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Port Hueneme, California 93043-4370

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1998 AMPHIBIOUS SYSTEMS WORKING GROUP MEETING

SUMMARY REPORT

by

Glenwood Bretz

January 1999

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The 1998 Amphibious Systems Research and Development Working Group Meeting was held August 19 and 20, 1998, at the Naval Construction Battalion Center in Port Hueneme, California. The purpose of the meeting was to provide one forum for users, sponsors, researchers, and engineers to discuss 1998 accomplishments, current issues, the future of project development, and programmatic issues in an efficient manner.

Some of the major topics of discussion at this meeting were Sealift Support, Joint Logistics Over-the-Shore, the Sealift R&D Program, Rapid Ship to Shore Transport, Fuel Programs, Rapid Nearshore Geotechnical Survey, J-LOTS Lessons Learned, the Intuitive Joystick Control System, the Pile Splicer, Asset Tracking, and others.

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EXECUTIVE SUMMARY

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CD NSWC
COMSURFWARDEVGRU
EWTGPAC
JJMA
NAVFAC
NAVSEA
NBG 2
NBG1
NFESC
NSWC-CSS
OPNAV
PHIBCB-TWO
SLC

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INTRODUCTION

The 1998 Amphibious Systems Research and Development Working Group Meeting was held August 19 and 20, 1998, at the Naval Construction Battalion Center in Port Hueneme, California. The purpose of the meeting was to provide one forum for users, sponsors, researchers, and engineers to discuss 1998 accomplishments, current issues, the future of project development, and programmatic issues in an efficient manner. Personnel from the following commands participated in the 1998 meeting:

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Topics of discussion were presented by subject matter experts who also answered questions from their audiences. Each brief is summarized and contained herein. The list of attendees, the agenda, and copies of each slide presented can be found in the three appendices, A, B, and C.

WELCOME ADDRESS

Presented by: CAPT Donald Morris, Commanding Officer, Naval Facilities Engineering Service Center (NFESC)

Synopsis of Presentation. CAPT Morris welcomed the attendees and thanked them for their participation. One major topic under discussion will be technologic improvements which will enhance the mission of the Naval Beach Group. CAPT Morris pledged the support of NFESC in the search for solutions to current and future technology problems.

INTRODUCTORY ADDRESS

Presented by: Mr. Woody Bretz, Amphibious Systems Division Director, ESC 31, NFESC

Synopsis of Presentation. Mr. Bretz presented the introductory address and stated the purpose of the meeting. One forum in which users, sponsors, researchers, and engineers discuss 1998 accomplishments, current issues, future project development, and program issues is the purpose of the meeting. Previous meetings proved very useful in the exchange of ideas and information. The current challenge is to provide the same quality product using less resources.

OPERATIONAL PERSPECTIVE

Topic: Naval Beach Group Operations

Presented by: CAPT Jerry Schill, Commander, Naval Beach Group TWO

Synopsis of Presentation. Five major topics were addressed in the Naval Beach Group TWO presentation. The topics were: organization and operations, training, craft issues, C41 issues, and a summary.

Organization and Operations. Naval Beach Group TWO is a LANTDIV organization that can be mobilized to any location in the Atlantic Fleet and is comprised of approximately 1,700 personnel which are divided into four groups. The groups are listed below in ascending order, in regard to size:

- ACU FOUR
- ACB TWO
- ACU TWO
- BMU TWO

Training. The MPF Training Continuum provides homeport or basic training, intermediate training, and advanced training to Naval Beach Group TWO units. In homeport training, units train independently except when MPS is available, and in connection with MMC. Intermediate training deploys personnel to the ship and is conducted with MPS. In the advanced training, both MPS and USMC participate.

Amphibious Raiding Group (ARG) Detachment Training is a 14- to 18-month process in which teams are formed as integrated units that remain together. Flight commander training discipline is utilized that incorporates a crawl, walk, run strategy. This strategy begins with the crawl, where team formation and organization is established, and progresses from the walk to the run, that includes deployment. Training includes:

- Ship to shore movement and loading and unloading operations
- All modes of secure and non-secure communications
- Night/low visibility operations (NVG)
- Force protection
- Beach salvage

Craft Issues. There are 72 LCAC in service worldwide and 36 are located at ACU FOUR. The first LCAC is currently beyond the mid-point in its 20-year total service life, which will be in the year 2004. LCAC navigation systems operate extremely well and are capable of accurately following the lanes down boat channels. However, as these crafts age, difficulties with the onboard electronics as well as corrosion become problems that require attention. LCACs are capable of going over the beach, traveling inland, and discharging their loads.

LCUs work well with and are very complementary to LCACs, and also have the capacity to carry additional weight. Lack of navigation is a problem of the LCUs that must be solved. They are also rapidly aging and will soon reach their total service life.

LARCs operate in both sand and water and their salvage capability is irreplaceable. Causeways offer some optimism, but a sea state three (3) lighterage system would significantly enhance offload operations. New lighterage (JMLS) is critical to continued in-stream offload capability.

C4I Issues. Recent enhancements include:

- Communications upgrade in LCUs
- SINCGARS radios
- Surface surveillance (Furuno) radar on Beach Party Team COMM van
- Navigational Data Integrator (NDI) installation on post-LCAC 60 craft

Summary. Aging craft such as the LCAC, LCU, and the LARC V are of major concern. Promotion of JMLS is recommended. Support of C4I enhancements that will improve over-the-horizon assault capabilities and the ability to operate in a shallow water, MCM environment is critical. Beach party teams play an integral part in the mission of the Naval Beach Group. Although fleet size has been reduced and limited resources are available, the mission of the Naval Beach Group will remain central to the Navy. Copies of the presentation materials may be found in Appendix C, on page C-2.

Topic: PHIBCB TWO Operations

Presented by: CDR W. J. Beary, Amphibious Construction Battalion TWO

Synopsis of Presentation. The foremost challenge currently facing PHIBCB TWO is operational agility and the ability to acquire environmental data that impact their operations. Conventional methods of gathering environmental data such as wind, wave, and surf weather may not be accessible during contingency ship to shore operations. Routine operations may allow time for UCTs to utilize bathymetric survey systems to obtain the necessary information, but not all areas are accessible until operations commence.

The rapid production of environmental data that includes bathymetric surveying, geotechnical data gathering, and sub-bottom profiling for nearshore areas that are inaccessible is a primary requirement for PHIBCB TWO. Systems such as the Chirp acoustic profiling system, that worked well with ELCAS, and the magic lantern adaptation system, that reported good correlation with data from the surveillance team in an exercise involving the role of mine counter mine, show promise. In addition, the Laser Airborne Bathymetry Survey (LABS) System and the Synthetic Aperture Radar offer new opportunities. Copies of the presentation materials may be found in Appendix C, on page C-5.

Topic: PHIBCB ONE Operations

Presented by: CAPT Fred Beckmann, Amphibious Construction Battalion ONE

Synopsis of Presentation. Real exercises and operations give us the opportunity to test various systems in diverse environments. For instance, operations in the Persian Gulf compared to those in San Diego, California, are very different, not to mention the distinct variations between summer and winter operations in the Persian Gulf.

The mission of PHIBCB ONE is to provide logistics over-the-shore support for amphibious Fleet and Marine Corps forces in hostile environments. Ship-to-shore movement of combat equipment, ammunition, bulk water, bulk fuel, and tactical camp operations are included.

Several operations proved very successful for PHIBCB ONE in FY98. A joint effort with the Marine Corps in Kuwait introduced the first actual in-stream offload into the gulf. Operations such as Desert Thunder 98 and Naval Fury 98, provided many opportunities to test equipment and refine training scenarios. Cobra Gold 98 was an MPF exercise in Thailand that was performed differently from a normal, pier-side, in-stream offload to a crane ship, that was also very encouraging.

Preparations for the Foal Eagle 98 joint exercise are underway. This operation is very large and will require all of the sea components of PHIBCB ONE in order to be successful. Copies of the presentation materials may be found in Appendix C, on page C-7.

PROGRAMMATIC ISSUES

Topic: Sealift Support

Presented by: Mr. Greg Walker, NAVFAC, SEABEE FL2

Synopsis of Presentation. The Sealift Support presentation was comprised of six categories that included discussion of Other Procurement Navy (OPN) budget information, the Sealift Support program structure, acquisition and MPF overviews, in-service engineering, and JMLS systems.

Other Procurement Navy (OPN) Budget Information. The Sealift Program Manager (N42) sponsors the MPF sealift equipment acquisition program, MPF maintenance program, and TA-55 allowance. The Sealift Acquisition Program is composed of JMLS, ELCAS (M), ABLTS, and CSNP/Pontoons programs. Funding for the NL causeway system will end in 1999. The JMLS notional buy plan for the Army is not funded.

Acquisition Program. The ACTD Strategy will be in three phases. Three contractors will be awarded contracts, then one contractor will be selected from the three in Phase 1, in Phase II, design and fabrication demonstrations will occur in the fourth quarter of 1999 and continue into the first quarter of 2000, and production is scheduled for Phase III.

JMLS Systems. The JMLS systems include ACVLAP, RO/RO Discharge Facility, Causeway Ferry, Floating Causeway, Warping Tugs, and the OPDS Support Platform. Programs under MPF maintenance include the Shipboard Military Sealift Command, with a budget of $1.5M in FY98, and the MPF Maintenance Cycle Blount Island Command, with a budget of $14M in FY98. The TA-55 procurement allowance is $2M/year for FY98 and out-years.

The major issues are: allowances for TA56 AFOE, TA67 AE/AFOE, TA55, the LARC-V drive train, the ELCAS (M) seven-day installation requirement, the ELCAS (M) site survey, ELCAS (NL) overhaul, and future NBG missions. Copies of the presentation materials may be found in Appendix C, on page C-12.

Topic: Joint Logistics Over-the-Shore

Presented by: LCDR Tom Satterly, OPNAV N422D

Synopsis of Presentation. Sealift Support funding in FY98 was significant. Funding in support of the Afloat Prepositioning Ships (MPS, AWR-3, USAF) totaled $641M and $302M was allotted for the Ready Reserve Force (RRF). The ability to offload cargo in-stream in addition to the flexibility to offload in austere areas, at damaged ports, or in areas where no ports exist, is needed. The Joint Logistics Over-the-Shore (JLOTS) presentation was comprised of an introduction, mission overview, CINC requirements, JLOTS master plan, and a summary.

JLOTS Overview. The Logistics Over-the-Shore (LOTS) mission is to discharge cargo from vessels in-stream, transport cargo to shore or pier, marshal cargo for movement inland, and establish water main supply routes. LOTS operations are conducted over unimproved shoreline, through fixed ports inaccessible to deep draft shipping, or through fixed ports that are damaged or inadequate without the use of LOTS.

JLOTS is a system of systems. Sealift ships, shipboard cranes and ramps, lighters, cranes and RTCHs, and beach interfaces are linked together as one system. All of these systems are interdependent of one another.

CINC Requirements. Safe operations in Sea State 3 (which is a worldwide problem) and the promotion of service interoperability are CINC requirements. The Joint Integrated Process Team was chartered by an Army-Navy JLOTS MOA. The team's long-range vision is to enhance coordination between services and the JLOTS community to optimize cargo throughput for the CINC warfighter. The development of a plan for an integrated, service-interoperable Sea State 3 JLOTS capability is the near-term focus.

JLOTS Master Plan. The JLOTS Master Plan Focus Groups is a system-of-systems approach to developing a Sea State 3 operating capability in the following programs and systems:

- Ship operations and cargo movement
- Mooring, fendering, and ramp interface
- Ship-to-shore and lighter discharge operations
- Sea state mitigation
- Training, C2, and doctrine
- Future systems and operational alternatives

Summary. In summary, the master plan addresses the high level requirements of Sea State 3 and integrates the entire JLOTS community toward acquisition, while leveraging current government and industry efforts. Copies of the presentation materials may be found in Appendix C, on page C-16.

Topic: Sealift R&D Program

Presented by: Mr. Art Rausch, CDNSWC

Synopsis of Presentation. The goal of the Sealift R&D program is much broader than JLOTS and includes the entire sealift world, from current ships, future ships, to high speed ships in the distant future. The main goal of this program is to investigate and develop promising concepts and technologies to improve Strategic Sealift capabilities and reduce costs.

The program is funded under the National Defense Sealift fund by N42. NAVSEA distributes funding to various activities, laboratories, or Carderock, Panama City Coastal Systems Station, a branch of the Dalgren Division Naval Surface Warfare Center, and NFESC. Commercial ship utilization, converting commercial ships to military use if necessary, and underway replenishment systems, are examples of projects funded in prior years.

Some of the current tasks include roll on/float off, environmental effects on JLOTS operations, ship platform mooring, lighter fendering, and ABLTS. Work continues on many tasks such as the improvement of the riderblock tagline system, stereovision, the spreaderbar tagline system, the intelligent spreader bar, ship motion/control systems, and the advanced shipboard crane pendulation control system. The ATD is approved for a FY00 start. In addition, current tasks also include the composite causeway, the advanced lighter simulator/trainer, the LCAC/LASH ship, and the float ballast breakwater. Copies of the presentation materials may be found in Appendix C, on page C-21.

CURRENT R&D PROGRAMS

Topic: Rapid Ship to Shore Transport

Presented by: Ms. Michele Murdoch, NFESC, ESC31

Synopsis of Presentation. Assessing the feasibility of reconfiguring existing fast ferry hulls for use as rapid surface cargo transport vessels is the objective of this task. These vessels could provide support to both JLOTS and sea-based operations in the transportation of cargo from ship to shore or ship to ship. These vessels are available on the commercial used-vessel market. This investigation represents one part of a one-year ONR 6.2 task to evaluate the feasibility of using available hulls to improve logistics capabilities. Hulls available through both the Navy's inactive fleet as well as commercially available hulls are being considered.

A chart that provides comparisons of length, beam, draft, speed, passenger and vehicle payload, and cost of various fast ferries can be found in Appendix C on page C-23. The types of ferries compared in this chart are:

- Ferries on the used-vessel market
- "Regular" or traditional speed ferries
- New generation fast ferries
- The SLICE vessel recently developed and fabricated under an ONR program

This task involves a multi-step approach that includes the following:

- Identification of fast ferries currently available in the commercial market
- Determination of the existing cargo transport capabilities of the most promising hulls
- Identification and evaluation of any modifications required to expand those capabilities to meet logistics support requirements

- Comparison of cost and capability of existing systems to a purpose-built lighter
- Development of recommendations for follow-on investigations or demonstrations if results show promise.

Information gathered to date includes factors that offer both challenges and opportunities. Some of the challenges include the fact that there are few fast ferries available on the used market at this time, most high speed ferries are passenger-capable only, which indicates the potential for substantial upgrading requirements to transport cargo, the cost to purchase and modify these vessels may exceed that of a purpose-built high speed lighter, and that increasing the payload and deck strength may decrease speed or require so much fuel that range requirements cannot be met.

However, the demand for fast ferries with greater performance is expanding the commercial market in addition to expanding the technology to yield greater speed and payload capabilities for these types of vessels. These advancements may provide valuable opportunities for similar improvements to cargo transport vessels in support of logistics operations.

At present, a good sample of ferry hulls that are available on the commercial market has been identified as well as recent capabilities and advancements. The remaining tasks in this effort are to complete identification of available ferries in the U.S. market, evaluate the feasibility of converting these for logistics use as compared to existing systems and purpose-built vessels, and prepare recommendations for follow-on study or demonstration if the initial study indicates promise. The task is scheduled for completion in December 1998. Copies of the presentation materials may be found in Appendix C, on page C-23.

Topic: Fuels Program

Presented by: Mr. Chip Nixon, NFESC, ESC31

Synopsis of Presentation. Three projects related to ship-to-shore bulk liquid delivery were presented. A summary of the Autonomous Marine Booster Pump (AMBP), Amphibious Bulk Liquid Transfer System (ABLTS), and D-Day Mobile Fuel Distribution (DMFD) projects follows:

Autonomous Marine Booster Pump (AMBP). The AMBP project is a 6.2 effort to develop a booster pump mechanism for ship-to-shore delivery of bulk liquids at extended standoff distances. The most promising mechanism is an automated pump buoy that uses an RF modem link to allow monitoring and control of the buoy from the beach. An onboard computer and control system maintains system pumping parameters within specified limits as set by the operator. A proof of concept testbed of the AMBP is being fabricated and is scheduled for testing in FY99.

Amphibious Bulk Liquid Transfer System (ABLTS). The ABLTS is a 6.4 project that has transitioned to acquisition. The ABLTS will replace the existing AABFS as the primary means of bulk liquid delivery from MPF ships in-stream. Like the AABFS, the ABLTS will consist of 10,000 feet of reel-mounted floating hose and ancillary equipment. By using lightweight hose and an updated design, the ABLTS will have improved transportability, reliability, and maintainability. The ABLTS is scheduled for fielding in FY00.

D-Day Mobile Fuel Distribution (DMFD). The D-Day Mobile Fuel Distribution (DMFD) program is a joint U.S. Navy and U.S. Marine Corps (USN/USMC) effort to develop and demonstrate a family of lightweight, high strength, collapsible, fluid containers, and rapid fluid transfer mechanisms to provide the capability to expediently move fuel (or water) from ship-to-shore during the initial stages of an amphibious assault. The DMFD concept will enable the use of the high speed, Sea State 3 capable, Landing Craft Air Cushion (LCAC) as an efficient fuel transfer platform. Three alternative fuel transfer systems will be developed and demonstrated:

1) Pressurized (5-10 psi), high strength bladders nominally sized at 500 gallons, filled, and then moved onto the LCAC. This system also includes a transport pallet compatible with the USMC Logistics Vehicle System (LVS) Mk-18 self-loading trailer and a modular pump unit.

2) Multiple 3,000-gallon systems mounted on a flatrack equipped with a pump dispensing unit. The flatrack will also be compatible with LVS. The 3,000-gallon systems are either pumped full aboard the LCAC, or filled, then moved aboard.

3) Single 15,000-gallon system secured to the deck of the LCAC and pumped full aboard the LCAC.

Each of these three systems offers a tradeoff between logistical/tactical flexibility and efficiency that covers the operating envelope of the LCAC in terms of load and available deck space. Fleet demonstrations of the DMFD systems are scheduled for FY00. Copies of the presentation materials may be found in Appendix C, on page C-24.

Topic: Rapid Nearshore Geotechnical Survey

Presented by: Dr. Dan True, NFESC, ESC51

Synopsis of Presentation. This briefing focused on two development efforts related to the siting of elevated causeways and a third that is generally applicable to determining the offshore current environment. The Rapid Nearshore Geotechnical Survey project addresses the need for site surveys for Amphibious Construction Battalions utilizing the development of mechanical and acoustic testing of soils in shoaling water, primarily for siting elevated causeways.

Prediction of pile installation performance is important in order to select a satisfactory site. If the seafloor is too hard, the piles will reach refusal too soon, rendering their lateral capacity inadequate; if it is too soft, they will be driven too deeply before reaching their required vertical capacity, making total length of available piling inadequate to support a full-length causeway.

The Rapid Penetration Test (RPT) System is a mechanical test probe that can be driven into the seafloor (up to 40 feet) by divers using an underwater percussion hammer. It provides "ground truth" for pile driving in soils for which it has been calibrated (corals and coralline soils have not been calibrated). RPT System development is completed and has been delivered to the UCTs for use in support of PHIBCB siting needs.

The Acoustic Reflection Geotechnical Surveying (ARGS) System is an acoustic scanning system that is towed above or on the seafloor to provide a profile of sub-bottom sediments to penetrations up to 130 feet (less for sands than for clays). The profile shows zones and some information regarding sediment properties can be derived. The RPT is used to obtain more definitive pile-related soil property information at points within the scanned zones. ARGS System development is nearly completed; completion and delivery to the UCTs is expected by March 1999.

The Acoustic Doppler [Current] Profiler (ADP), a bottom-sitting sensor that provides current profile information for the water column above it, to a water depth of 250 feet, is another tool under development. Easily deployable, it provides a real-time radio-link readout that will augment PHIBCB siting information, and development and delivery to the UCTs is nearly complete. Copies of the presentation materials may be found in Appendix C, on page C-30.

Topic: JLOTS Lessons Learned

Presented by: Mr. Billy Karrh, NFESC, ESC31

Synopsis of Presentation. NFESC has been tasked by NAVFAC to provide engineering and technical services to solve operational and training problems as identified through the J-LOTS Lessons Learned Process. NFESC personnel meet with the Naval Beach Group users and the Seabee Logistics Center (SLC) to prioritize a list of products or process improvements. Once the tasks are identified, NFESC and SLC project leaders meet to ensure that the end product can be transitioned to SLC for implementation as a FLEET asset, following the implementation of appropriate field testing. In addition, NFESC personnel also coordinate with NGB users to ensure that the product meets user needs.

Current tasks include:

- JMLS Support - Small improvements to increase the speed, improve capability, decrease repair costs and repair time, and lengthen operational life.

- ELCAS (M) Pile Driving Improvements - Pile driving is a time intensive process. Minimizing pile driving time means ELCAS will be operational sooner.

