NAVSHIPSO

NAVSEA Shipbuilding Support Office
Norfolk Naval Shipyard Detachment
Philadelphia, PA

A NAVSEA Field Activity

IFPTE Local 3, Philadelphia, PA

Appeal to 2005 BRAC Commission

of Proposed Realignment of NAVSEA Shipbuilding Support Office (NAVSHIPSO)

KEYPOINTS

NAVSHIPSO REALIGNMENT
KEY POINTS

The Joint Cross Service Group Industrial Report (JCSGI) inaccurately characterized NAVSHIPSO as a ship repair facility. There is a fundamental mistake in perception associated with NAVSHIPSO's mission. There is no repair function to relocate.

NAVSHIPSO was required to answer the same data call criteria used to evaluate naval shipyards and repair facilities, i.e. proximity to Ship Home Ports, Dry Dock Capacity, Maintenance Facilities and Buildings, etc., even though this is clearly not their mission.

DOD had inaccurate information upon which to formulate its recommendation during the BRAC process, and therefore arrived at the wrong conclusions

NAVSHIPSO meets none of the criteria of a Ship Repair and Maintenance Activity as defined by the Industrial Steering Group for Ship Overhaul & Repair.

NAVSHIPSO and the Naval Foundry and Propeller Center (NFPC), form the NNSY Detachment Philadelphia. The same Officer in Charge, who is also located in Philadelphia, directs both activities. Synergy exists between NAVSHIPSO & NFPC. NAVSHIPSO routinely provides analytical, technical & staff support to NFPC. There is also a human capital advantage as evidenced by the number of former NAVSHIPSO employees in key positions in the NFPC. Relatively small employment levels at both organizations places a greater premium on the flexibility afforded by sharing resources as compared to a large organization such as a shipyard.

There is no synergy to be gained through realigning to Norfolk Naval Shipyard due to the divergent functions between the two activities.

As noted in its Mission Statement NAVSHIPSO provides centralized technical and analytical support to NAVSEA in all phases of ship acquisition.

Following BRAC 1993, NAVSHIPSO was urged to vacate the shipyard and obtain leased space. Ironically, today DOD recommends relocating to a shipyard because of this leased space they were urged to obtain.

The final cost to relocate to another site in Philadelphia is significantly less. The one time cost to renovate the alterative Philadelphia site is $962,500, a savings of $3,158,500.

Local 3 polled the employees to determine how many are willing to relocate. Our information indicates an immediate loss of almost 85% of the present workforce and more than 600 years of analytical experience.

The need and resultant cost to reconstitute the workforce is estimated to exceed $2.7 Million.

APPEAL

Response of the International Federation of Professional and Technical Engineers, (IFPTE) Local 3 To BRAC 2005 Realignment Of NAVSHIPSO (Norfolk Naval Shipyard Detachment, Phila.)

June 27, 2005

Executive Summary

The objective of Local 3's response to the DOD recommendation for re-alignment of the Naval Sea Systems Command (NAVSEA) Shipbuilding Support Office (NAVSHIPSO), Philadelphia, PA to the Norfolk Naval Shipyard (NNSY), Portsmouth, VA is to challenge the DOD's application of the principal criteria that govern realignment/closure actions, and the specific data call information requests that support the recommendation, clarify the inaccuracies, and to offer a viable cost effective alternative action.

Following BRAC 1993, NAVSHIPSO was urged to vacate the Philadelphia Naval Shipyard and obtain leased space. Ironically, today DOD recommends relocating to a shipyard because of the cost of the leased space they were previously urged to obtain.

After reviewing the criteria used to recommend realignment, Local 3 is convinced that DOD's decision was based on erroneous information that resulted in the wrong conclusion. Local 3's recommendation will eliminate leased space and consolidate NAVSHIPSO functions into existing government space controlled by the Naval Foundry and Propeller Center (NFPC) in Philadelphia, which is a detachment of NNSY.

EXECUTIVE SUMMARY KEY POINTS

- In accordance with its primary Mission Statement as contained in NAVSEAINST-5450.45A NAVSHIPSO is tasked "To support the NAVAL SEA SYSTEMS COMMAND and other customers in the execution of shipbuilding acquisition and major weapons acquisition programs through manufacturing, engineering and industrial planning and to perform such other functions as may be directed by higher authority."

- NAVSHIPSO is a white-collar, administrative support function to NAVSEA and as such has been providing the same services to NAVSEA, while located in the Philadelphia region for the past 53 years. NAVSHIPSO's mission is entirely independent of location. There is no need to relocate to Norfolk VA to continue their mission.

- DOD's decision was based on erroneous information that resulted in the wrong conclusion.

- The Joint Cross Service Group (JCSG) report inaccurately characterized NAVSHIPSO as a ship repair facility. There is a fundamental mistake in perception associated with NAVSHIPSO's mission. There will be no repair function to relocate.

- NAVSHIPSO meets none of the criteria of a Ship Repair and Maintenance Activity as defined by the Industrial Steering Group for Ship Overhaul & Repair.

- NAVSHIPSO was required to answer the same data call criteria used to evaluate naval shipyards and repair facilities, i.e. proximity to Ship Home Ports, Dry Dock

Capacity, Maintenance Facilities and Buildings, etc., even though this is clearly not its mission.

- The JCSG recommendation provides for a one-time relocation cost of $4,121,000, with an annual savings of $619,000 ($500,000 of which is for existing leased office space) and a payback time of 7 years. Local 3's alternative recommendation provides for co-locating NAVSHIPSO with existing Norfolk Naval Shipyard Detachment employees in Philadelphia, PA in the same building (Building 712) they occupied prior to 1995. The one time cost to renovate this building and move the employees is estimated at $962,500. This alternative reduces NAVSHIPSO relocation costs by $3,158,500. The recurring annual cost savings is equal to the JCSG estimate by eliminating the leased space.

- There is no synergy to be gained through realignment to the Norfolk Naval Shipyard due to the divergent functions between the two activities. NAVSHIPSO is a unique NAVSEA support activity. No other Navy activity does what NAVSHIPSO does. There are no synergies of function with any other organization.

Background

On May 13, 2005 the International Federation of Professional and Technical Engineers (IFPTE), Local 3, received notification that the Department of Defense (DOD) 2005 Base Realignment and Closure (BRAC) recommends realigning and relocating the Naval Sea Systems Command (NAVSEA) Shipbuilding Support Office (NAVSHIPSO) located in Philadelphia, PA to the Norfolk Naval Shipyard (NNSY) in Portsmouth, VA. Local 3 as Chartered under Title VII, is the official bargaining agent for NAVSHIPSO employees and is required to represent these employees in all actions regarding working conditions.

NAVSHIPSO was established in 1952. In 1995, NAVSHIPSO was re-aligned as a Detachment of the Norfolk Naval Shipyard following BRAC 1993 and the closure of Philadelphia Naval Shipyard. It is interesting to note that following BRAC 1993, NAVSHIPSO was urged to vacate government owned office space at the shipyard and obtain leased space. Ironically, today DOD recommends relocating this activity to a shipyard because of the cost of the leased space they were urged to obtain.

NAVSHIPSO is a white-collar, administrative support function to NAVSEA and as such has been providing the same services to NAVSEA, while located in the Philadelphia region for the past fifty- three years. Employment level at the facility is 55, including managers and staff. NAVSHIPSO's mission is entirely independent of location. There is no need to relocate to Norfolk VA to continue their mission.

According to the recommendation provided by the Department of Defense (DOD), the realignment action will "create synergy among like functions performed at NNSY" and consolidate ship repair functions with similar repair functions. In addition, the Navy projects cost savings of $0.5M annually as a result of relocating from presently leased space to Government owned property.

Overview

The objective of Local 3's response to the DOD recommendation for re-alignment of the Naval Sea Systems Command (NAVSEA) Shipbuilding Support Office (NAVSHIPSO), Philadelphia, PA to the Norfolk Naval Shipyard (NNSY), Portsmouth, VA is to challenge the DOD's application of the principal criteria that govern realignment/closure actions, and the specific data call information requests that support the recommendation, clarify the inaccuracies, and to offer a viable cost effective alternative action that will:

1. Sustain NAVSHIPSO's mission as the primary source of Industrial Base Analysis for Navy acquisition planning and support.

2. Exceed the projected cost benefits anticipated by the current recommendation by eliminating the annual cost for current leased space and eliminating the cost to re-locate each employee to the Norfolk area.

3. Remove the anticipated hardships to the affected NAVSHIPSO employees and their families, thus allowing NAVSHIPSO to continue its mission uninterrupted.

There is a need to clarify the actual mission of NAVSHIPSO verses the misconception of the mission as presented to the BRAC Commission through the JCSG. In accordance with its primary Mission Statement as contained in NAVSEAINST-5450.45A NAVSHIPSO is tasked "To support the NAVAL SEA SYSTEMS COMMAND and other customers in the execution of shipbuilding acquisition and major weapons acquisition programs through manufacturing, engineering and industrial planning and to perform such other functions as may be directed by higher authority." Specifically, NAVSHIPSO provides centralized technical and analytical support to NAVSEA in all phases of ship acquisition including shipbuilding technology and industrial base assessments, contract surveillance, construction monitoring, support of Navy War Games; maintenance of the Naval Vessel Register and supports NAVSEA through program management analysis and special studies. NAVSHIPSO provides NAVSEA with detailed and comprehensive analyses of data collected by its staff to provide support for Navy acquisition programs as well as support of "Defense Acquisition Regulatory Requirements" for all major weapons acquisition programs. NAVSHIPSO monitors the industrial capability of more than 500 primary and secondary manufacturers of military systems and components, as well as approximately 100 privately owned shipyards throughout the United States.

NAVSHIPSO has managed on-site Alteration Installation Teams (AIT), however this function is in the process of being eliminated as the result of higher level direction provided prior to and independent of BRAC and is expected to be completely phased out by the spring of 2006.

Most important to this discussion, NAVSHIPSO does not repair ships as the JCSG Industrial Report states. Simply put, there will be no repair function to relocate.

NNSY's mission is ship repair and maintenance while NAVSHIPSO's is not. The Industrial Steering Group, for Ship Overhaul and Repair Subgroup, defines Ship Repair and Maintenance Activities as follows: "Depot and intermediate maintenance activities performing material maintenance and repair required by overhaul, upgrading, modification, or rebuilding of parts, assemblies, or subassemblies, and testing and reclamation of equipment as necessary, regardless of the source of funds for the maintenance or repair at a government owned activity." NAVSHIPSO meets none of these criteria.

NAVSHIPSO's mission is administrative and analytical, thus, their mission continues to be carried out independent of shipyards and as such, the data call regarding Ship Overhaul and Repair was in error. NAVSHIPSO, however, was required to answer the same data call criteria used to evaluate the naval shipyards and repair facilities, i.e. proximity to Ship Home Ports, Dry Dock Capacity, Maintenance Facilities and Buildings, etc., even though this is clearly not their mission. Obviously, there is a fundamental mistake in perception associated with NAVSHIPSO's mission as evidenced by the JCSG BRAC recommendation, to "relocate the Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Shipbuilding Support Office ***ship repair function*** to Norfolk Naval Shipyard. To repeat, there are no ship repair functions available for relocation. NAVSHIPSO's mission has been characterized incorrectly.

The JCSG recommendation provides for a one-time relocation cost of $4,121,000, with an annual savings of $619,000 ($500,000 of which is for existing leased office space) and a payback time of 7 years. Local 3's alternative recommendation provides for co-locating NAVSHIPSO with existing Norfolk Naval Shipyard Detachment employees in Philadelphia, PA in the same building (Building 712) they occupied prior to BRAC 1995. The one time cost to renovate this building and move the employees is estimated at $962,500. This alternative reduces NAVSHIPSO relocation costs by $3,158,500. The recurring annual cost savings is equal to the JCSG estimate by eliminating the leased space.

In response to the Military Value analysis, the Industrial JCSG report inaccurately characterized NAVSHIPSO as a ship repair facility utilizing Ship Overhaul and Repair Subgroup 'data calls' as the evaluation criteria. NAVSHIPSO clearly provides analytical and administrative support to NAVSEA and is not a ship repair facility.

Conclusions/Recommendations

Local 3 requests the 2005 BRAC Commission to carefully examine the original recommendation provided in the DoD Justification Data Report (Enclosure 1), the Final Selection Criteria, DoD Base Closure and Realignment (Enclosure 2), and associated data call criteria used to make the recommendation. Finally, Local 3 requests the BRAC 2005 Commission to evaluate the alternative recommendation presented in this paper. We strongly believe the appropriate decision will be the alternative recommendation presented by Local 3 because it is the correct choice for the Navy and NAVSHIPSO.

The current alignment between NNSY and NAVSHIPSO is entirely administrative. There is no benefit to the Navy to relocate NAVSHIPSO to Norfolk. The final cost would be significantly higher to relocate the office and its employees to the Norfolk area, than remaining in Philadelphia and moving to a Government owned facility. By remaining in Philadelphia there is no need for relocation & accompanying high costs.

There is no synergy to be gained through realigning to Norfolk Naval Shipyard due to the divergent functions between the two activities. NAVSHIPSO is a unique NAVSEA support activity. No other Navy activity does what NAVSHIPSO does. There are no synergies of function with any other organization.

NAVSHIPSO and the Naval Foundry and Propeller Center (NFPC), form the NNSY Detachment Philadelphia. Under this existing alignment, both organizations share a common electronic (T-1) computer hub connection with the Norfolk Naval Shipyard for all business and administration functions. Furthermore, relatively small employment levels at both organizations places a greater premium on the flexibility afforded by sharing resources as compared to a large organization such as a shipyard.

After reviewing the criteria used to recommend realignment, Local 3 is convinced that DOD's decision was based on erroneous information that resulted in the wrong conclusion. Local 3's recommendation will eliminate leased space and consolidate NAVSHIPSO functions into existing government space controlled by the Naval Foundry and Propeller Center (NFPC) in Philadelphia, which is a detachment of NNSY.

Relocating workers and their families for any reason is a complex and stressful undertaking. More importantly, the JCSG relocation recommendation, triggered by an erroneous assessment of the NAVSHIPSO organization and mission, is not only an injustice to the workers, but to the tax-payers. Spending additional money to relocate NAVSHIPSO, as evidenced by the $3,158,000 relocation differential, to perform the same function they perform in Philadelphia, defeats the purpose of the BRAC Commission. After examining the evidence, there is no justification for relocaton.

The Navy made an error in their assessment by using the wrong criteria to assess NAVSHIPSO. Local 3 implores the BRAC Commission to make the correction. We are confident you will give careful consideration of the facts, and based on the merits of our appeal the Commission will make the necessary correction.

Naval Shipyard Detachments

Recommendation: Realign Puget Sound Naval Shipyard Detachment Boston, MA, by relocating the ship repair function to Puget Sound Naval Shipyard, WA.

Realign Naval Station Annapolis, MD, by relocating the Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Plant Equipment Support Office ship repair function to Norfolk Naval Shipyard, VA.

Realign the Navy Philadelphia Business Center, PA, by relocating the Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Shipbuilding Support Office ship repair function to Norfolk Naval Shipyard, VA.

Justification: This recommendation supports mission elimination at Puget Sound Naval Shipyard Detachment Boston, MA, Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Plant Equipment Support Office, Annapolis, MD, and Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Shipbuilding Support Office, Philadelphia, PA, and reduces excess ship repair capacity. This relocation will create synergy among like functions at Puget Sound Naval Shipyard and Norfolk Naval Shipyard. Although this expected synergy is not captured in the payback calculations, experience has shown that it will produce additional long-term savings.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $12,511K. The net of all costs and savings to the Department during the implementation period is a cost of $946K. Annual recurring savings to the Department after implementation are $2,259K with a payback expected in four (4) years. The net present value of the costs and savings to the Department over 20 years is a savings of $20,689K.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 213 jobs (108 direct jobs and 105 indirect jobs) over the 2006-2011 period in the in the Boston-Quincy, MA Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 25 jobs (13 direct jobs and 12 indirect jobs) over the 2006-2011 period in the in the Baltimore-Towson, MD Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 114 jobs (63 direct jobs and 51 indirect jobs) over the 2006-2011 period in the in the Philadelphia, PA Metropolitan Division, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume 1.

