

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-6118

57 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-5018

208 MAIN STREET, SUITE 103  
SACO, ME 04072  
(207) 283-8054

<http://tomallen.house.gov>



Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

COMMITTEE ON THE BUDGET

COMMITTEE ON  
ENERGY AND COMMERCE

SUBCOMMITTEES:

HEALTH

ENERGY AND AIR QUALITY

ENVIRONMENT AND HAZARDOUS MATERIALS

HOUSE OCEANS CAUCUS

CO-CHAIR

AFFORDABLE MEDICINES TASK FORCE

CO-CHAIR

8

FAX COVER

DATE: 7-22-2005  
TO: BRAE COMMISSION  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14

703-699-2735

MESSAGE:

ENCLOSURE

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

General Sue Ellen Turner  
BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Commissioner Turner:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>18</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>19</sup>. If replicating this culture at other shipyards were easy, it would have

<sup>18</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

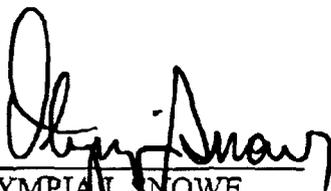
<sup>19</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,

  
OLYMPIA J. SNOWE  
United States Senator

  
JUDD GREGG  
United States Senator

  
SUSAN M. COLLINS  
United States Senator

  
JOHN E. SUNUNU  
United States Senator

  
JEB BRADLEY  
United States Representative

  
THOMAS H. ALLEN  
United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull.... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup>Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 67)

<sup>2</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 66)

<sup>3</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 64)

<sup>4</sup> NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup> PNS assessment of workload distribution between Backshops and Drydocks

We have created "thermometer graphs" to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05. Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity's capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don't man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January,

NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

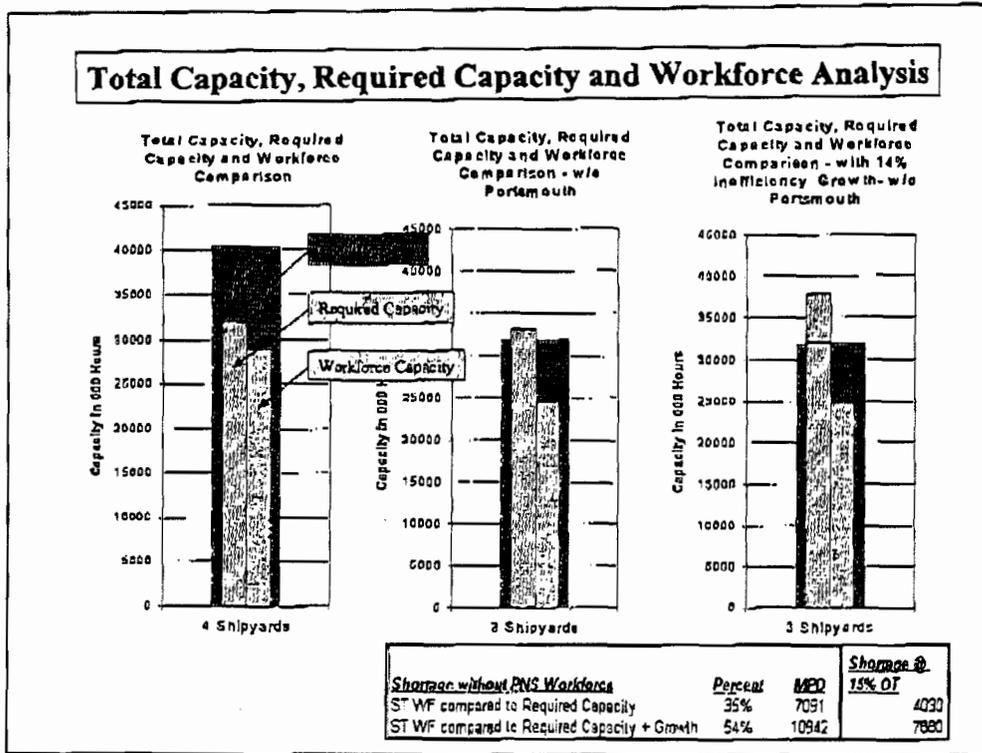
<sup>7</sup> Naval Shipyard Available Force Data (Avg. Oct 04 - Feb 05); found in [www.nde.navy.mil](http://www.nde.navy.mil), then go to WEBWARR, workforce, and use available force data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity +14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

