T Center made a total of 36 visits to home-ported and visiting ships to provide either technical support during loading/unloading operations or to conduct ship training of handling and stowage of ammunition and explosives. Also, last year, the Naval PHS&T Center was directly funded by CNO (N41) to conduct a one year, "End-To-End," logistical study involving three months of ship visits to identify technology and process investments necessary to reduce the manpower-intensive functions at sea and ashore supporting ordnance handling operations.

The BRAC report defines weapons stations as having the primary mission of loading and unloading munitions onto and from ships, and the ability to provide short-term (less than six months) storage for these munitions. Based on the BRAC Military Value Score, NWS Earle was ranked the highest of any weapons station. Despite being initially considered for closure in the March 2005 BRAC list, it is because of this high military value that NWS Earle is now "slated to remain open" under the May 2005 BRAC report.

With approximately 70% of all current Navy and Marine Corps assets supporting the Iraq/Afghanistan war efforts loaded at the Earle's piers, moving an organization which supports ordnance handling, storage and transportation away from one of the "highest military value" bases does not make sense. Future military contracts (MILCON) propose the dredging of the waterways, possible pier extensions, and the construction of a bridge crane to expand the mission of NWS Earle in support of the transfer and handling of 20-foot (commercial) intermodal containers.

**2. BRAC Flaws (Errors & Inconsistencies)** – Upon reviewing the entire BRAC Recommendation regarding this realignment, the following flaws are noted:

a. Gun And Ammunition Center – BRAC characterized the Naval PHS&T Center as "those gun and ammunition facilities working in Weapons and Armament (W&A) Research (R), Development & Acquisition (D&A) resulting in a robust joint center for guns and ammunition." Yet, the Naval PHS&T Center does not conduct research, develop, or test and qualify actual "live" weapons and armament; has no acquisition function, and less than 5% of the annual funding (workload) supports guns and ammunition. There would be very little opportunity for the desired synergy between the Army and Navy in this area, especially considering the specific restrictions imposed by the Navy (e.g., limited shipboard passageways, magazine restrictions, compatibility issues). It should be noted that the majority of the Center's annual funds supports the PHS&T functions involving air-launched weapons (rockets and bombs), surface-launched missiles (VLS Tomahawk), undersea weapons (torpedoes and mines), specialized handling equipment (slings, beams, forklift trucks), and managing all of the Navy's explosives safety technical manuals.

b. Creation of a "Joint Packaging, Handling, Shipping and Transportation Center" – Note, the BRAC misidentified the "S" as "shipping" and not "storage". The BRAC justification for this realignment "will create a joint center of excellence and provide synergy in armament development for the near future and beyond. Technical facilities with lower quantitative military value are relocated to Picatinny Arsenal." Currently, Picatinny only has a Packaging Office of approximately 40 people supporting the packaging of propellants, fuses, mortar and small gun ammunition. Yet, this office doesn't have a design department and has limited testing capability. The Army's test and evaluation department is located in Tobyhanna (Pennsylvania), while the Army's transportation office is located at McAlester (Oklahoma) Army Depot. Yet, neither of these Army Commands is mentioned in this BRAC realignment. The Army does not have a

unified PHS&T Center nor will it have one by moving the Naval PHS&T Center to Picatinny Arsenal. Likewise, if the objective is to achieve a “Co-Located Joint PHS&T Center”, the Air Force PHS&T functions, especially Hill Air Force Base (AFB) (Utah), Eglin AFB (Florida), Warner Robbins AFB (Georgia) or Wright Patterson AFB (Ohio) are not included. How can that desired synergy between joint services be achieved under the proposed realignment without the Air Force? In fact, the Naval PHS&T Center has had more joint weapons program tasks with the Air Force than with the Army. Such highly successful joint projects include the design, testing, qualification and implementation of the Joint Direct Attack Munitions (JDAM), Joint Stand-Off Weapon (JSOW), Joint Air-to-Surface Stand-off Missile (JASSM) and the development of joint-use handling equipment supporting Sparrow and Advanced Medium Range Air-to-Air Missile (AMRAAM) missile system programs. A recent proposal for a joint Navy/Air Force project supporting the Small Diameter Bombs (SDB) is currently being considered.

c. Cost Savings. The COBRA model claims an annual savings over \$1.4M per year after an initial investment of approximately \$3.8M in personnel, overhead, moving, and other expenses. However, there are serious errors with these numbers.

\* The operational cost savings calculation for this move was based on a scenario in February 2005 that had NWS Earle being closed. Since this closure is not going to happen, these figures are fictitious.

\* The cost involved for information technologies to re-create the Naval/Marine Corps Information (NMCI) computer network system, which is crucial for any Department of the Navy (DoN) activity, is severely underestimated. The cost breakdown identifies an estimate for the entire Naval PHS&T Center to be \$8,600 when \$1,200 per person is allowed. Using the BRAC’s automatic 15% reduction in force calculator, then 63 employees (74 current employees x 15%) at the projected \$1,200 per person rate equates to \$75,600 to re-create this NMCI system.

\* The General Accounting Office (GAO) has issued its report disputing the amount of cost savings that would be realized by this consolidation of activities. The GAO report endorses a cost savings of only 5.5%, while the BRAC calculation states a savings of 15%. As a result, more than \$400K in the claimed personnel savings by this move is eliminated. The real question is whether there would be any personnel cost savings at all.

The Naval PHS&T Center is fully funded annually and has a productivity ratio of greater than 90%, which ranks the highest for any department under the Naval Surface Warfare Center (NSWC), Indian Head (Maryland) command. There is very little room for the consolidation of jobs. Additionally, much of this work relates to the Handling, Storage and Transportation elements, which is not currently supported by Picatinny Arsenal. Any work that may be assumed by Picatinny personnel would require extensive training and a very steep learning curve. Finally, the Naval PHS&T Center has a working-level to high-grade employee ratio of approximately 12 to 1. This contrasts the same ratio of 5 to 1 at Picatinny Arsenal. Based on these ratios, it can be assumed that personnel costs will, in reality, increase.

3. Synergy – If it is deemed an absolute necessity that a Joint PHS&T Center is to be created, then there is another location that would have greater military value than Picatinny Arsenal. The newly created, “Joint Super-Base” of Navy Lakehurst/Fort Dix/McGuire AFB, only 18 miles away, has justifiable merit for potential realignment that should be considered by the BRAC

Commission. Such a merger would allow the Naval PHS&T Center's current abilities to interface with all three branches of the service located at one facility. It would truly create the synergy initially desired by the BRAC recommendation.

Interaction with the Joint Super-Base (especially Navy Lakehurst) and the Naval PHS&T Center already exists. Joint projects have resulted in the following:

- \* Jointly serve on the Integrated Product Teams (IPT) for the CVN-21 and LHA(R) new ship designs to ensure all aspects of PHS&T is fully integrated with weapon platforms and supply chains, thereby assuring that a significant impact on life cycle costs, system effectiveness, reliability, maintainability, safety and the environment has not been comprised.

- \* Co-authors of NAVSEA OP 2173/NAVAIR 19-100-1 (Approved Handling Equipment for Weapons and Explosives), which identifies all Naval portable ordnance handling equipment (OHE) designed and tested by Navy Lakehurst and the Naval PHS&T Center that has been approved by the respective Weapon System Program Managers to handle ammunition and explosives.

- \* Jointly serve as core members of the Navy Packaging Board, sponsored by CNO (N41), to develop and recommend policy changes and guidance to help standardize PHS&T of Naval materiel (see page 8 of attachment 3).

- \* Implementation of an automated, shipboard magazine layout program entitled, "Magazine Arrangement Planning Aids – Computerized (MAPA-C)" for NAVSEA (produced by the Naval PHS&T Center) and NAVAIR (produced by Navy Lakehurst) ordnance.

- \* Jointly worked with the Army and the Air Force (McGuire AFB) in the development of future cargo restraint components supporting joint missions.

- \* Serve on the Joint Intermodal Logistics Working Group (JILWG) with the Air Force, Marine Corps and the Army in the development of a Joint Modular Intermodal Container (JMIC) to be used to fill a standard 20-foot (commercial) intermodal container (see page 11 of attachment 3).

- \* Co-designers of the MHU-191/E Munitions Transporter used to handle bare weapons and transport them for aircraft loading aboard aircraft carriers.

- \* Jointly serve as Preparing Activities for over 70 packaging documents covering barrier materials, cushioning, containers, humidity indicators, preservatives, and test method and development standards (see page 22 of attachment 3).

- \* The Naval PHS&T Center has used Navy Lakehurst's elevated fixed platform and vertical replenishment (VERTREP) simulators during prototype testing and qualifications.

- \* Served as the testing and qualification activity for a Navy Lakehurst/Naval Inventory Control Point (NAVICP) Philadelphia project involving the use of bubble-wrap material as an alternate means for interior cushioning of supply packages.

\* Jointly participated on the T-56 Aircraft Engine Quick-Engine Change Assembly (QECA) container project. Both commands observed the qualification testing and documented procedural requirements ensuring a “seamless” interface between Navy Lakehurst designed trailers and Naval PHS&T Center’s designed prototype container (see page 16 of attachment 3).

\* Navy Lakehurst is currently developing a shipboard omni-directional vehicle that will require the Naval PHS&T Center’s technical involvement for integration with supporting weapon containers and their components.

\* Both commands presently possess extensive PHS&T testing capabilities. Through extensive product testing, they collectively help programs throughout DoD identify design issues prior to production and deployment (see page 19 of attachment 3).

If NWS Earle is not scheduled for base closure and future missions expand at the base, the question still remains, “Why move the Naval PHS&T Center?”

Moving the Naval PHS&T Center from NWS Earle to Picatinny Arsenal (approximately 70 miles away in northwest New Jersey) would have a detrimental impact on the Naval PHS&T Center’s ability to conduct its mission of supporting the Fleet. Likewise, a majority of the 74 current employees would be not willing to commute an additional 80 to 90 miles each way from their homes in Monmouth and Ocean counties, thereby jeopardizing the current corporate knowledge that the Navy truly relies upon.

If the BRAC Commission is able to closely examine this situation, they should also reach the conclusion that this proposed relocation will be detrimental to NWS Earle, the Department of the Navy, and, more importantly and ultimately, the war-fighter.



## **Naval Weapons Station Earle Monmouth County, New Jersey\***

The Earle Naval Weapons Station, Earle/Leonardo Pier complex, is located along the northern New Jersey shore in the south end of Sandy Hook Bay. It is located 4 miles west of Sandy Hook and 7 miles southeast of Staten Island. The command's name was changed in 1974 from Naval Ammunition Depot to Naval Weapons Station. The waterfront complex is the homeport to USS Seattle (AOE 3), USS Detroit (AOE 4), USS Supply (AOE 6), USS Arctic (AOE 8), and Combat Logistics Group 2. Effective June 1, 1997 the USS Supply moved to Earle. Earle provides logistical, technical and material support to the fleet in a variety of areas ranging from combat subsystems and retail ammunition management to ordnance packaging, handling and storage.

Since Earle is a weapons station, it handles, stores, transports, renovates and issues all types of weapons and ammunition. The USS Arctic moved in June 1998. As a result of these decisions, the use of this important facility greatly increased. The Congress noted in 1996 that a parking facility for 60 ordnance loaded trucks is the minimum needed for loading an AOE class ship. Both of the ships subsequently moved to Earle are AOE class ships. Construction was needed to make the facilities at Earle safer and more efficient through the construction of an Explosive Truck Holding Yards along the waterfront and main side parking facilities. This project (P-245) was originally included in the FY 1994 appropriations bill. In 1996 year the Appropriations Committee included language in its bill that approved a reprogramming request and indicated its support for the construction of these holding yards. Despite the growth of Earle's mission and the support from the Appropriations Committee, this project kept getting pushed back. The Navy budgeted this for FY 1999.