ENCLOSURES (1)

Community Infrastructure: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has no impact on air quality; cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation does not impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

ACQUISITION, TECHNOLOGY AND LOGISTICS

JAN 4 2005

MEMORANDUM FOR INFRASTRUCTURE EXECUTIVE COUNCIL MEMBERS
INFRASTRUCTURE STEERING GROUP MEMBERS
JOINT CROSS-SERVICE GROUP CHAIRMAN

Subject: 2005 Base Closure and Realignment Selection Criteria

The Ronald Reagan National Defense Authorization Act for Fiscal Year 2005, Public Law 108-375, amended the Defense Base Closure and Realignment Act of 1990, Public Law 101-510, to specify the selection criteria. Specifically, the amendment revised the criteria previously published by the Secretary of Defense by adding the word "surge" to criterion three. The amendment also revised the wording, but not the meaning, of criteria one and seven, to avoid the use of the possessive.

The Department shall use the attached 2005 Base Closure and Realignment (BRAC) Selection Criteria, along with the force-structure plan and infrastructure inventory, to make recommendations for the closure or realignment of military installations inside the United States, as defined in the base closure statute. This direction supersedes any previous direction regarding selection criteria for the BRAC 2005 process. The 2005 BRAC Commission will also use these criteria in their review of the Department of Defense's final recommendations.

Michael W. Wynne
Acting USD (Acquisition, Technology & Logistics)
Chairman, Infrastructure Steering Group

Attachment:
As stated

ENCLOSURES (2)

Final Selection Criteria
Department of Defense Base Closure and Realignment

In selecting military installations for closure or realignment, the Department of Defense, giving priority consideration tot military value (the first four criteria below), will consider:

Military Value

1. The current and future mission capabilities and the impact on operational readiness of the total force of the Department of Defense, including the impact on joint warfighting, training, and readiness.

2. The availability and condition of land, facilities, and associated airspace (including training areas suitable for maneuver by ground, naval, or air forces throughout a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

3. The ability to accommodate contingency, mobilization, surge, and future total force requirements at both existing and potential receiving locations to support operations and training.

4. The cost of operations and the manpower implications.

Other Considerations

5. The extent and timing of potential costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs.

6. The economic impact on existing communities in the vicinity of military installations.

7. The ability of the infrastructure of both the existing and potential receiving communities to support forces, missions, and personnel.

8. The environmental impact, including the impact of costs related to potential environmental restoration, waste management, and environmental compliance activities.

PHYSICAL LAYOUT


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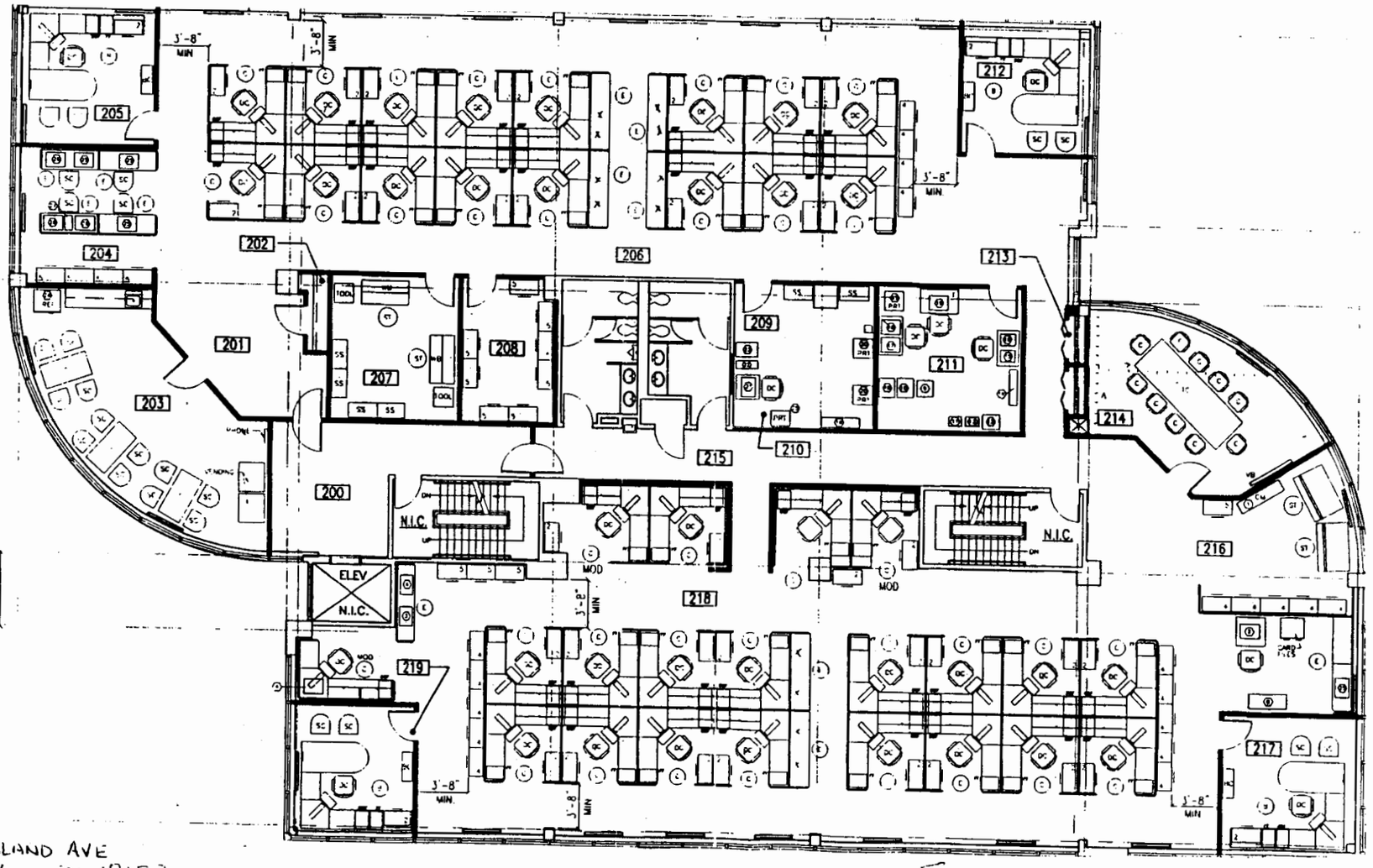
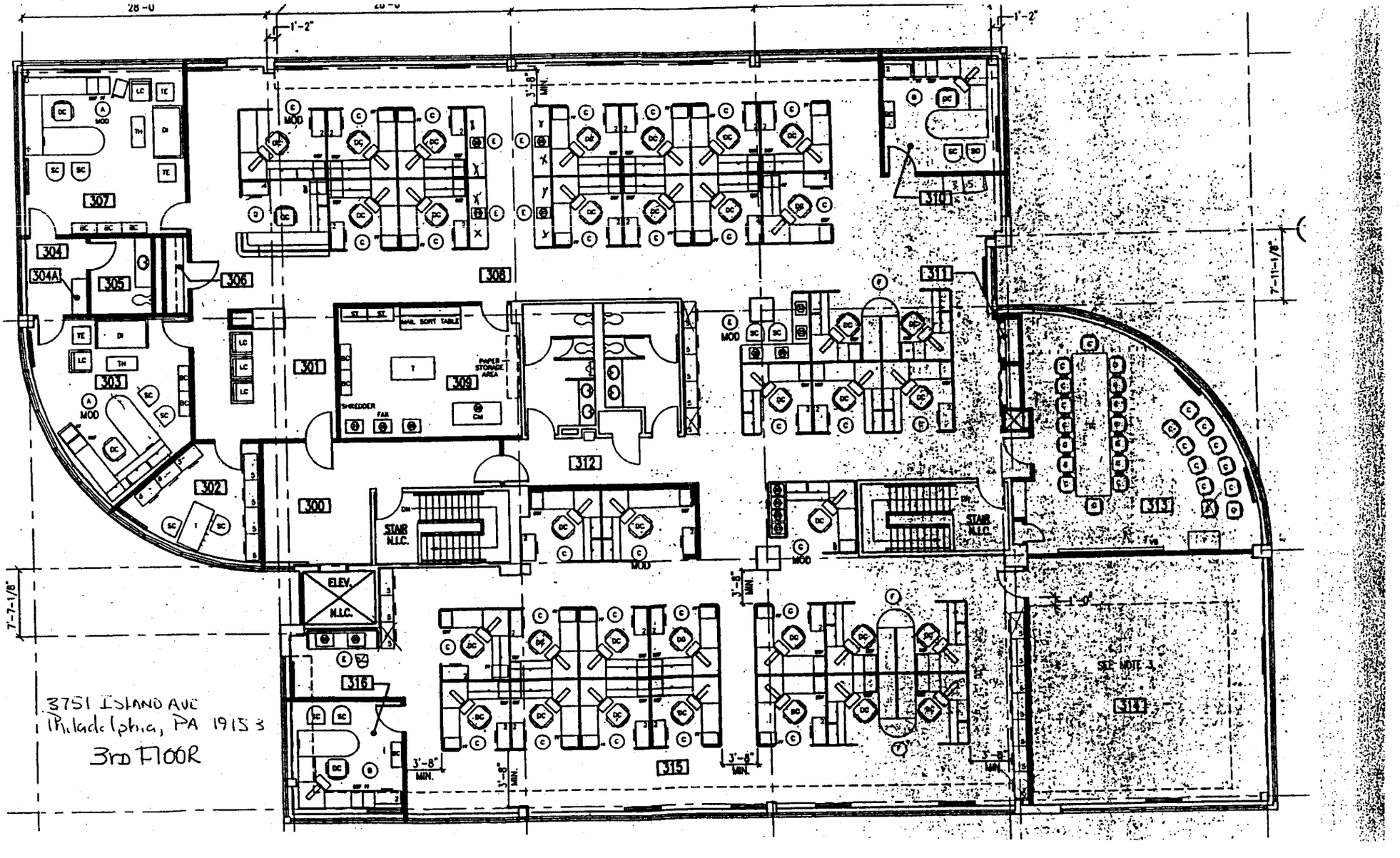


3751 ISLAND AVE
Philadelphia, PA 19153

2ND FLOOR


3751 ISLAND AVE
Philadelphia, PA 19153
3RD FLOOR
MAIL SORT TABLE
PAPER STORAGE AREA
SHREDDER
FAN
STAIR N.L.C.
ELEV. N.L.C.
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300
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316
3'-8" MIN.
7'-11-1/8"
7'-7-1/8"
1'-2"

BACKGROUND

Norfolk Naval Shipyard
Detachment Phila

NAVSHIPSO
navsea shipbuilding support office

2005

"A NAVSEA Field Activity"

3751 ISLAND AVE.
PHILADELPHIA, PA
19153-3297

NAVSHIPSO HISTORY

1952 - Established as the NAVY SHIP SCHEDULING ACTIVITY to promote efficiency in the shipbuilding industry by prioritizing material delivery to meet construction requirements.

1982 - Renamed NAVSEA Shipbuilding Support Office (NAVSHIPSO) under administrative control of the PHILADELPHIA NAVAL SHIPYARD.

1995 - Established as a Detachment of Norfolk Naval Shipyard upon cease mission of PNSY in SEP 95 by NAVSEAINST 5450.45 dated 9 MAR 95.

2005

MISSION

(NAVSEAINST 5450.45)

"To support the NAVAL SEA SYSTEMS COMMAND and other customers in the execution of shipbuilding and major weapons acquisition programs through manufacturing, engineering and industrial planning, and to perform such other functions as may be directed by higher authority."

KEY FUNCTIONS

(NAVSEAINST 5450.45)

"Provide centralized technical support to NAVSEA.... In all phases of ship acquisition including contract surveillance, construction monitoring, shipbuilding technology and industrial base (IB) assessments."

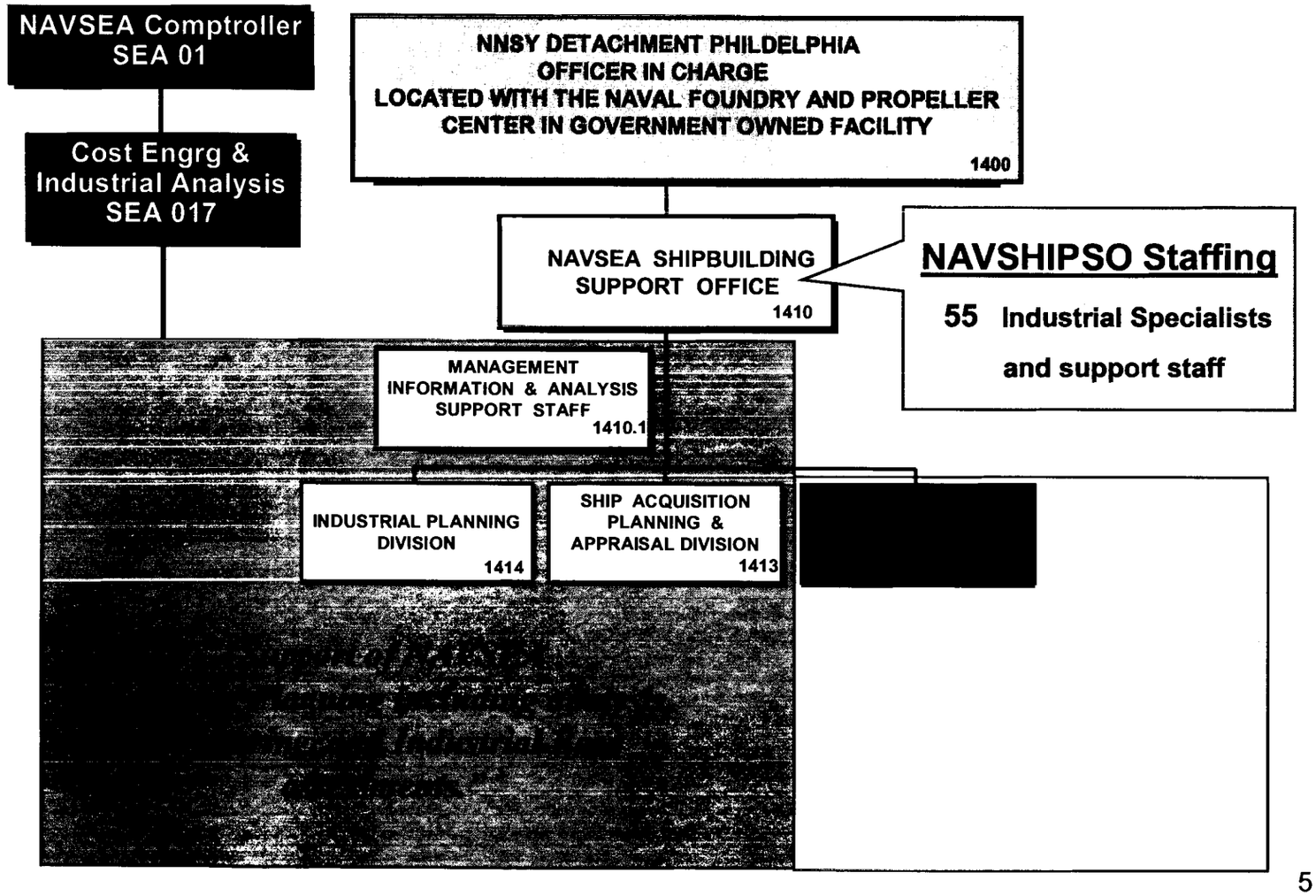
"Support Navy War Games."