- Improved ELCAS (M) Pile Splicer - The ELCAS currently delivers piles in 38-foot lengths. Based on seafloor conditions, splices may be needed to drive the piles deep enough for sufficient loading capacity. Pile splicing is a time-intensive process. Improvements to the vertical pile splicer and the development of a horizontal pile splicer would significantly reduce splicing time and reduce the number of steelworkers required.

- Expedient ELCAS (M) Operations - Prior to securing the causeway with pilings, the ELCAS (M) components and support equipment must move from ship to shore. Improved connection procedures for ship to shore movements could increase safety, reduce transport time, and decrease the weight and type of cargo for transport.

Copies of the presentation materials may be found in Appendix C, on page C-33.

Topic: Intuitive Joystick Control System

Presented by: Mr. Peter Tabor, NFESC, ESC31

Synopsis of Presentation. NFESC is developing an intuitive causeway ferry control system that will help satisfy fleet requirements for a Sea State 3 JLOTS capability. The intuitive causeway ferry control system integrates the control of two or more fully azimuthing waterjets and optimizes their individual propulsion to provide the desired causeway ferry response. The operator provides the desired input through a three-axis joystick. The joystick is a component of a vessel control system that couples onboard sensors with state-of-the-art computer programming to control the translation and rotation of the craft simultaneously. The system translates simple movements of the joystick into complicated thruster rotations and throttle accelerations that efficiently maintain or change the desired position and heading of a causeway ferry. To move the causeway ferry sideways, the joystick is moved sideways. If, while moving sideways, the causeway ferry should be rotated, rotate the joystick in the appropriate direction. The further the joystick is moved or rotated, the greater the propulsion force in that direction.

The intuitive joystick control system was tested in San Diego Bay, California. The test platform consisted of a causeway ferry with two non-powered causeway sections and two side-loadable warping tugs, one at each end with sterns facing outboard to simulate a bow thruster. The bow and stern-powered sections were modified for control by a commercially available joystick system. The test demonstrated how commercial technology could dramatically improve maneuverability while simplifying craft operation and enhancing safety. Secondary benefits included better fuel economy, increased system reliability, improved mooring potential and reduced training expenses. One experienced operator observed that while using the joystick, it was the first time he had docked the causeway ferry with one hand in his pocket! Copies of the presentation materials may be found in Appendix C, on page C-39.

Topic: Pile Splicer

Presented by: Dr. Tom Lin, NFESC, ESC31

Synopsis of Presentation. NFESC was tasked to develop a rapid pile splicing technology to improve the performance of the Navy Modular Elevated Causeway System, ELCAS (M).

The ELCAS (M) is supported entirely by steel pipe piles that have an outside diameter of 24 inches with a 0.5-inch thickness. Piles must be driven to a sufficient penetration depth to develop the required soil bearing capacity. At locations where soft soils are encountered, a deeper pile penetration depth is required, which may result in the need for more pile splicing. The current splicing practice requires the employment of one to three welders using hand-held welding stick guns to weld around the piles. The procedure takes about 3 hours and usually requires a total of five welding passes on each pile.

The innovative automated pile splicer consists of a magnetic driver unit, a hand-held control switch box, an automated wire welder, and chain guide ring. The splicer is mounted on a hand-cart and weighted to about 120 pounds, allowing the splicer to be moved around with ease. The splicer can be adapted to use the existing power generating system for the welding stick gun, and one welder can splice a pile with only three welding passes in less than 40 minutes. This technological development represents significant time-savings since pile splicing is on the critical path of the ELCAS (M) installation. Copies of the presentation materials may be found in Appendix C, on page C-42.

Topic: Asset Tracking

Presented by: Mr. Bill Varnava, NFESC, ESC32

Synopsis of Presentation. Three projects are included in the NFESC Asset Visibility program:

- Naval Total Asset Visibility (NTAV) - An exploratory development effort funded by the Office of Naval Research (ONR) under 6.2 program.
- Naval Asset Visibility (NAV) - An advanced technology demonstration also funded by ONR under the 6.3 program.
- Seabee Radio Frequency Identification (RFID) Prototype - A prototype demonstration of radio frequency equipment funded by Naval Supply Systems.

Background. There are three common methods that can be used to track equipment and supplies: paper and pencil manifests, bar-coding, and radio frequency identification (RFID). Paper manifests that are attached to the outside of containers are time consuming to create, easily lost, and often inaccurate. Bar-coding items requires a direct line of sight and items cannot be read remotely. Also, environmental factors such as sunlight and dirt may result in barcode labels that are unreadable. RFID technology offers a better solution that allows a user to remotely interrogate a small RF tag containing data on the assets.

The need for an RFID system in which the user quickly locates and identifies assets in a container was demonstrated during Operation Desert Storm. It was estimated that over 25,000 containers had to be opened to determine the contents due to missing or inaccurate packing lists. This type of experience has caused a lack of faith in the current logistics system.

Project Vision. The overall goals of the asset visibility effort are to track and locate items as they move from the point of origin to the point of destination. The use of RFID technology will provide total asset visibility (TAV) by locating and tracking supplies onboard ship, or moving in transit, and ultimately to arrival at a base camp or staging area.

NTAV Overview. The NTAV project is focused on developing various hardware components for achieving TAV. There are three main areas of emphasis: break bulk package tracking, asset status and monitoring, and integration with satellite communication systems.

Package Tag Development. The package tag is a small radio frequency (RF) tag that would be attached to individual end items for tracking purposes, with the ability to communicate with a larger manifest tag on the outside of a container. The goal is to provide autonomous manifesting through the use of tag-to-tag communications. A tag database on the outside of the container would automatically be updated when an item was added or removed. DARPA is conducting a related effort under the Advanced Logistics Program (ALP) but the effort is more complicated and involves several more steps and additional equipment.

Sensor Tag. A sensor tag that provides asset status and condition is under development. The goal is to create a small tag by combining sensor and RFID technology which could monitor certain parameters, and send a signal back to the user if a particular threshold is reached. For example, a sensor tag could be used to monitor the temperature of a container. If a specific temperature were exceeded, the tag would send an automatic alarm signal back to the user. This concept of tag-initiated communications is unique to this effort. The Naval Surface Warfare Center, Indian Head, is performing some related work. Their interest is in micro-electrical mechanical systems (MEMS), essentially very small sensor devices, to perform condition-based maintenance on ordinance. ONR is also researching the use of sensors onboard ships in various engineering compartments for monitoring different parameters. The ONR program is called the Reduced Ship Crew through Virtual Presence (RSVP). In the future, this type of sensor system could provide a built-in communications structure onboard ship to link up with the RFID system.

Satellite Communications. Satellites can be used to relay data if users are not in close proximity to the assets. The goal of this effort is to ensure that any component developed will be compatible with existing standards. NFESC has some contract efforts with Qualcomm and KVH Industries to improve the methods of long range communications with RF tags.

NAV Overview. The NAV effort is focused on the use of RFID technology in the Maritime Prepositioned Force (MPF) operations. The goal is to establish an RFID interrogation network onboard ship, at staging areas onshore, and at delivery points, to monitor the logistics throughput and status of equipment and supplies as they are offloaded from an MPF ship. The integration of information provided by RFID with other legacy software systems used to manage logistics operations such as TC-AIMS, CAEMS, CALMS, and MDSS II, is being addressed by NAV. For example, the RFID data could be fed into the common data repository (COMDAR), which is a relational database under development for improving the Marine Corps Combat Service Support Operations Center (CSSOC), that will provide users with a measure of asset visibility. Another aspect of the NAV program is the development of a software tool called the MPF Information Tool (MIT) for assisting planners involved with MPF operations. This software program will provide a visual picture of the decks onboard ships with the ability to generate a variety of reports on assets.

FY99 Plans. NFESC is establishing a logistics information systems (LIS) laboratory to test and demonstrate the software and hardware being developed for the Marine Corps CSSOC program. The FY99 plans for the Asset Visibility program include integrating the RFID system into the LIS lab, performing field assessments on newly developed components, and collaborating with the Seabees on RFID concepts. The Seabee project will investigate the installation of a prototype RFID system to determine the benefits of this technology. Copies of the presentation materials may be found in Appendix C, on page C-47.

ENGINEERING ISSUES

A series of presentations on ongoing engineering issues with Beach Group equipment was made by Seabee Logistics Center (SLC) personnel.

Topic: Flexors

Presented by: Ms. Ann Braden, SLC

Synopsis of Presentation. Flexors are used as connectors with Navy lighterage. The Seabee Logistics Center has four major customers of flexors:

1) ACB 1, Coronado, California
2) ACB 2, Little Creek, Virginia
3) BICmd, Jacksonville, Florida
4) EWTGPAC, Coronado, California

Prior to 1989, damaged flexors were sent to disposal. In 1989, the Civil Engineer Support Office (CESO) initiated the exploration of flexor repair vice the throw-away philosophy. The Naval Civil Engineering Laboratory (NCEL) performed cyclic tests which later resulted in CESO's development of the flexor repair/quality inspection process.

To date, the refurbishment program has repaired a total of 200 flexors. The actual repair cost was $513K. Estimated cost of new flexors are $8.5K. Using the 200 flexors as an example, newly procured, the cost is $1.7M; refurbished flexors result in a savings to the government of $1.2M. Copies of the presentation materials may be found in Appendix C, on page C-50.

Topic: Navy Lighterage Causeway Condition Survey

Presented by: Mr. Steve Maggipinto, SLC

Synopsis of Presentation. A condition survey of Navy Lighterage (NL) Causeway fleet assets revealed that painting steel causeways with inorganic zinc vice traditional epoxy extended the service life of those coated with zinc by 50-100%. The number of causeways that will require replacement before JMLS (Sea State 3 system) is fielded can be reduced if this method is utilized.

Updating the existing powered causeways (SLWTs and CSPs) to the Oregon Iron Works configuration hydraulic system will significantly increase mission readiness, in addition to eliminating the need for constant adjustment and external leakage of the steering system. The cost per boat is $12-15K. Copies of the presentation materials may be found in Appendix C, on page C-51.

Topic: ABLTS

Presented by: Mr. Mike Smith, SLC

Synopsis of Presentation. The Amphibious Bulk Liquid Transfer System (ABLTS) is a hosereel system for transportation of fuel and water from ship to shore. The system consists of all the hardware required to package, deploy, maintain, and retrieve a lightweight flexible hose from the beach interface unit on the shore to the supply ship offshore.

Each ABLTS system consists of two hosereels, each containing 5,000 feet of six-inch fuel hose, and one hosereel containing 10,000 feet of four-inch potable water. The old system from the 1960s was difficult to maintain, outsized, laborious to transport (could not be transported by road, air, or rail), and experienced problems with the mechanical breaking system. The new system will be procured in a four phase, fixed price contract and will include a hydraulic breaking system. Copies of the presentation materials may be found in Appendix C, on page C-52.

Topic: Metal Trades

Presented by: Ms. Ann Braden, SLC

Synopsis of Presentation. The purpose of the non-powered causeway contract is to construct floating causeways in support of the MPF Operation and NCF Amphibious Mission. The contract was awarded to Metal Trades, Inc. of Charleston, South Carolina, in February 1996. Equipment types are as follows:

- Assembled causeway section, non-powered (beach ends)
- Assembled causeway section, non-powered (intermediates)
- Unassembled causeway kits
- Spare parts

Contract status reports that the requirements are ahead of the original schedule, with 27 modifications issued, and contract value to date is $17,495,603. Copies of the presentation materials may be found in Appendix C, on page C-53.

Topic: CED GP Workload, ELCAS (M)

Presented by: Mr. Richard Webster, SLC

Synopsis of Presentation. Several work efforts in FY98 were completed or are in process by CED Gulfport:

- BEEBE Winch Overhauls - Seven completed
- MOD SET #3 - To be completed the end of August 1998
- TA-56 Parts Support - Fabricated beam weldments and procured anchor retainers and fuel strainers
- LARC V Overhaul Program - A total quantity of 22 steering arms were obtained from the manufacturer.

Additional work efforts include: BEEBE winch overhauls, PH10/11 padeyes for repair, LARC V parts purchase, and winch parts purchase. The development effort for the ELCAS (M) system technical manual is underway with an estimated completion date in the fourth quarter of FY99. The Coastal/APL development completion date was anticipated in the fourth quarter of FY98. Copies of the presentation materials may be found in Appendix C, on page C-55.

Topic: TA-55

Presented by: Mr. Bob Bailey, SLC

Synopsis of Presentation. Adjustments and changes of the TA-55 is based on needs and modernization requirements. The customers supported by TA-55 are:

- PHIPCB ONE
- NBG ONE
- BMU ONE
- PHIBCB TWO
- NBG TWO
- BMU TWO

Changes were made after operation Desert Storm. RO/RO facility with causeways were added and buoys were upgraded to the inflatable type. Copies of the presentation materials may be found in Appendix C, on page C-55.

Topic: LARC V

Presented by: Mr. Richard Webster, SLC

Synopsis of Presentation. The LARC V Supportability Analysis, Phase 1 Process, includes a validation of the inventory of physical assets, audit overhaul maintenance records, and the development of a cost model. The Phase 2 follow-on program planning includes SLEP (if feasible) and preparation of technical data. Copies of the presentation materials may be found in Appendix C, on page C-57.

Appendix A

1998 Amphibious Systems R & D Working Group Meeting Attendees

Name	Command	Address	Phone and Fax Number	Email Address
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Appendix B

1998 Amphibious Systems R & D Working Group Meeting

AGENDA

Wednesday, 19 August

WELCOME AND ADMINISTRATIVE ANNOUNCEMENTS

TIME:	TOPIC:	SPEAKER:
0800 - 0815	Welcome	CAPT Donald Morris, CO, NFESC
0815 - 0830	Administrative Announcements	Mr. Woody Bretz, NFESC, ESC31

FLEET PERSPECTIVE

0830 - 0900	PHIBCB-1	CAPT Beckmann ACB-1
0900 - 0930	PHIBCB-2	CDR W.J. Beary ACB-2
0930 - 1000	Beach Group One	LCDR Drzewiecki NBG One
1000 - 1030	Beach Group Two	CAPT J.E. Schill NBG Two

PROGRAMMATIC ISSUES

1030 - 1045	**BREAK**	
1045 - 1145	NAVFAC Program	Mr. Greg Walker, NAVFAC Seabees
1145 - 1300	Lunch Break	
1300 - 1330	N42 Perspective	LCDR Tom Satterly, N42
1330 - 1400	Far Term Strategic Sealift	Mr. Art Rausch, NSWC – CD
1400 - 1415	**BREAK**	

Wednesday, 19 August (continued)

PROGRAMMATIC ISSUES (continued)

TIME:	TOPIC:	SPEAKER:
1415 - 1430	Seabee Logistics Center	Mr. Jeff Albarado, SLC
1430 - 1500	Sealift Flexor Refurbishment Program	Ms. Anne Braden, SLC
1500 - 1530	Navy Lighterage Causeway Condition Survey	Mr. Steve Maggipinto, SLC
1530 - 1600	ABLTS Procurement	Mr. Dick Stevens, SLC
1600 - 1630	Non-powered Causeway Contract	Ms. Anne Braden, SLC
1630 - 1700	CED Gulfport	Mr. Richard Webster, SLC
1700 - 1730	ELCAS(M) Logistic Tech Documentation	Mr. Richard Webster, SLC
1730 - 1800	TA-55	Mr. Bob Bailey, SLC
1800	**ADJOURN**	

Thursday, 20 August

CURRENT PROGRAMS

0800 - 0830	LARC V	Mr. Richard Webster, SLC
0830 - 0900	Fuels Program	Mr. Chip Nixon, NFESC, ESC31
0900 - 0930	Rapid Ship to Shore Transport	Ms. Michele Murdoch, NFESC, ESC31

Thursday, 20 August (continued)

CURRENT PROGRAMS (continued)

TIME:	TOPIC:	SPEAKER:
0930 - 1000	Asset Tracking	Mr. Bill Varnava, NFESC, ESC32
1000 - 1015	**BREAK**	
1015 - 1045	Lessons Learned	Mr. Billy Karrh, NFESC, ESC31
1045 - 1100	Pile Splicer	Dr. Tom Lin, NFESC, ESC31
1100 - 1130	Siting	Dr. Dan True, NFESC, ESC50
1130 - 1145	Closing Comments	Mr. Woody Bretz, NFESC, ESC31
1145	**ADJOURN AMPHIBIOUS SYSTEMS R&D WORKING GROUP MEETING**	

APPENDIX C

Presentation Materials

Naval Beach Group TWO Perspective

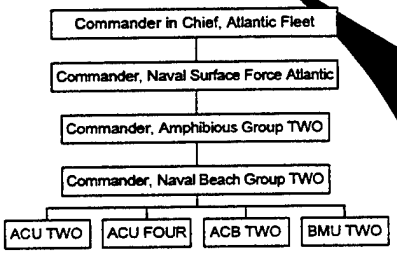
CAPT Jerry Schill

Topics

- Organization and Operations
- Training
- Craft Issues
- C4I Issues
- Summary

Organization and Operations

Organization



Operations

- Mediterranean Deployment (MARG)
- North Atlantic Deployment
- UNITAS
- Maritime Prepositioning Force (MPF)
- Offshore Petroleum Discharge System (OPDS)
- Joint Logistics Over-the-Shore (JLOTS)
- Naval Reserve IDTT/AT training periods
- Readiness for real world contingencies

How We Train

MPF Training Continuum

- Homeport (basic) training
  - Units train independently except wh[en] MPS is available
  - MPS in connection with MMC
- Intermediate training
  - Conducted with MPS
- Advanced training
  - MPS and USMC participation

ARG Detachment Training

- Deploying detachments include LC[U], LCAC, and Beach Party Team
- Detachment trained as integrated unit in a[ccord]ance with Type Commander's training strategy
- Training includes:
  - ship/shore movement and loading/unloading operat[ions]
  - secure/non-secure communications (all modes)
  - night/low visibility operations (NVG)
  - force protection
  - beach salvage

Craft Issues

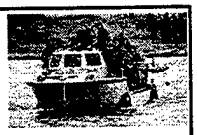
LCAC

- 72 LCAC in service worldwide - 3[0] ACU-4
- First LCAC reaches 20 year service life [in] 2004
- SLEP - (as currently projected) extends life to 30 years
  - phase I: C4I enhancements
  - phase II: buoyancy box replacement

LCU

- First LCU reaches 35 year serv[ice] life in 2005
- LCU service needs to match LHA se[rvice] life (2020)
- Hull replacement program is in progress complete by 2003
- Engine replacement needed
- Navigation upgrade required for shallow water MCM environment

LARC V



- All LARC hulls are over 30 ye[ars] old
- LARC's salvage capability irrepla[ceable]
- Critical parts support to 2005 (2002 M[ax])
  - NAVFAC is assisting in prolonging depth[s] support

CAUSEWAYS

- 8 barge ferries (TA-67) are at Naval Beach Group TWO for AFOE
- Other (TA-55) lighterage is aboard MPS
- Causeways reach 20 year service life in 200
- Sea state 3 lighterage will significantly enhan offload operations
- New lighterage (JMLS) is critical to continued i stream offload capability

C4I Issues

- Recent Enhancements
  - Communications upgrade inLCUs
  - SINCGARS radios
  - Surface surveillance (Furuno) radar on Be Party Team COMM van
  - Navigational Data Integrator (NDI) installati on post-LCAC 60 craft

C4I Issues

- Proposed Upgrades
  - NDI installation on all assault craft
  - SATCOM capability (AN/PAS-5)
  - Data link/JMCIS capability (AN/KSQ-1)

Summary

- NBG-2 assets are currently getting the job done, but...
  - LCAC/LCU/LARC V service life extensions/replacements needed now
  - Improved lighterage will allow MPF opera in higher sea states but only near the shore
  - C4I enhancements will improve over-the-horizon assault capability and operate in a shallow water MCM environment

Amphibious Systems Research and Development Working Group

19 August 1998

The Challenge

STOM
+
SBL
+
OMFTS

= OPERATIONAL AGILITY

The Challenge

ELCAS
+
OPDS

≠ OPERATIONAL AGILITY

Problem

- Contingency operations may not allow time to use conventional methods of gathering environmental data

The Requirement

Rapid production of environmental data for nearshore areas which are currently denied or inaccessible

BATHYMETRY

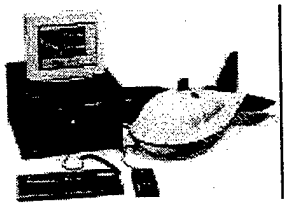
GEOTECHNICAL

SUB-BOTTOM PROFILING

Opportunities

Sub-bottom Profiling

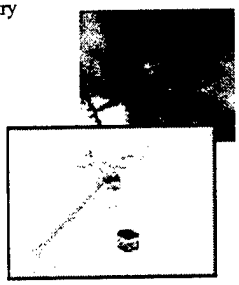
- Chirp Acoustic Profiling
- Lightweight/Portable
- Provides relative quantitative measurements of bottom hardness and sediment classification



Opportunities

Bathymetry

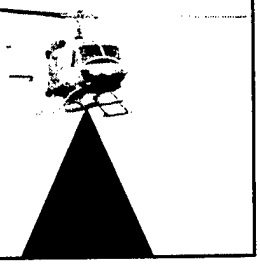
- Magic Lantern
- Airborne laser mine detection system
- Accurate Bathymetry in 10 to 60 ft depth
- Limited by Turbidity



Opportunities

Bathymetry

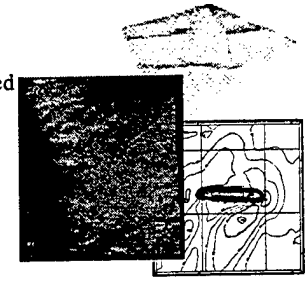
- Laser Airborne Bathymetry Survey (LABS) System
- Joint NIMA and Navy system
- Collect Bathymetric Data for navigation and shallow water military ops
- Integrates COTS Airborne Laser and GFE Platform
- Ground Processing Capability
- Still in development



Opportunities

Bathymetry

- Synthetic Aperture Radar (SAR)
- Airborne or Space-based
- Stand-off Capability
- Relatively Low Resolution



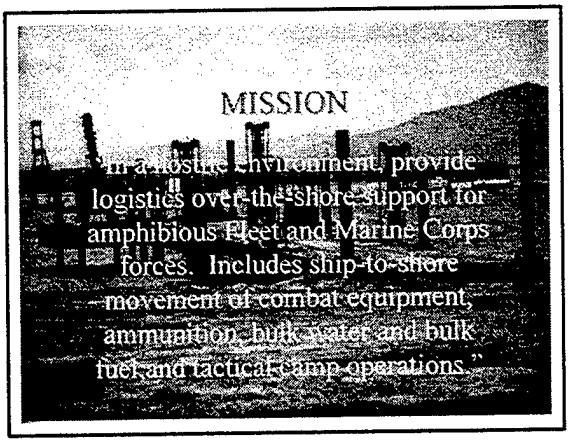
Problem

- ELCAS cannot be constructed in calcareous soils

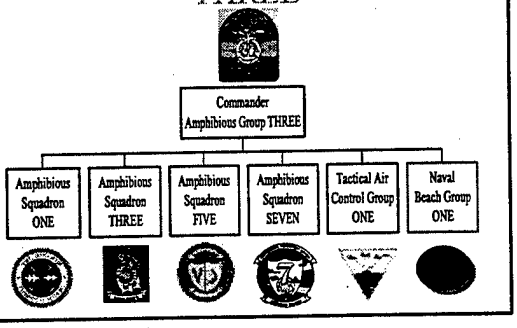
Opportunities

?