The station – named after RADM Ralph Earle, the Chief of the Bureau of Ordnance during WWI – was opened in 1943 to help with the war effort. When a pressing need developed during World War II for an ammunition depot in the greater New York area, a site in Monmouth County, New Jersey was chosen. The location provided two distinct areas. A waterfront location provided ships with a safe and operationally advantageous port to take on ammunition, while an inland storage area, safe from possible submarine bombardment, provided access to commercial rail facilities with lines coming from the west, where the majority of ammunition shipments originated. On August 2, 1943, construction began and in a short time, storage bunkers, a road and rail network, numerous buildings, and a pier complex were built. Named after Rear Admiral Ralph Earle, Chief of the Bureau of Ordnance during World War I, the Station was commissioned on December 13, 1943 as the Naval Ammunition Depot Earle. Earle continued to develop after World War II, keeping pace with the changing needs of the Navy.

The Sandy Hook Channel entrance leads to Terminal Channel and Earle/Leonardo Pier. Terminal Channel, entered from Sandy Hook Channel about 1 mile west-southwest of the northern tip of Sandy Hook, leads to a turning basin, and two deepwater ammunition handling piers of the U. S. Naval Ammunition Depot at Earle/Leonardo.

\* <<http://www.globalsecurity.org/military/facility/earle.htm>>

Federal project depth is 35 feet in the channel and turning basin. The deepwater piers and barge pier are

connected to the shore by a trestle that extends nearly two miles across the mud flats from Earle/Leonardo.

The pier stretches 2.2 miles into the Sandy Hook bay and comprises 2.9 miles of pier/trestle surface area. The Station is divided into two sections: Main-side, located in Colts Neck, and the Waterfront Area, on Sandy Hook Bay, located in the Leonardo section of Middletown. Both areas are connected by Normandy road, a 15-mile military road and rail line.

Trestle 1 is the 2 mile long rail and road causeway that leads to Trestles 2, 3 and 4. There are no docking or berthing facilities on Trestle 1.

Trestle 2 leads to Pier 2, and berths 2N1 on the west side and 2N2 on the east side. Berth lengths on Pier 2 are 600 ft with a 500 ft long elevated loading platform on each side of the pier. Pier deck height is 13 ft above MLW, loading platform height is 18 ft above MLW, and the alongside depth is 35 ft at MLW. Pier 2 is not currently used for cargo loading.

Trestle 3 leads to Pier 3 and berths 3A3 and 3A1 (west side), and 3A4 and 3A2 (east side). Total berth length is 1200 ft long with two 500 ft elevated loading platforms on each side of the pier. Pier deck height is 12 ft above MLW, loading platform height is 17 ft above MLW, and the alongside depth is 35 ft at MLW. A small boat mooring area is located in the southeast end of Trestle 3. Tugs and yard craft are moored in this location.

Trestle 4 leads to Pier 4 and berths 4W (west side) and 4E (east side). Berth length is 800 ft with a 600 ft long elevated loading platform on each side of the pier. Pier deck height is 13 ft above MLW, loading platform height is 18 ft above MLW, and the alongside depth is 45 ft at MLW. Pier 4 is the primary cargo-loading pier. A project to improve fendering on Pier 4 was completed by 2001.

The Mainside area, which is located mainly in Colts Neck, is more than 10,000 acres which contains ordnance storage areas and the majority of Earle's departments and facilities. Mainside is in many ways like a small town with its own police and fire departments, homes, office buildings, restaurants, and recreational facilities.

The Waterfront area is located on Sandy Hook Bay in Leonardo. The trident-shaped pier complex extends 2.2 miles into Sandy Hook Bay and comprises 2.9 miles of pier/trestle area. Four Fast Combat Support ships, USS Seattle (AOE 3), USS Detroit (AOE 4), USS Supply (AOE 6), and USS Arctic (AOE 8), are homeported at the pier complex. The pier is fully capable of providing ammunition to nearly every class of ship operated by the United States Navy and Coast Guard.

Naval Weapons Station Earle is also home to many tenant organizations. These tenants include Combat Logistics Group Two, Shore Intermediate Maintenance Activity, Mobile

Mine Assembly Unit Three, Superintendent of Shipbuilding Portsmouth Detachment Earle, Explosive Ordnance Disposal Mobile Unit Two Detachment Earle, Atlantic Ordnance Command Detachment Earle, Public Works Center Site Earle, and the Packaging, Handling, Storage, and Transportation Center. So, in actuality, there is no such place as Earle, New Jersey. But there is a key Naval installation located in Monmouth County named after Rear Admiral Earle.

The station is divided into two sections: Mainside, located in Colts Neck, and the Waterfront Area, on Sandy Hook Bay, adjacent to the town of Leonardo. Both areas are connected by Normandy Road, a 15 mile military road and rail line.

The 10,000 acres which comprise Mainside, house the majority of Earle's departments and facilities. The Ordnance Detachment performs the station's primary mission - providing ammunition to the fleet. An integrated work force of military and civilian personnel operate the inland storage, renovation, transshipment and demilitarization facilities.

The Public Works Detachment runs the railroad, consisting of 130 miles of track, nine locomotives and 520 pieces of rolling stock. The station also manages handling equipment and containers for the fleet and shore stations, including design, testing, acquisition, in-service engineering and logistical support. Earle is in many ways like a small town, with homes, office buildings, factories, restaurants, cars and trucks.

At the Waterfront, the Ordnance Department provides ammunition for nearly every class of ship operated by the United States Navy and Coast Guard as well as commercial vessels from other countries. The Port Services Division, located on the Pier Complex, provides a full range of services for visiting and homeported ships.

Although most of the station's departments and divisions are located in the administrative area Mainside, the majority of military personnel are located at the Waterfront. Combat Logistics Group Two Detachment Earle and the two homeported Fast Combat Support Ships, USS Seattle and Detroit homeported there in 1990 - are located there. In preparing for the arrival of the Seattle and Detroit, a multi-million dollar expansion began. A fourth pier was completed in 1990. It is the permanent home of the Seattle and Detroit.

Many other projects are well underway or already completed. 500 new housing units have been constructed to meet the needs of the Sailors stationed there. At the Waterfront, the Medical and Dental Clinics as well as the Navy Retail Exchange Store have moved to larger quarters and a Ships Intermediate Maintenance Facility has been added. A 20,000 square foot transit shed and a new Bowling Center were also opened.

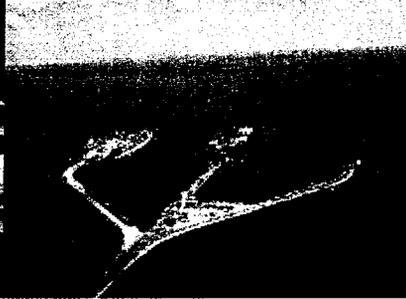
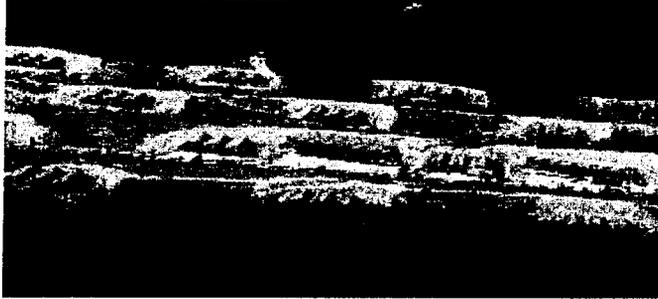
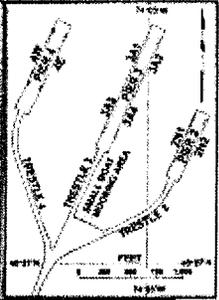
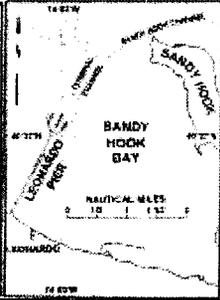
The station's Pier Complex is one of the longest "finger piers" in the world. It is presently comprised of a two mile long trestle which connects to three finger piers - which are Piers 2, 3, and 4. These piers stretch nearly three miles into the Sandy Hook Bay. One mile from the shore the trestle branches off to Pier 1. At the junction of Piers 2, 3, and 4, a concrete platform exits which supports a forklift/battery recharging shop and the port operations building. This area is known as the "wye". All of the existing structures, with the exception of Pier 4 and the "wye", were constructed in the early 1940s. The "wye" was constructed in 1981 and Pier 4 was completed in 1990.

The original pier and trestle were constructed of reinforced concrete slabs approximately two inches to 24 inches thick, and overlaid with an asphalt wearing surface. The docks are supported by more than 41,000 timber piles. Elevated loading platforms line both sides of each pier. Pier and Trestle 4 are constructed of pre-stressed concrete box girders topped by a cast-in-place reinforced concrete deck, supported on precast concrete pile caps and steel pipe piles. A unique feature on Pier 4 is the double deck utility galley/loading platform.

Currently Pier 1 serves as a temporary holding yard for trailers; Pier 2 is vacant; Pier 3 is the ordnance handling pier, and Pier 4 is a homeport pier for the USS Seattle (AOE 3) and the USS Detroit (AOE 4). In support of the larger Seattle and Detroit, the water depth at the pier complex was dredged to 47 feet.

Since World War II the pier complex has provided ammunition services to almost every class of vessel operated by the Navy and Coast Guard as well as commercially owned vessels from a multitude of nations.

Over the years, the station has taken on many important functions. It has become the engineering agent for the Naval Sea Systems and Naval Air Systems Command in the field of packaging, handling, stowage and transportability of weapons systems. A new facility mainside houses the departments involved in weapons handling and container design, test and acquisition. The Naval Packaging, Handling, Storage, and Transportation (PHST) Center is responsible for the design, development, prototype fabrication, testing, production acquisition, and documentation of ordnance containers and handling equipment for the US Navy. The Center is recognized as the largest organization for such work in the United States, and has the facilities, equipment, and professional staff necessary to accomplish the required work.





## Naval Packaging Handling Storage and Transportation Center

Home
Capabilities
POGs
Container Expertise
MHE
OHE
OHE Certified Sites
HAZMAT Trans
Acquisition
Web Straps
Awards
Milestones
DesDevProc
Test/Evaluation
History
Configuration Mgmt
TMDE
Search

### PHST Capabilities...

#### General functions of the Naval Packaging, Handling, Storage and Transportation (PHST) Center at Naval Weapons Station Earle

- NAVSEA Functional Leader for Weapon and Combat System PHST
- Total in-house life cycle PHST functions
- Navy Weapons System Explosive Safety Review Board (WSESRB) member
- NAVSEA Program Manager for multi-use ordnance handling equipment
- Weapon container design, test, production and logistics support
- Weapon handling equipment design, test, production and logistics support
- Publish/maintain Navy explosive safety and transportation documents
- Fleet interface & technical assistance [Ammunition stowage/handling/ strike-up/underway replenishment (UNREP)]
- Perform Performance Oriented Packaging (POP) testing.
- Perform prototype and production container/equipment qualification testing. - PHST Test and Evaluation
- Prepare MIL-STD documents covering fleet and domestic issue unit loads, carloads, truckloads, and intermodal container loads both in MIL-VAN's and commercial intermodal containers.
- Prepare Competent Authority Approval (CAA) requests to Department of Transportation (DOT)
- Coordinate matters dealing with the shipment of hazardous materials to assure compliance with regulatory agencies. - PHST Hazardous Material Transportation
- Provide training concerning regulatory requirements.
- Design containers and handling equipment for Naval Weapons and related issues. This includes the concept, design, analysis, and in-service support stages of in-house product development.
- Prepare Integrated Logistic Support Plans (ILSP), maintenance, supply support, certification and operational documents for PHST equipment
- Allowancing of General Purpose Electrical/Electronic Test Equipment (GPETE)

- Production and distribution of Ships Portable Electrical/Electronic Test Equipment Requirements List (SPETERLs)
- Responsible for preparing and maintaining NAVSEAINST 10490 Ordnance Handling Equipment (OHE) allowancing documentation and associated Allowance Equipage Lists (AELs).
- Determine and provide disposition instructions for removal of OHE from decommissioned ships.

last updated: Saturday, October 25, 2003



Up

*NAVSEA Indian Head © 2004*  
*Email*



## Naval Packaging Handling Storage and Transportation Center

Home
Capabilities
POCs
Container Expertise
MHE
OHE
OHE Certified Sites
HAZMAT Trans
Acquisition
Web Straps
Awards
Milestones
DesDevProc
TestEvaluation
History
Configuration Mgmt
TMDE
Search

### Material Handling Equipment...

#### Responsibilities as the ISEA include the following:

##### Technical Support

- Ensure safe and efficient procurement and maintenance of MHE
- Evaluate technical feedback form the Fleet
- Develop and maintain maintenance plans for various MHE types
- Provide Fleet engineering support
- Central point of contact for the user. [Contact (732) 866-2843]
- Conduct Technical Evaluations to determine MHE compatibility with intended use.
- Develop and monitor MHE training programs for Fleet and shore users.
- Develop allowance requirements based on mission need.