"Maintain the Naval Vessel Register (NVR)."

"Support NAVSEA through Program Management, Analysis and Special Studies"

2005

NAVSHIPSO ORGANIZATION



NAVSHIPSO Staffing

55 Industrial Specialists and support staff

2005

INDUSTRIAL PLANNING

Maintain Industrial Shipbuilding & Repair Base (ISRB) Database for Shipyards & Supporting Industries

(DoD 5000.2)

Analysis of the Shipbuilding Industry

(DoD 5000.2)

Technical Support to Ship Program Managers throughout Planning, Acquisition and Construction

(DoD 5000.2)

Maintain the Naval Vessel Register (NVR)

(USN Regulations Article 0406.1)

(10 USC 7304 - 7308)

2005

Maintain Industrial Shipbuilding & Repair Base

(ISR) Database for

Shipyards & Supporting Industries

Objective - Maintain a database that provides the Navy with accurate information on shipbuilding and repair facilities, and supporting industries for assessing peacetime and surge requirements

Source of Data for Shipyards -

- **Annual Solicitation DoN/MARAD Form 17 requesting shipyard data related to facilities and capabilities**
- **On-Site Surveys**

Source of Data for Supporting Industries -

- **Annual Solicitation DoD Form 2737 requesting manufacturer data including**
  - **production lead times**
  - **capacity utilization**
  - **sales**
  - **employment levels**
  - **facilities**
  - **skilled trades**
  - **production rates**

Analysis of the Shipbuilding Industry

Industrial Base Studies

Recent Studies- LCS, DD(X), CVNX/CVN21, TAKE, JCCX, NOAA

Preliminary Studies- MPF(F), TAOE(X)

War Games Support - analysis of industrial preparedness issues for logistic and global games.

Material Cost Estimating Relationship

Annual projection of future material costs based on survey of supporting industries.

Sector Studies

- Submarine Storage Batteries
- Material Cost Survey - SSN, CVNX
- Stern Tube Bearing Staves
- Propulsion Shaft Manufacturers

2005

Technical Support to Ship Program Managers Planning and Acquisition

Source Selection Evaluation Boards - examine past performance, experience, production capability, and assess the viability of contractor proposals in support of Navy evaluation of commercial sector work.

Shipyard Productivity Studies - past performance on programs, CPI, SPI, workforce levels, skill levels, construction schedules.

Cost Estimate Reviews -

CVNX Engineering BOE

LHD/LPD Material Estimate

Production Readiness Reviews - post contract award evaluation of workforce, facilities, schedules and construction plans.

Technical Support to Ship Program Managers
Construction

Ship Construction Progress Reports - evaluate schedule and cost, progress, site inspections and provide independent construction assessment.

Recent efforts : TAKE, LPD 17,CVN 68-69 RCOH, MHC51CL, TAGS 63-65, TAGOS 23

Cost & Schedule Analysis Approach

- Integrated cost (Earned Value) and schedule analysis
- Independent schedule estimates and projections for major milestones, key events and resources
- Independent analysis and projections for EAC, Labor Rates, Progress and BCWP to complete
- Validate data integrity and schedule progress

Contract Claim Analysis

2005

Naval Vessel Register (NVR)

- Maintain the NVR database and web-site.

  www.nvr.navy.mil

- Provides accurate inventory of ships and service craft.
- Record final ship and service craft disposition.
- Provide end of fiscal year inventory to NAVSEA for preparation of Financial Reports.
- Provide NVR data extracts to NAVSEA, DoD, DoN, OPNAV and Fleet.

2005

SUBMARINE MAIN STORAGE BATTERY

INDUSTRIAL BASE CAPABILITIES ASSESSMENT

PREPARED FOR
NAVAL SEA SYSTEMS COMMAND (PMS 392)
BY
NAVSEA SHIPBUILDING SUPPORT OFFICE

July 2003

BACKGROUND

The (AAA CO.) Industrial Power Division of the XXX YYY Business Group of (BBB Co.) Technologies is the Navy's sole source for nuclear submarine flooded lead acid main storage batteries. The company has supplied submarine storage batteries to the Navy since WWII and has been the Navy's sole source since 19XX providing new and replacement main storage batteries for LOS ANGELES, OHIO and SEAWOLF Class nuclear submarines. The batteries are manufactured at (AAA CO.)'s facility in (Location A), IL. The primary purpose of the main storage battery system is to supply power to restart the nuclear reactor and in emergencies to supply power for propulsion and vital life support systems. Although the basic flooded lead acid battery has changed little in concept since the 1880s enhancements in materials and manufacturing methods continue to improve energy density, battery life and reliability. In a letter to Rear Admiral (Sel) John Doe, dated 17 April 20XX, the company informed NAVSEA that the (Location A) facility is at risk of closure due to Navy orders falling well below the facility's minimum-sustaining rate. Submarine main storage batteries are the facility's single product line.

PURPOSE

NAVSHIPSO was tasked by NAVSEA PMS XXX to perform an on-site survey of (AAA CO.)'s (Location A) facility in order to interview company representatives and validate the facility's condition and continued viability. This analysis will also identify minimum facility employment levels for skilled labor required to support a lifetime buy scenario and develop relevant findings and recommendations.

APPROACH

U.S. Navy out year requirements for flooded lead acid submarine main storage batteries were based on NAVSEA draft letter SerPMSXXXh/XX dated 26 June 20XX. This report provides business information and analysis concerning (AAA CO.)'s position, intended direction, and obstacles to be overcome in order to minimize risk. This information is the result of a site visit by NAVSHIPSO personnel to (AAA CO.) offices in (Location B), and to the (Location A) facility. This effort included conversations with company personnel regarding plant performance, product development, core competencies and management objectives. The assessments contained herein reflect (AAA CO.)'s past experience, available workforce, current and projected workload, facilities, sales, dependence on Navy work, and VRLA technology initiatives. When coupled with an understanding of fleet maintenance and new build requirements for flooded lead-acid main storage batteries, these basics provide the ability to adequately assess the Navy's risk associated with the continued procurement of flooded lead acid battery to meet requirements.

PRODUCTION REQUIREMENTS

The main storage battery is a vital component of nuclear powered submarines. It is essential for reactor safety and for providing continuity of power while the submarine is submerged as well as redundancy of power for critical ship systems. The battery is

uniquely designed for submarine use and consists of a collection of individual cells installed in a dedicated compartment in the lower section of the submarine. Depending on the type of submarine a single battery cell ranges in size from 40.8" high by 19.34" wide by 19.34" in length; to 55.25" high by 14.22" wide by 14.22" in length. Depending on class each submarine is equipped with 126 to 130 cells.

Submarine flooded lead acid battery production is labor intensive and requires a unique skilled workforce of grid casters, cell burners (welding), black oxide operators, paste machine operators and battery forming/activation personnel. In addition, the battery manufacturing process also requires skilled quality assurance inspectors, lab technicians and electrical and mechanical maintenance workers. (AAA CO.) reports that their production line requires fifty-two workers to manufacture one submarine battery set 30% of whom possess the unique skills mentioned above.

Specialized facility workstations, production equipment and tooling most critical to producing submarine flooded lead acid batteries include oxide mills, paste mixers, automatic mixing systems, positive plate acid dip systems, acid storage tanks, wastewater treatment system, bag house (mandated by clean air requirements), power rectifier cabinets, and high voltage power transformers for battery activation and plating.

Additionally, the facility, as a result of its lead battery manufacturing operation, is subject to numerous environmental laws and regulations and is exposed to liabilities and compliance costs arising from its past and current handling, releasing, storing and disposing of hazardous substances and hazardous wastes. The facility's operations are also subject to occupational safety and health laws and regulations, particularly relating to monitoring of employee health. The Company devotes resources to attaining and maintaining compliance with environmental and occupational health and safety laws and regulations.

Because of the environmental and occupational regulations associated with the production of flooded lead acid batteries, and the unique trade skill and equipment requirements, the production line could not be easily relocated or duplicated without incurring substantial reconstitution costs.

There are no other depot facilities with the capability to manufacture flooded lead acid submarine batteries. Although the basic concept is the same as for commercial applications, the size of the submarine battery makes it unique. Additionally, Navy submarine battery construction requires the use of virgin lead whereas commercial batteries can be manufactured using recycled lead. These considerations, coupled with declining acquisition rates and the Navy's intended near-term transition to the use of VRLA battery sets make it highly unlikely that any other manufacturer would be willing to enter the market to support production of flooded lead acid batteries for the Navy.

(AAA CO.) INDUSTRIAL POWER ((AAA CO.))

(AAA CO.), a Division of (BBB Co.) Technologies, is the former (AAA CO.) Industrial (XXX) Company a subsidiary of (AAA CO.) Technologies. In September 20XX, (BBB Co.) Corporation completed its acquisition of (AAA CO.) Technologies and commenced operation as (BBB Co.) Technologies.

(AAA CO.)'s (Location A) facility was built solely for the production of lead acid batteries for commercial and military markets. The facility's commercial customers included batteries for industrial lift trucks, underground mining vehicles and standby/uninterrupted power applications for utilities and the telecommunications industry. The facility is located on 24 acres with 7 acres of developed production facilities. (Location A)'s recent dramatic decline in facility employment levels, plant capacity utilization rates and sales reflect (BBB Co.)'s decision to relocate all commercial workload to their Fort XXX, XX facility. This corporate decision was motivated by the necessity to reduce costs by consolidating infrastructure in response to the downturn in the telecommunications industry post September 11th. The submarine battery manufacturing operation was retained at (Location A) since it was considered cost prohibitive to relocate the specialized production line to support declining acquisition rates for an item facing obsolescence. As confirmed by NAVSHIPSO's site survey, (AAA CO.)'s (Location A) production facilities are currently devoted solely to the manufacture of submarine flooded lead acid batteries. The facility is also being used as a distribution center for other (BBB Co.) products.

(AAA CO.) (Location A)'s value of shipments have decreased 89% from $164M in March 20XX to $17.5M March 20XX. U.S. Navy submarine battery acquisitions are estimated to account for 90 percent of sales with the remaining 10 percent attributable to foreign navy procurements and distribution center sales. Commercial workload has fallen from 91% of sales in 2002 to almost zero.

(Location A)'s employment level has fallen 80% from 379 employees in 20XX to 74 in 20XX. The facility currently employs 16 salaried and 58 hourly employees. (Location A) employment levels from 19XX to 20XX are provided in Figure 1.

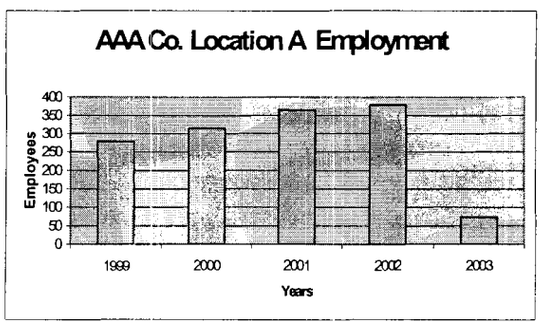


Figure 1

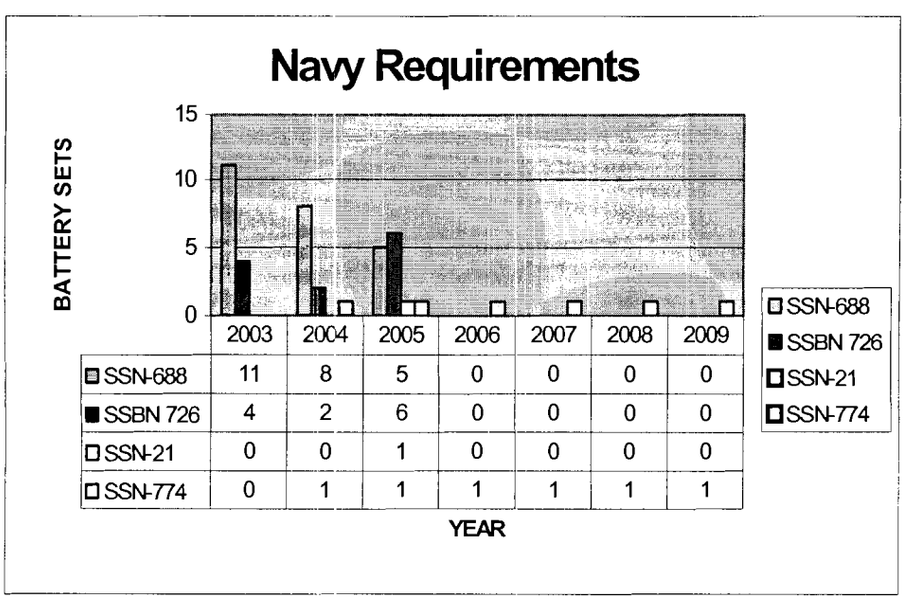
(AAA CO.) (Location A) is currently operating at a 14% capacity utilization rate which represents a 79% decline from 68% in 2002.

Of additional concern is the condition of the facility's government owned production line equipment some of which dates back to the 19XXs. (AAA CO.) estimates that should the Navy require battery production beyond 20XX equipment maintenance and upgrades could approach $1.9M. Significant items requiring upgrades include the casting auto pour system, rectifiers and forming tanks, plate cleaning stations, plant ventilation, molds and tooling. With the investment of $1.9M for equipment upgrades (Location A) could continue to produce submarine flooded lead acid batteries, however, declining acquisition rates would still require periodic facility shutdowns which in turn will adversely impact cost and possibly effect schedule and battery quality. Investing $1.9M in equipment overhaul does not satisfactorily mitigate the risk associated with the Navy's projected low acquisition rates.

The materials used in the manufacture of flooded submarine battery cells are provided in large part by small businesses. (AAA CO.) reports that 86% of their parts suppliers qualify as small businesses. Most of these small business suppliers are sole source due to the unique nature of the parts and low annual volume required. Any extended disruption in demand for flooded lead acid submarine battery components may jeopardize future schedule adherence and adversely affect material cost and item quality.

INDUSTRIAL BASE PROBLEM

The current Navy procurement schedule and projected requirements by class for flooded lead acid submarine battery ship sets are depicted in Figure 2 through 2009.



	2003	2004	2005	2006	2007	2008	2009
SSN-688	11	8	5	0	0	0	0
SSBN 726	4	2	6	0	0	0	0
SSN-21	0	0	1	0	0	0	0
SSN-774	0	1	1	1	1	1	1

Figure 2

(AAA CO.) has stated that their Economic Order Quantity (EOQ) for submarine battery sets at the (Location A) facility is 22 per year. EOQ is defined as the quantity to order which will assure a stable product price and uninterrupted supply while minimizing the Navy's risk
of schedule slippage or item non-availability. As indicated in Table 2 the Navy's planned procurements fall far below 22 ship sets per year. Maintaining this schedule will result in periodic production shutdowns which places future procurements at risk due to technical and logistic difficulties and additional costs associated with reconstituting vendor resources upon start up. Critical areas of concern include:

- Capability to rehire experienced trained workers
- Retraining costs
- Training costs for new hires
- Continued timely availability of critical components
- Availability of sole source sub component vendors
- Additional costs of maintaining facility during shutdown
- Performance of shop equipment after shutdown
- Timely start up of production line to support schedule adherence and budget restraints.

Depending on the length of shutdown each of these factors will adversely impact the cost and timely availability of future battery ship sets.

(AAA CO.) estimated minimum facility costs at $6.8M per year to maintain the production line in operation. This figure includes salaries, wages, supplies, maintenance, depreciation, insurance, taxes, and safety/health/environmental compliance. The cost for each battery set is projected to range between $567K to $653K dependent on submarine class and quantities ordered. As depicted in Figure 3, based on the Navy's present procurement schedule, assuming all other factors remain constant, and using a conservative figure of $567K per ship set, the facility will permanently fall far below its minimum sustaining rate after 2005.