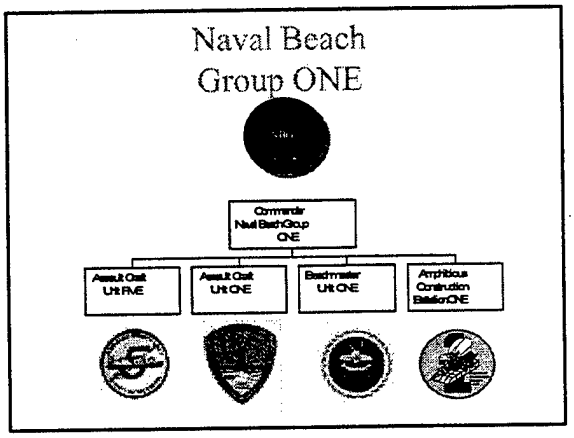
AMPHIBIOUS CONSTRUCTION BATTALION ONE



Amphibious Group THREE



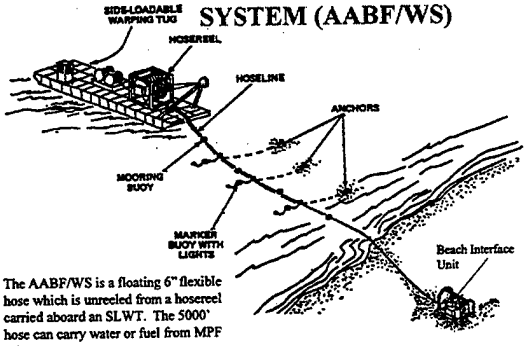
Naval Beach Group ONE



ASSAULT ECHELON

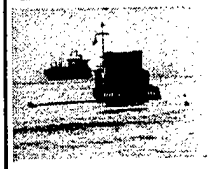
- **Command and Control**
- ***Amphibious Assault Bulk Fuel System/ Water System (AABFS/WS)***
- **Beach Salvage Element**

AMPHIBIOUS ASSAULT BULK FUEL/WATER SYSTEM (AABF/WS)



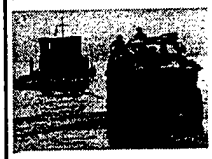
The AABF/WS is a floating 6" flexible hose which is unreeled from a hosereel carried aboard an SLWT. The 5000' hose can carry water or fuel from MPF ships.

AMPHIBIOUS ASSAULT BULK FUEL/WATER SYSTEM



LARC PULLING AABFS HOSE

CONNECTING AABFS HOSE TO FUEL FARM



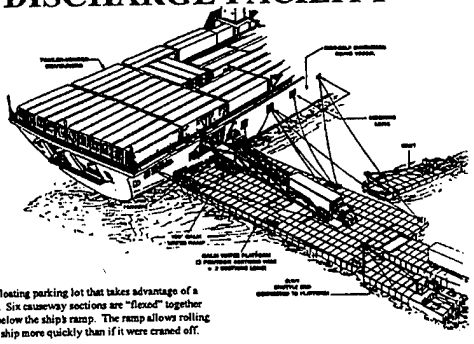
INSTALLING AABFS

FUEL FARM

MARITIME PREPOSITIONING FORCE

- **Command and Control**
- **Offload Control**
- **Beach Salvage Element**
- **Lighterage Repair**
- ***Amphibious Assault Bulk Fuel / Water System***
- ***Causeway Barge Ferries***
- ***Roll-On / Roll-Off Discharge Facility (RRDF)***
- ***850 Man Camp***
- ***Defense***

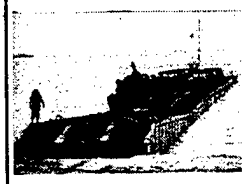
ROLL ON/ROLL OFF DISCHARGE FACILITY



The RRDF is a floating parking lot that takes advantage of a ship's own ramp. Six causeway sections are "flexed" together and positioned below the ship's ramp. The ramp allows rolling stock to exit the ship more quickly than if it were craned off.

BARGE FERRIES

OFFLOADING M-1 TANK



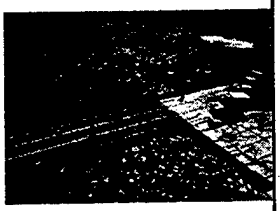
LOADED BARGE FERRY

OFFLOADING FUEL TRUCK

LIFT ON/LIFT OFF

ROLL ON/ROLL OFF DISCHARGE FACILITY

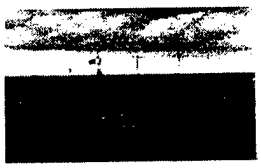
RO/RO PLATFORM



EXERCISING RO/RO PLATFORM

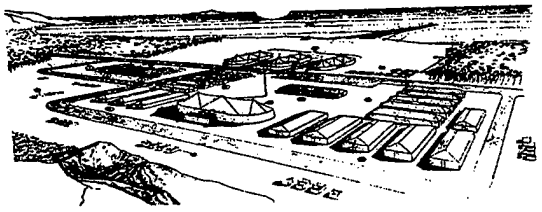
ADMIN PIER

12 SECTION ADMIN PIER



ADMIN PIER W/CRAFT, THAILAND

CAMP SUPPORT



Amphibious Seabees can build and operate camps for up to 1,200 personnel. These camps include: galley, berthing, electrical generation, water purification, showers, heads, medical, camp defense and CBR defense.

CAMP SUPPORT

CAMP AREA
POHANG, KOREA

RIGGING POWER FOR CAMP

SETTING UP TENTS
THAILAND

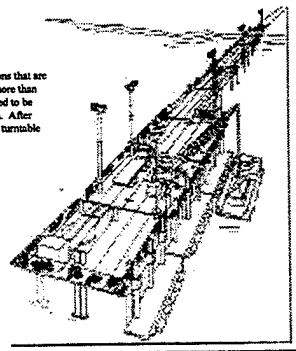
SETTING UP COTS

ASSAULT FOLLOW - ON ECHELON

- **Command and Control**
- **Offload Control**
- **Beach Salvage Element**
- **Lighterage Repair**
- ***Causeway Barge Ferries***
- ***Roll - On / Roll - Off Discharge Facility (RRDF)***
- ***1,200 Man Camp***
- ***Elevated Causeway (ELCAS)***
- ***Offshore Petroleum Discharge System (OPDS)***
- ***Defense***

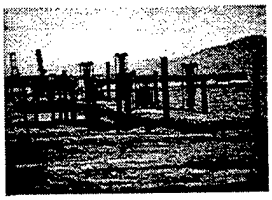
ELEVATED CAUSEWAY

The ELCAS pier is made of causeway sections that are jacked out of the water after the driving of more than 140 steel piles. The 3000'ELCAS is designed to be completed within 7 days of hitting the beach. After completion, a 140-ton crane and air-cushion turntable are used to load and maneuver cargo trucks.



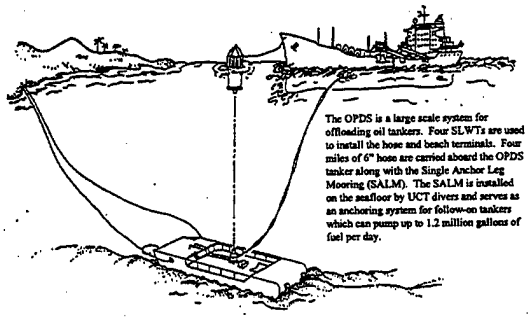
ELEVATED CAUSEWAY

ELCAS SURFSIDE



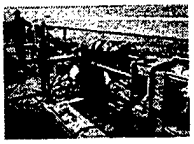
ELCAS BAYSIDE

OFFSHORE PETROLEUM DISCHARGE SYSTEM



The OPDS is a large scale system for offloading oil tankers. Four SLWTs are used to install the hose and beach terminals. Four miles of 6" hose are carried aboard the OPDS tanker along with the Single Anchor Leg Mooring (SALM). The SALM is installed on the seafloor by UCT divers and serves as an anchoring system for follow-on tankers which can pump up to 1.2 million gallons of fuel per day.

OFFSHORE PETROLEUM DISCHARGE SYSTEM



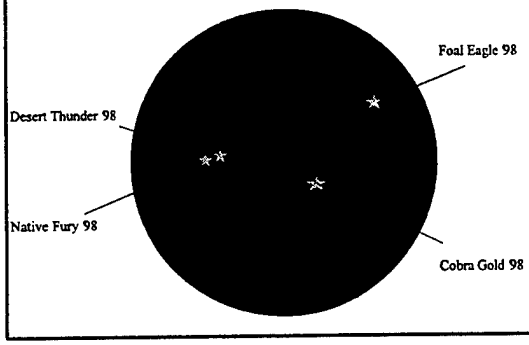
OPDS CLAMPING DEVICE

OPDS HOSE WITH PULL CAP

OPDS TANKER

DEPLOYMENT OF THE SALM

FY 98 OPERATIONS/EXERCISES



ADDITIONAL TRAINING OPPORTUNITIES, FY98

- Naval Support Element Type Training, Roosevelt Roads, Puerto Rico
- Naval Support Element Type Training, San Diego
- RRDF Assembly and Employment, San Diego
- OPDS Training, San Diego
- ELCAS (NL) Training, San Diego
- AABFS/AABWS Training, San Diego

PLATFORMS EXERCISED

- Barge Ferries
- OPDS
- RRDF
- ELCAS (NL)
- AABFS/AABWS

LESSONS LEARNED BARGE FERRIES

- Provide tech manual support for Oregon Iron Works craft.
- Provide lighterage spare parts on MPSRON vessels.
- Provide more frequent MPF ships maintenance reports.
- Improve MPSRON 2 refueling process.
- Alter rough water marriage for added safety.

LESSONS LEARNED OPDS

- Modify CFB baffle to allow pig to pass.
- Successfully optested OUBs towing connected floating hose and submarine hose off the SALM.
- AABFS/OPDS Interface - In San Diego Bay, the interface worked well, but there's no known way to send a pig through the AABFS conduit.

LESSONS LEARNED
RRDF

- Procedure/design? Bowing of platform was significant when supporting the ramp.
- Modify Easy Anchor - retrieval with anchor chain is too cumbersome.
- Add quick release hook for RRDF/Vessel wire rope.
- Add vessel range markers and line-up lines.

LESSONS LEARNED
AABFS/AABWS

- Design anti-sweeping platform for deployable craft. H-bits worked well.
- Develop procedure for removing kinks/twists. Swivels worked well during recent ABLTS testing.
- Develop a pigging system so product can be separated.

LESSONS LEARNED
ELCAS (NL)

- Repair, replace, and calibrate jacks and HPU's .
- Repair beach ramps structural steel and deck.
- Replace rubber and teflon on fender sections.
- Replace turntable tensioner.
- Replace about 50% of lighting system.

UPCOMING EXERCISE SCHEDULE 1998-2000

98 OCT - NOV – FOAL EAGLE/FREEDOM BANNER 98 (MPF/OPDS/APA)

99 FEB – NATIVE FURY 99 (MPF)

99 OCT - NOV – CROCODILE 00 (MPF)

99 OCT - NOV – BRIGHT STAR 00 (OPDS)

00 APR – NATURAL FIRE 00 (MPF)

FUTURE

JMLS (IOC 2001)

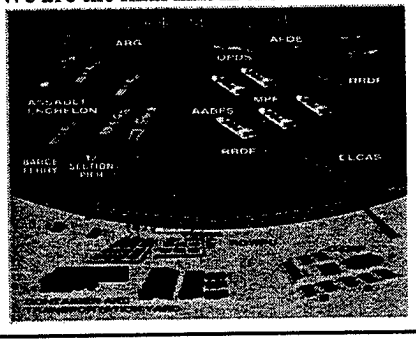
ELCAS(M)(Operational)

TA67(Approved/Unfunded)

OUB's(Operational)

AMPHIBIOUS CONSTRUCTION BATTALION ONE

"We are the final link in the sealift chain"



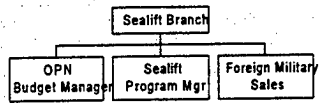
SEALIFT SUPPORT

Greg Walker
NAVFAC SEABEE FL2
walkergr@hq.navfac.navy.mil

Sealift Support Overview

- Other Procurement Navy (OPN)
- Sealift Support Program Structure
- Acquisition Overview
- MPF Overview
- In-service Engineering
- JMLS, NAVFAC organization

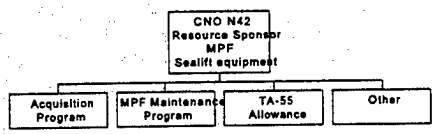
Functional Breakdown



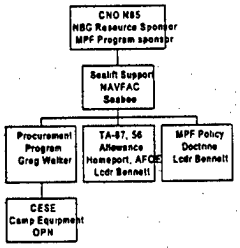
Other Procurement Navy (OPN)

Program	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Total
ELSF	0	0	0	0	280	924	955	1,192	3,351
SEALIFT	8,770	30,410	22,905	60,674	122,958	129,809	132,665	135,583	643,774
NCF	0	3,359	3,144	2,593	1,551	12,488	12,521	12,555	48,211
NBG	0	0	4,157	5,418	8,678	9,744	9,958	10,178	48,133
EOD	0	0	300	300	700	200	400	500	2,400
Total	8,770	33,769	30,506	68,985	134,167	153,165	156,499	160,008	745,869

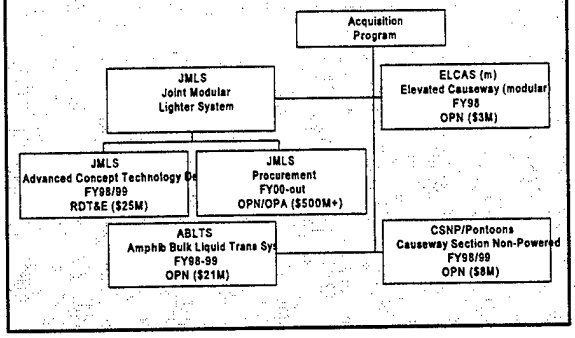
Sealift Program Manager (N42)



NBG Program Manager



Sealift Acquisition Program



JMLS Notional Buy Plan

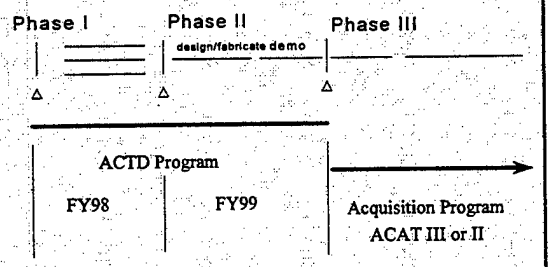
ARMY

	Limited Production Phase III	Full Scale Production Phase IV					
	FY00	FY01	FY02	FY03	FY04	FY05	Total
Warping Tug	4	4	6	4	4	0	22
Causeway Ferry	2	3	3	3	3	3	17
RRDF	2	1	2	1	1	0	7
ACVLAP	0	0	0	0	0	0	0
Floating Causeway	0	1	1	1	1	0	4

NAVY

	Limited Production Phase III	Full Scale Production Phase IV					
	FY00	FY01	FY02	FY03	FY04	FY05	Total
Warping Tug	2	7	10	6	2	0	27
Causeway Ferry	2	6	19	24	8	0	59
RRDF	0	2	2	0	2	0	6
ACVLAP	0	0	0	0	0	3	3
Floating Causeway	0	0	0	0	1	1	2

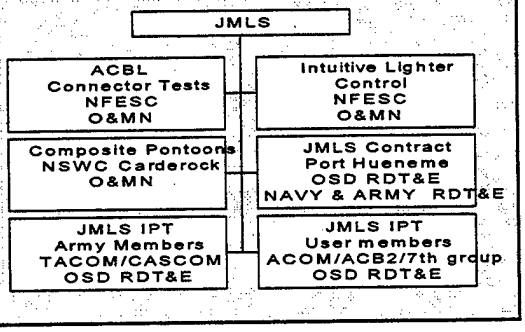
ACTD Strategy



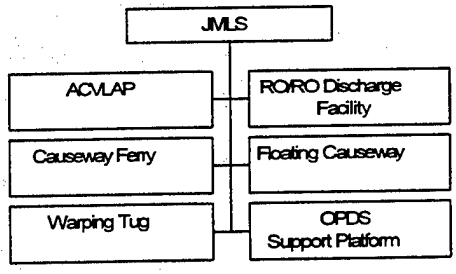
JMLS RDT&E Budget

	FY98	FY99	Total
OSD	3.55	3.55	7.10
Army	0.00	9.10	9.10
Navy	8.00	1.10	9.10
Total	11.55	13.75	25.30

JMLS ACTD components



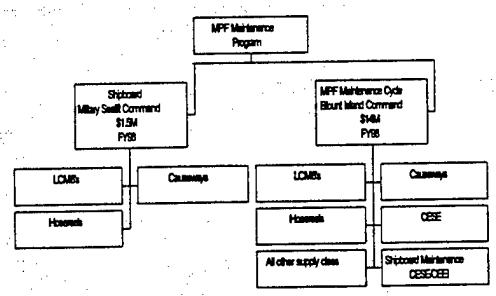
JMLS Systems



JMLS Procurement Budget

	FY00	FY01	FY02	FY03	FY04	FY05	Total
Army	17.1	18.1	9.0	9.6	18.2	18.2	90.2
Navy	20.8	56.7	115.6	121.9	78.5	40.3	433.8
Totals	37.9	74.8	124.6	131.5	96.7	58.5	524.0

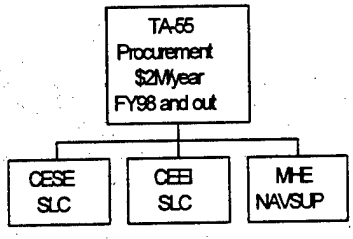
MPF Maintenance



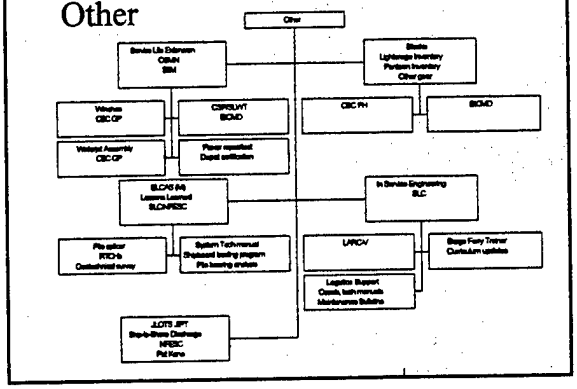
Sealift O&MN Budget

Sealift Support	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05
Equipment Storage	70	76	40	25	0	0	0	0
Life Extension	632	349	0	0	0	0	0	0
Management	4,696	5,477	5,477	4,881	5,477	5,477	5,477	5,477
JLOTS/Exercises	920	5,659	1,589	940	940	940	940	940
MPF Maint	16,105	10,448	10,224	10,192	9,253	8,581	10,173	8,632
Total	22,423	22,009	17,330	16,038	15,670	14,998	16,590	15,049

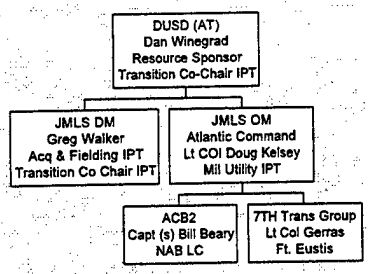
TA-55 Allowance



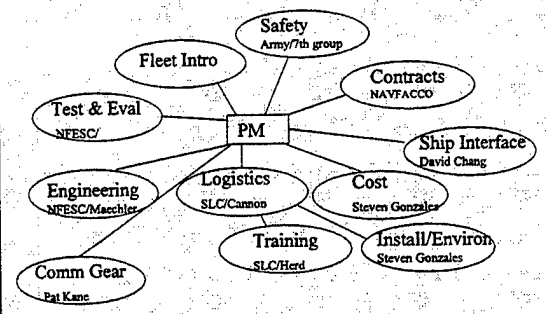
Other



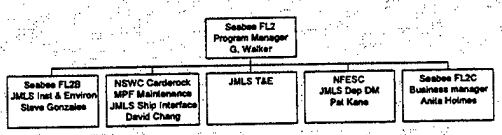
JMLS Organization



JMLS Team Leaders



FL 2 Organization



Issues

- Allowances TA56 AFOE, TA67 AE/AFOE, TA55
- LARC-V Drive train
- ELCAS (m) 7 day installation requirement
- ELCAS (m) site survey
- ELCAS (NL) overhaul
- Future NBG missions

Joint Logistics Over-the-Shore

19 August 1998

LCDR Tom Satterly, CEC, USN
OPNAV N422D

Slide 1

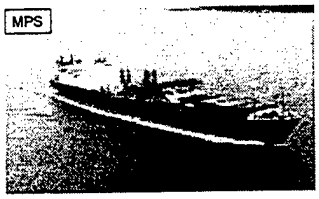
Outline

- Introduction
- Mission Overview
- CINC Requirements
- JLOTS Master Plan
- Summary

Slide 2

Significant Investment in Sealift ...