##### Acquisition Support

- Update procurement specifications by incorporating Fleet feedback and monitoring the MHE industry for new equipment.
- Ensure a balance between Fleet requirements and industry capabilities.
- Evaluate Engineering Change Proposals (ECPs), Quality Deficiency Reports (QDRs) and provide feedback to the Acquisition Engineering Agent (AEA).
- Preform First Article Tests, or provide engineering support to the tester.
- Ensure logistic support is in place prior to Fleet introduction of MHE.
- Conduct product acceptance inspections.

last updated: Thursday, June 05, 2003 04:39:51 PM



## Naval Packaging Handling Storage and Transportation Center

### Test and Evaluation...

The PHST Center is uniquely qualified to implement any inspection and test requirements associated with handling equipment or containers. The diverse weapon and combat system programs that the Center supports has allowed the Center to amass an array of state of the art testing equipment. A partial list of the test equipment available at the Center is listed below:

Major Test Equipment - updated Wednesday, June 08, 2005

#### Photos

[Temperature/humidity chamber](#)

[Rain/wind/salt fog chamber](#)

[Tensile test tower](#)

[Impact test](#)

[Vertical random vibration test](#)

[Transverse axis random vibration test](#)

[Repetitive shock table](#)

[Powerpoint Presentation of Photos](#) - large file includes all of above photos, recommend downloading.

#### Equipment

■ Vibration Systems (Sine/Random)

■ Electrodyn (2-12K Lb Force)

■ Electrodyn (2-15K Lb Force)

■ Temperature & Humidity Chambers

■ 16' x 8' x 8'

Home
Capabilities
POCs
Container Expertise
MHE
OHE
OHE Certified Sites
HAZMAT Trans
Acquisition
Web Straps
Awards
Milestones
DesDevProc
TestEvaluation
History
Configuration Mgmt
TMDE
Search

■ 35' x 8' x 8'  
■ 4' x 4' x 4'  
■ Transportation Simulator (12K Lb)  
■ Impact Testers  
■ Conbur (5K Lb)  
■ Pendulum (10K Lb)  
■ Tilt Platform (20K Lb)  
■ 30' Tensile Tower (50K Lb)  
■ Compression Tester (30K Lb)  
■ Universal Tensile Test Machine (120K Lb)  
■ Salt Spray Chamber (8' x 2-1/2' x 2')  
■ Rain/wind/salt fog chamber (25' x 9' x 8')"  
■ Assortment of transducers, instrumentation, analyzers, recorders, etc.

**Integrated Test Program Plan.** When required by the sponsor, an Integrated Test Program Plan is developed to summarize all tests and evaluations to be conducted during design and development, define the schedule for all tests as related to program milestones, identify required assets, and define and describe reporting requirements.

**Test Procedures.** Test procedures are prepared for all tests intended to verify design capability or product conformance. They include, but are not limited to, characteristics to be measured; test set-up; test and measurement equipment calibration and certification requirements; test methods to be used (including sequential steps); acceptance criteria; provisions for data recording, evaluation and reporting; applicable safety precautions; and criteria for continuing or discontinuing tests after failures or repairs occur to the test items or test equipment.

**Equipment Calibration and Maintenance.** All of the Center's test and measurement equipment used to verify design capability or product conformance is clearly identified and maintained under the WPNSTA Earle Calibration and Maintenance Program. The equipment is recalled for calibration and maintenance at specified intervals. Calibration labels and seals identify the calibration date, calibration source and due date for next calibration. Procedures are in place to respond to any report from the calibration source in the event of an "out-of-tolerance" condition to determine any adverse affect on measurements taken, end products, and necessary corrective action(s).

#### INSPECTION, TEST AND TRIALS OUTLINE

The outline is provided below and takes into account all currently available tests.

## TEST METHODS

- Preliminary Inspection

- Acceptance Criteria

- Test Procedures

- Shock - Commercial (Drop/Impact)

- Repetitive Shock Test

- Drop Test (Free Fall)

- Cornerwise Drop Test (Rotational)

- Edgewise Drop Test (Rotational)

- Tipover Test

- Impact Test

- Shock - Military (Handling)

- Transfer-at-Sea Shock Test CONREP

- Transfer-at-Sea Shock Test VERTREP

- Safety Drop Test

- Shock Military (Shipboard Shock)

- Shipboard Shock Test (Eligibility)

- Shipboard Shock Test (Mil-S-901) (Base Down)

- Shipboard Shock Test (Mil-S-901) (Side Down)

- Shipboard Shock Test (Mil-S-901) (End Down)

- Fit and Function

- Function Test

- On Deck Security Test

- Sling Compatibility Test

- Physical Characteristics

- Container Life

- Weight Requirements

- Lifting and Securing Arrangements

- Transportability Arrangements

- Venting and Drainage Arrangements

- Viewing Ports

- Materials

- Packing and Packing Materials

- Marking and Labeling

- Interchangeability

- Vibration

- Vibration (Transmissibility) Test

- Resonance Strength and Dwell Test

- Sinusoidal Cycling Test





Indian Head

## Naval Packaging Handling Storage and Transportation Center

Home
Capabilities
POCs
Container Expertise
MHE
OHE
OHE Certified Sites
HAZMAT Trans
Acquisition
Web Straps
Awards
Milestones
DesDevProc
TestEvaluation
History
Configuration Mgmt
TMDE
Search

### HAZMAT Transportation...

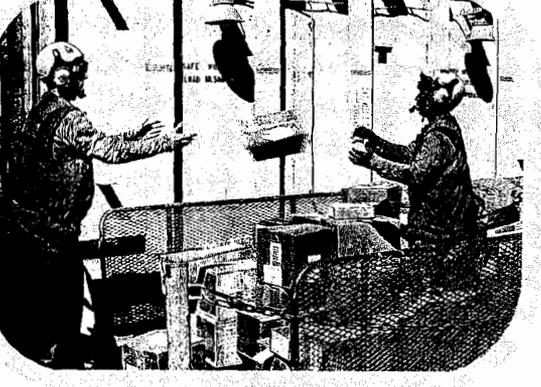
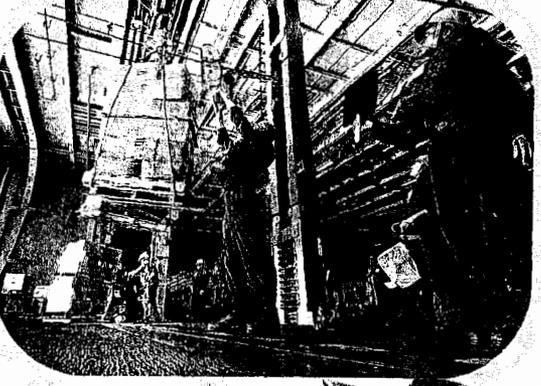
The Naval PHST Center has vast knowledge related to the transportation of hazardous materials.

The Center coordinates all efforts related to the certification of ordnance packaging with regard to the regulations imposed by DOD, the Department of Transportation (DOT) and other international agencies/modal regulations. The Center is the Navy's focal point for Performance Oriented Package (POP) testing of Ammunition and Explosive Packaging.

The Center has reviewed current and proposed law and regulations governing the packaging, testing, and shipment of hazardous materials in order to develop policy and provide technical guidance to managers, field activities, other engineering organizations within DOD. The Center is responsible for prescribing tests, preparing test reports, engineering drawings, hazard classifications, and other technical data which would support and demonstrate the adequacy of the packaging design to conform to prescribed DOT and international regulations.

For further information contact DSN 449-2821

last updated: Thursday, June 05, 2003 04:39:51 PM



# Navy Packaging Board STATUS REPORT

**PHS&T**  
PACKAGING, HANDLING, STORAGE, AND TRANSPORTATION

May 2005



**DIRECTOR  
SUPPLY, ORDNANCE AND LOGISTICS OPERATIONS DIVISION  
OFFICE OF THE CHIEF OF NAVAL OPERATIONS  
WASHINGTON, D.C. 20350-2000**



The Navy-Marine Corps Team is committed to delivering cost-wise readiness and the future-state capabilities essential to prevail in the Global War on Terrorism. The Navy Packaging, Handling, Storage and Transportation (PHS&T) community plays a vital role in this effort, particularly in the optimization and integration of the global supply chain.

Over the past year, the Navy Packaging Board, along with Fleet, SYSCOMs, and other stakeholders, has actively pursued strategic initiatives and tactical improvements in PHS&T. This report details these efforts and builds on the knowledge gained in Operation Enduring Freedom and Operation Iraqi Freedom. It provides key lessons learned and best practices positively impacting our forces now and sets the expectation for the continued PHS&T improvements needed to achieve the realization of Global Integrated Supply Chain Management requirements.

I would like to thank the individuals throughout the Navy who have participated in the many activities that contributed to the improvement presented here. In particular, I would like to thank the members of the Navy Packaging Board. I am encouraged by the excellent work they are doing and look forward to continued progress.

  
RDML Alan S. Thompson, SC, USN

# EXECUTIVE SUMMARY

## INTRODUCTION

In recognition of the impact that packaging has on the supply chain, the Navy reconstituted the Navy Packaging Board in 2003 under the sponsorship of the Chief of Naval Operations (CNO) N41. Chaired by the Naval Inventory Control Point (NAVICP), the Board consists of both voting and non-voting members from a wide variety of Navy commands. Voting membership also includes a representative from the Headquarters Marine Corps in support of CNO's Naval Logistics Integration (NLI) program. In reconstituting the Navy Packaging Board, the Navy PHS&T community responded to a need for a permanent forum to share ideas and knowledge; prevent duplication of effort; and develop policy leading to the standardization of packaging, handling, storage, and transportability of materiel. This report is a summary of the Navy PHS&T community's initiatives, accomplishments, and programs.

This Report covers three major initiatives, as well as key accomplishments and ongoing programs. These initiatives, accomplishments, and programs are not sponsored by the Navy Packaging Board, but rather are the result of the efforts of the individual commands represented on the Board. The Report also provides Points of Contact (POCs) for further information and support.