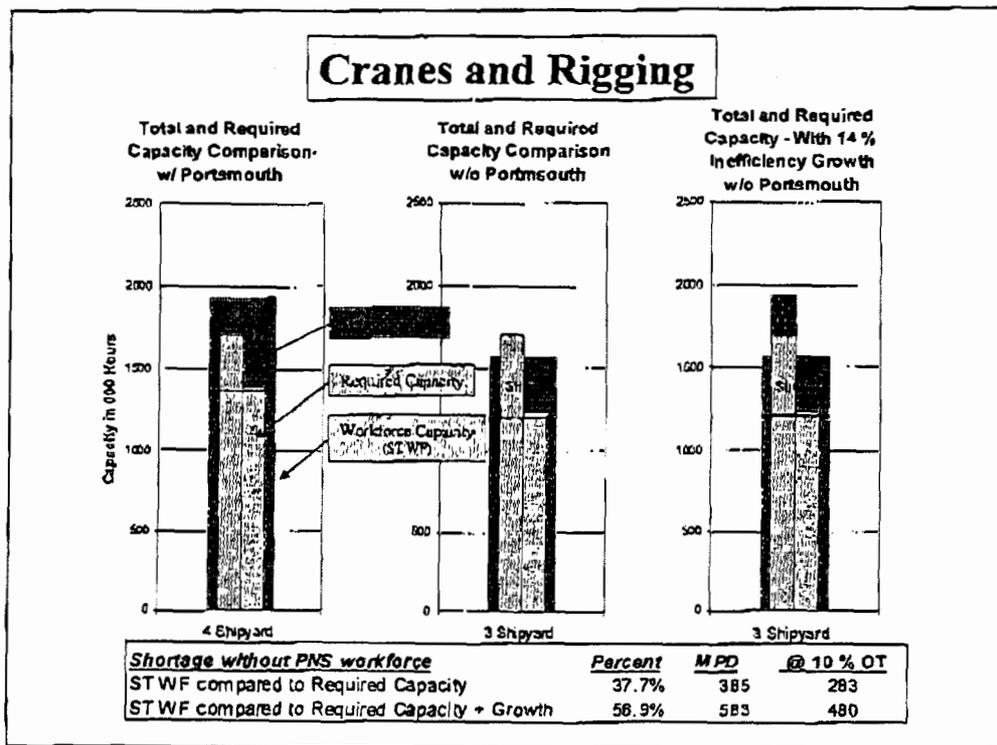
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are “thermometer graphs” for 11 of Navy’s most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

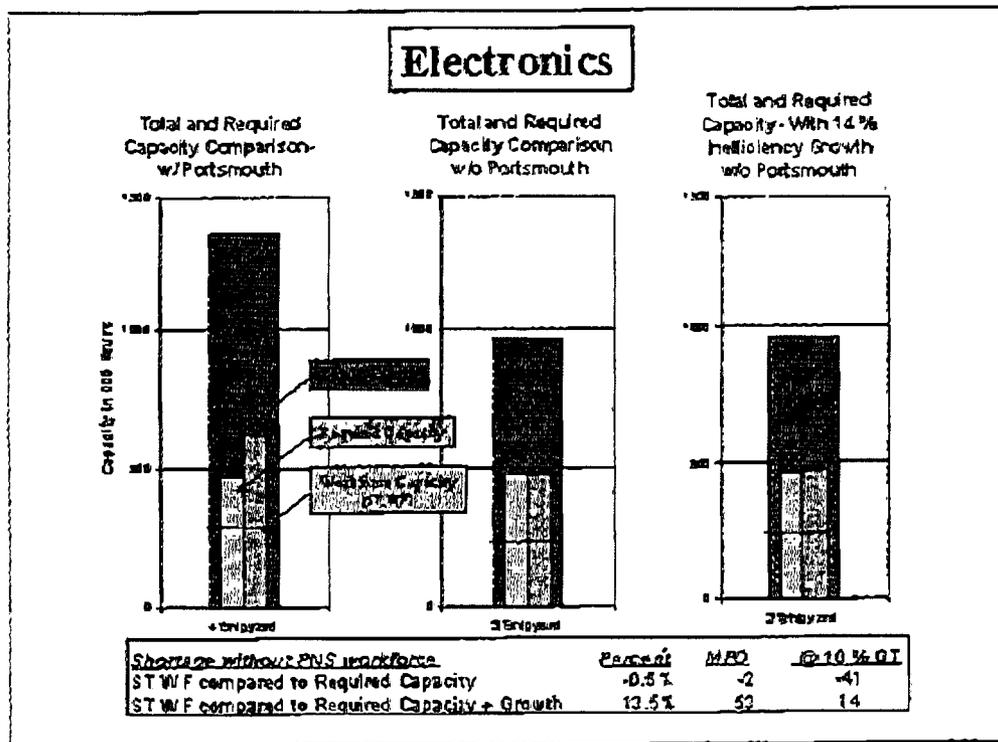
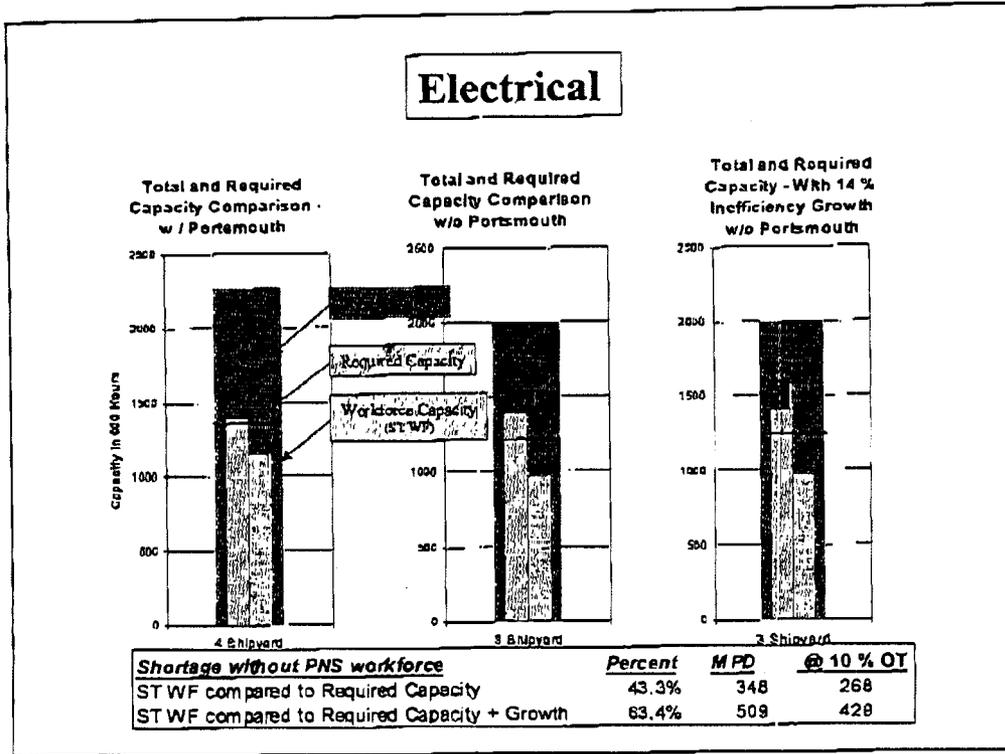
<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