- $6B Large Medium Speed Roll-on/Roll-off (LMSR) ship acquisition program (since 1990)
- FY98 (O&S): $ 641M Afloat Prepositioning Ships (MPS, AWR-3, USAF)
  $ 302M Ready Reserve Force (RRF)

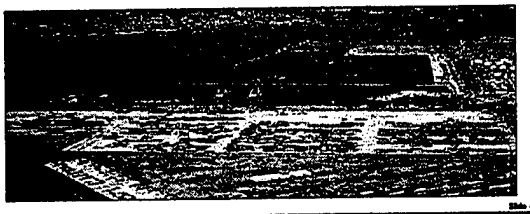


Slide 3

...But need to offload cargo in-stream

Need flexibility to offload where austere, damaged, or no ports exist

- *90% Desert Shield/Desert Storm cargo moved by sea*
- *Fixed Ports of Debarkation: tempting targets of opportunity*
  - WMD: chemical/biological
  - Terrorist



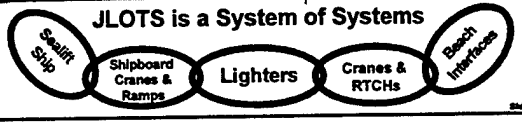
Slide 4

Joint Logistics Over-the-Shore (JLOTS) Overview

- LOTS mission overview
  - *Discharge cargo (dry and liquid) from vessels in-stream*
  - *Transport cargo to shore or pier*
  - *Marshal cargo for movement inland*
  - *Establish water Main Supply Routes (MSR)*
- LOTS environment
  - *Operations conducted over unimproved (bare beach) shorelines*
  - *Through fixed ports not accessible to deep draft shipping*
  - *Through fixed ports damaged or inadequate without use of LOTS*
- JLOTS operations
  - *Army and Navy LOTS operations conducted jointly, mutually supporting each other*

Slide 5

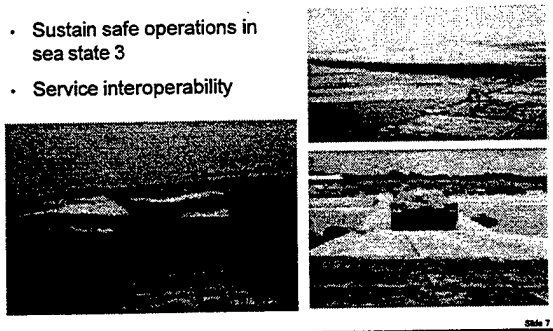
JLOTS is a System of Systems



Slide 6

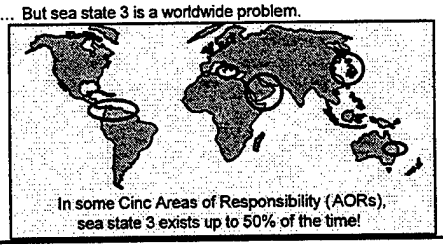
CINC Requirements

- Sustain safe operations in sea state 3
- Service interoperability



A WAR STOPPER

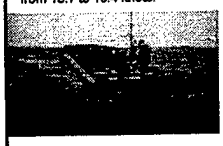
- Example: Some ship offload operations were curtailed in Somalia and most recently in Combined/Joint Exercise Tandem Thrust in Feb/Mar 97, and due to inability to operate in higher sea states...
- ... But sea state 3 is a worldwide problem.



In some Cinc Areas of Responsibility (AORs), sea state 3 exists up to 50% of the time!

Sea State Conditions
(Pierson-Moskowitz Sea Spectrum)

Sea state 3 for JLOTS operations is defined as the combination of sea and swell components, in the littorals, of significant wave heights (H1/3) ranging from 3.5 to 5.0 ft. and wind speeds from 13.7 to 16.4 knots.



Sea State 0:
Wave Height: 0.1 - 0.15 ft
Wind Speed: 2.5 - 2.8 kts

Sea State 1:
Wave Height: 0.5 - 1.2 ft
Wind Speed: 5.1 - 8.0 kts

Sea State 2:
Wave Height: 1.5 - 3.0 ft
Wind Speed: 5.0 - 12.7 kts

Sea State 3:
Wave Height: 3.5 - 5.0 ft
Wind Speed: 13.7 - 16.4 kts

Joint Integrated Process Team

- Chartered by Army-Navy JLOTS MOA in Aug 96
- Long-range vision: *Enhance coordination between Services and the JLOTS community and optimize cargo throughput for CINC warfighter*
- Near-term focus: *Develop plan for integrated, Service-interoperable sea state 3 JLOTS capability*
  - ***JLOTS Support Systems MNS***: Overarching document detailing requirement for sea state 3 JLOTS capability
    *** Navy approved May 97, Army approved Aug 97***

JIPT Focus:
Meet MNS Requirement

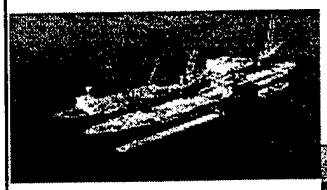
- Develop JLOTS Master Plan
- Integration/Synthesis of:
  - *enabling technologies, training, C2, doctrine*
- Resourcing/Planning to meet vision:
  - *near-, mid-, & far-term strategies*
- Sea State 3 Options Study
  - **Core of JLOTS Master Plan**: *Identified major functional areas & 6.2 enabling technologies*

JLOTS Master Plan Focus Groups

A system of systems approach to developing a sea state 3 operating capability.

Ship Operations &Cargo Movement	Mooring, Fendering, and Ramp Interface	Ship-to-Shore and Lighter Discharge Operations	Sea State Mitigation	Training, C2, & Doctrine	Future Systems and Operational Alternatives
Marty Fink NAVSEA	Ted Vaughters CDNSWC	Greg Walker NAVFAC	Don Resio WES	CDR White EWTGPAC	CWO4 Aube CASCOM

Ship Operations & Cargo Movement
Focus Group



- Advanced Shipboard Crane Motion Control System (ATD)

- Improved Rider Block Tagline System
- Spreader Bar Tagline System
- 6-DOF Intelligent Spreader Bar
- Remote Controlled Crane
- Crane Operator Stereo Vision

Slide 13

Major Programs
Ship Operations & Cargo Movement

- SS3 Crane Capability -- Long term Sealift R&D and Navy 6.3 ATD Program

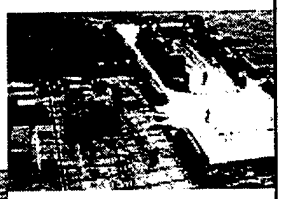
Targeted for Afloat Prepositioned Force

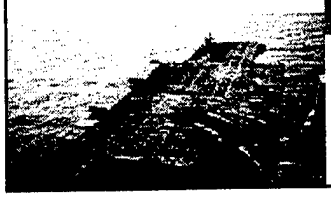
- ATD Objective -- demonstrate shipboard crane pendulation motion control to enable container throughput to a minimum of 300 per day in SS3.
- FY99 ATD Start -- 3 year development effort... demonstration pierside and at sea
- Ongoing projects will be incorporated into ATD

Slide 14

Mooring, Fendering, Ramp, & Lighter Interface
Focus Group

- Lighter/Platform Fendering & Mooring System
- Lighter-to-Platform Interface System
- Design and Load Certification





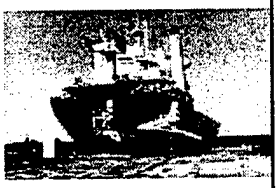
- Dynamic Ramp/Platform Motion Compensator System

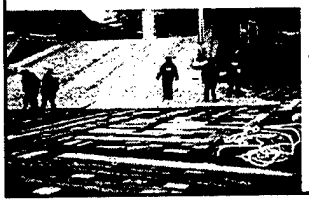
Slide 15

Major Programs
Dynamic Ramp/Platform Motion Compensator

Existing Ramp/Platform Interface is not Sea State 3 Capable

- Ship ramps designed for calm water pier operations, not for dynamic motions.
- Existing/future modular platforms provide no motion mitigation to reduce ramp/platform relative motion.
- Wood dunnage provides little protection for the ramp and is maintenance intensive.

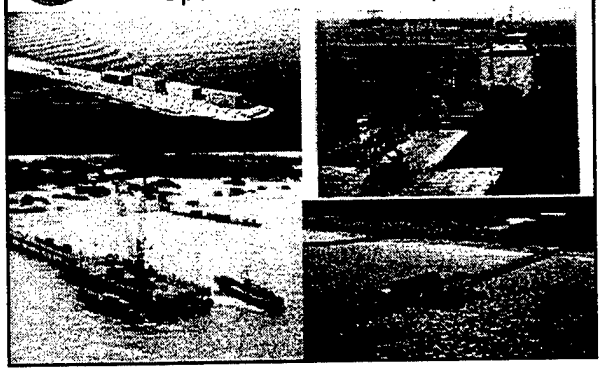




- Objective: Develop SS3 interface capability between ramps of existing RO/RO ships and existing and future floating causeway platforms.

Slide 16

Ship-to-Shore & Lighter Discharge Operations Focus Group

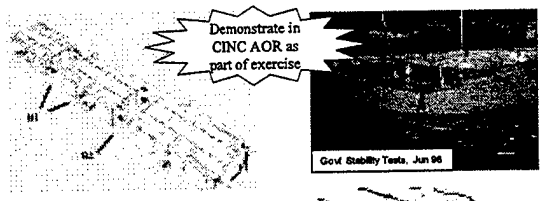


Major Programs
Ship-to-Shore & Lighter Discharge Operations

- Joint Modular Lighter System (JMLS) -- Sea State 3 causeway system ... ACTD ... #4 on JROC list
- ACTD Objective -- Build and demonstrate a prototype causeway lighterage system to safely assemble and operate (in a loaded condition) through SS3

Slide 18

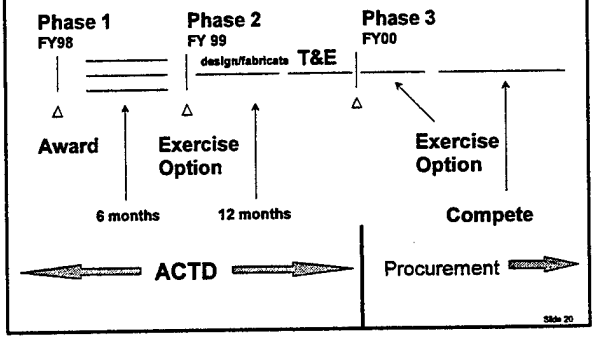
Joint Modular Lighter System
(JMLS)



If successful, establish joint acquisition program... Navy program lead

Slide 19

ACTD Execution Strategy



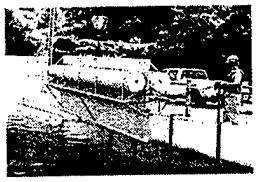
Slide 20

Sea State Mitigation Focus Group

- Rapidly Installed Breakwater System (RIBS) – Army 6.3 ATD Program
- ATD Objective -- demonstrate RIBS'ability to act as a diffraction element for obliquely-incident waves, leaving relatively calm water inside and behind the RIBS structure
- Milestones: Mid-scale field tests in Aug 97, Ocean Scale Test in FY99, Advanced Technology Demonstration in FY99, Initial Full Scale Deployment in FY00, and Full Scale Deployment with Exercise in FY01.

Slide 21

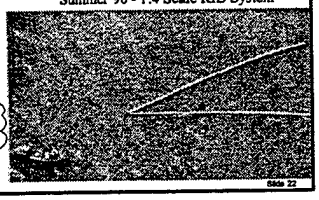
Major Programs
Rapidly Installed Breakwater System



20'module of 1:3 Scale RIB System

Waterways Experiment Station lead on development of RIB

Summer 96 - 1:4 Scale RIB System

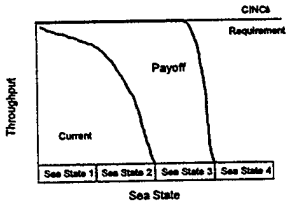


Summer 97 Field Test
Leg length - 250-300' Water depth - 18'
RIB depth - 8-10' Wave height - 1-2'

Slide 22

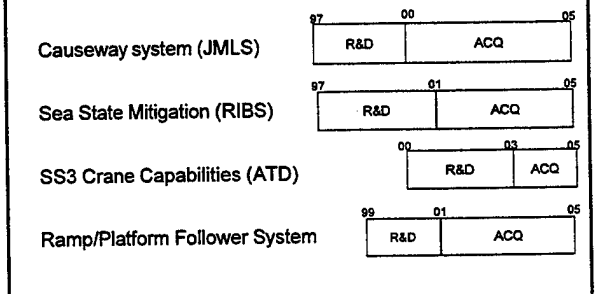
Operational Benefits
Sea State 3 JLOTS

- Operate in sea state 3
- Service interoperable
- Greater operational/tactical flexibility for CINC
- Meets CINC throughput requirements
- Reduced life cycle costs
- Reduced maintenance
- Extend service life



Slide 23

Primary Technology Programs
Timeline / Schedule



Slide 24

Training, Command & Control, & Doctrine Focus Group

Develop a plan to integrate service training requirements and programs:

- Across Current and Future systems/enabling technologies
- School-house, organizational, & unit-level training
- CONUS- and OCONUS-based training evolutions

Coordinate closely with JLOTS Joint Exercise Planning Cell

Intergrated Training/CPX/Wargaming

- Training
  - operation of single system
  - JLOTS C2 course
  - strategic, OPLAN/CONPLAN(CINC planner)
- Training delivery
  - schoolhouse
  - unit level (OJT)
  - simulators/simulations
  - non-resident/interactive software
- Wargaming
  - "work-ups" JLOTS CPX, 2-3 Sept 98
  - play in large jointwargame – need CINC lead

Future Systems & Operational Alternatives

- Link to the future
- Current changing doctrine will change the way we do business:
  - MPF 2010 and MPF Future,
  - Seabasing, and
  - Army After Next
- JLOTS Master Plan must remain actively linked to these efforts
- MPF 2010 Mission Area Analysis (to be completed in FY98) will address future alternatives

Summary

- Master Plan:
  - *Addresses High Level Requirement – Sea State 3*
  - *Integrates entire JLOTS community*
    - Operators – Services – Training
    - Research & Development – Acquisition
  - *Strong Transition to Acquisition*
  - *Leverages current gov't & industry efforts*
  - *Looks to future*

Amphibious Systems R&D Working Group

SEALIFT R&D PROGRAM

Art Rausch
CDNSWC
Aug 19, 1998

Goal

Investigate and develop promising concepts and technologies to improve Strategic Sealift capabilities and reduce costs.

- Advanced Sealift ship concepts
  (High speed, seabasing, MPF)
- Commercial ship utilization
- JLOTS (Dry and Liquid Cargo)
- Underway Replenishment

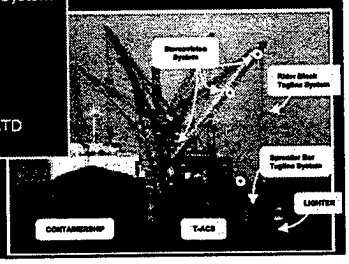
Current Tasks

- Ship Concept Development
  (RO/FO, Cargo System Assessment)
- JIPT support / Options Study update / Environmental Study
- SS3 Ship / platform / lighter fendering and mooring
- ABLTS (AAFS)

Current Tasks, Cont.

Crane Systems
- Improved Riderblock Tagline System
- Stereovision
- Spreaderbar Tagline System
- Intelligent Spreader Bar
- Ship Motion / Control System

- Advanced Shipboard Crane Pendulation Control System ATD approved for FY00 start



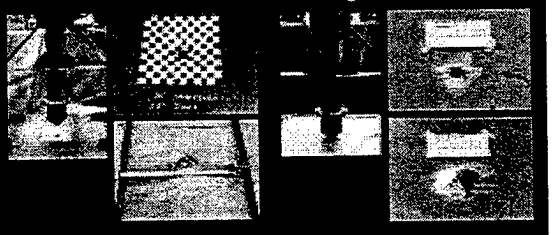
Current Tasks, cont.

- Composite Causeway
- Advanced Lighter Simulator / trainer
- LCAC / LASH Ship Lift
- Float Ballast Breakwater

COMPOSITE CAUSEWAY SIDE PANEL IMPACT TEST

1/4" Steel Panel

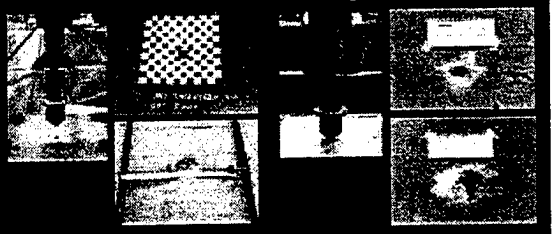
Hand lay-up Panel
Single Skin



COMPOSITE CAUSEWAY SIDE PANEL IMPACT TEST

1/4" Steel Panel

Hand lay-up Panel
Single Skin

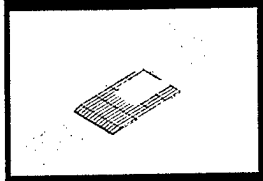


Advanced Lighter Simulator / trainer

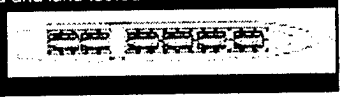
Develop motion base simulator based on CSP, SLWT, & CWF trainer. Provide capability to train lighterage crews or test new SS3 causeway in simulated sea state 3 environment without risk to personnel or equipment.