## WHAT DOES PHS&T DO?

What is this discipline called "Packaging, Handling, Storage, and Transportation" or PHS&T for short? The best formal definition is that it is a set of design and development parameters that assure a system, sub-system, component, or equipment is compatible with the aircraft, ship, rail, truck, and helicopter external lift/internal carry capabilities available to deploy/move systems for strategic or tactical purposes. PHS&T experts are involved in the design of specialized reusable containers for both ordnance and non-ordnance material; development of packaging specifications and standards; and testing of packaging materials and containers. They provide support to the re-procurement process through the review and update of item packaging requirements. They oversee the Navy's Care of Supplies in Storage (COSIS) program to inspect and protect stored Navy material. With PHS&T as one of the ten integrated logistics support elements, PHS&T experts provide support as the logistics elements managers on Program Managers' Integrated Product Teams (IPTs). NAVICP packaging experts also perform the PHS&T portion of the Independent Logistics Assessments (ILAs). Through the efforts of Navy PHS&T experts, steps have been taken to implement Automatic Identification Technology (AIT) through the application of two-dimensional (2D) bar codes and radio frequency identification (RFID) applications. In short, the Navy's PHS&T experts are involved throughout the entire logistics cycle.

## NAVY BENEFITS

PHS&T is an enabler that has both direct and indirect effects on the entire supply chain and logistics cycle. Efforts provide direct and indirect support to the fleet by:

- **Improving readiness** by providing protection to ensure the survivability and usability of critical assets through the supply chain and distribution process.
- **Improving availability of supplies** by ensuring compatibility with the Defense Transportation System, MSC ships, and fleet supply and weapons departments.
- **Streamlining operations** through user-friendly packaging and weight handling systems, requiring less manning afloat, supporting seamless

distribution and supporting pollution prevention programs, which reduce solid waste afloat.

Efforts provide direct and indirect support to the Naval Acquisition Community by:

- **Reducing acquisition/repair costs and lead-times** by minimizing asset damage, improving asset reliability, and developing life-cycle cost effective packages.
- **Ensuring effective container designs** (both cost and performance) by standardizing approaches that are consistent with the Navy environment and Joint programs.
- **Leveraging private sector advances** to take advantage of commercial products and procedures, applying them when it makes sense to do so.
- **Increasing supply chain accuracy and accountability** through bar code marking and other AIT related initiatives.
- **Integrating PHS&T** with other logistics elements to enhance the supply chain for total system cost and performance.

This Report provides an overview of the following three major initiatives:

***Technical Assistance for Repairables Processing (TARP) Program.*** The TARP Program is an operational program, which provides field level support of the return of Class IX items; This program has improved the protection and inventory accuracy of Depot Level Repairables (DLRs) during the retrograde process. The program has provided support for both the Navy and Ground Marines during Operation Iraqi Freedom, ensuring significant improvements compared to past performances.

***CNO Sponsored Activities.*** Three Navy-wide initiatives sponsored by CNO have provided a strong basis for establishing common approaches to Navy PHS&T. These initiatives are the re-establishment of the Navy Packaging Board; the CNO N41 Ordnance Packaging Initiative; and the NLI Common Naval Packaging effort. With these three initiatives, working groups were put in place to identify common packaging requirements and to provide a forum to design common solutions.

***Joint Packaging Activities.*** The same challenge facing the Navy applies throughout the Military and Department of Defense (DoD): identify common solutions to generalized problems. The Navy is active in both formal and informal joint packaging activities. The Defense Packaging Policy Group (DPPG) is a formal Office of the Secretary of Defense (OSD) sponsored policy group that addresses common packaging issues. These issues range from two-dimensional bar coding for the Military Shipping Label to Enterprise Resource Planning (ERP) Support for Packaging to the use of the United States Department of Agriculture (USDA) compliant wood packaging materials for export. The Navy was also a co-founder of an informal working group, the Joint Intermodal Logistics Working Group (JILWG). The JILWG shares information between the Navy, Marine Corps, Air Force, and the Army ordnance packaging communities. This group developed the preliminary concept of a building block approach for smaller containers to fit or fill a standard 20' ISO transport container. The Joint Modular Intermodal Container (JMIC) concept was developed to support this overall approach intended to streamline the distribution process and support the vision of Sea Basing.

## MAJOR INITIATIVES

## KEY ACCOMPLISHMENTS

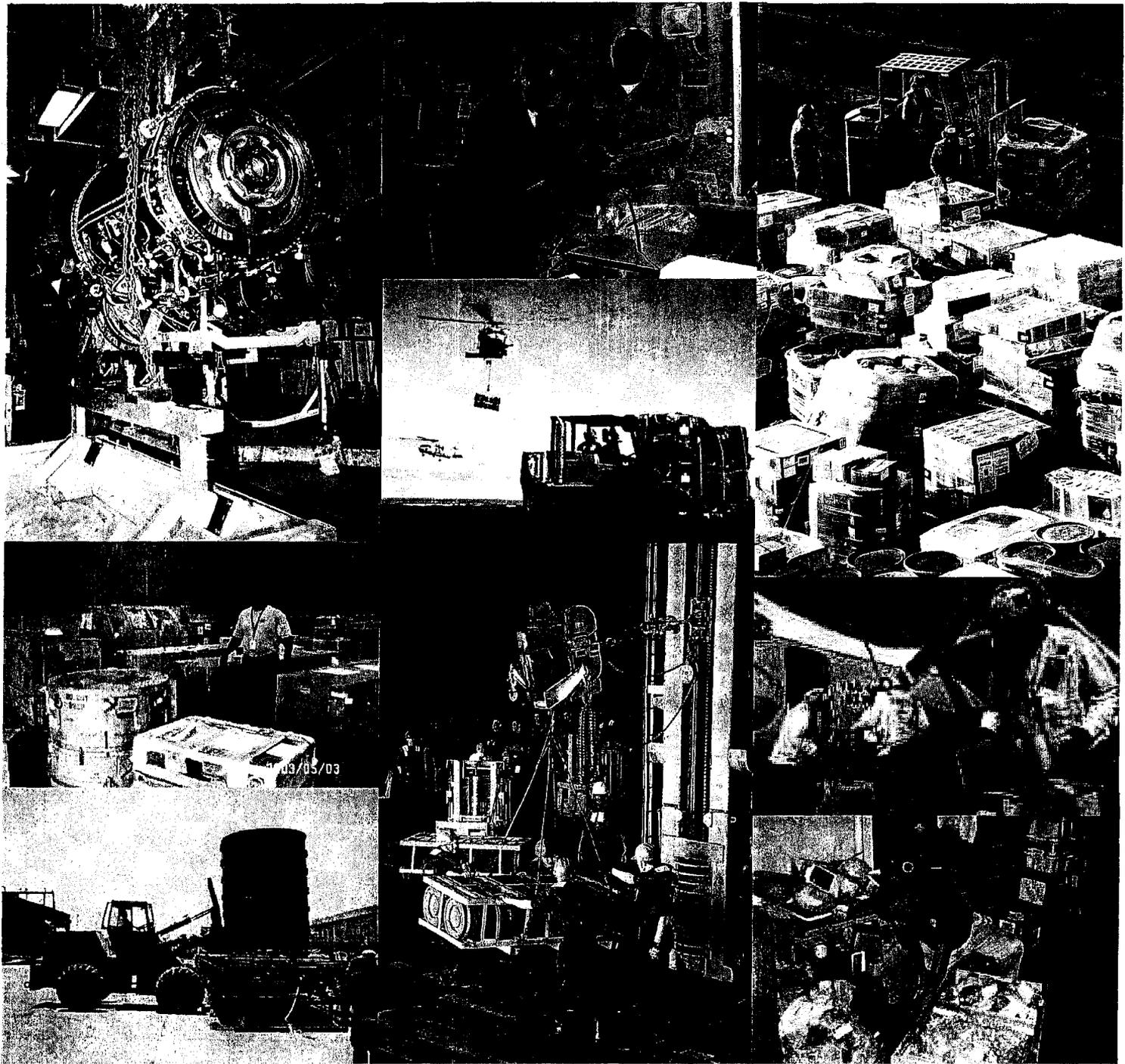
The following key accomplishments and ongoing programs are highlighted in the Report:

- Reusable Bulk Container (RBC)
- Inflatable Bubble Wrap
- Blast Mitigation Packaging
- Automatic Identification Technology (AIT) Radio Frequency Identification (RFID)
- Joint Modular Intermodal Container (JMIC)
- T-56 QEC Assembly Container
- Sea Basing Packaging Appendix
- Container Reuse and Refurbishment Centers (CRRCs)
- NAVSEA Technical Warrant for Ordnance PHS&T
- Care of Supplies in Storage (COSIS)
- Automated Report of Deficiencies (AuotROD)
- PHS&T Test Capabilities
- PHS&T Logistics Element Manager Support
- Reusable Container Designs
- Packaging Specifications and Standards Preparation

This report has been compiled in order to provide the reader with information on the breadth and depth of the Navy PHS&T community's knowledge, skills, and involvement. Whether you need design and test capabilities, help with managing a logistics program, assistance in protecting material from damage while in distribution and storage, or advice on interpreting packaging specifications and standards, the members of the Navy PHS&T community are the right choice.



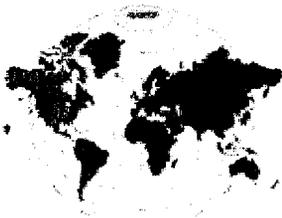
PHS&T — at work throughout the entire supply chain



“Lessons learned during OEF, OIF and other current operations have re-enforced the need for a standardized approach for packaging and containerization...we agree a common approach and set of standards must be adapted as quickly as possible...The use of common packaging and containers will ensure cargo moves quicker, more securely, and offer a better opportunity to provide Automatic Information Technology (AIT) information to the Combatant Commander...”

# TARP PROGRAM

## TECHNICAL ASSISTANCE FOR REPAIRABLES PROCESSING



Readiness Now

### TRAINING

### PROCESS RE-ENGINEERING

*TARP representatives support Mobile Air operations in Kuwait during Operation Iraqi Freedom April 2003*

### METRICS COLLECTION

The TARP Program, under NAVICP, is responsible for exercising general oversight of the Navy's PHS&T/Retrograde Management initiatives. TARP representatives are positioned at major Navy and Marine Corps activities, and when requested, are deployed at sea and in overseas locations. TARP representatives are permanently stationed in Japan and Bahrain, while temporary deployments in Afghanistan and Iraq are ongoing in support of combat operations.

The TARP Program was created to correct documented Navy retrograde process problems where critical retrograde assets were damaged through poor packaging and handling; were lost through poor documentation and accounting; and spent excessive time in the pipeline due to an undisciplined handling and transportation process. This deficient process cost the Navy investment dollars and response time to critical fleet needs.

Efforts have been focused in four areas: training, process re-engineering, metrics collection, and the development of process improvement tools.

The TARP program embarked on an ambitious PHS&T and supply chain training program. Since January 2002, nearly 800 Navy and Marine Corps training sessions have been conducted in proper PHS&T/Retrograde Management processes. Nearly 24,000 student hours of training have been delivered to Navy enlisted and officer corps personnel.



The deployed TARP representatives provided NAVICP with a dedicated and experienced resource at the tip of the spear. By deploying TARP representatives on board CV/CVN and L-Class combatants, NAVICP was able to gain first hand insight into the problems and issues faced by Navy storekeepers in combat. During Operation Iraqi Freedom I, fifteen TARP representatives were deployed at sea for over five man years, while additional representatives were deployed in Kuwait and Fujairah. As a result, TARP was able to recognize process issues, and develop and implement solutions.