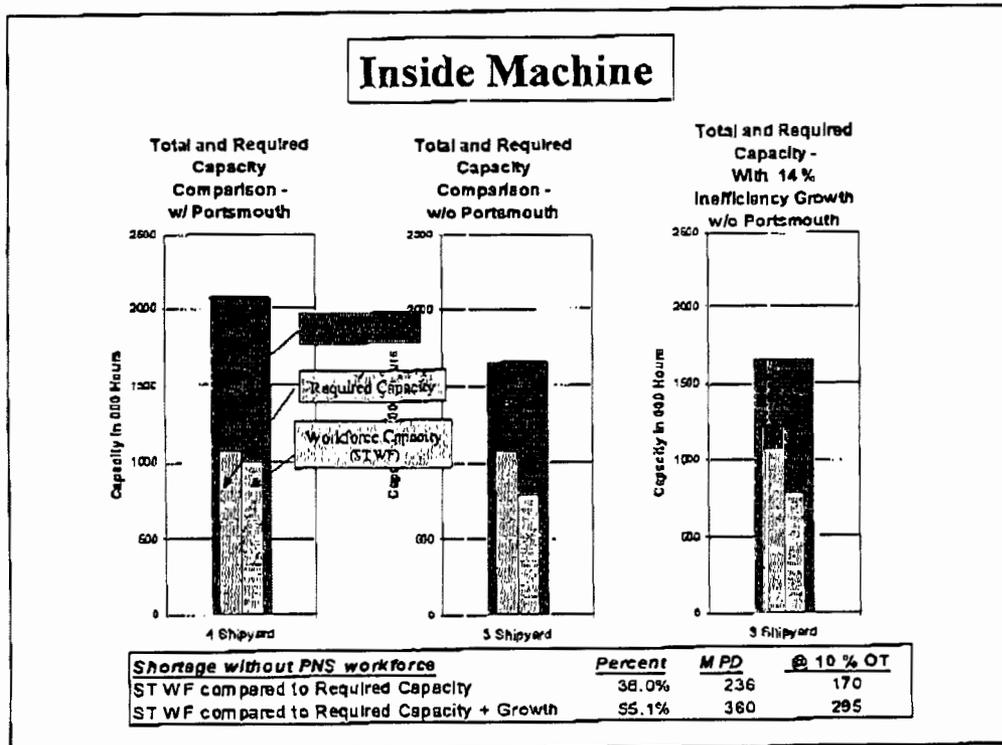
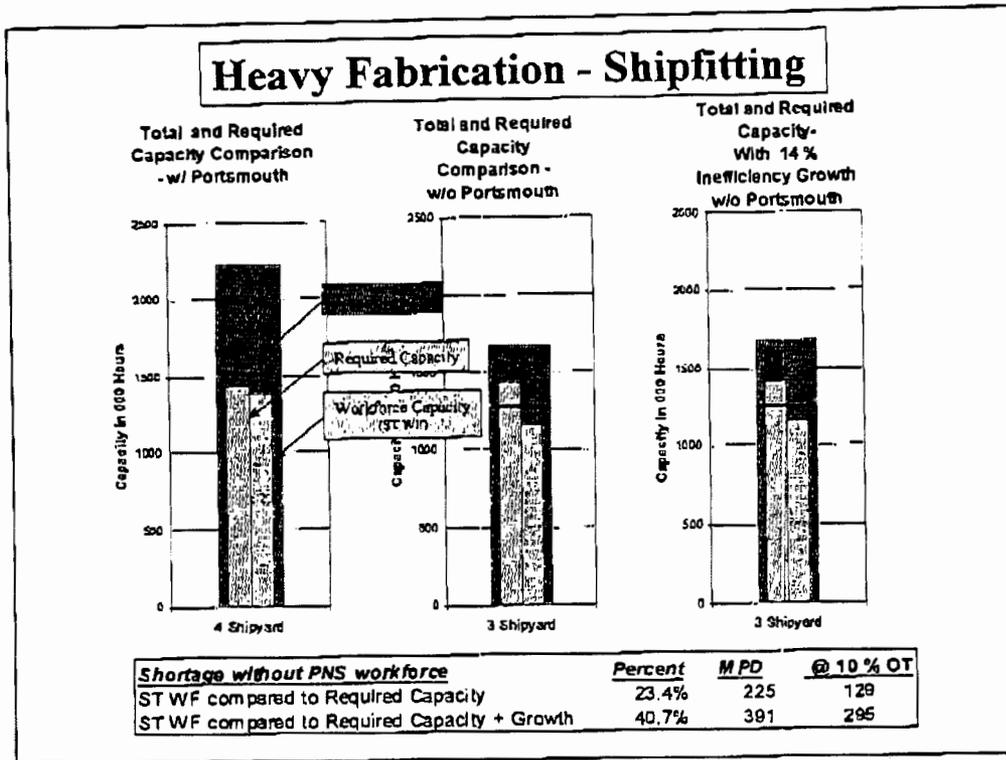
<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