- Assemble prototype (Oct 98)
  System evaluation and validation
- Prototype Installation at Little Creek, VA (Dec 98)

LCAC / LASH Ship Lift



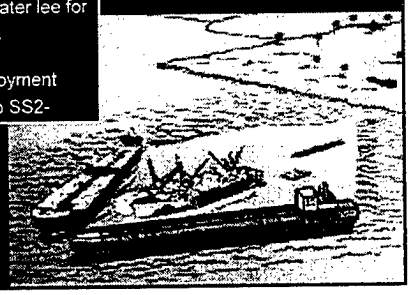
Rigging system fabricated and land tested
Ship test schedule TBD



FLOAT/BALLAST BREAKWATER

Creates a calm water lee for ship to lighter ops

- Rapid Self Deployment
- Reduce SS3+ to SS2-



Rapid Ship to Shore Transport

1998 Amphibious Systems R&D
Working Group Meeting
19-20 Aug

Michele Murdoch
NFESC Code ESC31
(805) 982-1194
murdochm@nfesc.navy.mil

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Rapid Ship to Shore Transport

Objective:

Assess Feasibility of Using Existing Fast Ferry Hulls as Rapid Ship to Shore Transport Vehicles

Potential Payoff:

Rapid Surface Cargo Transfer in Support of JLOTS or Sea-Based Logistics

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Rapid Ship to Shore Transport

Ferry Characteristics

	LENGTH	BEAM	DRAFT	SPEED	# PASS.	# VEH/TR	SM
FAST FERRIES (used, avail.)	130 ft (119-142)	37 ft (37-38)	8 ft (4-11)	43 kts (41-45)	326 (320-331)	0/0 (0/0)	3.2 (2-5)
NEW GEN. FAST FERRY (recent build)	121-413	56-85	9	38-47	300-1500	0-800	6-115
"REGULAR" RO/RO FERRIES (used, avail)	385 (164-540)	62 (45-78)	16 (2-30)	17 (12-22)	1147 (400-2280)	224/44 (58-800)/(9-300)	6.4 (0.7-23)
"REGULAR" PASS. FERRIES (used, avail.)	395 (201-609)	63 (46-84)	19 (13-35)	18 (12-22)	1102 (700-1800)	0/0 (0/0)	5.6 (0.5/15)
SLICE	104	55	14	32	N/A	N/A (50 LT. payload)	15

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Rapid Ship to Shore Transport

Approach

- Identify Available Fast Ferries in Commercial Used-Vessel Market
- Determine Existing Cargo Transport Capabilities
- Identify/Evaluate Required Modifications to Expand Cargo Transport Capabilities
- Compare Cost and Capability of Existing/Modified Ferry to New Build
- Develop Recommendations for Follow-On Effort/Demo if Results Show Promise

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Rapid Ship to Shore Transport

Challenges

- Not Many Fast Ferries on Used Market Identified So Far
- Most 40 kt + Ferries are Passenger Only
- Cost to Purchase, Modify May Exceed New Build (e.g., SLICE)
- Increasing Deck Strength, Payload May Decrease Speed

Opportunities

- Rapidly Expanding Commercial Market
- Commercial Demand for Speed and Payload is Pushing Technology

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Rapid Ship to Shore Transport

Status and Plans

- ✓ Identified Good Sample of Available Ferries
- ✓ Identified Recent Commercial Capabilities, Advancements
- ➢ Complete Identification of Available Ferries in U.S. Market
- ➢ Evaluate Feasibility of Modification Compared to New Build
- ➢ Prepare Recommendations for Follow-On Effort/Demo if Promising
- ➢ Dec 98 Completion

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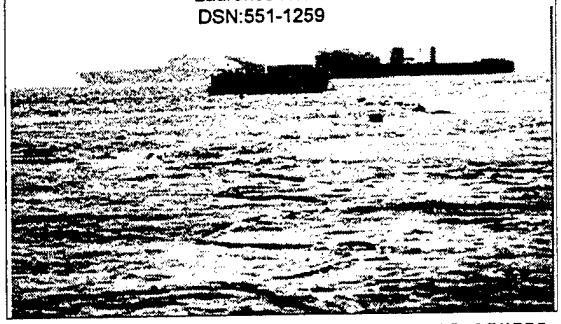
SHIP TO SHORE FUEL SYSTEMS

Laurence Nixon
DSN:551-1259



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Ship-to-Shore Fuel Projects:

- Amphibious Bulk Liquid Transfer System (ABLTS)
- Autonomous Marine Booster Pump (AMBP)
- D-Day Mobile Fuel Distribution (DMFD)

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ABLTS OBJECTIVE:

Replace the existing Amphibious Assault Bulk Fuel System (AABFS).

- Fielded in 1960s
- Outsized (14'x12'x13')
- Heavy (18 tons)
- Difficult to Maintain

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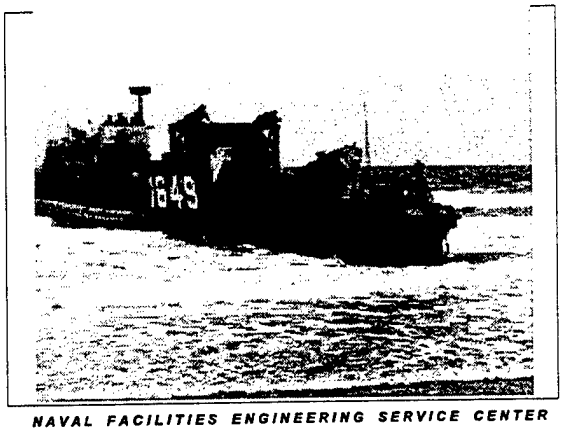

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ABLTS Characteristics:

- Lightweight
- Air Transportable
- Lower Life-Cycle Costs

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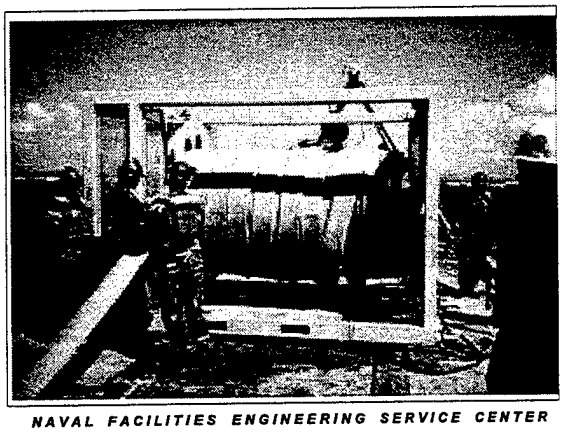

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ABLTS Status

FY96/98

- Engineering Development of Low Torque Buoyant Swivel/Hose Clamps
- Concept Demonstrations (ACB-1)

FY97/98

- Prepare Procurement Package
- Contract Award

FY99

- Production

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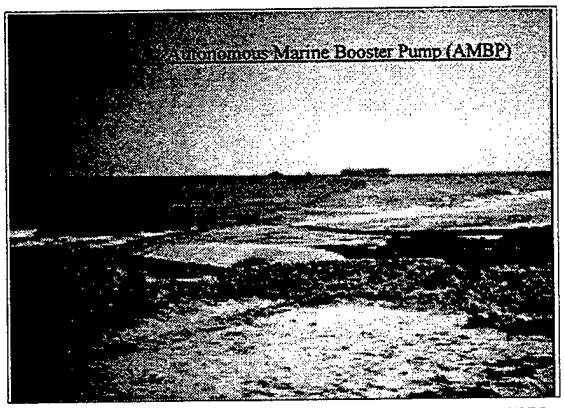

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AMBP Requirement

- Fleet Need For Boosted Pumping Capability For Ship-to-Shore Transfer of Bulk Liquids.
  - –Increased Standoff Distances
    - »Vessel Draft
    - »Site Bathymetry
  - –Increased Flowrates

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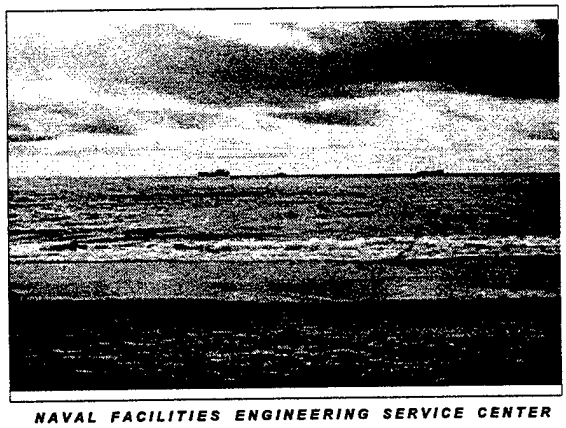

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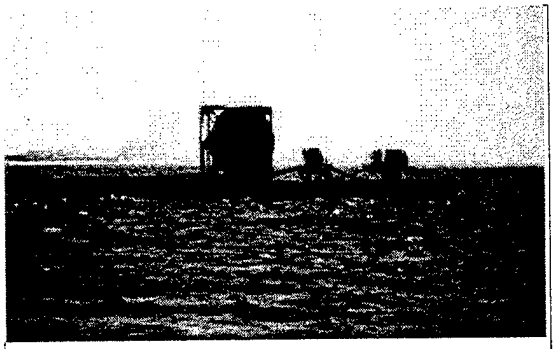

1990: Desert Shield - MPF Offload to Support USMC F.A.R.P

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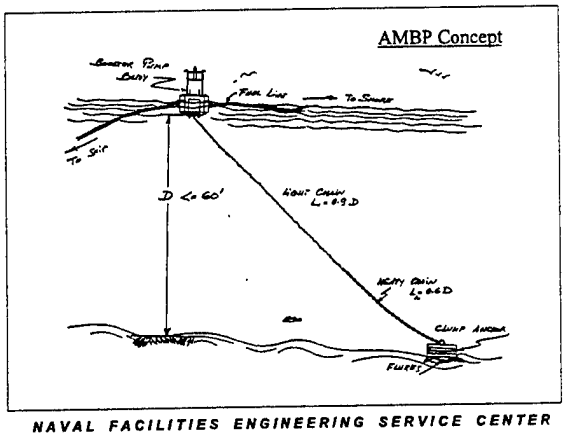

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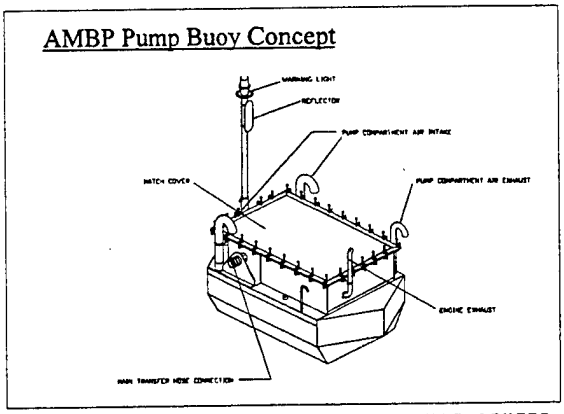

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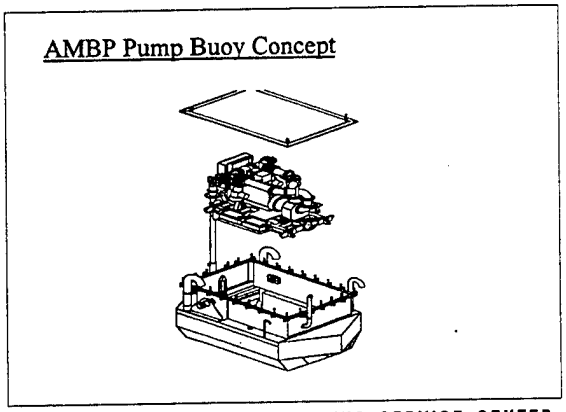

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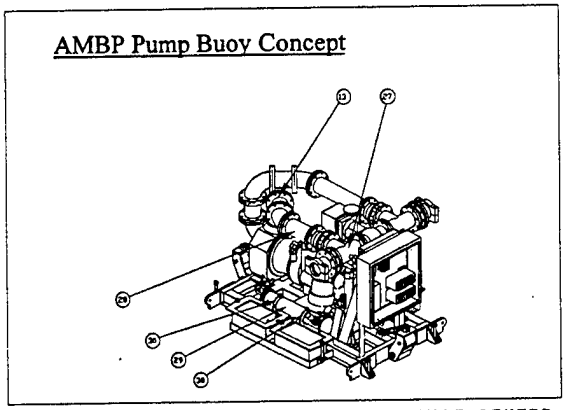

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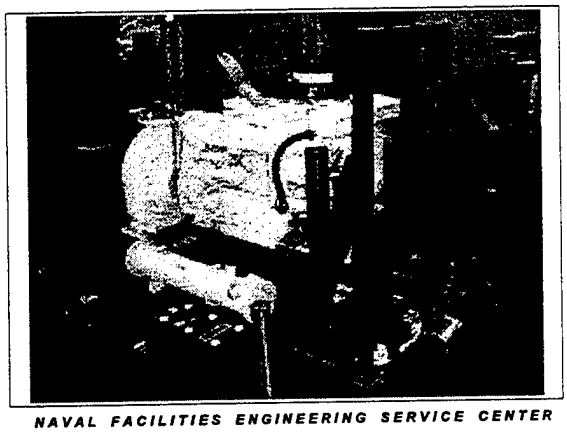

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AMBP Pump Buoy Features

- Sized to fit in ISO Container
- SLWT Compatible
  - Launch/Recovery
- Automatic Control w/ Remote Monitoring & Override
  - Onboard Processor
  - Radio Modem Link
  - Transducers
    - » Fluid Pressures
    - » Flow
    - » Engine/Pump Speed
    - » Temperatures

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AMBP Pump Buoy Features (cont)

- Automatic Bypass
  - –"Piggable"
- Multi-Fuel Capable
  - –JP-5, JP-8,F-76
- Alternative Cooling (Mud Flats)
  - –Fuel/Engine Coolant Heat Exchanger

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AMBP Status

FY98

- Complete Fabrication and Conduct Initial Testing of AMBP Machinery Pallet

FY99

- Fabricate AMBP Hull Assembly
- Conduct Stability Tests
- Integrate Hull and Machinery Pallet
- Test Performance of Integrated Assembly
  - –Thermal
- Conduct Fleet Evaluation/Demo

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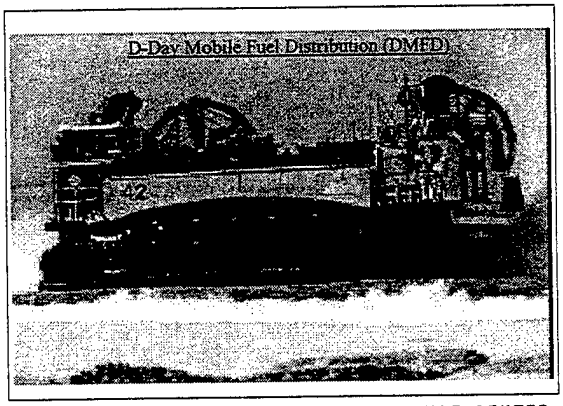

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DMFD Objective

Develop the Capability to employ the LCAC as a Bulk Liquid Transfer Platform.

- Amphibious Assault
  - – LST Retirement/ OMFTS Standoff
- Operations Other Than War (OOTW)
- Extend LCAC Range

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DMFD ISSUES

- Safety
- System Efficiency
  - – Shipping Cube
  - – Tare Weight
  - – On/Offload Time
- Fuel Bladder Technology
  - – Strength
  - – Baffling
- Versatility/Flexibility
  - – Sizing
  - – Mobility

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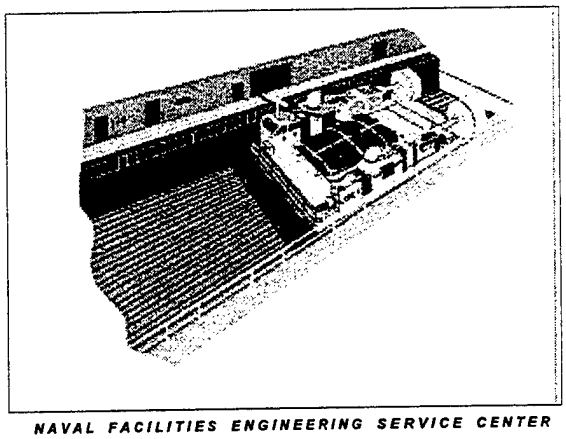

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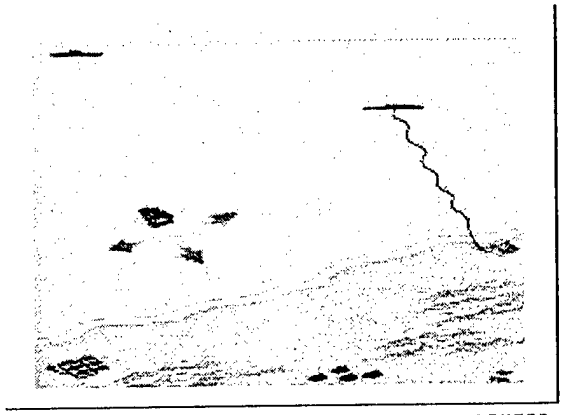

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DMFD Approach

- Solicit Advanced Technology Demonstration (ATD) funding from ONR.
- Parallel Development of three Fuel Transfer Systems. (FY97/99)
- Demonstrate/Evaluate in Fleet Exercise(s) (FY99/00)
- Downselect to single system for Optimization and Fielding (FY99/00)

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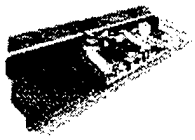
15,000 Gal. System

- Most Efficient
- On/Offload in Place on LCAC
- Dedicated Platform



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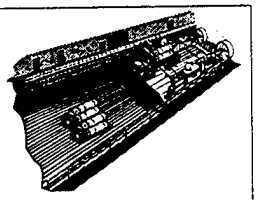
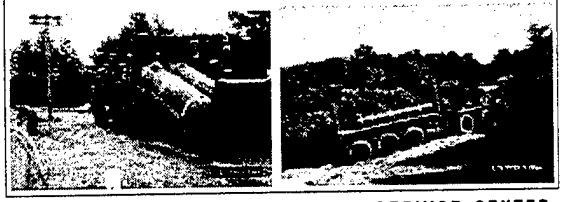
3,000 Gal. System

- Multiple Units
- Compatible w/ USMC LVS
- Tactically Transportable





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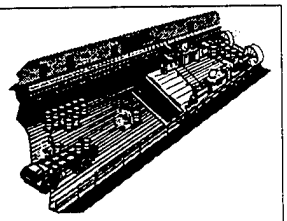
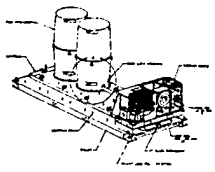
500 Gal. System

- Multiple Units
- Individual or Palletized
- Portable (MHE)





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DMFD Status

- Project Kickoff FY97
- FY97/99 System Development
  - 15,000 Gal System
    - Basic Development Essentially Complete
    - Testing At ACU-5 Aug/Sept 1998
  - 3,000 Gal System
    - Bladder Lining and Coating under Development
    - Flatrack Interface/Restraint System under Development
    - Testing w/ Army PLS Sept 1998

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DMFD Status

- FY97/99 System Development
  - 500 Gal System
    - Contract Awarded July 1998
- FY99/00 Fleet Evaluation/Demonstration

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RAPID NEARSHORE GEOTECHNICAL SURVEY

Navy Exploratory Development Technology Program
21 April 1998

Presented By

Herb Herrmann
Naval Ocean Facilities Program Office

Dr. Kimo Zaiger
Alexandra De Visser
Ocean Engineering Division

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Rapid Nearshore Geotechnical Survey

Herb Herrmann (202) 433-5319
KimoZaiger (805) 982-1173

Objective

√ Develop and validate Rapid Penetration Test (RPT) System

- Develop and validate Acoustic Reflection Geotechnical Surveying (ARGS) System

Payoff

- Improve site assessment capability.
- Improve Navy fleet readiness.
- Reduce operational time.

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Rapid Nearshore Geotechnical Survey

Rapid Penetration Test (RPT) *Products*
Alexandra De Visser (805) 982-6070

- RPT and worksheet allowUCTs to expediently determine soil type in nearshore areas
- Geotechnical Guide - RPT Users Guide UG-2015-OCN (96)
- RPT Final Report, TM -2209-OCN (96)
- 4 RPT units procured and delivered to the fleet (96)
- Operational Instructions for Gathering RPT Data (97)

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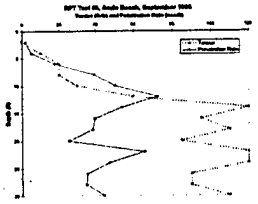
Rapid Nearshore Geotechnical Survey

RPT - (continued)

Direct Participants

- NFESC
- UCT ONE
- ACB TWO



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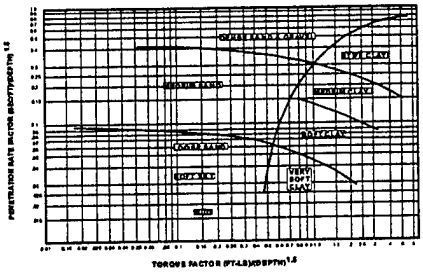
Rapid Nearshore Geotechnical Survey

RPT - (continued)



RPT Soil Classification Chart

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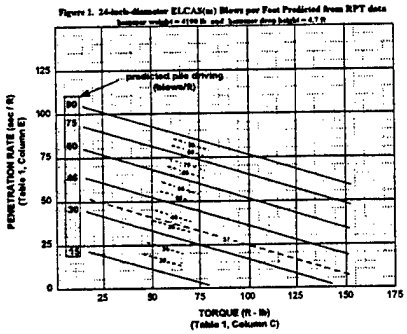
Rapid Nearshore Geotechnical Survey

RPT - Accomplishments



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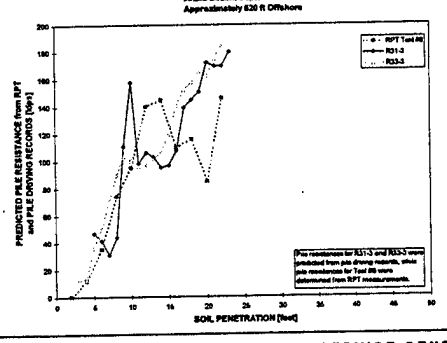
RPT - Prediction/Validation



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Rapid Nearshore Geotechnical Survey

Products

Acoustic Reflection Geotechnical Surveying (ARGS)

- Calibrated very-wide-band digital FM deep-penetration subbottom sonar processor.
- Stabilized linear wide-band transducer and tow-body.
- Sediment Characterization Penetrometer (SCP) integrated as mechanical reference datum of sediment properties for sonar processor.
- On-Bottom Sensor Sled (OBSS) for subbottom surveying in very shallow water (> 40 cm).