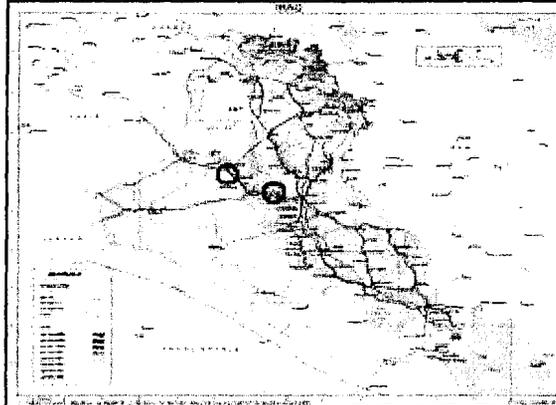
The TARP Program, through its TARP Web Port and metrics collection program, AutoROD/SDR, has collected significant data that allows for the documentation of process problems and the impact of re-engineered solutions. This data has also been

used to help prioritize TARP resources on areas needing improvement.

Perhaps as important as the TARP representation, the TARP Program's process improvement tools have influenced the success of the re-engineering effort.

The P700 Packaging database provides guidance for proper packaging, handling, storage, and transportation for all Navy Depot Level Repairables (DLRs) and consumables. The P700 is available through the web for Navy personnel and TARP representatives worldwide. In addition, the same database is distributed quarterly on CD-ROM. Electronic access to the P700 instructions makes it easier to identify proper packaging for any repairable.

During Operation Iraqi Freedom II, the P700 was expanded to include Ground Marine Corps equipment processed through the retrograde pipeline. At the same time the TARP Program itself expanded to support Marine units in Iraq. The P700 is one of the elements in the Common Naval Packaging Initiative mentioned earlier.



The AutoROD/SDR Program provides the PHS&T/Retrograde community with an Internet-based tool to identify PHS&T/Retrograde deficiencies. Through the use of a simple hand-held scanner and knowledge acquired through TARP training, retrograde handlers can quickly and easily document problems to the TARP Web Port. The data collected in the AutoROD/SDR Program is utilized to measure the effectiveness of TARP training and to identify Navy sites for new or remedial training.

The Repairables Packaging Management (RPM) Program was created to allow NAVICP to implement serial number tracking, implement 2D labels, and comply with MIL-STD-129P marking requirements. Since its implementation, RPM has been expanded to support the Navy offload process and is in development to support the Navy's first passive RFID labeling initiative.

The TARP program has set the standard for process improvement in the Navy PHS&T/Retrograde Management process by developing and implementing solid solutions to difficult problems. The metrics table below is clear proof that a focused initiative can deliver meaningful results.

TARP Measures of Effectiveness	Navy averages prior to TARP	Navy averages with TARP
Packaging deficiency rate	7%	<1%
Misidentification rate	3.2%	<0.5%
Critical asset retrograde time	27 days	7 days
Proof of Receipt rate	92%	99.5%

**PROCESS IMPROVEMENT TOOLS**

P700 PACKAGING DATABASE

OIF II SUPPORT

AUTOROD/SDR

REPAIRABLES  
PACKAGING  
MANAGEMENT

**CONCLUSION**

# CNO SPONSORED ACTIVITIES

## NAVY PACKAGING BOARD

Over the past several years, CNO has elevated the visibility on packaging through the following key activities:

The Navy Packaging Board, chaired by NAVICP, has been reconstituted during 2003. The primary purpose of the Board is to develop and recommend policy changes and guidance to help standardize packaging, handling, storage, and transportation of Naval materiel.

The Board membership is structured as follows:

Sponsor - CNO N41 is the Navy sponsor of the Navy Packaging Board.

Core Members (voting) - Core members of the Board consist of:

- Naval Supply Systems Command (NAVSUP) - represented by Naval Inventory Control Point (NAVICP)
- Naval Air Systems Command (NAVAIR) -- represented by NAVICP
- Naval Sea Systems Command (NAVSEA)
- Space and Naval Warfare Command (SPAWAR)
- Naval Facilities Command (NAVFAC)
- Headquarters, United States Marine Corps (HQ USMC)
- Naval Surface Warfare Center (NSWC) Indian Head Division, Det Earle, PHST Center
- Naval Air Systems Command Aircraft Division (NAWCAD) Lakehurst
- Commander, Fleet Forces Command (CFFC)

Associate Members (non-voting) In addition, associate members attend on an as-needed basis. These members include: Military Sealift Command (MSC); Chief, Naval Reserves (CNAVRES); Office of Naval Research (ONR); Marine Corps Systems Command (MARCORSYSCOM); Naval Ordnance Safety and Security Activity (NOSSA); NSWC Crane Division; Commander, Fleet Industrial Supply Centers (COMFISCS); Navy Supply Corps School Athens; School of Military Packaging Technology (SMPT); Lead Naval Aviation Depot; and Defense Logistics Agency (DLA).

The Board established a charter for Board operations and provided comments on key instructions, such as OPNAVINST 4030.1A, Navy Packaging Program. These instructions are currently being routed for formal review and publication.

More importantly, the Navy Packaging Board and its members are coordinating the activities and accomplishments highlighted in this report. These range from tactical activities, like Solid Wood Packing Materials (SWPM) affecting wood materials for pallets, frames, dunnage, etc., to strategic activities, such as the Sea Base Appendix on Packaging. The breadth of the challenge reflects the breadth of the activities. The potential returns from readiness now and from manpower utilization are significant.

## CNO ORDNANCE PACKAGING INITIATIVE

The Navy and Marine Corps face an interesting challenge in today's field operations and tomorrow's vision for a Sea Base. Providing a seamless logistics pipeline of materiel, which can move supplies quickly to end-users and minimize handling and touch points, requires changes both large and small. In response, the CNO Ordnance Packaging Initiative looks at one class of materiel to analyze this challenge. Based upon earlier work done by the Naval PHST Center, CNO N41 took the lead to further develop this study. The study team included CNO, the Hardware Systems Commands (HSC), Naval PHST Center, NAVICP, Military Sealift Command (MSC), Naval Operational Logistics Support Center (NOLSC), the Fleet, and HQ Marine Corps.

Over a dozen steps were identified for ship-to-ship replenishment of ordnance. Each of these steps is under the control of a different command. Optimizing for one step, for example connected replenishment, may be adversely affected by other steps, such as shipboard elevators. Resolving these conflicts while simultaneously reducing manpower requirements is the key to short-term improvements and long-term transformation. Packaging potentially plays an important role in reducing handling requirements.

The Defense Packaging Policy Group was briefed on the findings. Eventually, other classes of materiel beyond ordnance and the other services beyond the Navy and Marine Corps need to be investigated.

The CNO Guidance for 2003 stated, "Develop a plan to integrate USN-USMC logistics." This guidance resulted in the development of formal Terms of Reference that created a Naval Logistics Integration working group and identified areas of mutual concern for the Navy and Marine Corps. One of these areas of concerns was Common Naval Packaging.

## NAVAL LOGISTICS INTEGRATION / COMMON NAVAL PACKAGING

This past year, the following targets of opportunity were identified for Common Naval Packaging:

- Unitization
- Standardize Packaging for Various Commodities
- Common Policies and Procedures
- Common Packaging Databases
- Industrial Packaging Services/ Support
- Retrograde Packaging Support

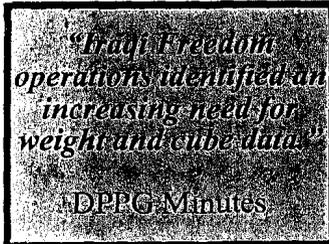
Planning and budgeting was completed for many of these opportunities. Two of these targets – Unitization and Common Packaging Databases – were identified for funding during FY 05.

The Unitization effort is intended to conduct a demonstration, using mid-sized reusable containers to move materiel from depot to end-user, testing possible distribution system improvements, and building a business case analysis on how these types of containers can reduce materiel or labor costs and/or pipeline handling efficiencies. The common packaging database effort is intended to develop a software tool that provides packaging requirements to the end-user in an easy to use, one stop shopping scenario for both Navy and Marine Corps items, which may require repackaging. Through the coordinated effort of these activities additional opportunities arise for Navy packaging.

Through the coordinated effort of these activities additional opportunities arise for Navy Packaging.

## CONCLUSION

# JOINT PACKAGING ACTIVITIES



## DEFENSE PACKAGING POLICY GROUP

### MIL-STD 129 MILITARY SHIPMENT LABEL

### CONTAINER LABEL SURVIVABILITY

### DATABASE INCONSISTENCIES

### ERP SUPPORT FOR PACKAGING

### SOLID WOOD PACKAGING MATERIALS

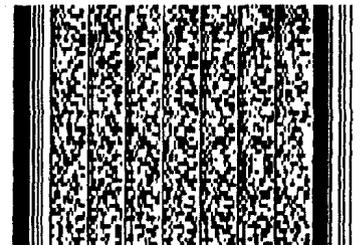
The DoD Packaging community represents both depth in subject matter expertise and breadth across a wide range of packaging challenges and approaches. As discussed in the previous section, Navy PHS&T makes a significant contribution both to the depth of expertise and breadth of experience.

By participating in joint activities, Navy PHS&T contributes to this shared expertise, harvests the experience from the other services, and represents the interests of the Navy on DoD-wide package activities.

With the growing challenge of Joint Operations and the vision for future readiness represented in Sea Power 21 and Sea Basing, Navy Packaging has an important role to play.

Through the Navy Packaging Board, NAVICP represents the Navy on the DPPG, a formal organization sponsored by OSD. The DPPG is composed of representatives from all the Services and Defense Logistics Agency (DLA). DPPG addressed several key issues of importance to the Navy in 2004:

A revision to MIL-STD-129 was approved that includes a two-dimensional (2D) bar code. The 2D bar code duplicates all the human-readable information from the Military Shipping Label (MSL). The Navy participated in several prototypes employing the 2D bar code. With the use of AIT, the Navy expects to realize efficiencies in handling.



Recent feedback from Iraqi Freedom operations indicated that labels were not adhering to containers or were not legible primarily due to the desert environment. Naval PHST Center took the lead in reviewing MSL requirements with the Air Force and Army and submitted the findings to the DPPG.

Accurate cube (dimensions) and weight data are needed for transportation planning and automated load configuration. Often this information is inconsistent in various logistics databases or may be omitted entirely. A review of this information and an approach for correction is underway.

With the ERP activity throughout DoD, it is important to anticipate packaging support in the various packaging and SAP databases. NAVAIR Lakehurst is leading a DoD Task Force to evaluate various approaches, with the goals of influencing and standardizing the PHS&T database solution. This will result in improved database capability and flexibility with a decreased implementation timeframe for future changes evoked by MIL-STD-2073-1.

DoD and USDA signed a memorandum of understanding (MOU) that defined specifications and inspection procedures to safeguard wood packaging materials used in military applications from infestation. The DPPG worked to secure concurrence across DoD, and through the coordination efforts of Navy Packaging a new SWPM manual was issued.

In addition to these major initiatives, the DPPG (1) solicits lessons learned as with the Army OIF Packaging Lessons Learned review, (2) recognizes outstanding achievements in packaging through DoD and industry awards, and (3) focuses on the development of training materials through the curriculum at the School of Military Packaging Technology.

## LESSONS LEARNED AWARDS AND TRAINING

The Joint Intermodal Logistics Working Group (JILWG) is a grassroots organization consisting of field level engineers, operators, packaging specialists, and logistics managers from all four Services who represent their Service interests in supporting their operating forces. The Naval PHST Center, Detachment Earle of the NSWC Indian Head Division is a founding member and also serves as the chair of the JILWG.

## JOINT INTERMODAL LOGISTICS WORKING GROUP

A key concept developed by the JILWG is the Joint Modular Intermodal Container or JMIC. Details of the concept are presented later in this report, but the concept uses a building block approach for smaller containers to be combined to fit or fill a standard 20 foot ISO container.