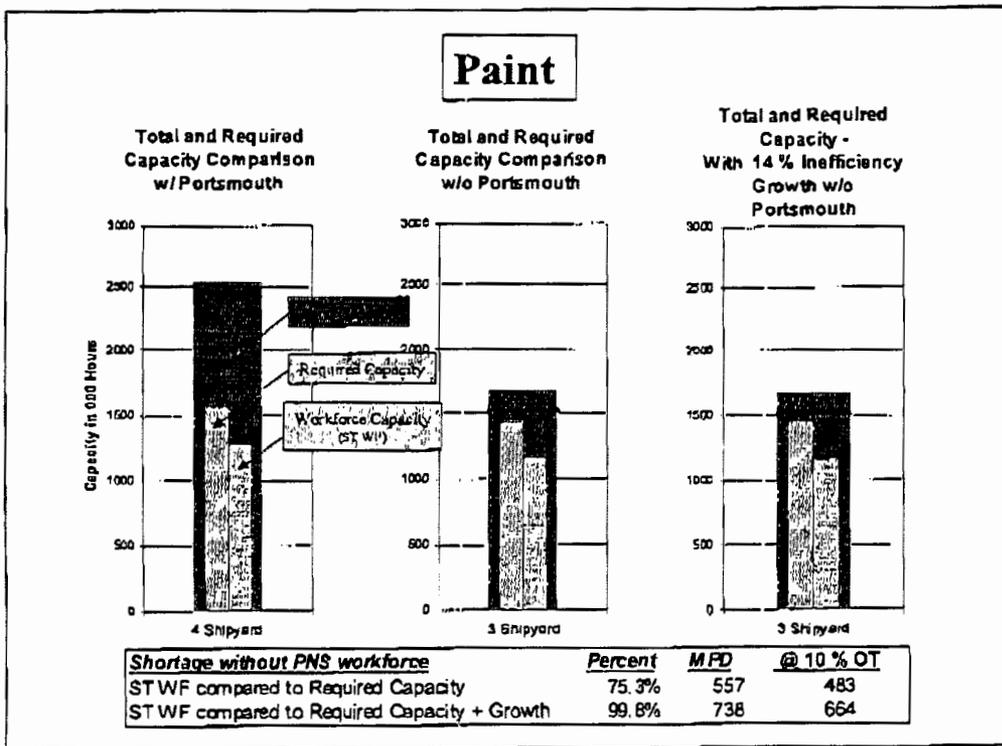
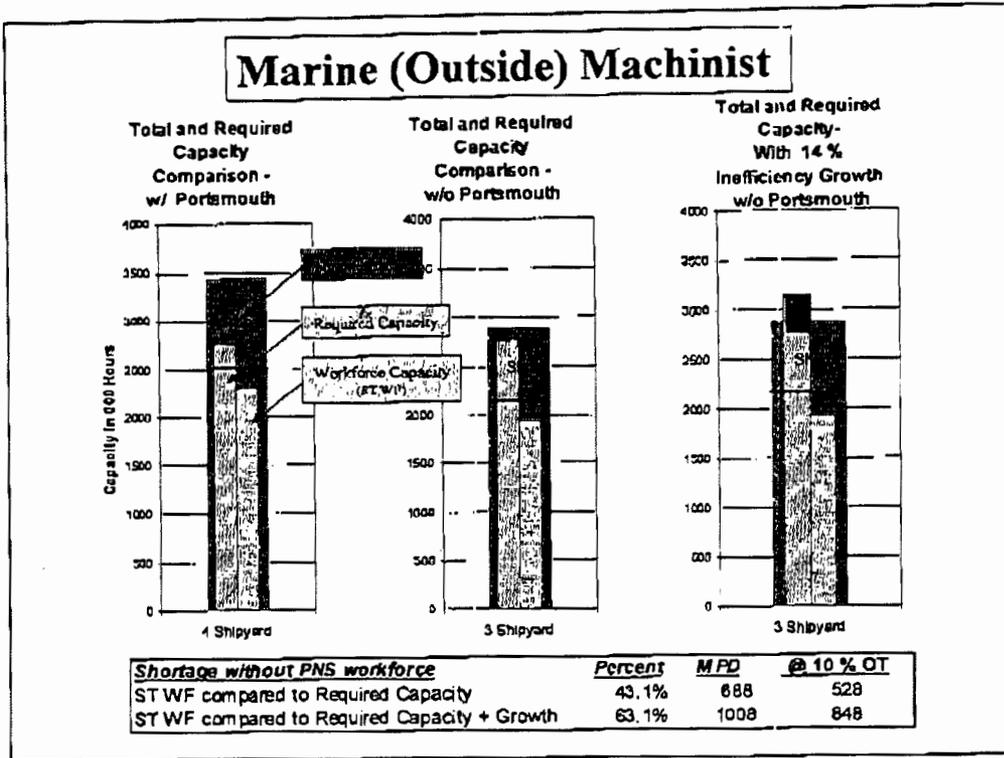
<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