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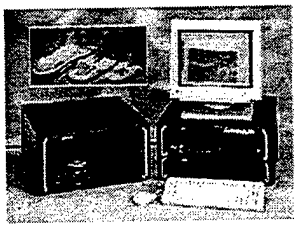
Rapid Nearshore Geotechnical Survey

Commercial Applications - ARGS

- Three Phase SBIR
- Three Systems being commercialized
- Primary Applications:
  - Pipeline Routes
  - Cable Routes
  - Sand Surveys
  - Offshore Structures
  - Geologic Studies



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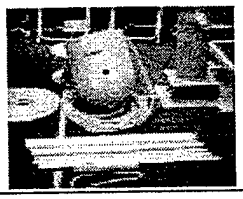
Rapid Nearshore Geotechnical Survey

ARGS - Improvement, SCP Normalizing Penetrometer

- Mechanical reference measurement of sediment properties
- Reusable shallow-water design
- Hard-wired to processor
- Multiple tip configuration
- Transitioned Navy Algorithms



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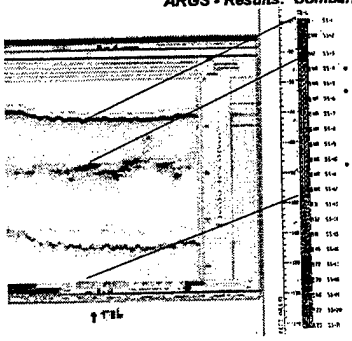
Rapid Nearshore Geotechnical Survey

ARGS - Results: Comparison to Ground Truth



- Good results
- Able to detect "soft" sediment unit under "hard" surface strata
- Good subbottom penetration

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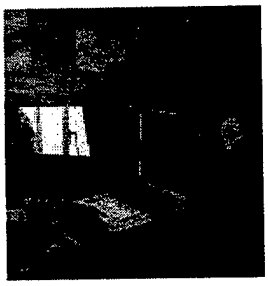
Rapid Nearshore Geotechnical Survey

ARGS Processing Improvements

- Attitude filtered data
- Custom Chirp Pulse (wider, 4-octave, ramped, shaped bandwidth) to improve inversion calculations for sediment impedance and phase shift tracking
- Full system calibration using match filtering technique
- Soil classification using frequency dependent attenuation algorithm



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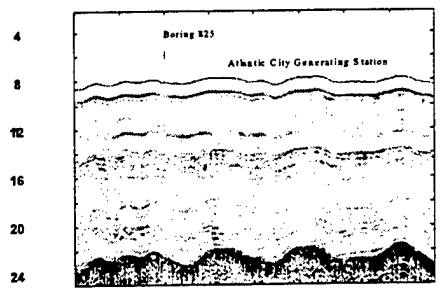
Rapid Nearshore Geotechnical Survey

ARGS Processing Improvements (continued)



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Rapid Nearshore Geotechnical Survey

Transition Plan

- RPT transitioned to the fleet
  - Procured under OPN, delivered and in use
  - Manuals/ Procedures completed/ delivered
- ARGS is programmed for transition to the Fleet
  - Under "Product Improvements for Sealift Support" for FY00 and 01
- *PSI Inc.* and *EdgeTech Inc.* have plans to commercialize portions of ARGS technology as part of their "X-Star" system family
  - Tow-fish with attitude sensors, stabilized transducers and wet end processing
  - PC- based processor and display unit
  - Reusable seabed penetrometer system

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Rapid Nearshore Geotechnical Survey

Summary

- RPT is complete, transitioned, and in use by the fleet
- ARGS development successful and showing good results; others are adopting
- Fleet user and Technology Transfer both identified for ARGS
- SBIR Phase 3 being completed - First of three commercialized products has been marketed
- Work is coordinated with other related Navy research and is benefiting other Navy requirements
- Planned funding for FY98 will complete the 6.2 effort

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Rapid Nearshore Geotechnical Survey

FY99 Plans

- No FY99 6.2 funds requested
- Minor FY98 carryover requirement anticipated for finalizing and publishing final report

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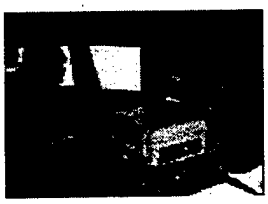
Rapid Nearshore Geotechnical Survey

Summary

- Smooth transition from 6.2 to procurement requires:
  - system integration
  - user interface
  - ruggedizing
  - user test
- Recommend an 18-month "6.3-like" demonstration



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ESCs J-LOTS LESSONS LEARNED PROJECT

Project Number: 15216-01

Project Leader: Billy Karrh
August 1998

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OBJECTIVE

- Provide engineering services to solve NBG (Naval Beach Group) operational and training problems as identified through the JLOTS Lessons Learned process.

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APPROACH

- NFESC negotiates the list of LL problems for investigation with the NBG and SLC.
- NFESC team leader assigns best available talent to tasks.
- Project personnel apply their skills and resources to the problem (operators/users are included in the process).
- Users test proposed solutions (ESC observes).
- SLC and ESC implement successful solutions.

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GENERAL ENGINEERING SUPPORT

- NFESCs engineering support includes
  - » engineering solutions to problems,
  - » development of new equipment specifications,
  - » test and evaluation of new equipment and procedures, and
  - » engineering support for system acquisitions.

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ESC SPECIFIC WORK

NBG mission areas supported include

- NL floating causeways (all systems),
- Elevated causeways (NL, ELCAS(M)),
- Fuel delivery systems
- MPF operations
- JMLS acquisition
- Other Sealift Support operations

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COORDINATION WITH THE SLC

- Naval Beach Group (NBG) Fleet personnel identify LLs during training and deployment exercises.
- SLC and ESC meet with Fleet to discuss and prioritize problems.
- ESC works with the SLC to develop engineering solutions to JLOTS Lessons Learned problems

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GENERAL ENGINEERING SUPPORT

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NAVAL FACILITIES ENGINEERING SERVICE CENTER

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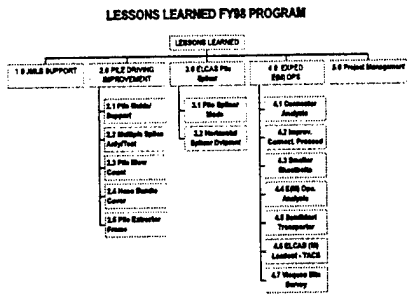
FY 98 PROGRAM



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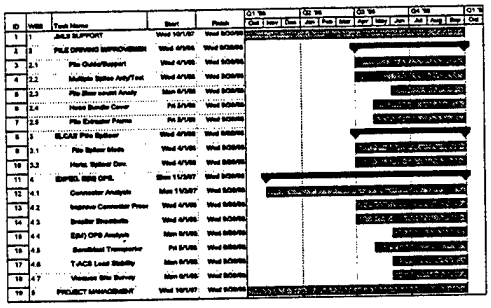
Project Schedule



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FENDER PILE SUPPORT

- PROBLEM: Existing fender pile brace is difficult to install, often requiring 165 ton crane and other rigging hardware to forcefully reposition driven fender piles.
- SOLUTION: Develop new pile brace, fabricate prototype(s), perform field test.

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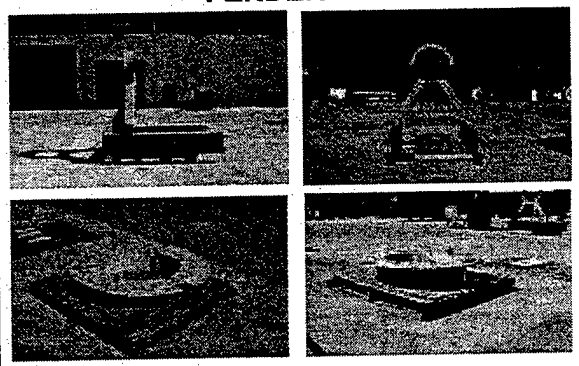
FENDER PILE SUPPORT



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CONNECTOR ANALYSIS

- PROBLEM: Connector shootbolts often bind during ELCAS(M) construction. Operators often do not know the cause of binding.
- SOLUTION APPROACH: Perform FEM analysis of structure to determine root cause of binding.
  - » Use FEM techniques to analyze the movement of the pontoons and connector elements due to crane loads.
  - Determine the movement of pontoons and connectors due to internal connector tolerances.
  - Compare relative dislocations
  - » Compare to measured fabrication tolerances

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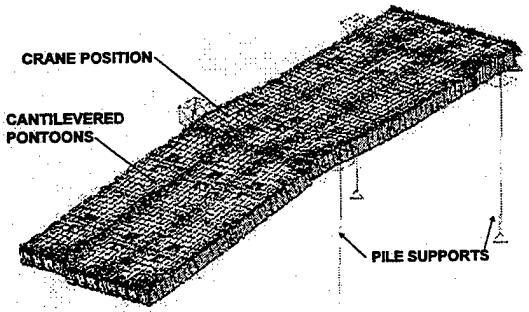
CONNECTOR ANALYSIS



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IMPROVED CONNECTION PROCEDURES

- PROBLEM: Shootbolt binding increases construction time, damages connectors, and is a safety problem.
- SOLUTION APPROACH:
  1. Investigate methods to relieve shootbolt binding.
  2. Develop and/or adapt new equipment and operational procedures.
  3. Perform field tests.

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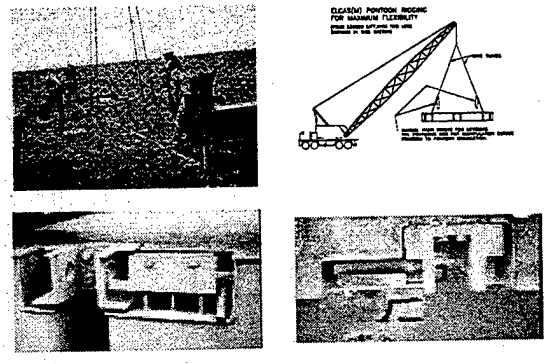
IMPROVED CONNECTION PROCEDURES



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SMALLER SHOOTBOLTS

- PROBLEM: Some pontoons seem to be extra-difficult to connect during ELCAS(M) construction.
- SOLUTION APPROACH:
  - * Fabricate reduced diameter shootbolts to exchange for problem shootbolts.
  - * Field test reduced diameter shootbolts during ELCAS(M) training exercise

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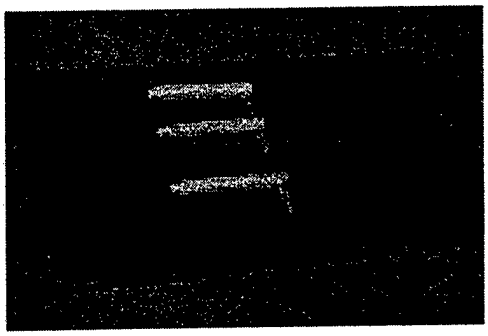
SMALLER SHOOTBOLTS



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SANDBLAST FACILITY TRANSPORTER

- PROBLEM: Capability is needed to move ELCAS(M) pontoons in and out of the ACB 2 sandblast facility. Rail-mounted straddle lift is designed to transport NL causeways.
- SOLUTION APPROACH:
  - Meet with ACB 2 personnel to determine the requirements for ELCAS(M) transporter. Transporter should be compatible with future JMLS causeways
  - Develop design concept, execute design, fabricate end item.

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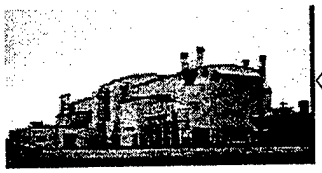
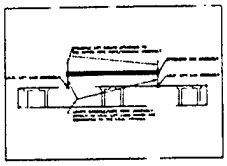
SANDBLAST FACILITY TRANSPORTER



ACB 2 CAUSEWAY PAINT & SANDBLAST FACILITY

RAIL MOUNTED STRADDLE LIFT



SPREADER/ADAPTER

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Multiple Pile Splices

- PROBLEM: Are multiple splices in ELCAS(M) piles a safety problem?
- SOLUTION:

1. Perform visual inspection and Ultrasonic testing to determine the quality of welds and the corrosion resistance of the welds.
2. Perform field measurements of piles with multiple splices to determine the straightness and roundness of the piles.

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ELCAS(M) Loadout On T-ACS

- PROBLEM: Lengthy negotiations are required between the T-ACS Cargo Officer and ELCAS(M) personnel to resolve compatibility of load plan and trim and stability of the T-ACS.
- SOLUTION: Modify existing ELCAS(M) Loadout planning software to be data compatible with the T-ACS trim and stability software CARGOMASTER

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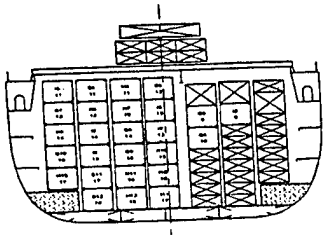
ELCAS(M) LOADOUT ON T-ACS



T-ACS 4 - ELCAS(M) STOWAGE

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PILE EXTRACTOR FRAME

- PROBLEM: Unhooking crane from pile extractor is unsafe.
- SOLUTION: Design and fabricate a frame to clamp the extractor below deck level so that the hook is approximately at chest level.

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EXTRACTOR HOSE DAMAGE

- PROBLEM: Damage to hydraulic hoses bundle leaks hydraulic oil into the environment.
- SOLUTION: Investigate commercial sources for a protective sleeve, a more durable hydraulic hose, and alternative operational procedures.

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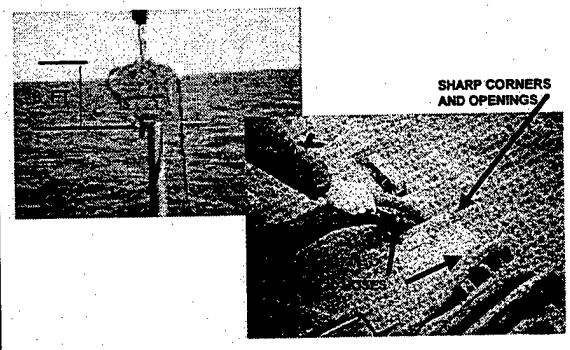
PILE EXTRACTOR



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ELCAS(M) OPERATIONS ANALYSIS

- PROBLEM: Training exercises and contractor demos suggest that the required 7 day installation of ELCAS(M) may be met only w/ highly skilled and trained personnel. Usually, ELCAS(M) crews are a mix of enlisted personnel and green reserves.
- SOLUTION: Analyze details of ELCAS(M) installation to determine tasks, equipment, and op. sequences that may be revised, replaced, or eliminated to reduce the skill level needed for ELCAS(M) installation.

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PILE BLOW COUNT ANALYSIS

- PROBLEM: Pile bearing capacity predicted by ENR formula leads to inconsistent safety factors. Need to determine appropriate hammer blow/ foot to achieve 100 ton specified load.
- SOLUTION APPROACH:
  - Select more reliable pile driving formula.
  - Determine appropriate safety factors.
  - Compute required blow count.

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VIEQUES SITE SURVEY

- PROBLEM: A training exercise with the ELCAS(M) is planned for early 1999. The beach sites at Vieques have a substantial coral sand content, which can cause difficulties for pile driving.
- SOLUTION: Use the new CHIRP sonar subbottom profiler being developed under ONR to provide a wide ranging survey of the beach sites at Vieques. Coordinate the the CHIRP data with the UCTs Rapid Penetration Tool (RPT) to validate the CHIRP performance.

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FY 99 PLANS

- COMPLETE FY 98 TASKS
- SUPPORT JMLS ACQUISITION
- SUPPORT MPF
- SUPPORT ELCAS
- INVESTIGATE LARC V ALTERNATIVES
- DEMO FOAMS AS BUILDING MATERIAL

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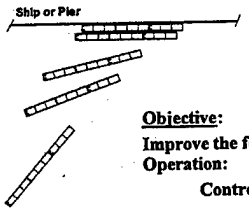
Task AL-19 : Lighter Control

Peter Tabor (805) 982-1308



Objective:

Improve the following Critical Lighterage Operation:

Control of Lighter

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Requirement/Need

Science and Technology Requirements Guidance, Logistics Support of Land Forces

2. Future Sealift Concepts
   b. Improve cargo-handling capability to reduce time and cost to load/offload sealift platforms
      (6) Improve mooring and anchoring system of ship to pontoon, enabling cargo transfer in higher sea states.

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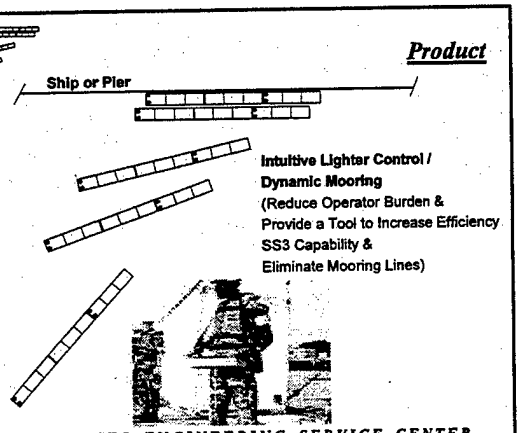
Product



Intuitive Lighter Control / Dynamic Mooring
(Reduce Operator Burden & Provide a Tool to Increase Efficiency SS3 Capability & Eliminate Mooring Lines)

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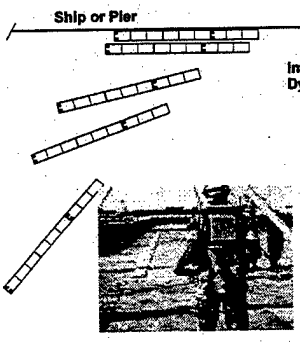
Product



Intuitive Lighter Control / Dynamic Mooring
- Workboat Control
- Barge Control
- RIBS
- SALM
- MOB

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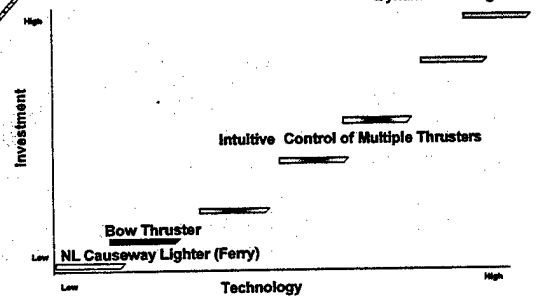
Intuitive Lighter Control



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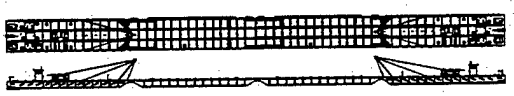
Intuitive Lighter Control (Cont.)

- **System Criteria Definition (FY96 / AL-12)**
  - Intuitive
  - Durable
  - Simulation
- **Investigate Technology Options**
  - BAA contract to develop MCOTS solution
  - SBIR to investigate high risk options



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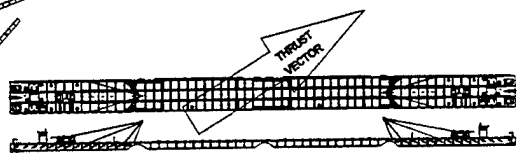
Intuitive Lighter Control (Cont.)



Capability

- Multiple Thrusters
- Integrated Control of all Thrusters
- Vector Lighter (Direction and Magnitude)
- Rotate Lighter (Selectable Point of Rotation)

Payoff

- Simplified Operation
- Enhanced Safety
- Increased Reliability
- Reduced Training
- Better Fuel Economy

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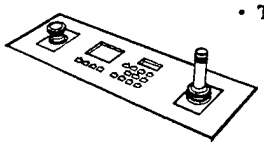
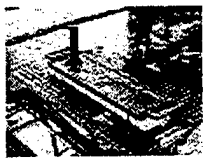
Intuitive Lighter Control (Cont.)



- Test and Evaluate
  - Test MCOTS Joystick System (Demo on existing system)
  - MCOTS Phase II Joystick & Dynamic Mooring



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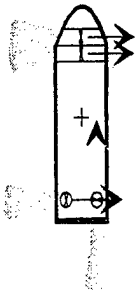
Intuitive Lighter Control (Cont.)

- Document Development
  - MCOTS Joystick Test Report Phase I (5/98)
  - SBIR Final Report Report (5/98)
  - MCOTS Joystick & Dynamic Mooring Test Report Phase II (9/98)
- Transition
  - JMLS
  - Commercial Applications



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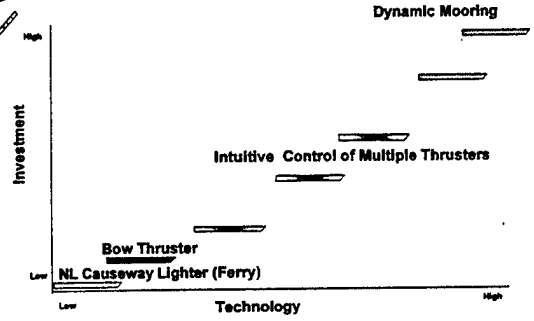
Intuitive Lighter Control (Cont.)