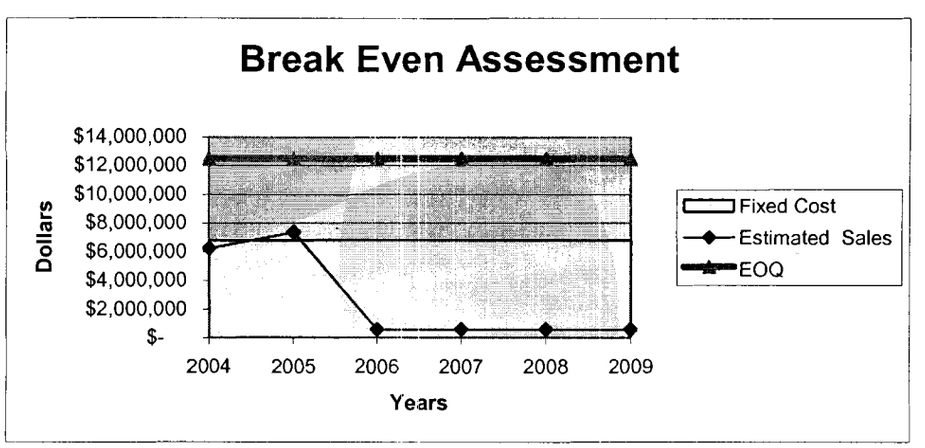


Figure 3

Left as is this scenario beginning in 2004 and especially after 2005 presents significant risk to the Navy regarding the continued availability of flooded lead acid battery sets required to support submarine new construction and maintenance requirements.

FINANCIAL

Financial performance data specific to (AAA CO.)'s (Location A) facility was not available for this assessment, however, since the parent company may be expected to effect the financial viability of this business unit financial analysis for (BBB Co.) Corporation is presented below.

(BBB Co.) is the largest lead-acid battery company in the world with approximate annual revenues of $2.8B, operations in 89 countries, and 35 manufacturing facilities serving customers worldwide in the Industrial and Transportation markets. The company manufactures industrial and automotive batteries in North America, Europe, the Middle East, India, Australia and New Zealand. Its industrial batteries consist of motive power batteries, such as those used in forklift trucks and other electric vehicles, and network power batteries used for back-up power applications in telecommunication systems. (BBB Co.) markets automotive batteries to a broad range of retailers and distributors of replacement batteries and to automotive original equipment manufacturers (OEMs). The company has three primary business segments: XXX Power (20%), YYY Power (17%), and ZZZ (63%). In April 2002, (BBB Co.) and certain of its U.S. subsidiaries filed voluntary petitions for relief under Chapter 11 of the United States Bankruptcy Code.

(BBB Co.) posted net sales in both 20XX and 20XX of $2.4B which represented an 11% increase from 20XX revenue of $2.1B. European, North American and Pacific Rim operations represented approximately 48%, 47% and 5% respectively of 2002 net sales. As depicted in Figure 4 (BBB Co.)'s Operating Profit Margin (OPM) for 2002 decreased from -1.5% in 2001 to -6.9% remaining well below the industry average of 4.7%. The company's SEC filings indicated that the steep decline in OPM in 2002 was attributable to the reorganization of its subsidiaries under Chapter 11.

(BBB Co.)'s debt to equity ratio increased from -9.9 in 2001 to -4.5 in 2002 well below the electrical equipment industry average of 2.2 as depicted in Figure 5. The negative ratio was primarily due to negative shareholder equity caused by heavy debt burden resulting from a debt-financed acquisition strategy and the significant costs associated with integrating new acquisitions. The negative ratio is also due to (BBB Co.)'s ongoing business restructuring under Chapter 11. Other factors impacting the debt to equity ratio included the current adverse economic conditions effecting the company's primary markets particularly the telecommunications industry, ongoing competitive pressures, and recent capital market volatility.

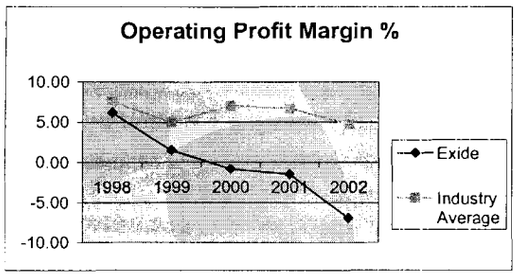


Figure 4

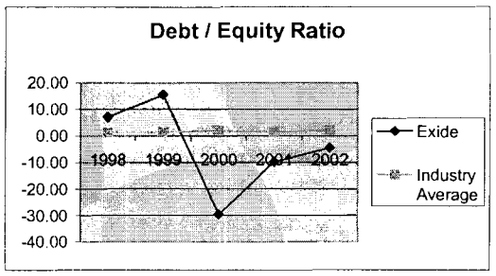


Figure 5

(BBB Co.) current ratio has declined from 1.2 in 2001 to .45 in 2002 as depicted in Figure 6. The 20XX ratio was below the industry average of 1.6. The decrease in current ratio is partly due to a reduction in short term investments and available cash. These factors contributed to a loss of revenues and resulted in significant operating losses and negative cash flows, which severely impacted the company's financial condition and its ability to maintain compliance with debt covenants.

As depicted in Figure 7 return on assets decreased from -7.35% in 20XX to -14.5% in 20XX substantially below the industry average of 5.1%. The 20XX decline was attributable to unusually high interest payments, extraordinary operating expenses, and goodwill amortization. These charges are one–time costs related to restructuring mergers and acquisition activity. Reduced net income reflected lower unit sales volumes and general softness in the overall economy.

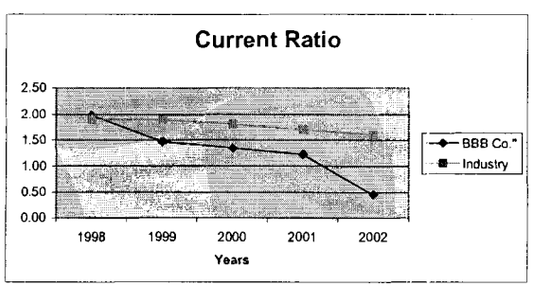


Figure 6

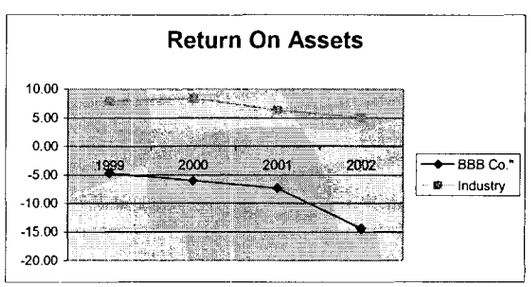


Figure 7

(BBB Co.)'s reorganization under Chapter 11 is being used to restructure its balance sheet and to gain access to new working capital while continuing to operate in the ordinary course of business. Although corporate results have been negatively impacted by lower contribution from various programs the company still expects restructuring under Chapter 11 to benefit future performance.

(AAA CO.) company representatives stated that the possible closure of their (Location A) facility was not officially a part of (BBB Co.)'s Chapter 11 reorganization. However, regardless of the long-term outcome of the reorganization, it is not prudent for the Navy to assume that a corporation currently undergoing such severe financial strain would be willing to guarantee the future financial viability of the (Location A) facility particularly in light of diminishing Navy demand.

FINDINGS

The following findings are based on discussions with NAVSEA, NSWC and (AAA CO.) representatives, review of relevant NAVSEA and (BBB Co.)/(AAA CO.) briefings and documents, and site survey observations at (AAA CO.)'s (Location A) facility.

- (AAA CO.)'s (Location A), facility is the Navy's sole source for submarine flooded lead acid batteries which is the facility's sole product line.
- 90% of (Location A)'s battery production is dedicated to the U.S. Navy.
- The (Location A) facility has experienced an 89% drop in sales revenue since 2001; an 80% drop in employees from 379 in 20XX to 74 in 20XX; and a decline in capacity utilization rate from 68% in 20XX to 14% in 20XX.
- Based on the minimum manning and resources required to run the production line (AAA CO.) estimates that the EOQ for battery sets is 22 per year.
- Based on current Navy procurement rates the (Location A) will fall far below its minimum sustaining rate after 20XX prior to meeting Navy out year battery requirements. Additionally, periodic plant shutdowns will be experienced along with associated risks and added costs at start-up.
- (Location A) is capable of storing and activating battery sets.
- Battery set production beyond 20XX will require tooling and equipment overhaul to government owned equipment estimated at approximately $1.9M.
- The Navy's current acquisition rate represents an unacceptable level of risk to submarine new construction and maintenance requirements.
- Given the financial condition of (AAA CO.)'s parent company (BBB Co.) Technologies, there is significant risk that the (Location A) facility could be closed on short notice leaving the Navy without an immediate source of flooded lead acid submarine batteries.

RECOMMENDATIONS

- Determine total lifetime buy requirements for flooded lead acid submarine batteries including new construction, fleet replacements and spares.
- Task NSWC and (AAA CO.) to determine acceptable stored shelf life prior to battery activation. A five-year shelf life will permit a battery produced in 2005 to meet the Navy's last projected requirement in 2009.

- Institute a lifetime buy to eliminate risk of periodic production line shutdown with increased costs and possible schedule disruption, and to minimize risk of facility closure. Accelerate the flooded battery procurement rate to meet the 22 EOQ in 2004 with balance of the Navy's total requirement for procurement in 2005. This will permit an orderly one-time final shutdown of the production line.

- Determine funding requirements necessary to execute a lifetime buy as described above and institute budget reallocation.

- Evaluate and, if feasible, expedite the insertion of more advanced battery technology such as valve regulated lead acid (VRLA) batteries.

Questions or comments regarding this analysis can be directed to Mr. M.P.at 555-666-7777 X2222 or Mr. R. P. at X3333.

WATER-LUBRICATED PROPULSION SHAFT BEARING STAVES FOR NAVY SHIPBUILDING AND MAINTENANCE

INDUSTRIAL BASE CAPACITY ASSESSMENT

PREPARED FOR
NAVAL SEA SYSTEMS COMMAND
BY
NAVSEA SHIPBUILDING SUPPORT OFFICE

April 2002

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INTRODUCTION

BACKGROUND

In recent years, an increase in the failure rate of water-lubricated strut and stern tube bearing staves has been reported on U.S. Navy ships. An investigation into the root cause of the problem was undertaken which included increased frequency of waterborne stave inspections as well as sample testing of RFI staves in the Navy stock system. Additionally, a QA audit of the primary stave contractor was performed by cognizant NSWC and DCMA personnel in August 2001. These efforts indicated that MIL-SPEC QA requirements applicable to the manufacture of staves were not met by the prime contractor, XXX Co. (XXX Co.), or by its subcontractor and stave material supplier, YYY Co. Rubber Company, or both. Note that the XXX Co./YYY Co. team is the primary supplier of water-lubricated shaft bearing staves to the Navy, with YYY Co. providing sheets of dual compound stave material to XXX Co. for precision cutting and sizing.

As a result of these and other findings, NAVSHIPSO has been requested by NAVSEA 05 through NAVSEA 017 to perform an Industrial Base Assessment (IBA) on the existing stave suppliers. Two suppliers are currently manufacturing water-lubricated bearing staves for use by the U.S. Navy: the XXX Co./YYY Co. team and ZZZ Co. Marine, LLC. Due to the prime/sub-contractor relationship and shared QA responsibilities between YYY Co. and XXX Co., our IBA efforts and subsequent findings as detailed in this report apply to XXX Co., YYY Co. and ZZZ Co..

PURPOSE

The primary purpose of this effort, as tasked by NAVSEA, is to consider a scenario in which the Navy no longer retains XXX Co. and/or YYY Co. as qualified vendors. This report addresses issues relevant to the fulfillment of future Navy stave requirements under such a scenario.

This report also provides an assessment of the existing suppliers of water-lubricated shaft bearing staves for U.S. Navy shipbuilding and maintenance programs. In addition to basic industrial parameters, it is intended to provide insight concerning the strategic position, strength and direction of each vendor within its chosen market segment, with particular regard to its position as a niche supplier for these Navy items. The potential for future changes in this positioning is addressed, resulting in an assessment of risk to the Navy concerning the availability of critical component suppliers during the out years.

As directed by NAVSEA XX, this report does not include any formal technical assessment of the procedural or quality-oriented problems, or the associated recovery efforts, related to premature stave failures in the fleet, or to substandard staves located in the Navy supply system. The investigation and assessment of those issues are ongoing under a separate Navy program.

OBJECTIVES

The objectives of this report were to assess the state of the existing industrial base for Navy waterborne bearing staves, as well as any known risks to that industrial base, and provide recommendations to reduce, eliminate or circumvent those risks.

APPROACH

U.S. Navy fleet requirements for waterborne shaft bearing staves were estimated on an annual basis for the out years.

The report provides business information concerning the manufacturers being addressed and presents a clear picture of each company's position, intended direction, and obstacles to be overcome. This information is the result of standardized IBA data collection techniques as well as

site visits by NAVSHIPSO personnel to the vendors under consideration. These efforts included conversations with company personnel regarding financial performance, product development, core competencies and strategic management objectives. The assessments contained herein reflect the manufacturers' past experience, available workforce, workload, facilities, sales, dependence on Navy work, market diversification, technology initiatives and strategic mergers and acquisitions, as appropriate and available.

When coupled with an understanding of fleet maintenance and new build requirements, these elements provide the ability to assess the risk associated with procurement from existing suppliers to fulfill out year fleet requirements.

EXISTING SUPPLIERS

As noted above, individual industrial information is presented on three business entities: XXX Co. (XXX Co.), YYY Co. Rubber Co. and ZZZ Co. Marine LLC. YYY Co. has acted historically as a subcontractor to XXX Co., which maintains full responsibility for all products supplied. As such, XXX Co. and YYY Co. may be viewed as a team in all regards except those few considerations to be so noted.

XXX COMPANY

Company Overview

The XXX Co. (XXX Co.), founded in 19XX and headquartered in CA, is a worldwide supplier of propeller shaft bearings and the primary supplier of these bearings to the U.S. Navy. The privately owned company employs about 20 people, half of whom provide skilled production labor at their 40,000 square foot facility. Note that this represents a significant decline since FY87, when the company employed 46 people, and since FY96, when 30 people were employed.

Although XXX Co. has concentrated its design and manufacturing expertise on the naval and marine markets which account for approximately 90% of company sales, commercial marine sales are currently nil. XXX Co. also plays an important role serving the U.S. power generation industry. The company designs and builds bearings and seal housings for the power industry's hydroelectric and gas turbine facilities, with these sales accounting for about 10% of XXX Co.'s total sales.

Core competencies at XXX Co. include significant design and fabrication experience with water- or oil-lubricated marine bearings, including rudder bearings and propulsion shaft journal and main thrust bearings. Large babbitted and partial arc bearings are part of the company's particular expertise. Several of XXX Co.'s designs are proprietary, as are its dual hardness staves for water-lubricated shaft bearings.

XXX Co. possesses the specialized machinery and skills to produce these large industrial and marine bearings. Examples of this machinery include a 70" diameter, 27' long horizontal lathe, a 54" by 216" vertical milling machine which is 52" in height, and several smaller versions of both types of machines. Other equipment includes two 17,000-pound centrifugal pour casting stations with a maximum O.D. of 96", and a 20,000-pound static pour casting station with a maximum O.D. of 250." The company also has a full complement of test gear and less sophisticated shop equipment necessary to support its operations.

Quality systems at XXX Co. are maintained in accordance with MIL-I-45208, DOD-STD-2183(SH) and DOD-STD-2188(SH), and babbitt material is certified to ASTM B23-83 Alloy Grade 2. The company is currently preparing for ISO 9000 certification.