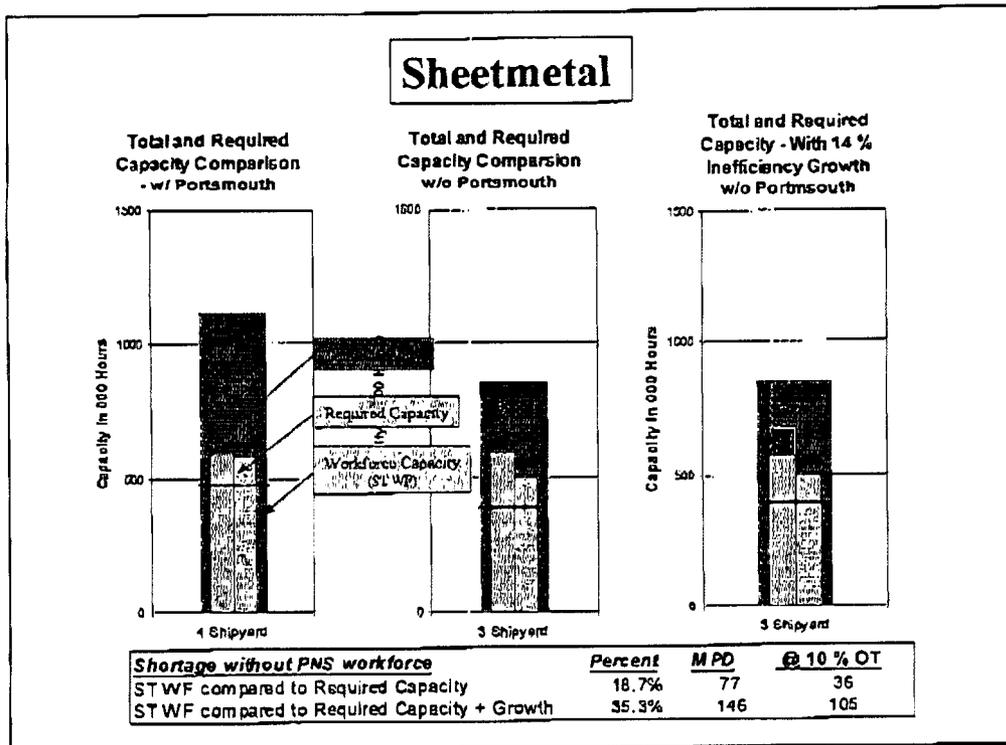
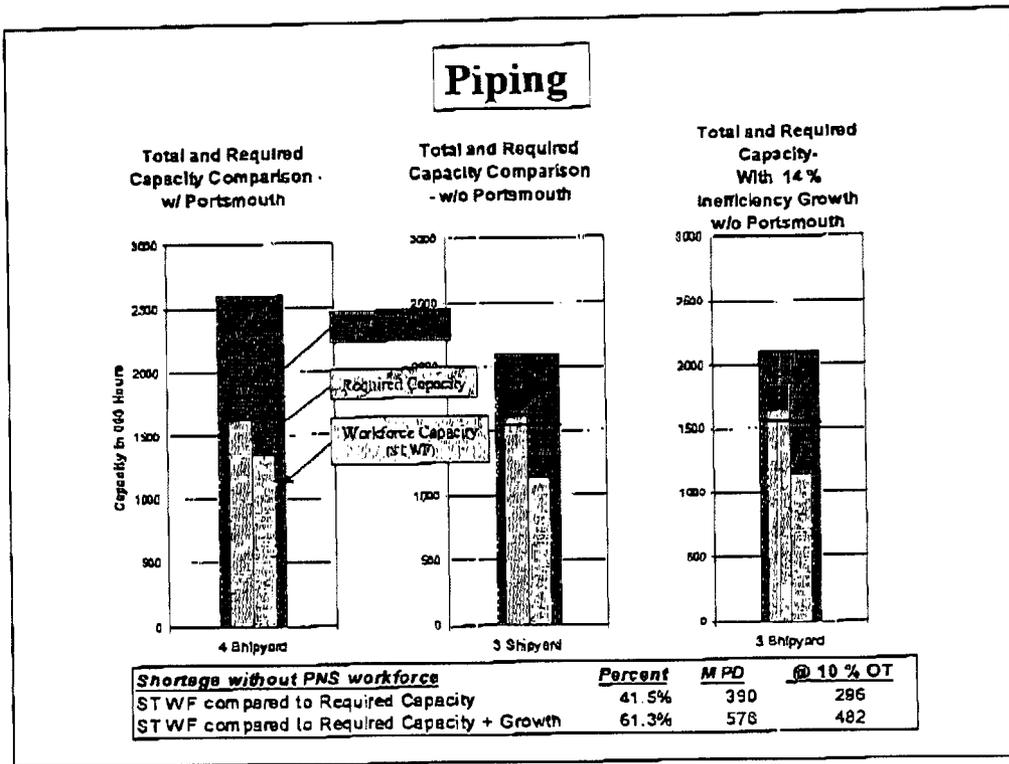
<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