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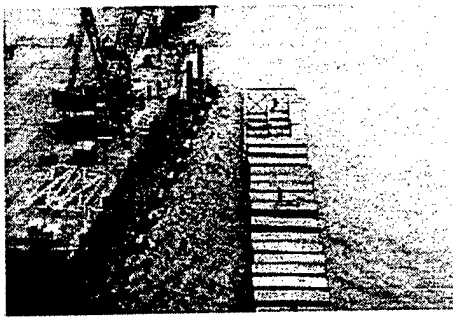
Dynamic Mooring



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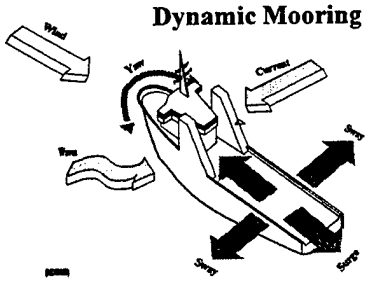
Dynamic Mooring



System Criteria

- SS3
- Safe
- Quick Attach / Quick Release
- Simple / Easy Operation
- Rugged / Dependable / Maintainable

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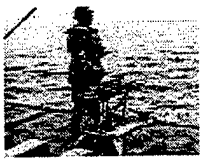
Summary

- **Intuitive Lighter Control**
  - MCOTS Joystick
  - SS3 Dynamic Mooring
- **Significant payoff for investment**
  - Increase safety
  - Reduce training requirement
  - Improve throughput?
- **Proven During Operation?**



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Pile Splicing @ Marshalling Yard

- *ACB-2 and NAVFAC HQ want to expand the splicing technology to include the splicing operation at the marshalling yard*

- *Objectives*
  - *Reduce labor requirement*
  - *Improve the operational safety*
  - *Reduce splicing time*
  - *Save money*

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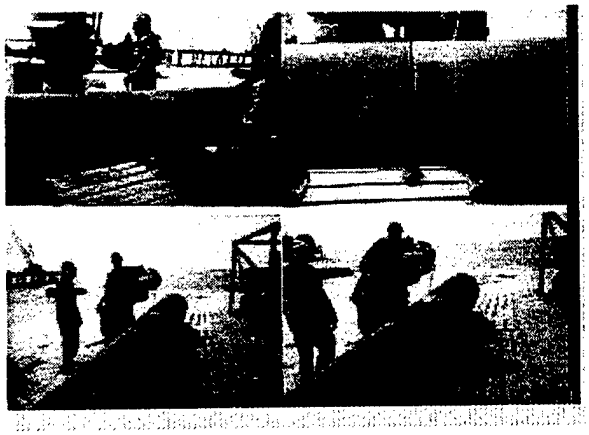

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Current Practice

(1) Use hand-held, electric arc stick gun to weld piles

(2) Apply spot welding

(3)Weld 1/4 turn, stop and rotate pile by force of welders on a pinch bar

(4) A series of pile rollers are used which are worn-off quickly resulting from sand /salt intrusion

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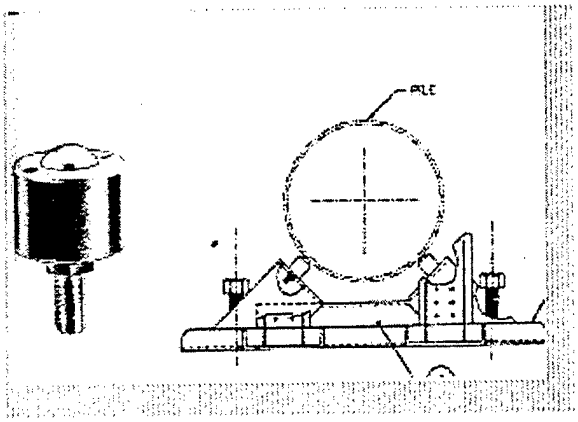

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Approach

- *Develop two welding concepts*
  - * *Rotating torch*
  - * *Stationary torch*
- *Build model splicer*
- *Perform lab and field tests*
- *Deliver pile splicer for marshalling yard*

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98 Amphibious Working Group Meeting

Rapid Pile Splicing Technology

Dr. Tom Lin

Amphibious Systems Division
Port Hueneme, CA
August 20, 1998

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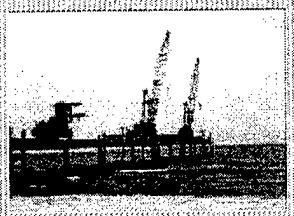
Rapid Pile Splicing Technology



TOM LIN (805) 982-1167

Objective:

Develop a rapid innovative pile splicing technology to reduce ELCAS(M) installation time

Payoff:

Reduce pile splicing from 3+ hours to < 40 mins
Reduce labor requirement
Improve operational safety

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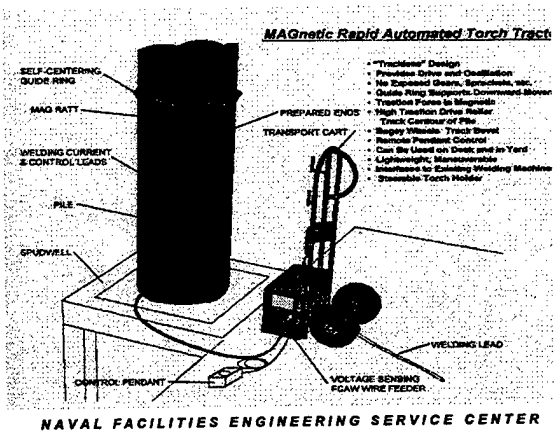

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Pile Splicing Test

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NAVAL FACILITIES ENGINEERING SERVICE CENTER

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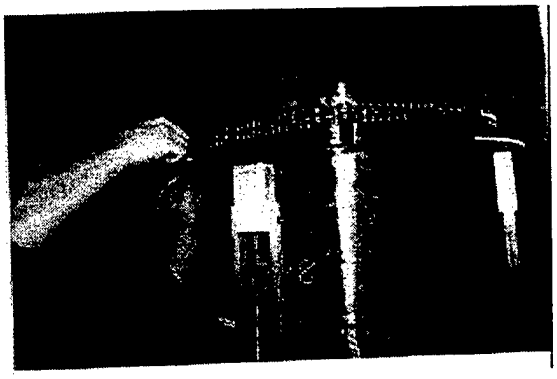

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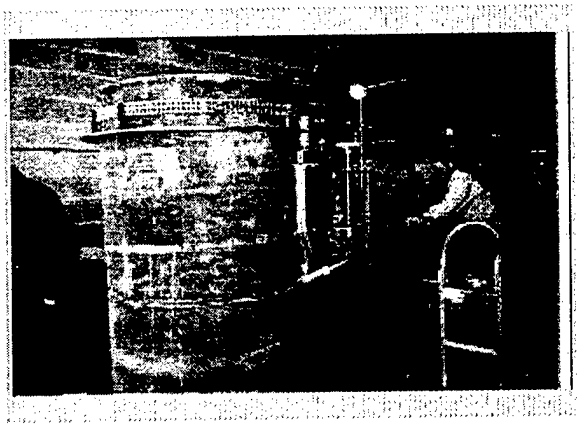

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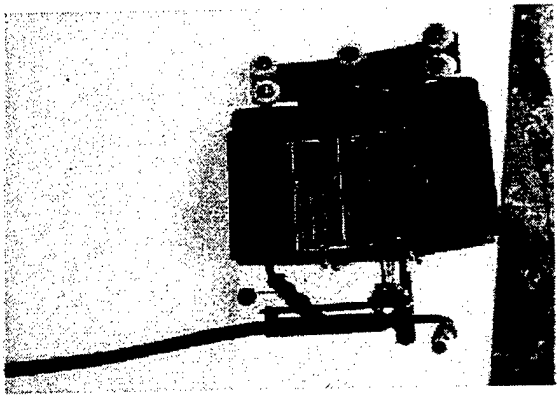

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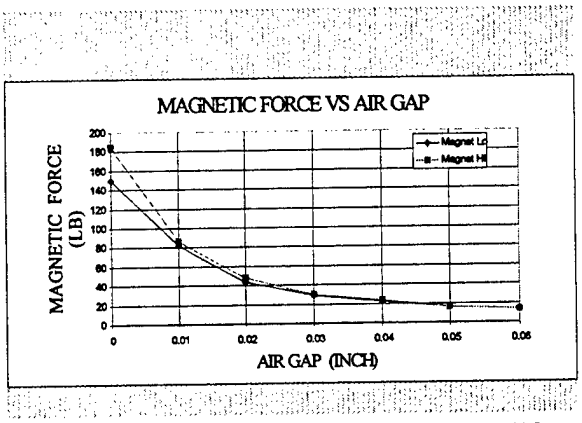
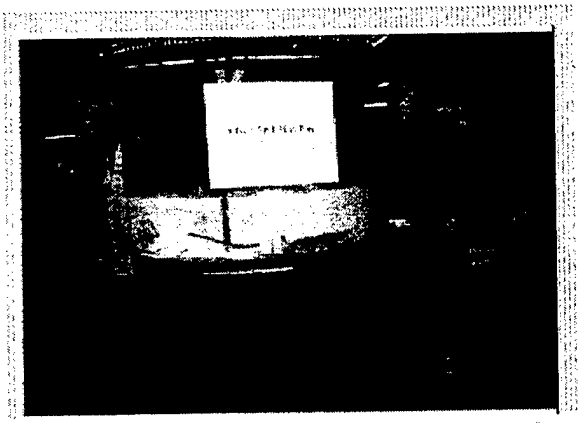


NAVAL FACILITIES ENGINEERING SERVICE CENTER

NAVAL FACILITIES ENGINEERING SERVICE CENTER



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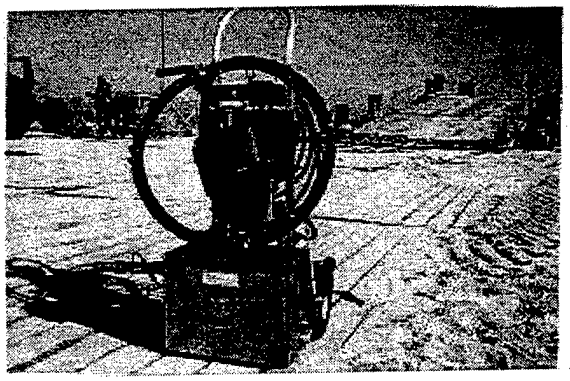

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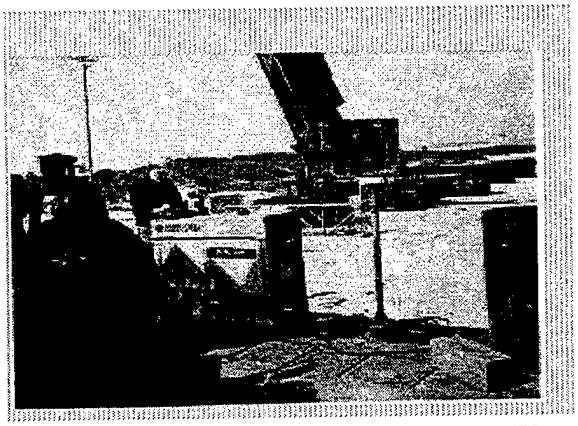
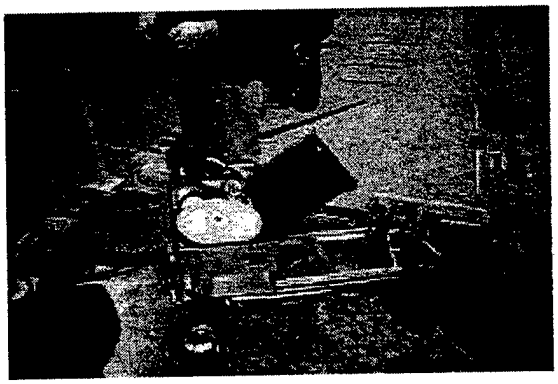


NAVAL FACILITIES ENGINEERING SERVICE CENTER



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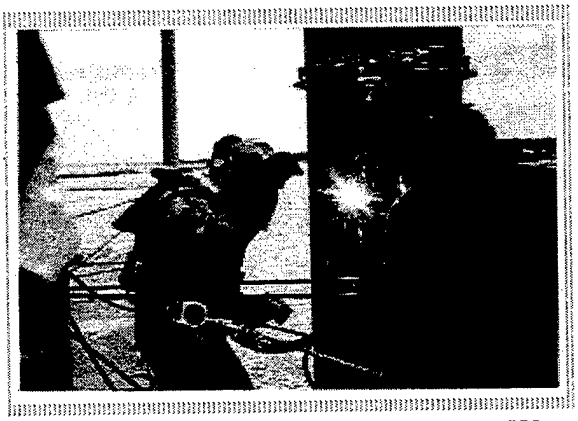

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Splicing Test Summary

1. *The model pile splicer requires three passes to splice a pile*
2. *Splicing time by one welder is*
   in lab: 30 minutes
   in field: < 40 minutes
3. *Use existing DC generator*
   225 AMP, 18 to 24 DCV

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Accomplishments

- *Fabricated an automated model pile splicer*
- *Demonstrated innovative splicing technology*
- *Transitioned project*

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Next Task - Pile Splicing @ Marshalling Yard

ACB-2 and NAVFAC HQ want to expand the splicer capability to include the splicing operation at the marshalling yard to

- ***Reduce labor requirement***
- ***Improve operational safety***
- ***Reduce splicing time***
- ***Save money***

Asset Visibility

Points of Contact:

Mr. Bob F. Paguio — (805) 982-1149, DSN 551-1149, rpaguio@nfesc.navy.mil

Mr. Ramon Flores — (805) 982-6500, rflores@nfesc.navy.mil

Mr. Steve James — (805) 982-1176, sjames@nfesc.navy.mil

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- Paper Manifests Inaccurate & Easily Lost
- Military Conflicts dont follow time schedules
- Lack of Faith in the System Creates Waste

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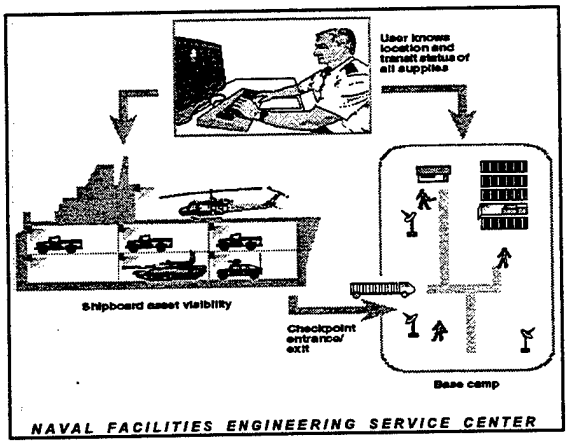
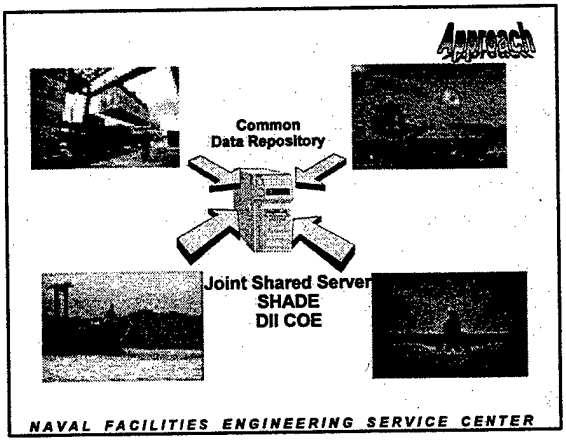
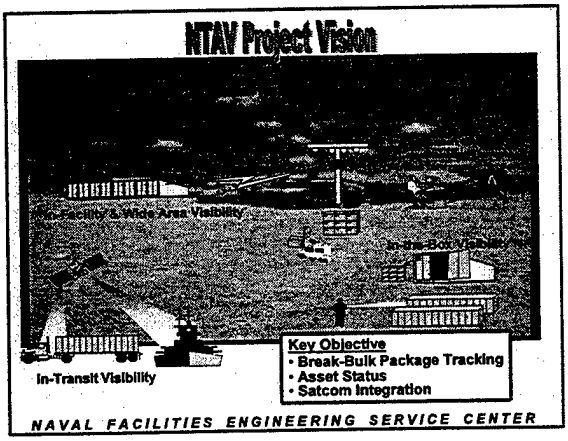


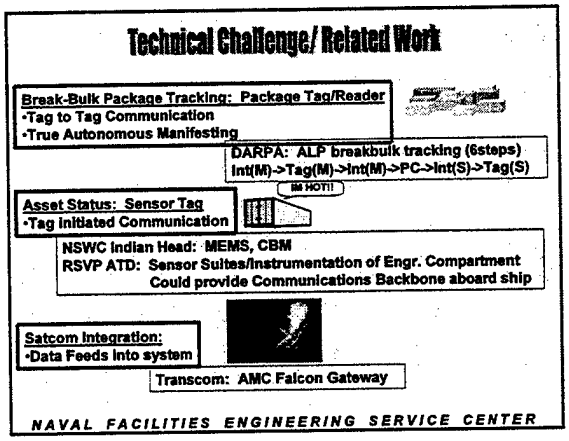
NAVAL FACILITIES ENGINEERING SERVICE CENTER



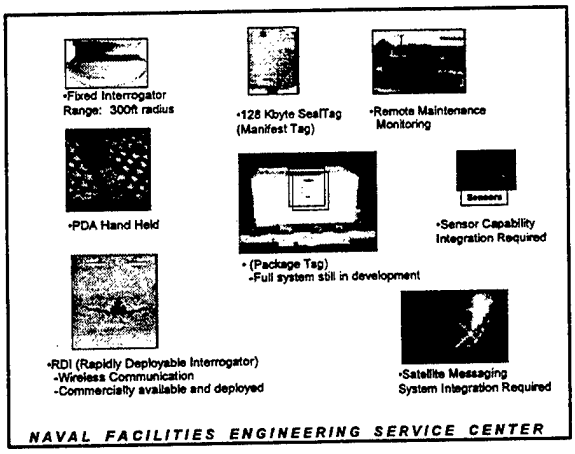
NAVAL FACILITIES ENGINEERING SERVICE CENTER



NAVAL FACILITIES ENGINEERING SERVICE CENTER



NAVAL FACILITIES ENGINEERING SERVICE CENTER


•Fixed Interrogator
Range: 300ft radius
•128 Kbyte SealTag
(Manifest Tag)
•Remote Maintenance
Monitoring
•PDA Hand Held
•Sensor Capability
Integration Required
• (Package Tag)
•Full system still in development
•RDI (Rapidly Deployable Interrogator)
-Wireless Communication
-Commercially available and deployed
•Satellite Messaging
System Integration Required
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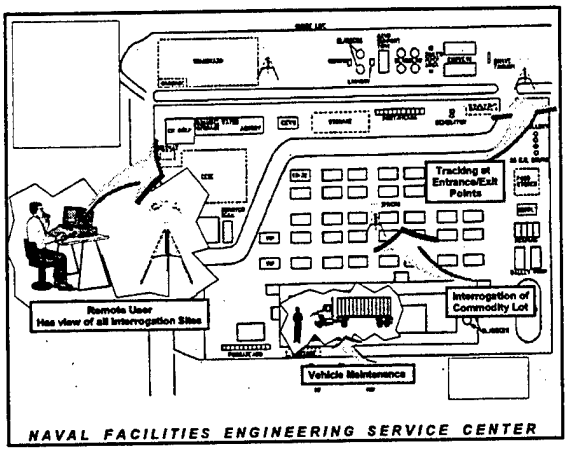
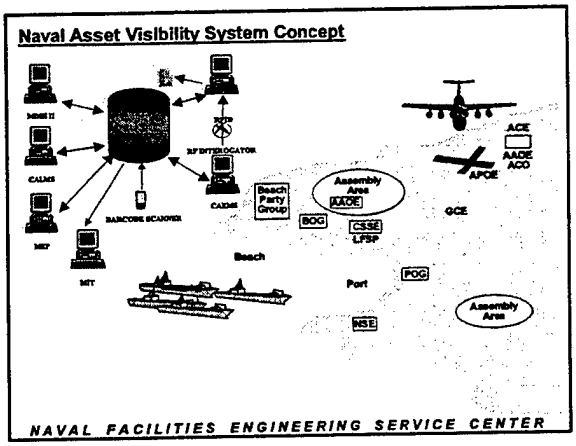
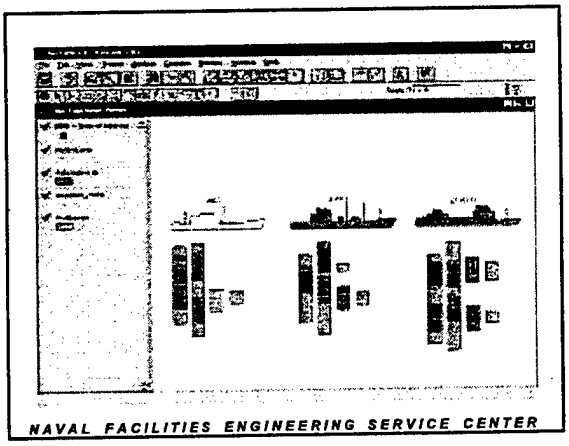