## JOINT MODULAR INTERMODAL CONTAINER

JILWG milestones include:

## JILWG MILESTONES

- Briefing JMIC concept to Joint Ordnance Commanders Group (JOCG), Executive Committee (EXCOM) in May 2004
- Briefing JMIC concept to United States Transportation Command (USTRANSCOM) Joint Infrastructure Working Group in May 2004
- Briefing JMIC concept to DPPG in June 2004
- Briefing JMIC concept to the JOCG Flag Board, in September 2004 as an agenda topic for the JLC
- JOCG plans on briefing the JILWG and JMIC concept to the JLC at the next meeting
- Developing a video, which demonstrates the advantages of the JMIC in an intermodal logistic environment
- Developing a prototype JMIC
- A CNO Operational Logistics Integration Program (OPLOG) JMIC prototype was demonstrated in December 2004
- A Joint Advanced Concept Technology Demonstration (ACTD) between the Navy and Army has been proposed that includes JMIC.
- Army is continuing their JMIC development.
- OPLOG is continuing the Navy JMIC development program for FY 05.

The initial funding for the JMIC was provided through the CNO OPLOG Program. The next challenge for the JILWG is to further develop this concept into a working product. With funding, the prototype can be expanded and tested in more real-world environments.

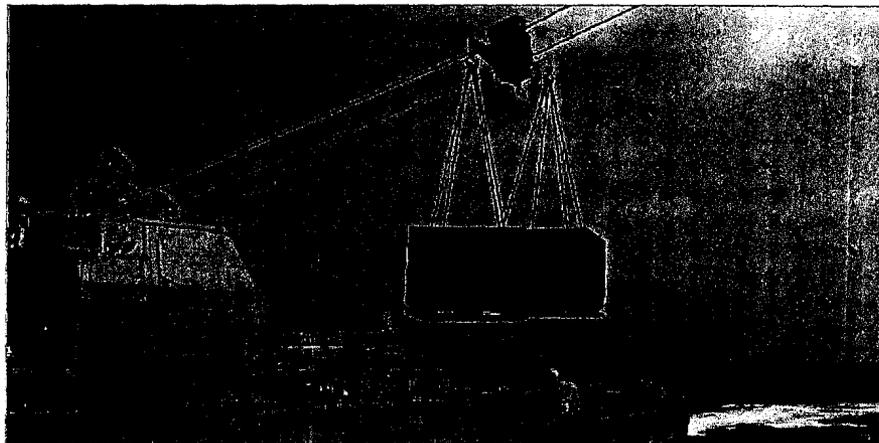
In November 2004 OSD decided to place JMIC initiatives under USTRANSCOM as Distribution Process Owner with the JIWG having the lead for standards, system development, and policy coordination. A new JIWG charter mandates coordination with the DPPG and other existing service/agency working groups (such as the Navy Packaging Board) to ensure positive coordination and oversight of intermodal issues.

The Navy packaging expertise is harvesting experience from the other services while representing Navy interests and sharing the vast body of Navy expertise. Working on joint packaging activities highlights the importance of cross-Command, cross-Service issues to achieve the comprehensive goals of transforming the military.

# Key Accomplishments

## REUSABLE BULK CONTAINER

The Reusable Bulk Container (RBC) was designed and deployed to replace triwall, corrugated boxes on wood pallets. After initial testing, the program was expanded this past year as the RBC was exposed to extensive sea trials during replenishments-at-sea (RAS).



*An RBC being transferred during RAS*

Each year, the Navy disposes of more than 1.7 million pounds of fiberboard from triwall containers. More than 50% of shipboard solid waste comes from packaging materials used to transport supplies. The strike up, load, unload, and strike down for triwalls are manpower intensive. Eliminating the waste saves money and means less debris on-deck, which might cause FOD. Reducing the labor supports reduced manning initiatives.

To address this requirement, NAVICP's Pollution Prevention (P2) Program developed the RBC. The P2 Program already operates the Waste Reduction Afloat Protects the Sea (WRAPS) and Plastics Removal in the Marine Environment (PRIME) programs for NAVSUP, which attack the sources of solid waste. The RBC is the next step to reducing solid waste in the form of cardboard and wood.

The collapsible, polyethylene plastic container is designed for use with a forklift and approved handling slings. The container went through laboratory testing at the Naval PHST Center Earle. In addition, the RBC experienced sea trials with both Vertical Replenishments (VERTREPs) and Connected Replenishments (CONREPs).

The sea trials identified several design improvements, including improved marking for forklift operations and improved marking for operations in limited visibility. Changes were incorporated in the RBC design, and additional testing at the Naval PHST Center was successfully performed.

The useful life of the RBC is 500 trips without refurbishment, more than 50 times the useful life of a triwall. The contents are better protected with the RBC, thereby enabling readiness. Finally, the effort to load and unload is reduced, which improves the quality of service and potentially enables the reduced manning concept for future ship design.

*"My only question about RBCs is where we get more of them."*

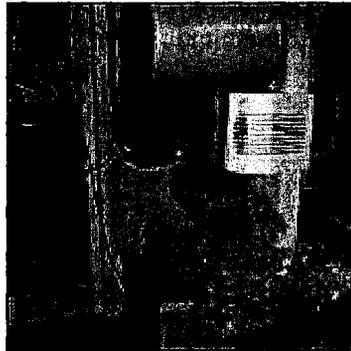
*Dion Decker  
V-88, Norfolk*

## INFLATABLE BUBBLE WRAP

In a joint effort to streamline and improve packaging operations during deployment and at Navy shore-based facilities, NAVAIR-Lakehurst and NAVICP-Philadelphia initiated an operational change to introduce and prototype a Commercial Off-the-Shelf (COTS) packaging system into the Navy. The prototype's purpose was to evaluate Sealed Air's Inflatable Bubble Wrap (IBW®) Packaging System in an operational environment for potential replacement of pre-inflated bubble-type cushioning material (PPP-C-795) presently used and stowed aboard ships and at

shore-based facilities. Pre-inflated cushioning is used to protect Depot Level Repairable retrograde materiel during fleet operations. The IBW® Packaging System produces Bubble Wrap® cushioning on-demand. The objectives were to increase availability of cushioning material and productivity, while minimizing storage space. The primary locations selected for prototyping this COTS system were on board the aircraft carrier USS Enterprise (CVN 65) and at 3 shore-based Advanced Traceability and Control (ATAC) facilities located at Bahrain, Norfolk, and San Diego.

The prototype results were positive. Laboratory testing of the end item cushioning for fragility, shock and temperature were similar to that of the pre-fabricated cushioning material. USS Enterprise personnel found the systems to be trouble free, and easy and convenient to use. The systems' performance and reliability were high quality. Calculated cost savings and avoidances were exceptional. Waste disposal and man-hour cost avoidances approached \$9,500 and \$760 per deployment, respectively. Based upon expected deployments, waste disposal and man-hour cost



avoidances are calculated to be over \$164K per year while material storage cost savings were over \$11K per year. Using transportation cost comparisons based on two shipments to strategic global shipping destinations, cost savings were calculated to be almost \$450K per year. Hence, the overall recurring cost savings/avoidances total over \$625K per year. Lastly, for USS Enterprise, use of the systems resulted in total space savings of 1,029 ft<sup>3</sup>, while needing only approximately 9 ft<sup>2</sup> of floor space for each system. IBW® Packaging Systems have now also been installed on USS Abraham Lincoln (CVN 72) and USS Harry S. Truman (CVN 75).

In April 2001 the Naval PHST Center generated a white paper that proposed the exploration of lightweight materials to mitigate an energetic blast. It was hypothesized that packaging may hold the key to the potential of providing a means of shipping mixed energetic materials possessing different hazard classifications.

In August of the same year, the Naval PHST Center generated a technical proposal entitled "Introduction of Blast Mitigating Technologies To Improve Stowage Density and Reduce Risk Associated With Naval Ammunition and Explosives Afloat." The proposal addressed two objectives. The first was to initiate research and development of new technology that will reduce hazard classification and compatibility concerns as well as increase safety during weapons handling evolutions. The second objective is to perform a study on how compatibility restrictions currently impact shipboard operations and where the new technology can best be applied to increase stowage density and safety aboard ship.

The Office of Naval Research (ONR) funded the effort because they realized the major impact this type of technology would have in protecting Navy ships and personnel. ONR also recognized the potential for a multitude of commercial applications that would enhance homeland security.

After two years of intense research the Naval PHST Center narrowed the playing field and focused in on three companies: Critical Solutions Inc., Kazak Design, and Honeywell. In November 2004, nine different containers were subjected to detonation using various amounts of C4 ranging from a 1/8 lb to 2 lbs. The successful tests showed that some of the materials used in the construction of the various containers withstood the blast, reduced over-pressure, and eliminated the fireball. In some cases the designs maintained their integrity. These tests have provided strong supporting evidence that the original hypothesis was founded on sound engineering principles and will eventually be met.

## BLAST MITIGATION PACKAGING

# Key Accomplishments

## AUTOMATIC IDENTIFICATION TECHNOLOGY

## MIL-STD 129 MILITARY SHIPMENT LABEL

## RADIO FREQUENCY IDENTIFICATION

AIT plays an increasingly important role in PHS&T. Over the past year, two-dimensional (2D) bar codes and both active and passive Radio Frequency Identification (RFID) have grown in importance through the efforts of the Navy Packaging community. These technologies can improve inventory accuracy and reduce the manpower requirements while simultaneously improving readiness.

A revision to MIL-STD-129 was approved that includes a 2D bar code. The 2D bar code duplicates all the human-readable information from the MSL. The Navy participated in several prototypes employing the 2D bar code. Using AIT, the Navy expects to realize reductions in handling errors and costs.

This past year, NAVICP moved ahead with state-of-the-art application of RFID technology. RFID technology was applied to engine containers in order to address two major issues: the loss of engine visibility and the corrosive damage done to engines in containers due to inadequate environmental monitoring of stored engines.

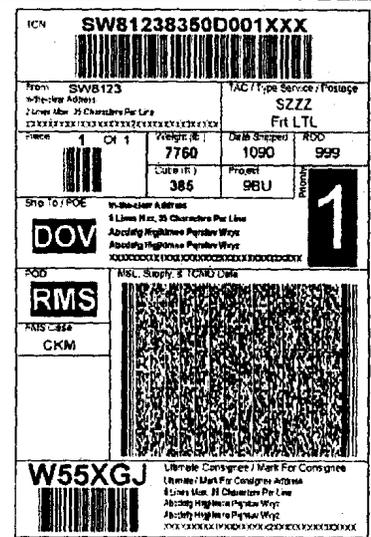
Working in conjunction with the Georgia Tech Research Institute, a condition-based RFID container technology was developed to actively monitor storage conditions and locations of aircraft engines, engine modules, and their containers. Knowing the location of engine assets is crucial to readiness and inventory accuracy, and knowing the current condition of the asset within the container is critical in reducing repair costs and sending a ready-for-issue asset to the fleet.

A successful, ongoing prototype demonstration was conducted using several engine containers for the V-22 Osprey aircraft stationed at Marine Corps Air Station (MCAS) New River, NC. The installed tags identified the engine and the container and tracked humidity levels inside the container. Maintaining the proper humidity level is critical to preventing engine corrosion. The developed system sends alerts when assets are threatened by environmental conditions and consequently reports the storage location. Not only

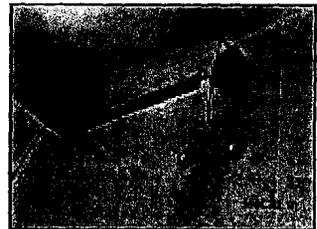
does such a system contribute to cost avoidances through prevention of corrosion, but it also reduces the need to perform labor-intensive manual checks of stored engines. Based on the success of the prototype, commercial RFID companies are evaluating ways to incorporate this advance into their products, and the Navy is moving forward with an implementation on the F414 engine/ module containers currently in the system.