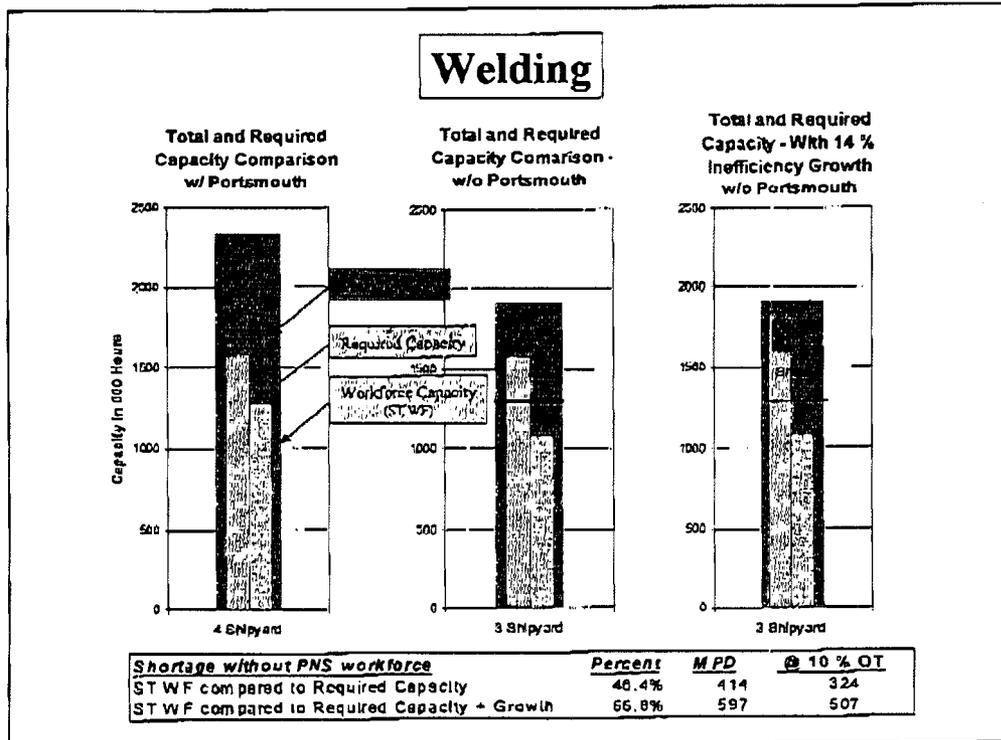
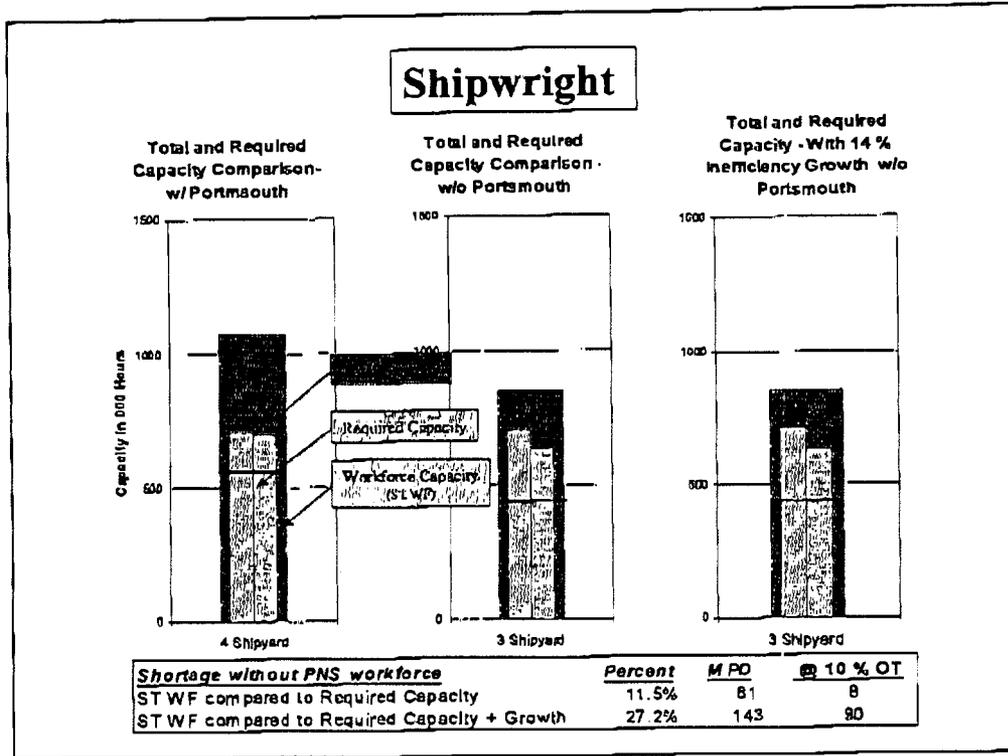
<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.