Current Navy products include stern tube, strut and line shaft bearing assemblies for (aaa), (bbb) and (ccc) new builds, along with (ddd) stern tube and propulsor bearings. The surface ship strut and stern tube bearings are comprised of metallic housings or shells with dovetailed composite stave inserts. The line shaft bearings are generally oil-lubricated assemblies with fully molded (non-staved) liners in a two-piece metallic shell. Staveless SSN bearings are a cooperative effort between XXX Co. and ZZZ Co., with XXX Co. providing the metallic shells and ZZZ Co. supplying fully molded WWWWW ® liners in a filament-wound composite inner shell. Additionally, new (eee) stern tube bearing assembly retrofits will be provided due to corrosion problems with the existing design. Navy programs with ongoing refurbishment support, in addition to the aforementioned new build and retrofit classes, also include (fff) and (ggg) stern tube, strut and line shaft bearings, (hhh) line shaft bearings, and (iii), (jjj) and (kkk) propeller/propulsor bearings. The company also promotes its ability to provide replacements for all Class III rubber staves currently in use, as well as oil seals for all Navy line shaft bearings.

XXX Co. is the Navy's primary supplier of water-lubricated bearing staves, both as part of the bearing assemblies it provides and as replacements for staves currently in use. To produce staves, the company receives bonded stave material in sheets from its subcontractor, YYY Co. Rubber Co., and processes that material into individual staves of specific dimensions and ready for installation. As the prime contractor in this relationship, XXX Co. assumes responsibility for the quality of the finished stave.

XXX Co. also supplied the rudder, strut, stern tube, line shaft and thrust bearings for the Coast Guard's WAGB Icebreaker, USS XXX.

Based on its extensive involvement in the manufacture of propulsion shaft and rudder bearing assemblies, XXX Co. is considered a critical Navy supplier in this area.

Financial Assessment

XXX Co. reported total sales in FY01 of $4.3 million, which are broken down as shown in figure 1. Approximately 89% of these revenues were generated by government transactions for U.S. Navy marine bearings and seals, with an additional 1% to foreign customers, also for naval marine bearings. The remaining 10% represents the sale of bearings and seal housings to the U.S. power generation industry. This breakdown reflects the company's heavy dependence on U.S. Navy sales for survival at this time.

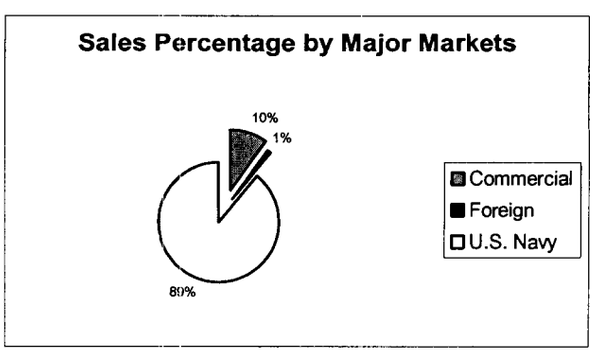
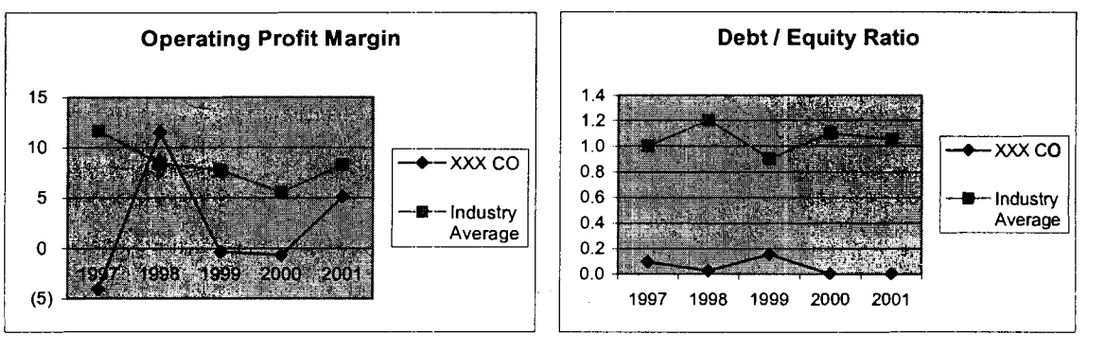


Figure 1: XXX Co. Sales Percentage by Major Markets

The company's FY01 sales of $4.3 million represent a decline of approximately 6.5% from FY00 sales of $4.6 million, and is attributable to reduced revenues from U.S. Navy customers.

XXX Co.'s operating profit margin (OPM) has been tracking below the industry average, as shown in figure 2, which compares the company's OPM to that of other manufacturers providing similar goods. This ratio is the percentage of sales dollars left after subtracting the cost of goods sold and all expenses except income taxes. XXX Co.'s below average OPM may indicate that the company has rising costs, decreased sales, or both. In this case, past data indicates that the company's reduced OPM is the result of decreasing sales. XXX Co.'s OPM is expected to be erratic with its current market mix and existing economic conditions.

XXX Co.'s FY01 debt/equity ratio was below the industry average and is trending downward, as shown in figure 2. This indicates that the company is not heavily reliant on debt financing. Generally, a below average debt/equity ratio means that the company may not be as financially constrained as its competitors by interest payments or other credit concerns. A comparison of XXX Co.'s long- and short-term debt with that of its competitors indicates that the company is taking a conservative approach toward long-term borrowing.



Sources: Company provided data and RMA Associates industry averages

Figure 2: XXX Co, Financial Data

The company's current ratio and return on assets were both above industry averages at year-end 2001. XXX Co.'s current ratio of 12.4 is well above the industry average of 2.3. This indicates that the company should have sufficient current assets to meet the payment schedule of its current debts with a safety margin for possible losses in current assets, such as inventory shrinkage or collectable accounts.

Return on assets for XXX Co. was 2% in FY01, slightly above the industry average. This ratio measures the efficiency with which the company utilizes its assets to generate profits. The company's data as compared to the industry indicates that XXX Co.'s asset utilization is about average, and thus gains no strategic advantage in this area.

Based on the preceding narrative, it is clear that XXX Co.'s current financial health is heavily dependent on Navy work. With its average and below average performance of financial parameters when compared to similar companies in the same industry, other than regarding its debt profile, XXX Co. is at risk should they incur further losses of Navy work. Because XXX Co. is a small company in a specialty market, they are more vulnerable to changes in workload, which may cause erratic changes in profitability.

From a financial perspective, XXX Co. is expected to remain a viable supplier to the U.S. Navy for the near term. The company's FY01 net income was positive, and Navy new build and maintenance requirements for the company's products should not decline significantly, if at all, during the next few years. Large production increases and the associated efficiencies of scale

would be required, however, in order to bolster earnings sufficiently to consider XXX Co. as a viable concern for the long term.

Conversations with XXX Co.'s president/CEO have indicated a strong desire to reverse the company's degrading financial trends through the identification and penetration of new markets. The current executive officer was hired less than two years ago, largely based on his managerial and marketing experience, with this as his primary goal.

Based on the risk factors identified, and given the moderate level of Navy shipbuilding currently underway, XXX Co. is currently considered to operate with moderate risk to its long-term financial viability.

Conclusion
XXX Co. retains significant corporate experience in the production of Navy propulsion shaft bearings, particularly the bearing shells, having evolved its design and tooling capabilities to produce contemporary bearings for our most modern warships. The company is operating near its minimum production rate and is earning minimal profits for its owners. It is anticipated that sufficient Navy work will be directed to XXX Co. to support their business operations as they pursue other markets. Based on the risks associated with their recent financial performance, XXX Co. is considered a moderate financial and overall risk.

YYY CO. RUBBER COMPANY

Company Overview
The YYY Co. Rubber Co., founded in 19xx and located in CA, is an operating unit of the Advanced Materials segment of AAA Co. Technologies. Principal operations for AAA Co.'s Advanced Materials segment are conducted through YYY Co.-TA Mfg., a partnership specializing in the design and manufacture of high-performance elastomer products.

YYY Co. Rubber is the largest manufacturer of custom-engineered elastomers in the western United States. The company manufactures a full range of engineered elastomer products for various industries including aerospace, military, automotive, medical/pharmaceutical, electronics, sporting goods, building and construction, and house and garden. YYY Co. employs a workforce of nearly 700 people to provide a majority of unskilled labor in its 450,000 square foot facility, which is reportedly operating at about 70% of capacity.

With over 60,000 items and 1800 NSNs on record, and 15,000-20,000 individual items in intermittent but ongoing production, YYY Co.'s product line is too extensive to detail. The company is capable of manufacturing to highly demanding quality standards as demonstrated by their certification in various national and international standards, as well as by the aerospace applications of numerous products.

YYY Co. estimates their production of individual rubber pieces during 2001 at 2 million. While reporting that production rates vary, they consider six weeks to be their average notional lead-time. The company does not provide a minimum sustaining rate, but does operate under a minimum order value of $2000.

YYY Co.'s workload is reported as 80% commercial, 10% Air Force, 4% DLA, 3% Army, and 1% each for Navy, other U.S. Government and foreign customers. The company tends to prefer products which present some manufacturing, design or application challenge, generally avoiding production of very simple orders. Examples of the company's more sophisticated products include solid fuel rocket motor components for CCC Co., and various seals for current Navy and Air Force combat aircraft.

YYY Co.'s quality systems are approved, certified and registered to ISO 9002 standards, national standards ANSI/ASQC Q9002/1994, SAE AS9000 1997-05, 14 CFR Part 21, Subpart G, Subsection 21.303(h). The company also meets various customer standards such as DDD Co. DI-9000A.

As previously noted, YYY Co. provides bonded composite stave material to XXX Co. in sheet form for subsequent processing into individual staves. The company is responsible for ensuring certain aspects of the quality of its product to XXX Co., which is then responsible to the Navy for the overall quality of the finished product.

Financial Assessment

The YYY Co. Rubber Co. is the principal operating unit of the Advanced Materials segment of AAA Co. Technologies. Financial performance data specific to YYY Co. was not available for this assessment, however the parent company may be expected to ensure the financial health of this business unit, should the need arise. Financial data for AAA Co. Technologies is thus presented below.

AAA Co. Technologies primarily serves aerospace and defense markets with products for avionics, propulsion and guidance systems. AAA Co. also supports electronic equipment and metal fabricating customers with drilling equipment and automated machinery tools. The company is headquartered in Washington and operates manufacturing facilities in nine U.S. states as well as in Europe and the U.K. The company is organized into three business segments: Aerospace, Advanced Materials and Automation. Approximately 20% of AAA Co.'s FY01 sales were generated by government related businesses, with 32% of corporate sales attributable to the Advanced Materials segment.

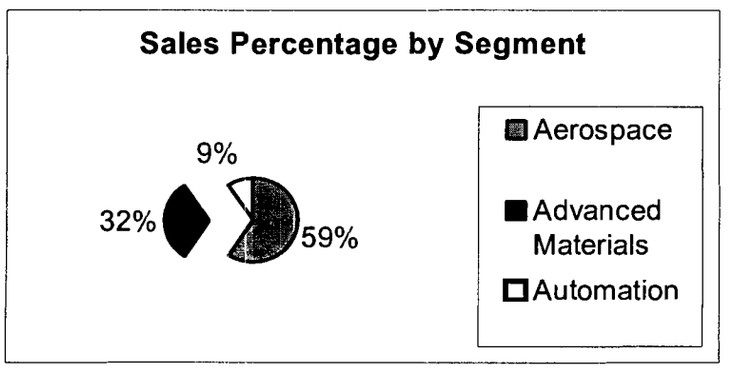


Figure 3: Sales Percentage by Segment for AAA Co. Technologies

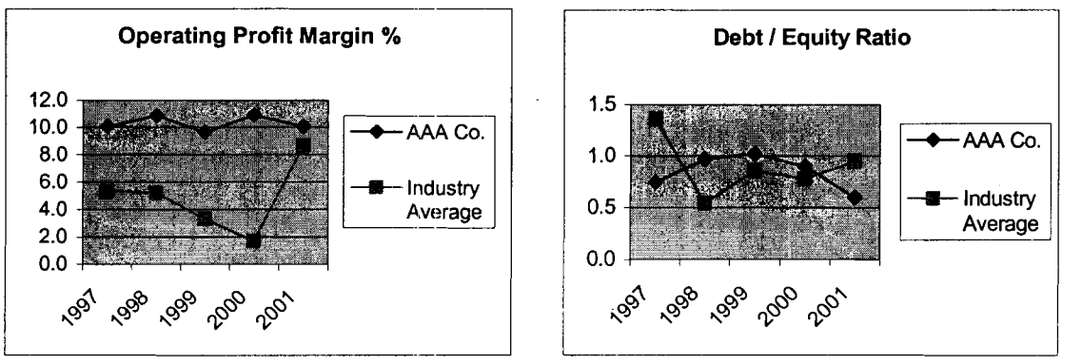
The company reported that FY01 revenues rose less than 1% to $491.2 million. Net income rose 1% to $32.9 million. These results reflect new product introductions, strength in defense industries, and insurance settlements. This follows the company's core Aerospace and Advanced Materials segments turning in record years in FY00 with combined segments' sales and earnings up 16% and 35%, respectively.

Company-wide, net earnings were down in the second half of FY01. In particular, the company's Automation segment came under severe pressure from unprecedented weakness in electronics markets. Additionally, like many other companies, AAA Co. began to experience the first effects of the disruption of the commercial aerospace industry following the events of 11 September. With no major up-turn in sight, the company has put cost cutting measures in place to manage the continued market weakness. The company plans to handle the industry slow-down with a near-

50% reduction in the Automation segment's workforce. In addition, AAA Co. plans to write off $2.9 million of goodwill and other intangible assets of this segment.

As shown in figure 4, AAA Co.'s operating profit margin (OPM) has been tracking well above the industry average. This ratio is the percentage of sales dollars left after subtracting the cost of goods sold and all expenses except income taxes. It provides an opportunity to compare AAA Co.'s return on sales with the performance of other companies in its industry. AAA Co.'s OPM trend is expected to degrade due to the economic down-turn following the events of 11 September, as is the OPM for the industry overall.

The company's debt/equity ratio is below the industry average and trending downward. This ratio indicates the extent to which AAA Co. is reliant on debt financing. Generally, the higher this ratio, the more financial exposure the company is perceived to have, and the more difficulty in obtaining credit. As shown in figure 4, AAA Co.'s debt/equity ratio improved to 0.6 in FY01 from 1.0 in FY99, indicating that the company is becoming less dependent on debt financing.



Source: Market Guide (5-year company data and industry averages)

Figure 4: AAA Co. Technologies Financial Data

The company's current ratio and return on assets (ROA) were both above industry averages at year-end 2001. AAA Co.'s current ratio of 3.3 is well above the industry average of 1.6. This indicates that the company should have enough current assets to meet its payment schedule of current debts with a margin of safety for possible losses in current assets, such as inventory shrinkage or collectable accounts. AAA Co. also exceeds the generally acceptable current ratio of 2.0. The minimum acceptable current ratio is 1.0, but that relationship is usually uncomfortably low for most companies.

AAA Co.'s ROA was 6.3% in FY01, down from 7.0% in FY00. This reflects the efficiency with which profits are generated from the assets employed by the company. A low ratio in comparison with industry averages indicates an inefficient use of business assets. AAA Co.'s ROA of 6.3% is greater than the industry average of 5.83%, indicating that the company is employing its assets more efficiently than the industry norm.

Base on this limited ratio analysis, AAA Co.'s business performance and financial condition compares favorably with the average performance of similar businesses. With an adequate backlog of $222.9 million at year-end, the company is expected to remain financially viable.

Conclusion
YYY Co. Rubber Co. produces a wide range of products in significant commercial markets, and occupies a position within the more profitable part of the financially sound parent organization. Based on these factors, the company is expected to remain a viable long-term supplier of bearing stave material with minimal risk.