The RFID antenna outside the container



Overall, NAVICP provided leadership and influenced other DoD AIT projects. For example, to assist the capture of 2D/RFID and serial number tracking data, the electronic Retrograde Packaging Management System, a secure Internet-based protocol, was developed to generate 2D labels, track serial numbers and create passive RFID tags.

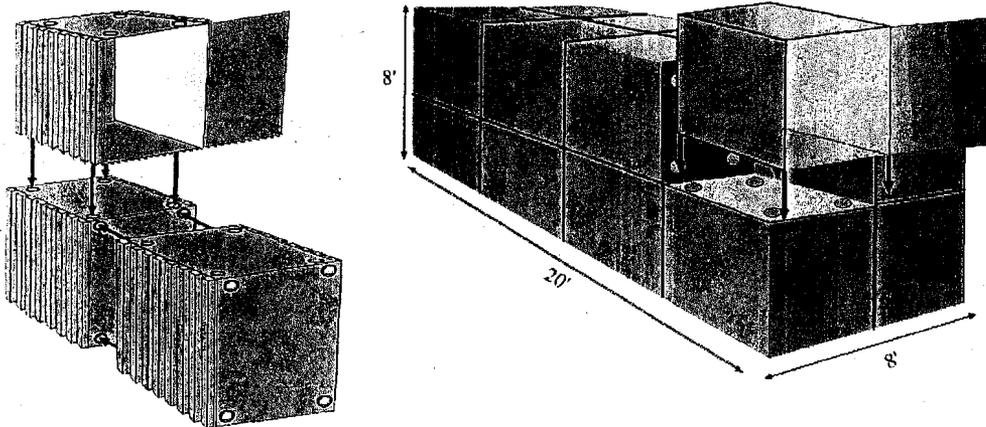


(Right) The RFID with humidity detection inside the container

## JOINT MODULAR INTERMODAL CONTAINER

The JMIC is a revolutionary new container concept that transforms military logistics through modularity, inter-modality, and service compatibility. The JMIC concept was developed by the JILWG and designed by the Naval PHST Center. Current packaging does not optimize the distribution system, support interoperability, minimize manpower, or reduce materiel handling and logistics footprint. Simply put, there are too many different packages of varying shapes and sizes which are optimized for specific commodities rather than for the logistics pipeline. Combatant Commanders require a joint, seamless, intermodal conveyance system to improve joint and commercial interoperability from sea, air, air-droppable and land-based systems. To address these issues the JMIC container system concept was developed.

The JMIC concept provides a uniform modular container, which could replace current outer packaging for munitions and other supplies. JMIC defines a common building block that maximizes the movement of materiel through the logistics pipeline and that optimizes the materiel transfer and re-supply regardless of the equipment or service undertaking the operation. JMIC replaces the box-within-a-box-within-a-box concept of packaging with one box or container that serves as the outer packaging, but in multiple groups as the interface with commercial intermodal containers by which it is transported.

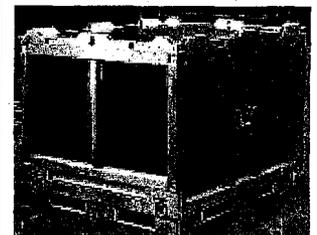


In multiple groups, JMIC serves as the interface with existing and future military distribution systems as well as the commercial intermodal container (the 20' ISO container) for strategic delivery. With an interlocking design and a standard size, additional blocking and bracing is eliminated. JMIC is collapsible for economical retrograde return.

JMIC has the potential to:

- Dramatically reduce the amount of battlefield manpower committed to logistics operations.
- Enable efficient, seamless joint service inter-operability through modular systems.
- Optimize military and commercial transportation systems.
- Simplify Sea Base logistics.
- Optimize existing and future distribution system support.

In the past year, the JMIC concept has been further developed by the Naval PHST Center, translating this concept into a prototype design. Development and testing of this concept is scheduled to continue over the next year. As momentum increases, the JMIC concept will transform ordnance packaging, bring all Services closer to joint logistics, and look for more cost-effective methods of supplying our warfighters.

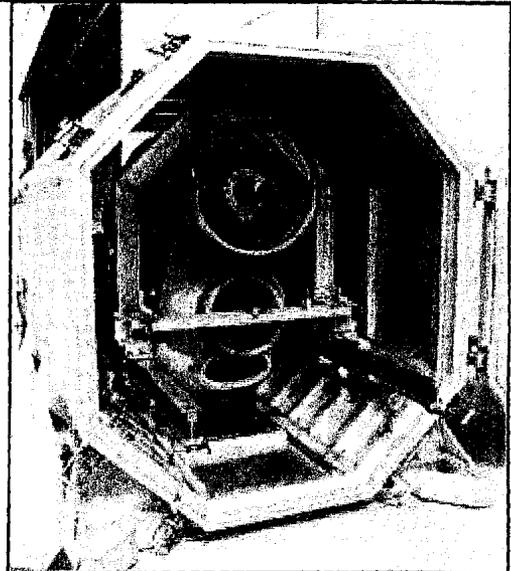


*JMIC Prototype*

# Key Accomplishments

## T-56 QUICK ENGINE CHANGE ASSEMBLY CONTAINER

The T-56 Quick Engine Change Assembly (QECA) is a complete aircraft engine assembly ready for rapid installation on an aircraft on the hangar deck. In the past, the QECA was packaged for storage and transportation on a metal frame with a barrier wrap for moisture protection. The QECA is delivered in underway replenishments (UNREP) so the risk of damage is high. The cost to repair and the impact on readiness justified developing a specialized container for this high value item.



In the past year, a prototype QECA container was developed and tested by NAVICP that met the design goal of protecting the QECA while supporting ease of handling. The container is accessed from the ends rather than the top to facilitate access on the hangar deck. The same equipment that mounts the engine on the aircraft is used to load and unload the container. The new container provides substantial protection during storage and transportation, which also reduces the risk of unintended damage.

## SEA BASE PACKAGING APPENDIX

As Joint Forces move into the future, they will operate on concepts such as Sea Basing. Current logistics practices require significant change to support these concepts.

Under the direction of the CNO N41, a draft appendix for the Sea Base Concepts of Operations was developed. The appendix presents a clear statement of the problem for Sea Based operations. It formalizes the definitions of the key elements for the next generation of PHS&T and presents the requirements to support Sea Base, including the following:

- **Modularity:** Future packaging, unitization, and containerization must be interoperable and interchangeable by employing a building block approach.
- **Legacy Compatibility:** Future packaging and containerization must be compatible with legacy transportation and handling systems.
- **Transport System Interoperability:** The modular building blocks must be easily reconfigured in order to be transported on as many platforms as possible.
- **Service Interoperability:** Future packaging must meet the unique needs of each service and the common handling requirements of Sea Base.
- **Retrograde Friendly Packaging/Reusable Containers:** When feasible, packaging/reusable containers should be collapsible and stackable for easier retrograde transport and stowage.
- **Minimal Waste Material:** Packaging should require minimal solid waste material such as steel banding or wood battens.
- **Total Asset Visibility:** Packaging must be compatible with asset identification standards.

Future Readiness

For a complete list with details, please refer to the Concept of Operations Appendix. The Appendix is a blueprint for PHS&T research and development. Many of the key accomplishments identified here are key steps in this blueprint, but the appendix includes direction for future research and development.



The Container Re-use and Refurbishment Centers (CRRCs) are dedicated to collecting, assessing, refurbishing, requisitioning, and maintaining inventories of Navy-owned reusable shipping containers. Through Navy PHS&T, NAVICP operates six CRRCs: Cherry Point, NC; Jacksonville, FL; Norfolk, VA; Puget Sound, WA; San Diego, CA; and Yokosoka, Japan.

In seven years of operations, the CRRCs recovered nearly 201,000 containers valued at over \$64 million. In addition, nearly 930 depot level repairable (DLR) items valued at nearly \$42 million were recovered from containers.

In the past year, the CRRCs have operated at a pace that reflects OIF and OEF usage with more than 41,500 containers received and 35,200 of those refurbished and reissued. Through re-use, procurement of new containers valued at over \$11.5 million was avoided. In addition, an estimated \$6 million in DLR items were recovered from the containers.

NAVSEA has granted individual technical warrant authority to the Director of the Naval PHST Center of the Naval Surface Warfare Center Division Indian Head. In order to understand the impact of this decision we should first look at what constitutes technical authority. It is the authority, responsibility and accountability to establish, monitor and approve technical products and policies. COMNAVSEA, Naval Surface Warfare Center, SEA 00 has entrusted and empowered the Center's director with an individual technical warrant authority to make technically sound engineering PHS&T decisions.

The purpose and understanding of the technical warrant authority policy are defined in NAVSEAINST 5400.97A dated 3 Feb 2003, which outlines the necessary engineering and technical responsibilities each warrant holder has to the Department of the Navy.

The Naval PHST Center has long been known as a Center of Excellence in PHS&T. With the issuance of the warrant, their reputation and notoriety has been further enhanced as the Navy's leading experts in PHS&T for ordnance. Their goal is to continually set a higher standard. They are actively participating in the Navy Packaging Board and the Joint Intermodal Logistics Working Group. Both groups are developing broad-based policies and standards for Naval Ordnance PHS&T reflecting the responsibility of the warrant holder. Through these initiatives, the Naval PHST Center has been involved in frequent cross-Command decisions involving engineering and technical issues. Technical warrant holders conduct an annual conference to foster both formal and informal discussions.

The technical warrant has given the Naval PHST Center's Director the authority to establish an aggressive game plan that will push state-of-the-art technology and practices in ordnance PHS&T and marry into the goals of the Department of the Navy for personnel reduction and automation in the 21<sup>st</sup> Century.

## CONTAINER REUSE AND REFURBISHMENT CENTERS

## NAVSEA TECHNICAL WARRANT FOR ORDNANCE PHS&T

# Key Accomplishments

## CARE OF SUPPLIES IN STORAGE

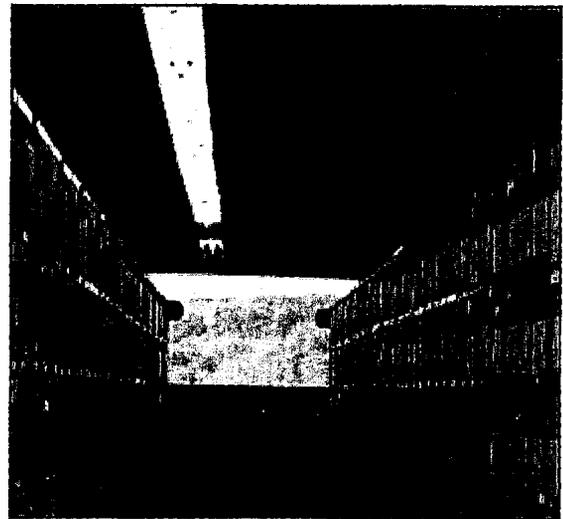
The Care of Supplies in Storage (COSIS) program is intended to maintain stored Navy materiel in ready-for-issue (RFI) condition or to prevent uneconomic deterioration of unserviceable materiel. COSIS is an ongoing process to inspect supplies in storage for deterioration of the unit pack or marking, as well as to restore packaging or marking. The COSIS program is managed by NAVICP through Navy PHS&T.

Storage requirements vary within the services, and DLA personnel are not always aware of unique Navy storage requirements. Onsite assessments and training at all Navy storage sites are not possible in a short timeframe. Shipboard facilities are space restricted and may not accommodate the required storage environments. The process to authorize restorative actions was paper-based. Better metrics are needed to identify and cost justify additional effort.