The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

---

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

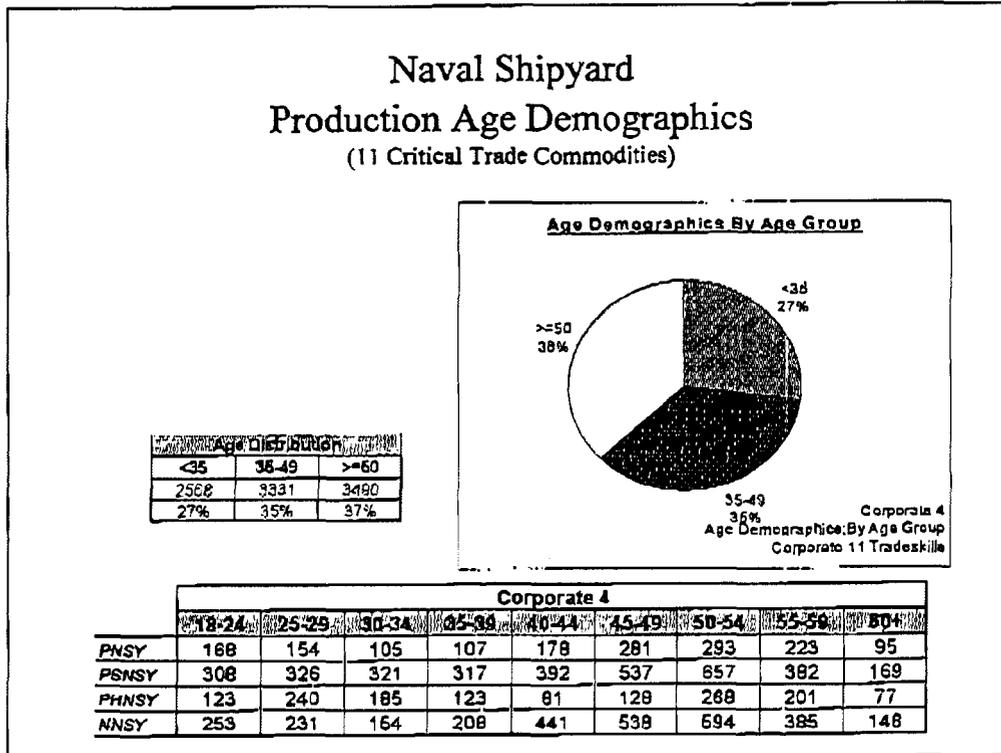
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .  
//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-6116

67 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-5019

209 MAIN STREET, SUITE 103  
SACO, ME 04072  
(207) 283-8054

<http://tomallen.house.gov>



Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

COMMITTEE ON THE BUDGET  
COMMITTEE ON  
ENERGY AND COMMERCE

SUBCOMMITTEES:  
HEALTH

ENERGY AND AIR QUALITY  
ENVIRONMENT AND HAZARDOUS MATERIALS

HOUSE OCEANS CAUCUS  
CO-CHAIR

AFFORDABLE MEDICINES TASK FORCE  
CO-CHAIR



FAX COVER

DATE: 7-22-2005  
TO: BRAC COMMISSION  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14

703-699-2735

MESSAGE:

ENCLOSURE

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

The Honorable Samuel Knox Skinner  
BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Commissioner Skinner:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>1</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>2</sup>. If replicating this culture at other shipyards were easy, it would have

---

<sup>1</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

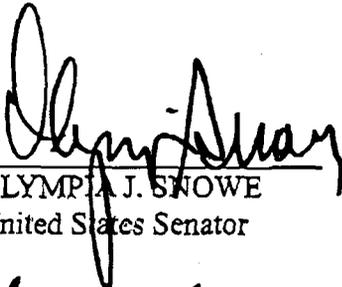
<sup>2</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

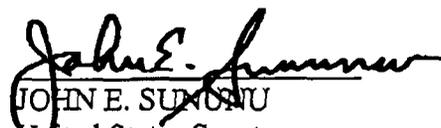
As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,

  
 OLYMPIA J. SNOWE  
 United States Senator

  
 JUDD GREGG  
 United States Senator

  
 SUSAN M. COLLINS  
 United States Senator

  
 JOHN E. SUNUNU  
 United States Senator

  
 JEB BRADLEY  
 United States Representative

  
 THOMAS H. ALLEN  
 United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 67)

<sup>2</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 66)

<sup>3</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 64)

<sup>4</sup> NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup> PNS assessment of workload distribution between Backshops and Drydocks

We have created "thermometer graphs" to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05. Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity's capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don't man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