Tracking of Entrance/Exit Points
Remote User
Has view of all Interrogation Sites
Interrogation of Commodity Lot
Vehicle Maintenance
NAVAL FACILITIES ENGINEERING SERVICE CENTER


Naval Asset Vislbility System Concept
ACE
AAOE
ACO
APOE
Assembly Area
AAOE
Beach Party Group
BOG
CSSE
LFSP
GCE
Beach
Port
POG
Assembly Area
NSE
NAVAL FACILITIES ENGINEERING SERVICE CENTER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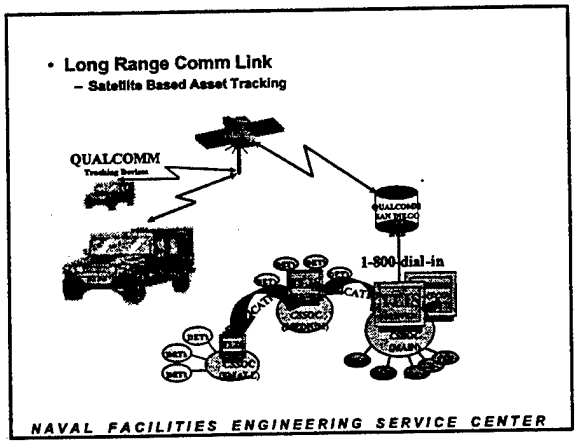
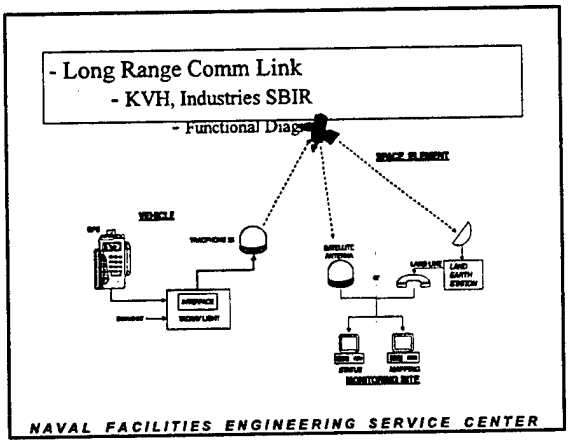
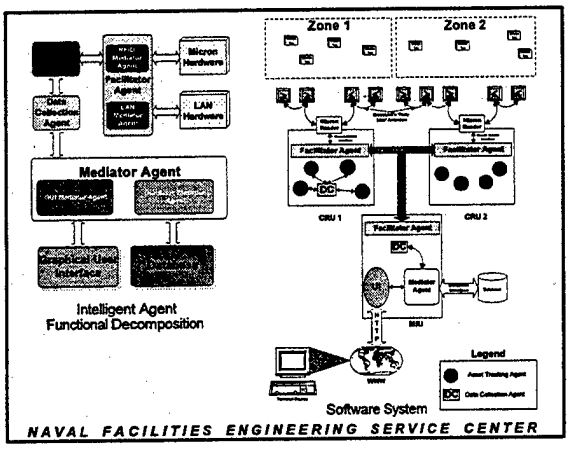
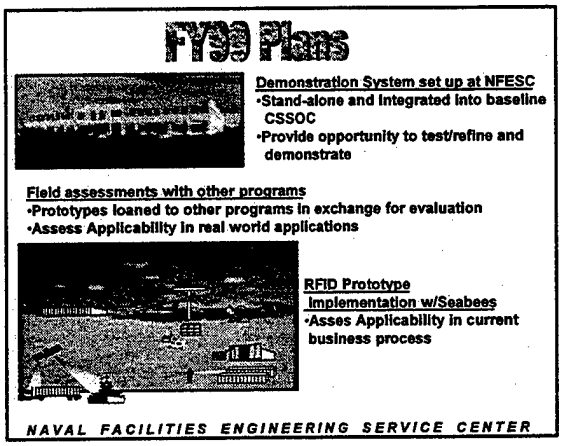

• Long Range Comm Link
– Satellite Based Asset Tracking
QUALCOMM
1-800-dial-in
NAVAL FACILITIES ENGINEERING SERVICE CENTER


- Long Range Comm Link
- KVH, Industries SBIR
- Functional Diag
NAVAL FACILITIES ENGINEERING SERVICE CENTER


Zone 1
Zone 2
Micron Hardware
Facilitator Agent
LAN Hardware
Data Collection Agent
Mediator Agent
Intelligent Agent Functional Decomposition
Software System
Legend
NAVAL FACILITIES ENGINEERING SERVICE CENTER


FY99 Plans
Demonstration System set up at NFESC
•Stand-alone and integrated into baseline CSSOC
•Provide opportunity to test/refine and demonstrate
Field assessments with other programs
•Prototypes loaned to other programs in exchange for evaluation
•Assess Applicability in real world applications
RFID Prototype Implementation w/Seabees
•Asses Applicability in current business process
NAVAL FACILITIES ENGINEERING SERVICE CENTER

SEABEE LOGISTICS CENTER

SEALIFT SUPPORT PROGRAM

AMPHIBIOUS CONFERENCE SLC PRESENTATION

- FLEXORS - ANNE BRADEN
- N/L CAUSEWAY SURVEY - STEVE MAGGIPINTO
- ABLTS - DICK STEVENS
- METAL TRADES - ANNE BRADEN
- CED GP WORKLOAD - RICHARD WEBSTER
- ELCAS(M) LOGISTICS - RICHARD WEBSTER
- TA-55 - BOB BAILEY
- LARC V - RICHARD WEBSTER

SEALIFT PROGRAM

SEALIFT FLEXOR REFURBISHMENT PROGRAM

SEALIFT FLEXOR REFURBISHMENT PROGRAM

- FLEXOR CONNECTORS
  - –USED WITH NAVY LIGHTERAGE
    - LINKS 65 TON CAUSEWAY COMPONENTS

SEALIFT FLEXOR REFURBISHMENT PROGRAM

- FOUR MAJOR CUSTOMERS
  - ACB 1, Coronado, CA
    - – MISSION: FLEET SUPPORT
  - ACB 2, Little Creek, VA
    - – MISSION: FLEET SUPPORT
  - BICmd, Jacksonville, FL
    - – MISSION: MPF PROGRAM
  - EWTGPAC, Coronado, CA
    - – MISSION: TRAINING

SEALIFT FLEXOR REFURBISHMENT PROGRAM

- HISTORY
  - PRE-1989
    - – DAMAGED FLEXORS EXCESSED TO DISPOSAL
  - FY89 - 97
    - – CESO INITIATES EXPLORATION OF REPAIR VICE THROW-AWAY PHILOSOPHY
    - – NCEL PERFORMS CYCLIC TESTS
    - – CESO DEVELOPS REPAIR/QUALITY INSPECTION PROCESSES and PROCEDURES

SEALIFT FLEXOR REFURBISHMENT PROGRAM

- HISTORY (continued)
  - FY89 -FY97
    - CESO ESTABLISHES SLEP FOR FLEXORS AT CEDs
    - NAVAL INVENTORY CONTROL POINT, (NAVICP) MECHANICSBURG, PA, ASSUMES STOCK MANAGEMENT RESPONSIBILITIES
    - CESO RETAINS ISEA ROLE

SEALIFT FLEXOR REFURBISHMENT PROGRAM

- NAVICP STOCK MANAGEMENT
  - REQUISITION VIA STANDARD NAVY SUPPLY PROCEDURES
  - "ONE FOR ONE" TURN-IN/ORDERING
  - ORDERING ONLY (NO ASSET TURN-IN)

SEALIFT FLEXOR REFURBISHMENT PROGRAM

- CED FLEXOR REFURBISHMENT EFFORT
  - CED PORT HUENEME: FY95-FY97
    - 108 FLEXORS REPAIRED
    - ACTUAL AVERAGE REPAIR COST: $2,496
  - CED GULFPORT: FY96-FY97
    - 92 FLEXORS REPAIRED
    - ACTUAL AVERAGE REPAIR COST: $2,862
    - SEEKING REPAIR DEPOT CERTIFICATION

SEALIFT FLEXOR REFURBISHMENT PROGRAM

- PROGRAM INPACT TO DATE
  - TOTAL NUMBER FLEXORS REPAIRED: 200
  - ACTUAL COST OF REPAIR EFFORT: $513K
  - EST. NEW FLEXOR COST: $8500
  - IF PROCURED NEW: $1.7M
  - SAVINGS TO GOVT: $1.2M

SEALIFT PROGRAM

NAVY LIGHTERAGE CAUSEWAY CONDITION SURVEY

N/L CAUSEWAY CONDITION SURVEY

- SURVEY 80% COMPLETE (BIC inventory will be surveyed in July 98)
- All of the older SLWT/CSPs initially painted with inorganic zinc, can have present lives extended 7-10 years by rebuilding existing zinc without disassembly.

N/L CAUSEWAY CONDITION SURVEY

- All older SLWT/CSPs painted with epoxy can have life extended 7-10 years if converted to inorganic zinc by disassembly. Currently being done at CED Gulfport for ACB 2.

N/L CAUSEWAY CONDITION SURVEY

- All older non-powered causeways initially painted with zinc, can have present lives extended 5-7 years by rebuilding zinc coat without disassembly (collision damage excepted).
- All older non-powered causeways initially painted with epoxy, can have present lives extended 3 years by repainting with zinc without disassembly (collision damage excepted).

N/L CAUSEWAY CONDITION SURVEY

- Readiness and reliability of all older SLWT/CSPs can be increased by 50 % with an upgrade of old hydraulic system to OIW configuration.

SEALIFT PROGRAM

ABLTS

AMPHIBIOUS BULK LIQUID TRANSFER SYSTEM

MPHIBIOUS BULK LIQUID TRANSFER SYSTEM (ABLTS)

- WHAT: HOSEREEL SYSTEM FOR TRANSPORTATION OF FUEL AND WATER (10,000 FT EACH) FROM SHIP TO SHORE
- WHY: OLD SYSTEM FIELDED IN 1960s, DIFFICULT TO MAINTAIN AND OUTSIZED

MPHIBIOUS BULK LIQUID TRANSFER SYSTEM (ABLTS)

- HOW: FOUR PHASE, FIXED PRICE ($20.0 MIL) CONTRACT
  - DESIGN AND PROTOTYPE DEVELOPMENT (BASIC CONTRACT)
  - REFURBISHMENT AND TESTING
  - PRODUCTION UNITS (23 EA) OPTION
  - INTERIM CONTRACTOR SUPPLY SUPPORT

AMPHIBIOUS BULK LIQUID TRANSFER SYSTEM (ABLTS)

- CURRENT ACQUISITION INFO AND MILESTONES
  - SOLICITATION NO. N47408-98-R-3905
  - SOLICITATION ISSUE DATE: 11 MAY 1998
  - SOLICITATION CLOSE DATE: 02 JULY 1998
  - AWARD DATE: 02 AUGUST 1998

SEALIFT PROGRAM

NON-POWERED CAUSEWAY CONTRACT

NON-POWERED CAUSEWAY CONTRACT

PURPOSE:

- TO CONSTRUCT FLOATING CAUSEWAYS IN SUPPORT OF THE MPF OPERATION AND NCF AMPHIBIOUS MISSION

NON-POWERED CAUSEWAY CONTRACT

CONTRACTOR:

- METAL TRADES, INC. CHARLESTON, SOUTH CAROLINA
- CONTRACT AWARDED FEBRUARY 1996
- AWARDED CONTRACT VALUE $22,100,286 (BASIC & 4 OPTIONS)

NON-POWERED CAUSEWAY CONTRACT

- CUSTOMERS
  - ACB 1, Coronado, CA
    - MISSION: TRAINING/FLEET SUPPORT
  - ACB 2, Little Creek, VA
    - MISSION: TRAINING/FLEET SUPPORT
  - BICmd, Jacksonville, FL
    - MISSION: MPF PROGRAM
  - CED, NCBC, Gulfport, MS
    - MISSION: SPARES STORAGE

NON-POWERED CAUSEWAY CONTRACT

EQUIPMENT TYPES:

- ASSEMBLED CAUSEWAY SECTION, NON-POWERED (BEACH ENDS)
- ASSEMBLED CAUSEWAY SECTION, NON-POWERED (INTERMEDIATES)
- UNASSEMBLED CAUSEWAY KITS
- SPARE PARTS

NON-POWERED CAUSEWAY CONTRACT

- UNASSEMBLED CAUSEWAY KITS
  - KITS PROVIDED TO ACBs TO ASSEMBLE CSNPs AS PART OF THEIR TRAINING MISSION
- SPARE PARTS
  - STORED AT CED, GULFPORT FOR PARTS DRAW DOWN BY BLOUNT ISLAND OR ACBs

NON-POWERED CAUSEWAY CONTRACT

CONTRACT STATUS:

- CONTRACT REQUIREMENTS ARE AHEAD OF ORIGINAL SCHEDULE
- 27 MODIFICATIONS ISSUED
- VALUE OF CONTRACT TO DATE IS $17,495,603

NON-POWERED CAUSEWAY CONTRACT

FUNDING/DELIVERY STATUS:

- BASIC AND OPTION I:
  - 35 CAUSEWAYS COMPLETED/DELIVERED TO BICmd
- OPTION II:
  - 16 CAUSEWAYS FUNDED
- OPTION III:
  - 14 CAUSEWAYS FUNDED
- DELIVERY FOR FUNDED CSNPs, SPARE PARTS, & KITS TO BE COMPLETED BY DECEMBER 1999

SEALIFT PROGRAM

CED GULFPORT
FY98 WORKLOAD

CED GULFPORT FY98 WORK EFFORT IN-PROCESS/COMPLETED

- BEEBE WINCH OVERHAUL : 7 winch overhauls completed
- MOD SET #3 : Scheduled to be completed end of August 1998
- TA-56 PARTS SUPPORT : Fabricated beam weldments, and procured anchor retainers and fuel strainers

CED GULFPORT FY98 WORK EFFORT IN-PROCESS/COMPLETED

- LARC V OVERHAUL PROGRAM : Qty 22 Steering Arms (critical item) were obtained from manufacturer

NOTE: A credit of $30K was received for BMU1 LARC V parts drawdown from KSPAN inventory

CED GULFPORT FY98 ADDITIONAL WORK EFFORT

- BEEBE WINCH OVERHAUL : 7 winch overhauls were scheduled for FY98; CED Gulfport has been funded and is able to accomplish an additional 2
- PH10/PH11 PADEYES : A quantity of 86 padeyes will be repaired; this effort is new and was not originally scheduled for this FY

CED GULFPORT FY98 ADDITIONAL WORK EFFORT

- LARC V PARTS PURCHASE : $15K provided for initial parts purchase in support of FY99 LARC V overhaul requirements
- WINCH PARTS PURCHASE : #30K provided for initial parts purchase in support of FY99 Beebe Winch overhaul requirements

SEALIFT PROGRAM

ELEVATED CAUSEWAY, MODULAR (ELCAS (M)) LOGISTICS TECHNICAL DOCUMENTATION

ELCAS (M) LOGISTICS TECHNICAL DOCUMENTATION

- ELCAS (M) SYSTEM TECHNICAL MANUAL
  - Development effort underway
  - 1st In-Process Review scheduled for Aug 18 - 20
  - Anticipate Completion 4th Qtr FY99
- COSAL/APL DEVELOPMENT
  - Anticipate Completion 4th Qtr FY98

ELCAS (M) LOGISTICS TECHNICAL DOCUMENTATION

- MAINTENANCE REQUIREMENT CARDS (MRCs)
  - Pier System Data available in 3M System On-line
  - Next CD Issue (SFR2-98) available Sep 98
  - Non-Pier System MRCs being developed

SEALIFT PROGRAM

TA-55

TA-55 HISTORY

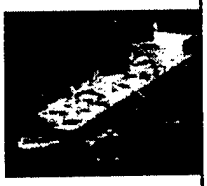
- ORIGINAL REQUIREMENTS FOR TA-55
  - ESTABLISHED IN EARLY 80s FOR SUPPORT OF FUEL/WATER SYSTEMS
  - 400-MAN TENT CAMP WAS EXPANDED TO 800-MAN TENT CAMP
  - PHIBCB TABLE OF ALLOWANCE WAS USED AS A GUIDE

TA-55 HISTORY (continued)

- ADJUSTMENTS AND CHANGES MADE BASED ON NEEDS & MODERNIZATION REQUIREMENTS
- CONTRACTS IN PLACE:
  - 2 SHIPS WILL BE ADDED and
  - THIRD CONTRACT ESTIMATED TO BE AWARDED IN SEPTEMBER 1998

CUSTOMERS SUPPORTED BY TA-55

- PHIBCB 1, CORONADO, CA
- NBG 1, CORONADO, CA
- BMU 1, CORONADO, CA
- PHIBCB 2, LITTLE CREEK, VA
- NBG 2, LITTLE CREEK, VA
- BMU 2, LITTLE CREEK, VA



MISSION NOTES

- CHANGES WERE MADE AFTER OPERATION DESERT STORM
- SUMMARY OF MAJOR CHANGES AFFECTING
  - WEAPONS
  - CESE
  - CEEI
- RORO FACILITY WITH CAUSEWAYS WAS ADDED

MISSION NOTES (continued)

- BUOYS WERE UPGRADED TO THE INFLATABLE TYPE
- REVIEWING ACTIVE OR PLANNED CONTRACTS TO MEET PROCUREMENT NEEDS
  - BASED ON AGE OF EQUIPMENT
  - MODERNIZATION
  - CUSTOMER NEEDS

ON-GOING TA-55 PROJECTS

- COORDINATE MEETING WITH CUSTOMERS
- ESTABLISH PROCUREMENT PLAN PROCESS WITH USER
- RECTIFY ALLOWANCE LISTS
- EQUIPMENT PROCUREMENT
  - CHANGE IN SHOWER BATH UNIT
  - RESEARCH INFO ON 5-TON MEDIUM TACTICAL VEHICLE REPLACEMENT (MTVR) FOR THE FUTURE

SEALIFT PROGRAM

LIGHTER, AMPHIBIOUS RESUPPLY CARGO

(LARC V)

LARC V SUPPORTABILITY ANALYSIS

PURPOSE

- TO GATHER AND ANALYZE REPAIR PARTS AVAILABILITY/USAGE DATA
- TO DEVELOP A COST MODEL TO DETERMINE LENGTH OF FEASIBLE SUPPORTABILITY AND ASSOCIATED COST REQUIREMENTS (i.e., DETERMINING COSTS ASSOCIATED WITH MAINTAINING LARCS)

LARC V SUPPORTABILITY ANALYSIS

PHASE I PROCESS

- VALIDATE INVENTORY OF PHYSICAL ASSETS
  - ON-HAND, IN-STOCK SPARE ITEMS
  - AVAILABLE BONE YARD COMPONENTS
  - REPAIRABLE CRITICAL PARTS

LARC V SUPPORTABILITY ANALYSIS

PHASE I PROCESS (CONTINUED)

- AUDIT OVERHAUL MAINTENANCE RECORDS
  - PERIODICITY OF PARTS REPLACEMENT
  - END ITEM REPAIR FREQUENCY
  - REQUIRED PROCUREMENT LEAD TIME
  - COMMERCIAL SOURCES FOR CRITICAL ITEMS

LARC V SUPPORTABILITY ANALYSIS

PHASE I PROCESS (CONTINUED)

- AUDIT OVERHAUL MAINTENANCE RECORDS (CONTINUED)
  - FUTURE CRITICAL ITEM NON-AVAILABILITY
  - INITIAL ESTIMATE OF CRITICAL ITEM REPLACEMENT COST
  - REVIEW OVERHAUL COSTS
  - REVIEW OVERHAUL SCHEDULES

LARC V SUPPORTABILITY ANALYSIS

PHASE I PROCESS (CONTINUED)

- AUDIT USERS MAINTENANCE RECORDS
  - OVERALL ASSESSMENT OF USERS MAINTENANCE HISTORY AND PARTS USAGE
  - DETERMINATION OF ON-BOARD SPARES
- DEVELOP COST MODEL

LARC V SUPPORTABILITY ANALYSIS

PRODUCT

- SUMMARY OF FINDINGS WITH RECOMMENDATIONS AND CONCLUSIONS
- INVENTORY CONTROL SYSTEM DATABASE
- COST MODEL IN EXCEL WITH USER INSTRUCTIONS

LARC V SUPPORTABILITY ANALYSIS

PHASE II FOLLOW-ON PROGRAM PLANNING

- SLEP (IF FEASIBLE)
  - DRAFT PLAN
  - COMMERCIAL REPLACEMENT PARTS IDENTIFICATION
  - MARKET RESEARCH FOR COST/AVAILABILITY
  - MAKE (REVERSE ENGINEERING)/BUY DECISION EVALUATION
  - POTENTIAL MANUFACTURERS IDENTIFICATION
  - COST MODEL EXPANSION

LARC V SUPPORTABILITY ANALYSIS

PHASE II FOLLOW-ON PROGRAM PLANNING (CONTINUED)

- TECHNICAL DATA PREPARATION
  - DRAWING DEVELOPMENT/REVISION
  - TECHNICAL MANUAL PREPARATION