ZZZ CO. MARINE LLC

Company Overview
ZZZ Co. Marine LLC, located in OH, is a privately owned company established in 19XX following the purchase of ZZZ Co. Inc.'s Marine Division by the current owners. Assets acquired along with the company included patent rights and corporate experience gained since 19XX when QQQ Co. began rubber stave production. These include rights to the QQQ Co./PPP Co. ® bearing business, the ZZZ Co. ® Shaft Seal System, WWWWW ® bearing staves and stave bearings, demountable keel coolers, and air-seal stuffing boxes.

ZZZ Co. built a new office and manufacturing facility and relocated to its current location in 2001. The new facility is up and running around the clock with operational grooming taking place concurrently. Total floor space is approximately 64,800 square feet on 13 acres, with about 51,100 dedicated to production, 1,000 to R&D/testing, and 12,700 to administration. The plant was built with consideration for future expansion, incorporating one wall designed for removal to accommodate future construction.

Total employment at ZZZ Co. is 76 personnel with 38 people in the production workforce, all of whom are considered skilled labor.

The company is capable of working with all types of polymers, with batch mixing by outside vendors and bonding and shaping operations performed in-house. Compression molding and high-pressure injection molding are the two primary means of shaping its polymer products, with finish machining performed as needed.

ZZZ Co.'s sales are reported as 80.5% domestic and 19.5% international, with overall market distribution of about 70% commercial marine, 27% industrial and 3% government. Product lines include marine heat exchangers, fendering systems and shaft sealing systems, as well as fluid-lubricated bearings for both marine and industrial applications. The company's bearing operations are its primary business concern. Class II fully molded marine bearings with brass shells, such as PPP Co. ® bearings, are manufactured completely in-house, as are WWWWW ® Class III bearing staves. ZZZ Co. reports that theirs are the only Class II bearings currently on the Navy's QPL.

The company's Class III staves are also approved and available for Navy use. Stave material is a specially formulated nitrile rubber compound bonded to ultra high molecular weight polyethylene backing material. ZZZ Co. maintains dedicated machinery for shaping staves as well as a predetermined inventory of various stave material thicknesses. They are thus able to shape the material and fill limited orders within a very short lead-time (a recent order was filled within 4 business days).

The company has also supplied prototype SSN and LSV submarine propulsion shaft partial arc bearing liners using WWWWW ® as the bearing surface. A similar design is to be installed in SSN class vessels for the stern tube and propulsor bearings. As previously noted, these are to be a cooperative effort between ZZZ Co. and XXX Co., with ZZZ Co. providing WWWWW ® liners in a spiral wound composite inner shell, and XXX Co. supplying the metallic outer shell.

In-house testing capabilities are in place to fully replicate and exceed the requirements of applicable Military Specifications. The company tests the attributes of various bearing materials and designs to withstand and redirect abrasive-laden lubricating water using virgin grit under light load. Heavy load testing equipment is also in place and applied to various existing and proposed stave materials to better understand long term wear rates. The company boasts that their stave material has never failed a pull test.

In past years, although infrequently, ZZZ Co. has supplied complete water-lubricated bearing assemblies to the Navy. In these cases, manufacture of the bearing housings was subcontracted to an external organization with ZZZ Co. providing the staves along with contract management functions. Forgings and castings are not within the company's capabilities, and are subcontracted to any one of a group of foundry/machine shops with which the company maintains ongoing working relationships.

ZZZ Co. has also developed a new stave material which the company endorses as a significant improvement over its WWWWW ® staves. The new material, called XYZ, has reportedly exhibited superior heavy load wear characteristics, which could significantly extend bearing service life in certain applications. The company is attempting to solicit formal Navy review and testing of this material as a possible replacement stave material.

Financial Assessment
Financial data on this privately owned business has not been made available for this assessment.

Conclusion
ZZZ Co. maintains significant corporate experience as well as several patent rights directly applicable to the commercial and military marine industries. Their range of existing products is significant, as is the technology exhibited by the company's newest products. Customers are spread among different geographic areas and business sectors. And the company has recently constructed a new, modern office and manufacturing facility, with built-in considerations for future expansion. Based on these factors, ZZZ Co. is considered to operate with minimal risk to its ongoing viability as a supplier to the U.S. Navy.

DISCUSSION

U.S. Navy Stave Requirements
The following discussion of U.S. Navy stave requirements and production capabilities of primary suppliers presents a conservative approach from all perspectives. That is, stave requirements are estimated at their high end, while commercial production capacities are estimated at their low ends.

The number of individual, water-lubricated bearing staves currently in service onboard U.S. Navy ships and submarines is estimated to be on the order of 45,000 – 50,000. This estimate was derived through a review of the available logistic support databases and subsequent conversations with the In-Service Engineering Agent at NSWC-CD.

Navy requirements for new staves are based on three installation scenarios: new construction, preventive maintenance and corrective, condition-based maintenance (CBM).

Annual new construction stave requirements will vary, depending on the number and type of ships programmed during a given fiscal year. 2500 staves are assumed annually for this purpose, which is more than adequate for the most ambitious year envisioned under the current long-term shipbuilding program addressing CVN, DDG, JCC, LPD, LHD and T-AKE requirements. (Stave requirements are not anticipated for SSN class vessels. As previously noted, SSN class vessels will

incorporate staveless stern tube and propulsor bearings. These bearings will be of a partial arc design, with a fully molded WWWWW ® liner bonded to a filament-wound composite inner shell supported by a metallic housing.)

Preventive maintenance stave requirements are determined by change-out periodicity, which is driven by the drydock interval. These intervals are often delayed, when prudent, due to budgetary concerns. The current notional drydock interval is 5 – 6 years. Under this notional scenario, stave replacement usually occurs during every second docking opportunity, or concurrent with drawing the tailshaft every 10 – 12 years. The ISEA concurs with this current notional 10 – 12 year periodicity for stave change-out.

On the waterfront, drydock intervals may be pushed beyond the notional 6-year interval, and various Navy engineering activities periodically endeavor to extend the formal notional drydock interval, again due to financial constraints. Past issues precluding formal drydock interval extensions have included inadequate underwater hull coating systems and rudder erosion due to propeller cavitation, to name a few. Although a number of these roadblocks have been removed as a result of improved technology, legislated NSTM maintenance requirements direct propulsion shaft removal every 10 years. According to liaison with waterfront personnel and maintenance planners, any time a shaft is removed from the ship, all staves will be replaced.

Based on the preceding discussion, a 10-year interval between wholesale, non-XXX-driven replacement of in-service staves is assumed. Under this scenario, an average of 10%, or 5,000 staves would be replaced annually. Also based on the preceding discussion, this number is considered conservative (more frequent than average).

Stave change-out also occurs as a result of condition monitoring under XXX, usually performed during pre-deployment underwater hull inspections. Isolated cases of stave replacement have been documented in recent years under this maintenance philosophy. 5% of in-service units, or 2500 staves, are assumed to be replaced annually under this scenario.

For the purposes of this report only, it is therefore assumed that the annual Navy stave requirement due to maintenance and new construction approximates 10,000 staves.

NAVY STAVE SUMMARY	
Total Staves In-Service	50,000
Annual Navy Stave Requirements	
New Construction	2,500
Preventive Maintenance	5,000
Condition-Based Replacement	2,500
Total	10,000
All quantities are estimated maximum.	

Figure 5: Navy Stave Requirement Summary

COMMERCIAL STAVE PRODUCTION CAPACITY

YYY Co. Rubber Co.

YYY Co. Rubber Co. produces approximately 2 million individual rubber products yearly, including sheets of bonded stave material (rubber/ebonite) large enough to yield at least five staves per sheet. The company's projected maximum production rate of composite stave material is 2 sheets

per hour for 20 hours each day, working 5 days per week. This equates to 200 sheets per week under normal, dedicated production without the use of overtime.

YYY Co. is therefore capable of supplying enough material for 1,000 staves per week, significantly more than XXX Co. is currently capable of processing into staves, and also substantially more than the maximum Navy requirements.

XXX Co.
XXX Co. maintains dedicated machinery for the production (cutting and shaping) of individual staves from sheet stock. The company normally produces finished staves in batches of 20, at a production rate of 16 batches per week. This equates to a projected maximum production rate of 320 staves per week, or 15,360 staves annually, based on 48 weeks of production per year without overtime.

The XXX Co./YYY Co. team is thus capable of meeting the full Navy requirement for staves without outside assistance or the use of overtime, and with no expected adverse impact on price.

ZZZ Co. Marine, LLC
ZZZ Co. Marine, LLC produces individual staves from raw material supplied from its outside vendors. The company bonds the stave materials (nitrile rubber/UHMW polyethylene) to form sheets, performs 100% sheet testing as required, cuts and shapes the individual staves, and finally performs sample testing of individual staves.

The limiting factor in ZZZ Co.'s stave production is the number of presses available to produce sheet stock. Current production capacity is 30 sheets per week, based on two presses operating around the clock for five days. This could be increased to 42 sheets per week by operating 24/7.

Individual staves are produced in the range of 8 – 28 staves per sheet, depending on the size required. With the company operating 5 days per week to produce the largest (slowest) size of stave, production capacity becomes 240 staves per week, or 11,520 staves per year, based on 48 weeks of production.

ZZZ Co. is thus also capable of meeting the full Navy requirement for staves without outside assistance or the use of overtime, and no anticipated price impact.

FINDINGS

Based on the preceding analysis, this office concludes that there exists little or no risk to the Navy regarding stave suppliers for the foreseeable future, utilizing either the XXX Co./YYY Co. team or ZZZ Co., or a combination of the two.

The scope of this report as tasked by NAVSEA is primarily focused on the future supply of bearing staves. During the course of this effort, however, the question of XXX Co.'s long term viability as a profitable business entity has been addressed, with some risk identified in this area.

While the Navy has purchased staves from both ZZZ Co. and XXX Co. in recent years, XXX Co. also serves as the primary supplier of the stern tube and strut bearing housings in which the subject staves are installed. XXX Co. is currently operating near its minimum sustaining rate and is 89% Navy dependent. Therefore, any further erosion of Navy business from XXX Co.'s workload would threaten the company's viability as an ongoing supplier of water-lubricated bearing housings as well as the associated staves.

Stern tube and strut bearing housings have been supplied by other manufacturers in the past. These have primarily included shipyards during the construction of ships within their facilities. Available logistics information indicates that XXX Shipbuilding provided stern tube bearing housings for CVN XX through YY. Similarly, XXX Industries (now ABC Co.) supplied stern tube and strut bearing housings for selected AGF, LPD and LSD class vessels. AAA Naval Shipyard is shown to have provided stern tube and strut bearing housings for AOE-X, Y, and Z.

Based on this information and a worst case scenario regarding XXX Co., water-lubricated bearing housings could be provided entirely by the building yard in the future, or by the Navy Foundry in XXX, with finish machining by the building yard. XXX Co.'s retention as the supplier of these assemblies is viewed as an advantage to the Navy, however, since this work is within XXX Co.'s core competency and since the company is building on its corporate knowledge to produce contemporary partial arc bearings as previously noted.

POTENTIAL BEARING/STAVE ALTERNATE SUPPLIERS

BBB Co. Industries, Inc.
BBB Co., located in IA, is a new global provider of mining processes, services and related equipment. It is an operating unit of XXX Corporation, headquartered in Finland, and was formed in September 20XX through a partnership between A and B. The company markets its marine fendering systems under the (DDD) product name. Co. A, as XXX Corp. predecessor, produced naval marine bearing staves for the U.S. Navy in the past, however the company is not currently qualified to do so.

XXX Corp currently markets the (JJJ) line of Type XX water-lubricated, fully-staved propulsion shaft bearing assemblies, which may be suitable for Navy ships. Although a detailed review has not been performed, the general description of these assemblies is consistent with those currently procured by the Navy. The company appears to possess the corporate experience, industrial resources and desire to meet all applicable MIL-SPECS. XXX Corp. composite stave material features a nitrile rubber wear surface bonded to ultra high molecular weight polyethylene backing material. This composition is apparently similar to the WWWWW ® staves produced by ZZZ Co..

This organization may therefore be appropriate for qualification as a future supplier of strut and stern tube bearing assemblies, bearing staves, or both.

P.O.C. is Mr. John Doe, Marketing Manager 555-888-9999

CONCLUSIONS

The Navy is under minimal or no risk concerning composite rubber staves for propulsion shaft bearing assemblies. While there may be concerns surrounding some suppliers, industrial capacity is sufficient to meet Navy fleet requirements.

Further, based on interviews conducted and operations observed at XXX Co., as well as financial data collected, the company is expected to resolve any issues which might preclude their retention as a qualified vendor. Additional erosion of the Navy workload at XXX Co., however, could have an adverse impact on their ability to sustain operations, particularly in the near term.

The anticipated growth of electric drive propulsion systems could diminish the Navy's requirements for water-lubricated bearing assemblies and the associated staves, as well as line shaft bearing assemblies, if podded systems are utilized. Although no podded electric drive systems are currently programmed, their future use may not be ruled out.

SHIPBUILDING MATERIAL / SERVICES INFLATION RATE ANALYSIS

2004 - 2009

NAVSEA SHIPBUILDING SUPPORT OFFICE
PHILADELPHIA, PA

28 SEPTEMBER 2004

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Material Inflation Rates By SWBS To Support Out Year Cost Modeling

Objective

As tasked by NAVSEA 017, the objective of this effort is to generate accurate inflation rate projections, by SWBS, for material and technical services to support current and pending Navy shipbuilding programs.

Approach

The approach is based on representative sampling of Master Equipment Lists (MEL) for six new construction programs, manufacturers' reporting of actual 2004 price increases, and their projected increases for 2005 through 2009. Aggregate results are provided for material and technical services utilized in the construction and outfitting of Navy ships overall, with tailored reports generated for CVN 21 and SSN 774.

Process

478 manufacturers and suppliers were researched encompassing 1397 line items of material and services for CVN 21, DDG 51, LHD 8, LPD 17, SSN 774 and T-AKE Class ships. Each company was investigated for background and contact information, and solicited by phone to ensure appropriate reporting by qualified company personnel. Vendors were requested to consider the data as unit pricing rather than volume or multi-year procurement. Optional reporting was requested for additional items currently being purchased for Navy ships, and several companies provided additional line items in their responses. Finally, space was provided for the contacted individuals to include relevant commentary.

The individuals contacted experienced recurring difficulties identifying items using only the item descriptions extracted from the MEL. In these cases, NAVSHIPSO personnel researched available logistics databases to determine the NSN or Manufacturer's Part Number for the item solicited. When this could not be accomplished, the manufacturers were requested to report on similar items which could be more easily identified, provided they were under current or pending procurement for Navy shipbuilding.

Results

The overall response rate, based on the original 478 companies targeted, is 84% with a positive response rate of 77%.

A common theme in respondent commentary was an inordinate spike in the cost of raw materials for manufacturing in 2004. While some materials (eg. rubber) did not exhibit this increase, most metals and various other materials did, sometimes causing actual 2004 price increases of 20% or more. For the out year projections, respondents had been requested to base their data on working knowledge of the specific supply chains affecting their industries. A few maintained high raw materials costs in their projections, but most tapered these off to more normal escalation rates by 2005.

In order to provide a normalizing effect on this and other uncertainties in data projections received, upper and lower control limits were established at one standard deviation above and below the raw mean of reported values. Outliers falling beyond these control limits were removed from all

subsequent calculations, and the resultant consolidated projection in each category has been labeled as the "Adjusted Percentage Increase."
This methodology was applied to each SWBS category within the overall shipbuilding projections as well as the class-specific projections. Unadjusted raw averages are reported as well.