Automated Submittal  
of DD 1225s

The COSIS authorization process was automated this past year and documentation is submitted online. Awareness of COSIS issues has been raised through increased COSIS assessments. These assessments provided insight for the development of a COSIS training package.

Automating the COSIS authorization process provides faster authorization and a database for analysis. Better metrics may provide the basis for more comprehensive, preventive programs in the future. The COSIS training package will be used by TARP representatives during regularly scheduled training at storage facilities, and by internal PHS&T personnel when onsite for other programs, thereby quickly increasing COSIS awareness at storage facilities.



## AUTOMATED REPORT OF DEFICIENCIES

Over the past year, paper-based Reports of Deficiencies (ROD) and Supply Deficiencies Reports were replaced with an automated program, AutoROD/SDR. The program developed by NAVICIP provides the PHS&T/Retrograde community with an Internet-based tool to identify PHS&T/Retrograde deficiencies.

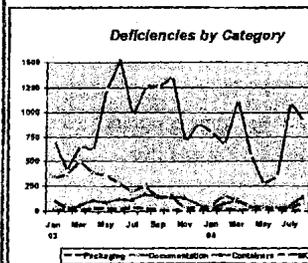
TOPZ Home

### AutoROD

CREATED BY: BDD  
CHANGED BY: SANDY

View AutoROD Data

- By ROD Number
- By AIC
- By SDC Type
- By AGENCY
- By ICD, KW, SDC, DDC



AutoROD

### AutoROD Entry Form

SEARCH FOR DEFICIENCIES BY AGENCY AND SDC TYPE

Agency:  SDC Type:

Search

Display:  All  Pending  Closed

Sort:  Agency  SDC Type  Date

Columns:  Agency  SDC Type  Date  Status

Results: 100

Agency	SDC Type	Date	Status
...	...	...	...
...	...	...	...

Through the use of a simple hand-held scanner and knowledge acquired through TARP training, retrograde handlers quickly and easily document problems on the TARP Web Port. The data collected in the AutoROD/SDR Program is utilized to measure the effectiveness of TARP training and to identify Navy sites for new or remedial training.

Between NAVAIR Lakehurst and the Naval PHST Center, Naval Surface Warfare Center Indian Head Division, Detachment Earle, the Navy has extensive PHS&T testing capabilities.

In the past year, the NAVAIR Lakehurst, NJ Military Packaging Laboratory operated at full capability. The transition from NAVAIR Patuxent River of all test equipment and full responsibility for testing has now been completed. Lakehurst's responsibility for qualification testing is covered under 10 USC §2319. Also in the past year, with the effects of OEF and OIF, the pace of vendor qualification testing has increased. Barrier materials are the primary products tested to adherence to some of the following characteristics: Volatile Inhibitor Ability, Contact Corrosivity, Odor Barrier Ability, Tensile, Water Vapor Transmission Rate, Electrostatic Discharge, and Electromagnetic Interference. NAVAIR Lakehurst was also involved in evaluating the new Inflatable Bubble Wrap® Packaging System.

The Naval PHST Center in Colts Neck, NJ operates a comprehensive test facility primarily for ordnance PHS&T equipment and containers. The facility can perform and analyze tests not easily duplicated commercially. The Center has expanded its test equipment to fully support the evaluation of large containers presently used or being developed for the Navy. In addition to this inventory of test equipment, the Center has added a 35-foot conditioning chamber capable of reproducing any worldwide temperature or humidity environment that could be experienced by a shipping container. Also, the original 5,000 lb capacity repetitive shock table has been replaced with a 12,000 lb capacity machine.

The Naval PHST Center had conceived the idea of using multiple vibration machines to test large containers, which our test engineers attempted to manually control with some success. Today, because of the advancement of computer control systems, it is possible to run a multitude of shakers in tandem. The latest system can operate four shakers in tandem in either the vertical, longitudinal or horizontal direction.



*Test center equipment at Naval PHST Center*

The tandem system can now vibrate a long heavy container with a wide variety of programmable sinusoidal or random inputs that can simulate the deck of a ship, railcar floor, or the bed of a truck. At the same time, it is possible to record and process more than 100 channels of information obtained from transducers strategically positioned on the packaged item while the vibration test is underway. This provides the test engineer with a detailed electronic picture of the packaged weapon as it is subjected to the programmed forces.

Through extensive product testing, the Navy helps programs throughout DoD to identify design issues prior to production and deployment. Resolving issues early saves money and increases reliability. Qualifying vendors insures a competitive environment.

## PHS&T TEST CAPABILITIES

# PHS&T ONGOING PROGRAMS

## PHS&T LOGISTICS ELEMENT MANAGERS

PHS&T is one of the 10 integrated logistics support elements (functional logistics processes). PHS&T LEMs provide PHS&T Program Management Support to the Hardware Systems Commands (HSCs) for the entire logistics cycle, including transportation and transportability planning. Proper PHS&T management has a significant impact on lifecycle costs, system effectiveness, reliability, maintainability, corrosion prevention and control, safety and the environment. It is important that PHS&T be evaluated at program milestone decision points included on the HSC's ILA Teams. PHS&T LEM duties are performed by a number of offices throughout the Navy, with NAVICP 077 performing the PHS&T portion of ILAs.

The PHS&T LEM is an important member of each program's Integrated Product Team (IPT). The LEM is responsible for ensuring PHS&T is fully integrated with the weapons platforms and supply chain. The LEM must ensure PHS&T funding requirements, including reusable container design and development, are justified and included in the program budget.

Typical duties include tailoring PHS&T requirements to a program's needs and ensuring these requirements are included in the Statement of Work, reviewing the Integrated Logistics Support Plan (ILSP) and then passing information on to the Fleet in the User Logistics Support Summary (ULSS).

The following programs involve active participation from Navy PHS&T:

- MH-60S/MH-60S Armed Helo
- MH-60R
- MH-60S Airborne Mine Countermeasures (AMCM)
- MH-60R AN/AQS-22 Airborne Low Frequency Sonar (ALFS)
- F/A-18E/F Advanced Tactical Forward Looking Infrared (ATFLIR)
- F/A-18E/F
- H-1 Upgrade
- Consolidated Automated Support System (CASS)
- P-3 Anti-Surface Warfare Improvement Program (AIP)
- CVN-21
- Fire Scout Unmanned Aerial Vehicle (UAV)
- Tomahawk
- SLAM
- Harpoon
- SSPO
- MH-60S AN/AQS-20 Towed Body
- MH-60R-AAS-52 Movement Tracking System (MTS)
- F/A-18E/F Shared Reconnaissance Pod (SHARP)
- F/A-18E/F Active Electronically Scanned Array (AESA) Radar
- E/A-18G
- V-22
- P-3 Advanced Imaging Multi-Spectral Sensor (AIMS)
- Multi-Mission Maritime Aircraft (MMA)
- DD(X)
- JSOW
- Sparrow
- Standard Missile
- VLS
- Sea Sparrow
- Torpedoes/Mines

In addition, many of the electronic components shipboard or on Naval aircraft are programs of their own. An electronic component, referred to as a "black box", may require specific packaging to protect the integrity of the component. Over the past year, Navy PHS&T has served as the LEM for numerous black box and missile/ordnance programs responsible for reviewing the needs and identifying the appropriate standard container to protect the box.

The following container projects were active during 2004:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Airborne Electronics Sensor Array (AESA) Container</li> <li>• Aerial Refueling Stores (ARS)</li> <li>• CNU-673/E Shipping and Storage Container for the AN/AWW-13 POD (SLAM ER)</li> <li>• Common Towed Body (AN/AQS-20) Container</li> <li>• ESSM CONTROL Actuation Assembly Container</li> <li>• ESSM Fuze Booster Container</li> <li>• ESSM Guidance Section Container</li> <li>• ESSM Rocket Motor Container</li> <li>• ESSM Safe Arm Device Container</li> <li>• ESSM Thrust Vector Control Section Container</li> <li>• ESSM Transition Section Container</li> <li>• ESSM Warhead Container</li> <li>• ESSM Warhead Compatible Telemeter Container</li> <li>• Joint Modular Intermodal Container (JMIC)</li> <li>• MH60S AMCM Winch Container</li> <li>• MH60S AN/ALQ-222 Common Console Container</li> <li>• MH60S AN/ALQ-223 Base Assembly Container</li> <li>• Mk 781/0 Shipping and Storage Container for MK67 Mine (SLMM)</li> </ul> | <ul style="list-style-type: none"> <li>• Mk 787/1 Container, revised request to delete ERGM modifier from nomenclature</li> <li>• Mk 799/0 TSRM Container (SM-3)</li> <li>• Mk 793/0 VA Class Submarine Weapon Cradle Assembly Container</li> <li>• Mk 792/0 AWR Torpedo Container</li> <li>• Mk 799/0 TSRM Container (SM-3)</li> <li>• Mk 800/0 KW Container (SM-3)</li> <li>• Mk 801/0 Guidance Section Container (SM-3)</li> <li>• Mk 803/0 KW Kit Container (SM-3)</li> <li>• Mk 804/0 CD Fit Fuze Booster Container (STANDARD)</li> <li>• Mk 807/0 Container for RAM Propulsion Units</li> <li>• Mk 808/0 Shipping and Storage Container for SM -3 Kinetic Warhead Seeker</li> <li>• P-3 Blade Container</li> <li>• Reusable Bulk Container (RBC)</li> <li>• Shared Reconnaissance Pod (SHARP) Container</li> <li>• T56 Quick Engine Change Assembly (QECA) Container</li> <li>• Volume Search Sonar/Electro Identification Device (VSS/EOID) Container</li> </ul> |
|--|---|

## REUSABLE CONTAINER DESIGNS

## PACKAGING SPECIFICATIONS AND STANDARDS

There are over 70 packaging documents for which NAVAIR Lakehurst and NSWC Indian Head Division Detachment Earle PHST Center are the Preparing Activities. These documents cover barrier materials, cushioning, containers, humidity indicators, preservatives, and test method and development standards. Over the past year, the following key documents have been revised, amended, or reinstated. The following is a list of these documents:

- MIL-PRF-29597C - Bag, Odor Barrier, Flexible – for Food Contaminated Plastic Waste (Revised)
- MIL-PRF-81705D - Barrier Materials, Flexible, Electrostatic Protective (Amended)
- QPL-131-45 - Barrier Materials, Watervaporproof, Greaseproof, Flexible, Heat-Sealable (Amended)
- MIL-PRF-22191E - Barrier Materials, Transparent, Flexible, Heat-Sealable (Amended)
- PPP-C-795D - Cushioning Material, Packaging (Flexible Closed Cell Plastic Film for Long Distribution Cycles) (Reinstated)
- NAVSEA OP 4 Ammunition and Explosives Safety Afloat (PHS&T portion)
- MIL-DTL-81997D - Pouches, Cushioned, Flexible, Electrostatic-Protective, Transparent (Revised)
- MIL-DTL-6060E - Bags, Watervaporproof, Heat-Sealable, Complex (Revised)
- MIL-PRF-22019D - Barrier Materials, Transparent, Flexible, Sealable, Volatile Corrosion Inhibitor (Amended)
- MIL-PRF-3420G - Packaging Materials, Volatile Corrosion Inhibitor (Amended)
- MIL-STD-648C – Design Criteria for Specialized Shipping Containers
- NAVSEA OP 5 Ammunition and Explosives Safety Ashore (PHS&T portion)

# POINTS OF CONTACT

## NAVY PACKAGING BOARD

The following list includes members, associate members and representatives for the Navy Packaging Board:

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