The following tables provide the aggregate results of this effort for the aforementioned overall Navy and selected class-specific shipbuilding material costs. Tables are included for the comparison of each class or class group, with both raw and adjusted projections, but without breakdown by SWBS category.

CATEGORY	ALL CLASSES	CVN	SSN
1. Positive Response -Full or partial data provided	366 (77%)	179 (81%)	99 (84%)
2. Negative Response -Declined to participate -Can not identify product -Do not provide product -Do not supply product to Navy	34	13	3
3. Vendor contacted but did not reply	48	22	12
4. No contact with vendor -Could not identify vendor -Vendor out of business -Vendor did not respond to calls	30	7	4
TOTALS	478	221	118
Total Line Items of Material/Services	1397	418	223

Breakdown Of Vendors Surveyed For Material Cost Inflation Rates

RAW % INFLATION COMPARISON	2004	2005	2006	2007	2008	2009
ALL CLASSES ANNUAL % INFLATION	4.8	4.4	4.1	4.3	4.2	4.3
DDG, LPD, LHA, T-AKE % INFLATION	4.6	4.3	4.0	4.3	4.2	4.3
CVN ANNUAL % INFLATION	5.5	4.8	4.6	4.6	4.6	4.7
SSN ANNUAL % INFLATION	4.1	4.2	4.1	4.2	3.9	4.2

ADJUSTED % INFLATION COMPARISON	2004	2005	2006	2007	2008	2009
ALL CLASSES ANNUAL % INFLATION	3.9	3.8	3.8	3.8	3.8	3.9
DDG, LPD, LHA, T-AKE % INFLATION	3.6	3.7	3.6	3.7	3.7	3.7
CVN ANNUAL % INFLATION	4.9	4.3	4.1	4.2	4.1	4.0
SSN ANNUAL % INFLATION	3.5	3.9	3.9	3.9	3.9	4.0

ALL CLASSES RAW % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	7.9	5.5	5.2	5.3	5.5	5.8
200 PROPULSION	5.2	4.5	3.9	3.9	4.0	4.1
300 ELECTRICAL	3.6	4.0	4.3	4.3	4.3	4.6
400 COMMUNICATION/CONTROL	5.4	4.4	4.2	4.6	3.9	4.3
500 AUXILIARY SYSTEMS	4.5	4.9	4.4	4.4	4.5	4.5
600 OUTFITTINGS/FURNISHINGS	4.7	4.4	3.8	4.1	3.9	4.1
700 ARMAMENT	3.0	3.2	3.2	4.0	3.6	3.7
800 DESIGN/ENGINEERING	4.0	4.0	3.8	3.8	3.5	3.5
ALL CLASSES RAW ANNUAL % INFLATION	**4.8**	**4.4**	**4.1**	**4.3**	**4.2**	**4.3**

ALL CLASSES ADJUSTED % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	5.4	4.5	3.9	4.3	4.3	4.4
200 PROPULSION	3.9	3.7	3.6	3.7	3.7	3.7
300 ELECTRICAL	4.1	4.2	4.4	3.9	4.1	4.3
400 COMMUNICATION/CONTROL	3.3	3.6	3.8	3.9	3.7	3.9
500 AUXILIARY SYSTEMS	3.3	3.9	3.9	3.8	3.9	3.9
600 OUTFITTINGS/FURNISHINGS	4.0	3.8	3.5	3.4	3.6	3.6
700 ARMAMENT	3.6	3.5	3.7	4.0	3.8	3.8
800 DESIGN/ENGINEERING	3.8	3.5	3.5	3.5	3.5	3.7
ALL CLASSES ADJUSTED ANNUAL % INFLATION	**3.9**	**3.8**	**3.8**	**3.8**	**3.8**	**3.9**

DDG, LPD, LHA, T-AKE RAW % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	6.4	5.4	5.2	5.4	5.7	6.2
200 PROPULSION	4.5	4.6	4.0	4.1	4.3	4.2
300 ELECTRICAL	3.0	4.0	4.0	3.9	3.8	4.1
400 COMMUNICATION/CONTROL	5.6	3.6	3.6	3.8	3.7	3.7
500 AUXILIARY SYSTEMS	4.4	5.4	4.5	4.6	4.6	4.7
600 OUTFITTINGS/FURNISHINGS	5.4	5.2	4.3	4.6	4.5	4.5
700 ARMAMENT	3.1	2.5	2.7	3.8	3.3	3.2
800 DESIGN/ENGINEERING	4.0	4.0	3.8	3.8	3.5	3.5
CLASS GROUP RAW ANNUAL % INFLATION	**4.6**	**4.3**	**4.0**	**4.3**	**4.2**	**4.3**

DDG, LPD, LHA, T-AKE ADJUSTED % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	4.6	4.4	4.1	4.0	4.1	4.1
200 PROPULSION	4.1	3.7	3.6	3.7	3.7	3.7
300 ELECTRICAL	2.1	3.1	3.4	3.6	3.4	3.2
400 COMMUNICATION/CONTROL	3.2	3.3	3.3	3.3	3.5	3.5
500 AUXILIARY SYSTEMS	4.1	4.4	3.9	3.8	3.9	3.9
600 OUTFITTINGS/FURNISHINGS	4.2	4.1	3.5	3.4	3.7	3.8
700 ARMAMENT	2.9	3.3	3.7	3.9	3.5	3.8
800 DESIGN/ENGINEERING	3.8	3.5	3.5	3.5	3.5	3.4
CLASS GROUP ADJUSTED ANNUAL % INFLATION	**3.6**	**3.7**	**3.6**	**3.7**	**3.7**	**3.7**

CVN RAW % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	10.9	8.0	7.0	7.4	7.2	7.2
200 PROPULSION	6.4	5.1	3.9	4.0	4.0	4.0
300 ELECTRICAL	4.5	4.0	4.6	4.7	4.8	5.1
400 COMMUNICATION/CONTROL	5.8	5.5	5.9	5.4	5.3	5.8
500 AUXILIARY SYSTEMS	5.4	4.5	4.6	4.4	4.4	4.4
600 OUTFITTINGS/FURNISHINGS	4.3	3.9	3.5	3.9	3.6	3.8
700 ARMAMENT	3.4	3.7	3.7	3.7	3.7	3.7
800 DESIGN/ENGINEERING	3.2	3.6	3.6	3.6	3.6	3.6
CVN RAW ANNUAL % INFLATION	**5.5**	**4.8**	**4.6**	**4.6**	**4.6**	**4.7**

CVN ADJUSTED % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	10.9	6.0	5.5	5.7	5.4	5.4
200 PROPULSION	4.6	4.4	3.9	4.0	4.0	4.0
300 ELECTRICAL	4.5	4.4	4.5	4.7	5.0	4.6
400 COMMUNICATION/CONTROL	4.8	4.8	4.3	4.3	4.2	3.7
500 AUXILIARY SYSTEMS	3.7	3.7	4.0	4.1	4.0	4.0
600 OUTFITTINGS/FURNISHINGS	4.0	3.9	3.4	3.8	3.5	3.4
700 ARMAMENT	3.5	3.4	3.4	3.4	3.4	3.4
800 DESIGN/ENGINEERING	3.4	3.4	3.5	3.5	3.5	3.5
CVN ADJUSTED ANNUAL % INFLATION	**4.9**	**4.3**	**4.1**	**4.2**	**4.1**	**4.0**

SSN RAW % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	5.7	2.6	3.0	2.9	3.3	3.4
200 PROPULSION	6.4	3.9	3.7	3.3	3.3	4.1
300 ELECTRICAL	2.7	4.1	4.2	4.3	4.5	4.6
400 COMMUNICATION/CONTROL	4.3	6.1	5.3	6.5	3.6	5.1
500 AUXILIARY SYSTEMS	3.2	3.8	3.9	4.0	4.1	4.2
600 OUTFITTINGS/FURNISHINGS	4.8	4.0	3.8	3.6	3.8	4.0
700 ARMAMENT	2.4	5.0	5.0	5.0	4.8	4.8
800 DESIGN/ENGINEERING	3.3	3.7	3.8	3.7	3.6	3.6
SSN RAW ANNUAL % INFLATION	**4.1**	**4.2**	**4.1**	**4.2**	**3.9**	**4.2**

SSN ADJUSTED % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	4.0	2.3	2.7	2.7	3.1	3.1
200 PROPULSION	3.5	3.9	3.7	3.4	3.4	3.5
300 ELECTRICAL	3.1	4.1	4.1	4.1	4.3	4.3
400 COMMUNICATION/CONTROL	3.6	3.9	3.9	4.9	4.1	4.0
500 AUXILIARY SYSTEMS	2.9	3.8	3.9	4.0	4.2	4.2
600 OUTFITTINGS/FURNISHINGS	4.1	4.4	4.1	3.9	3.7	4.4
700 ARMAMENT	3.5	5.0	5.0	5.0	4.7	4.7
800 DESIGN/ENGINEERING	3.5	3.5	3.5	3.5	3.8	3.8
SSN ADJUSTED ANNUAL % INFLATION	**3.5**	**3.9**	**3.9**	**3.9**	**3.9**	**4.0**

Contact

The NAVSHIPSO point of contact for this effort is Mr. Bob S. (215) 555-1111 ext 123

BREAKDOWN OF VENDORS SURVEYED FOR MATERIAL INFLATION RATES - 2004

CATEGORY	ALL CLASSES	CVN	SSN
1. Positive Response -Full or partial data provided	366 (77%)	179 (81%)	99 (84%)
2. Negative Response -Declined to participate -Can not identify product -Do not provide product -Do not supply product to Navy	34	13	3
3. Vendor contacted but did not reply	48	22	12
4. No contact with vendor -Could not identify vendor -Vendor out of business -Vendor did not respond to calls	30	7	4
TOTALS	478	221	118
Total Line Items of Material/Services	1397	418	223

COMPARISON OF CALCULATION METHODS 2004

	ADJUSTED % INFLATION COMPARISON	2004	2005	2006	2007	2008	2009
BY SWBS	ALL CLASSES ANNUAL % INFLATION	3.9	3.8	3.8	3.8	3.8	3.9
CUM	ALL CLASSES ANNUAL % INFLATION	3.6	3.9	3.7	3.9	3.8	3.8
BY SWBS	DDG, LPD, LHA, T-AKE % INFLATION	3.6	3.7	3.6	3.7	3.7	3.7
CUM	DDG, LPD, LHA, T-AKE % INFLATION	3.5	3.9	3.6	3.7	3.8	3.7
BY SWBS	CVN RAW ANNUAL % INFLATION	4.9	4.3	4.1	4.2	4.1	4.0
CUM	CVN RAW ANNUAL % INFLATION	4.5	3.8	4.0	4.1	4.1	3.9
BY SWBS	SSN RAW ANNUAL % INFLATION	3.5	3.9	3.9	3.9	3.9	4.0
CUM	SSN RAW ANNUAL % INFLATION	3.2	3.8	3.8	3.6	3.9	3.7

CVN RAW AND ADJUSTED INFLATION RATES

CVN RAW % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	10.9	8.0	7.0	7.4	7.2	7.2
200 PROPULSION	6.4	5.1	3.9	4.0	4.0	4.0
300 ELECTRICAL	4.5	4.0	4.6	4.7	4.8	5.1
400 COMMUNICATION/CONTROL	5.8	5.5	5.9	5.4	5.3	5.8
500 AUXILIARY SYSTEMS	5.4	4.5	4.6	4.4	4.4	4.4
600 OUTFITTINGS/FURNISHINGS	4.3	3.9	3.5	3.9	3.6	3.8
700 ARMAMENT	3.4	3.7	3.7	3.7	3.7	3.7
800 DESIGN/ENGINEERING	3.2	3.6	3.6	3.6	3.6	3.6
CVN RAW ANNUAL % INFLATION	**5.5**	**4.8**	**4.6**	**4.6**	**4.6**	**4.7**

CVN ADJUSTED % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	10.9	6.0	5.5	5.7	5.4	5.4
200 PROPULSION	4.6	4.4	3.9	4.0	4.0	4.0
300 ELECTRICAL	4.5	4.4	4.5	4.7	5.0	4.6
400 COMMUNICATION/CONTROL	4.8	4.8	4.3	4.3	4.2	3.7
500 AUXILIARY SYSTEMS	3.7	3.7	4.0	4.1	4.0	4.0
600 OUTFITTINGS/FURNISHINGS	4.0	3.9	3.4	3.8	3.5	3.4
700 ARMAMENT	3.5	3.4	3.4	3.4	3.4	3.4
800 DESIGN/ENGINEERING	3.4	3.4	3.5	3.5	3.5	3.5
CVN ADJUSTED ANNUAL % INFLATION	**4.9**	**4.3**	**4.1**	**4.2**	**4.1**	**4.0**

SSN RAW AND ADJUSTED INFLATION RATES

SSN RAW % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	5.7	2.6	3.0	2.9	3.3	3.4
200 PROPULSION	6.4	3.9	3.7	3.3	3.3	4.1
300 ELECTRICAL	2.7	4.1	4.2	4.3	4.5	4.6
400 COMMUNICATION/CONTROL	4.3	6.1	5.3	6.5	3.6	5.1
500 AUXILIARY SYSTEMS	3.2	3.8	3.9	4.0	4.1	4.2
600 OUTFITTINGS/FURNISHINGS	4.8	4.0	3.8	3.6	3.8	4.0
700 ARMAMENT	2.4	5.0	5.0	5.0	4.8	4.8
800 DESIGN/ENGINEERING	3.3	3.7	3.8	3.7	3.6	3.6
SSN RAW ANNUAL % INFLATION	**4.1**	**4.2**	**4.1**	**4.2**	**3.9**	**4.2**

SSN ADJUSTED % INFLATION	2004	2005	2006	2007	2008	2009
100 HULL STRUCTURAL	4.0	2.3	2.7	2.7	3.1	3.1
200 PROPULSION	3.5	3.9	3.7	3.4	3.4	3.5
300 ELECTRICAL	3.1	4.1	4.1	4.1	4.3	4.3
400 COMMUNICATION/CONTROL	3.6	3.9	3.9	4.9	4.1	4.0
500 AUXILIARY SYSTEMS	2.9	3.8	3.9	4.0	4.2	4.2
600 OUTFITTINGS/FURNISHINGS	4.1	4.4	4.1	3.9	3.7	4.4
700 ARMAMENT	3.5	5.0	5.0	5.0	4.7	4.7
800 DESIGN/ENGINEERING	3.5	3.5	3.5	3.5	3.8	3.8
SSN ADJUSTED ANNUAL % INFLATION	**3.5**	**3.9**	**3.9**	**3.9**	**3.9**	**4.0**

RAW AND ADJUSTED % INFLATION COMPARISON

RAW % INFLATION COMPARISON	2004	2005	2006	2007	2008	2009
ALL CLASSES RAW ANNUAL % INFLATION	4.8	4.4	4.1	4.3	4.2	4.3
DDG, LPD, LHA, T-AKE % INFLATION	4.6	4.3	4.0	4.3	4.2	4.3
CVN RAW ANNUAL % INFLATION	5.5	4.8	4.6	4.6	4.6	4.7
SSN RAW ANNUAL % INFLATION	4.1	4.2	4.1	4.2	3.9	4.2

ADJUSTED % INFLATION COMPARISON	2004	2005	2006	2007	2008	2009
ALL CLASSES ADJUSTED ANNUAL % INFLATION	3.9	3.8	3.8	3.8	3.8	3.9
DDG, LPD, LHA, T-AKE % INFLATION	3.6	3.7	3.6	3.7	3.7	3.7
CVN ADJUSTED ANNUAL % INFLATION	4.9	4.3	4.1	4.2	4.1	4.0
SSN ADJUSTED ANNUAL % INFLATION	3.5	3.9	3.9	3.9	3.9	4.0

ALL CLASSES - HULL STRUCTURAL GROUP 100

VENDOR	PRODUCT	TYPE	PRICE	2004	2005	2006	2007	2008	2009	COMMENTS
Vendor A	BAR, 2-1/8" X 3-1/16" X 55"L	CVN		ND	ND	ND	ND	ND	ND	
Vendor A	SHEET 0.063THK X 60.000W X 120L, 5052-H32, QQ-A-250/8	CVN	68	17.0	10.0	10.0	10.0	10.0	10.0	
Vendor A	BOW CHOCKS, BITTS & FAIRLEADS	LPD-17		4.4	4.4	4.4	4.4	4.4	4.4	
Vendor A	KINGPOST STL ASSEMBLY MDL D- CVN 21	CVN		4.0	19.0	4.0	4.0	4.0	4.0	
Vendor A	BALLISTIC PLATING, CONTRACT: 5640-DAO-666731Z5	LHD-8	1,590	3.0	3.0	3.0	3.0	3.0	3.0	
Vendor A	BALLISTIC PLATTING, CONTRACT: 5640-DAO-700986Z5	LHD-8	786	3.0	3.0	3.0	3.0	3.0	3.0	
Vendor A	RUBBER STOCK TORQUE KEYS & TILLER	LPD-17		ND	ND	ND	ND	ND	ND	Company declined to provide information.
Vendor A	RAMP HANGER DOOR ACC, P/N: PF44107-500	LHD-8	71,834	6.0	18.0	5.0	4.0	5.0	6.0	
Vendor A	SONAR DOME-STRUCTURAL UNIT 1210	DDG-51		ND	ND	ND	ND	ND	ND	Company no longer in business. Provided material on first 6 ships in class only
Vendor A	ENCLOSURE, TELEPHONE, SPECIAL, NSN: 5805-01-345-9454, P/N 65019-009	CVN	158	3.5	3.5	4.0	4.0	4.5	4.5	
Vendor B	BASE PLATE	CVN		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	FITTING VARIOUS TIE-DOWN TRM	CVN		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	MULTILOUVER DAMPER	CVN		6.0	10.0	10.0	10.0	10.0	10.0	
Vendor C	RUDDER STOCK	LHD-8		8.0	8.0	15.0	18.0	20.0	25.0	Figures are subject to energy and raw material volatility.
Vendor C	RUDDER STOCKS AND PINTLES	LPD-17		8.0	8.0	15.0	18.0	20.0	25.0	Figures are subject to energy and raw material volatility.
Vendor C	KINGPOST	LHD-8	132,900	3.0	3.0	3.0	3.0	3.0	3.0	
Vendor C	PADEYES	SSN-774	545,840	4.0	3.5	3.5	3.5	3.5	3.5	
Vendor C	CARGO DOOR, A-60, MN DK, FR 75.5, PORT	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor C	CARGO DOOR, SINGLE ROLLER CURTAIN TYPE, 01 LVL, FR 35, STBD	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor C	CARGO DOOR, SINGLE ROLLER CURTAIN TYPE, MN DK, FR 58, STBD	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor C	CARGO DOOR, SINGLE ROLLER CURTAIN TYPE, MN DK, FR 78, STBD	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor D	LUBE OIL SETTLING TANK HEATER	T-AKE	13,364	5.0	5.0	5.0	5.0	5.0	5.0	
Vendor D	RADAR-ABSORBING COMPOSITE LOUVERS	DDG-51		ND	3.0	3.0	3.0	3.0	3.0	Production for DDG-51 louvers is set to begin in 2005.
Vendor D	LOUVERS, RADAR ABSORBING	LPD-17		ND	3.0	3.0	3.0	3.0	3.0	Goodrich produced four shipsets of LPD-17 louvers between 2000-2002.
Vendor D	SONAR BOW DOME	SSN-774	4,236,000	ND	3.0	3.0	3.0	3.0	3.0	
Vendor D	CHANNEL 3.000 X 0.875 X 6	CVN		ND	ND	ND	ND	ND	ND	Company did not respond to survey.

ALL CLASSES - PROPULSION GROUP 200

VENDOR	PRODUCT	TYPE	PRICE	2004	2005	2006	2007	2008	2009	COMMENTS
Vendor A	REDUCTION GEAR LO SERVICE STRAINER	DDG-51		3.0	3.0	3.0	3.0	3.0	3.0	Historical increases.
Vendor A	MAIN ENGINE NO. 1 EXPANSION JOINT PE-F-05	T-AKE	3,236	0.0	2.5	2.5	3.5	3.5	3.5	
Vendor A	MAIN ENGINE NO. 1 EXPANSION JOINT PE-F-09	T-AKE	2,906	0.0	2.5	2.5	3.5	3.5	3.5	
Vendor A	Main Engine No.2 Expansion Joint PE-F-06	T-AKE	3,195	0.0	2.5	2.5	3.5	3.5	3.5	
Vendor A	Main Engine No.2 Expansion Joint PE-F-010	T-AKE	3,429	0.0	2.5	2.5	3.5	3.5	3.5	
Vendor A	MAIN ENGINE NO.3 EXPANSION JOINT PE-F-11	T-AKE	3,429	0.0	2.5	2.5	3.5	3.5	3.5	
Vendor A	MAIN ENGINE NO.4 EXPANSION JOINT PE-F-08	T-AKE	3,083	0.0	2.5	2.5	3.5	3.5	3.5	
Vendor B	MAIN ENGINE JOINT NO.4 EXPANSION JOINT PE-F-12	T-AKE	3,236	0.0	2.5	2.5	3.5	3.5	3.5	
Vendor B	LUBE OIL PURIFIER	DDG-51	180,000	2.5	2.5	2.5	2.5	2.5	2.5	
Vendor B	MAIN PROPULSION LUBE OIL SYSTEMS	LHD-8	180,000	2.5	2.5	2.5	2.5	2.5	2.5	
Vendor B	AUXILIARY PROPULSION SYSTEMS	LHD-8		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	ELECTRIC PROPULSION MOTOR	LHD-8		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	BELL LOGGER	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	MAIN GENERATOR #1 & #4	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	PORT BRIDGE WING CONSOLE	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	PPMS UNINTERRUPTIBLE POWER SUPPLY (UPS) NO.1	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	PROPELLER NUT	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	TANDEM PROPULSION MOTOR ASSEMBLY	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	PROPULSION FREQUENCY CONVERTER	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	SHIP SERVICE DISTRIBUTION TRANSFORMER #1 & #2	T-AKE		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	LINE SHAFT BEARINGS	LHD-8		10.0	10.0	10.0	10.0	10.0	10.0	Inreased cost in material and exchange rate. Bearing are cast in England.
Vendor B	STERN TUBE & STRUT BEARINGS	LHD-8		10.0	10.0	10.0	10.0	10.0	10.0	Inreased cost in material and exchange rate. Bearing are cast in England.
Vendor B	STERN TUBE & STRUT BEARING	LPD-17		10.0	10.0	10.0	10.0	10.0	10.0	Inreased cost in material and exchange rate. Bearing are cast in England.
Vendor B	LINE SHAFT BEARING	LPD-17		10.0	10.0	10.0	10.0	10.0	10.0	Inreased cost in material and exchange rate. Bearing are cast in England.
Vendor B	MAIN REDUCTION GEAR LO SERVICE COOLER, P/N: 700-7963	DDG-51	110,000	3.0	3.0	3.0	3.0	3.0	3.0	CUNI Tubes.

ALL CLASSES - ELECTRICAL GROUP 300

VENDOR	PRODUCT	TYPE	PRICE	2004	2005	2006	2007	2008	2009	COMMENTS
Vendor A	TRANSFORMER 1000KVA, 4 160/460V	CVN	112,000	9.0	4.0	4.0	4.0	4.0	4.0	
Vendor A	TRANSFORMER 1500KVA, 4 160/460V	CVN	127,530	9.0	4.0	4.0	4.0	4.0	4.0	
Vendor A	SUBWIF COM	SSN-774		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor A	ELEC. RACK-TLTA	SSN-774		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor A	AUTOMATIC BUS TRANSFERS	DDG-51		ND	ND	ND	ND	ND	ND	Company declined to provide information.
Vendor A	POWER TRANS. SWITCHING UNIT	LHD-8		ND	ND	ND	ND	ND	ND	Company declined to provide information.
Vendor A	AUTOMATIC BUS TRANSFER SWITCH	LPD-17		ND	ND	ND	ND	ND	ND	Company declined to provide information.
Vendor B	AIRCRAFT ELEC. SERV. STA. SOLID STATE FREQ CONVERT	DDG-51	65,000	0.0	4.0	4.0	4.0	4.0	4.0	2 per ship
Vendor B	CURRENT LIMITING DEVICES	DDG-51	17,609	0.0	4.0	4.0	4.0	4.0	4.0	37 per ship
Vendor B	NO BREAK POWER SUPPLY	DDG-51	23,274	0.0	4.0	4.0	4.0	4.0	4.0	
Vendor B	SOILD STATE AUTOMATIC BUS TRANSFER SW. 400 HZ	DDG-51	15,974	0.0	4.0	4.0	4.0	4.0	4.0	
Vendor B	FREQUENCY CHANGER-60HZ TO 400	LPD-17	268,000	0.0	4.0	4.0	4.0	4.0	4.0	3 per ship
Vendor B	CONTROLLERS	LPD-17	4,530,000	8.7	24.4	4.0	4.0	4.0	4.0	Two year lag in option award. LPD22 = 3/25/02, next award is LPD23 (order not yet placed). Option exercise. Expires 3/31/05. Suppliers not willing to extend aggressive price levels.
Vendor B	SHIPS SERVICE DIESEL GENERATORS, MODEL 3608	LPD-17		1.5	1.5	1.5	1.5	1.5	1.5	
Vendor B	EMERGENCY DIESEL GEN SET MODEL 3512B @ 1000 VKW	SSN-774		1.5	1.5	1.5	1.5	1.5	1.5	
Vendor C	EMERGENCY DIESEL GENERATOR	T-AKE		1.5	1.5	1.5	1.5	1.5	1.5	
Vendor C	POWER SUPPLY HELICOPTER STARTING, P/N: MODEL: BS38-300K4, P/N 113838-001	DDG-51	55,093	4.0	6.0	6.0	7.0	7.0	7.0	A starter used in the power supply is a major cost factor in the pricing. The percentage increases through 2009 is based partially on the projected increased cost of this starter.
Vendor C	AC SOLID STATE CONTROLLERS, P/N:4239-90027	DDG-51	10,983	4.0	4.0	4.0	4.0	4.0	4.0	
Vendor C	AC SOLID STATE CONTROLLERS, NSN: 6130-01-281-0316, P/N: 4239-90008	DDG-51	10,130	4.0	4.0	4.0	4.0	4.0	4.0	
Vendor C	AC SOLID STATE CONTROLLERS, NSN: 6130-01-281-4606, P/N: 4239-90009	DDG-51	11,117	4.0	4.0	4.0	4.0	4.0	4.0	
Vendor C	AC SOLID STATE CONTROLLERS, NSN: 6130-01-281-0317, P/N: 4239-90011	DDG-51	15,024	4.0	4.0	4.0	4.0	4.0	4.0	
Vendor C	1/2 TON AND 2 TON TROLLEY HOIST	LPD-17	22,391	5.0	5.0	5.0	5.0	5.0	5.0	
Vendor C	BOX 4CKT, 450V VARIOUS DST, NSN: 5920-00-178-1614, P/N: M24646/4-547	CVN	700	2.5	2.5	2.5	2.5	2.5	2.5	

ALL CLASSES - COMMUNICATION & CONTROL GROUP 400

VENDOR	PRODUCT	TYPE	PRICE	2004	2005	2006	2007	2008	2009	COMMENTS
Vendor A	RMS SCREEN SYSTEM	DDG-51		ND	ND	ND	ND	ND	ND	
Vendor A	CONN/RECEP. (P/O TSMS SCL0233)	SSN-774		ND	ND	ND	ND	ND	ND	Unable to locate or identify company.
Vendor A	RCVRS & TRANSMITTERS-TSMS	SSN-774		ND	ND	ND	ND	ND	ND	Unable to locate or identify company.
Vendor A	BUOYANT CABLE ANTENNA TRANSFER SYSTEM	SSN-774	219,000	0.0	0.0	0.0	22.0	0.0	0.0	First contract was a multi-year buy for 3 systems. The increases in 2007 are for a multi-year buy for an anticipated 3 additional systems.
Vendor A	REELABLE TOWED ARRAY HANDLING SYSTEM	SSN-774	380,000	0.0	0.0	0.0	15.0	0.0	0.0	First contract was a multi-year buy for 3 systems. The increases in 2007 are for a multi-year buy for an anticipated 3 additional systems.
Vendor A	THIN LINE TOWED ARRAY SYSTEMS	SSN-774	1,100,000	0.0	41.0	16.0	3.0	-33.0	0.0	The variations for the Thin Line TAS is due to buyer Contractor Furnished Material changes between contracts, and design changes.
Vendor A	I.C. SYSTEM HARDWARE	CVN	5,771,000	4.0	4.0	4.0	4.0	4.0	4.0	
Vendor A	MPRD 126 HB, 10.1" RUGGED AMLCO FLAT PANEL DISPLAY	SSN-774	12,920	0.0	0.0	0.0	0.0	0.0	0.0	
Vendor B	RFD 251S, 20.1" RUGGED AMLCO FLAT PANEL DISPLAY	SSN-774	15,006	0.0	0.0	0.0	0.0	0.0	0.0	
Vendor B	WIND SPEED / DIRECTION SYSTEM, NSN: 6660-01-259-2613, P/N: 31003 Detector	LPD-17	48,533	17.7	3.0	3.0	3.0	3.0	3.0	3-Each on Single Shipset, $16,177.62-Each
Vendor B	WIND SPEED / DIRECTION SYSTEM, NSN: 6660-01-250-3978, P/N: 31004 Transmitter	LPD-17	57,367	28.9	3.0	3.0	3.0	3.0	3.0	1-Each on Single Shipset, $57,366.86-Each
Vendor B	WIND SPEED / DIRECTION SYSTEM, NSN: 6660-01-270-6353, P/N: 31005-1 Indicator	LPD-17	23,567	51.0	3.0	3.0	3.0	3.0	3.0	2-Each on Single Shipset, $11,783.88-Each
Vendor B	MOTOR CONTROL, NSN: 6105-01-519-4558, P/N: PS346370-02	DDG-51		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	INDICATOR CONTROL GROUP, NSN: 5865-01-417-5606, P/N: PS212476	DDG-51		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	RADAR SET CONTROL, NSN: 5841-01-457-8738, P/N: PS309403-03	DDG-51		ND	ND	ND	ND	ND	ND	Company did not respond to survey.
Vendor B	CONTROL RADIO BEACON, NSN: 5826-01-277-5160, P/N: EC-1800	LHD-8		5.0	5.0	5.0	5.0	5.0	5.0	
Vendor B	FIRE DETECTION SYSTEM, P/N: Consilium Salwico CS-3000	LPD-17		4.0	4.0	4.0	4.0	4.0	4.0	
Vendor B	FIRE & SMOKE DET & ALARM CENTRAL CNTRL PNL, P/N: CS3000	T-AKE		0.0	3.0	4.0	3.5	4.0	4.0	
Vendor B	HEAT DETECTOR, ADDRESSABLE, P/N: 47173/46913 T-AKE	T-AKE		0.0	3.0	4.0	3.5	4.0	4.0	
Vendor C	SMOKE DETECTOR, ADDRESSABLE IONIZATION TYPE, P/N: 44560/45911	T-AKE		0.0	3.0	4.0	3.5	4.0	4.0	
Vendor C	CABLE ASSEMBLY, NSN: 6020-01-515-2034, P/N: FL448-8703-1 & 1020146-1H	SSN-774		ND	ND	ND	ND	ND	ND	Company did not respond to survey.