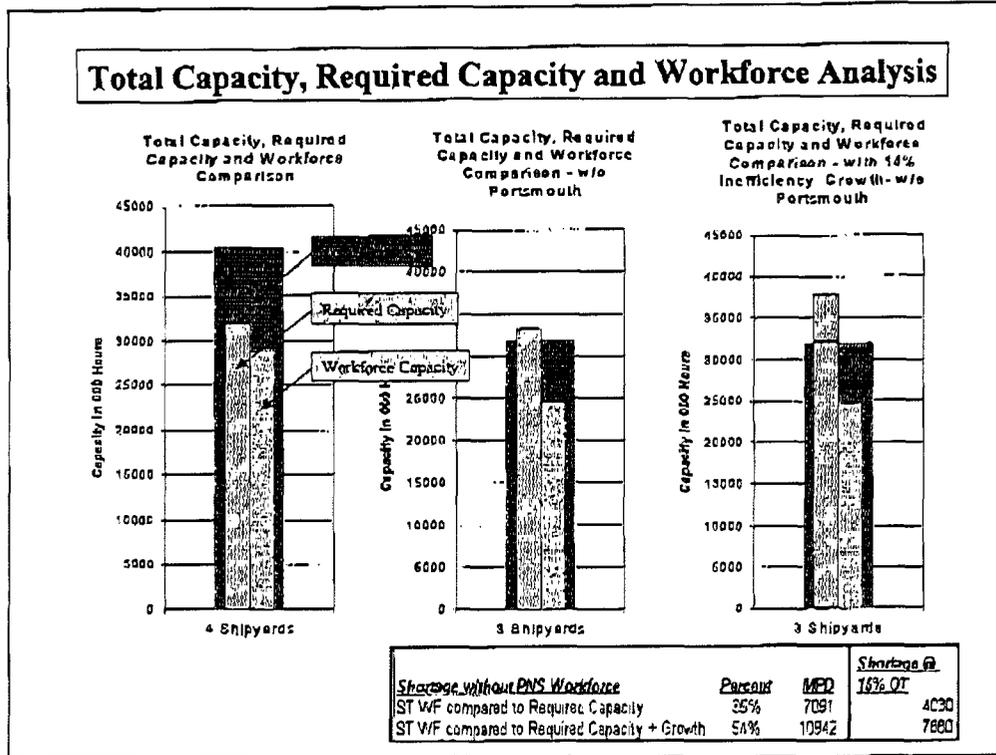
<sup>7</sup> Naval Shipyard Available Force Data (Avg. Oct 04 - Feb 05); found in [www.nde.navy.mil](http://www.nde.navy.mil), then go to WEBWARR, workforce, and use available force data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity + 14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

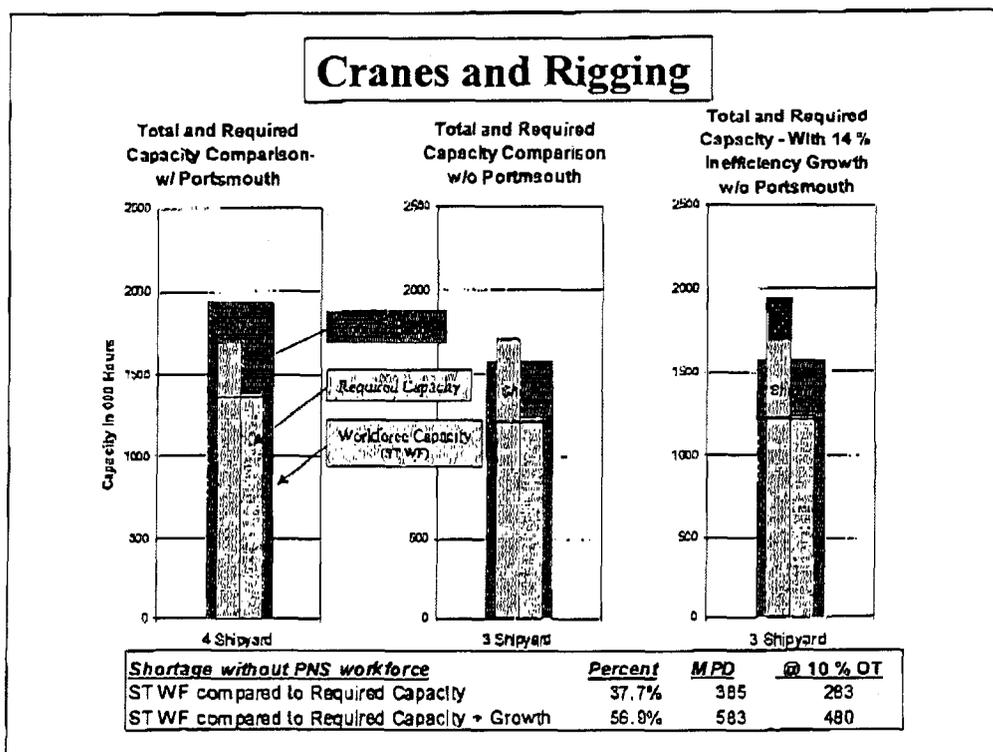
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are “thermometer graphs” for 11 of Navy’s most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

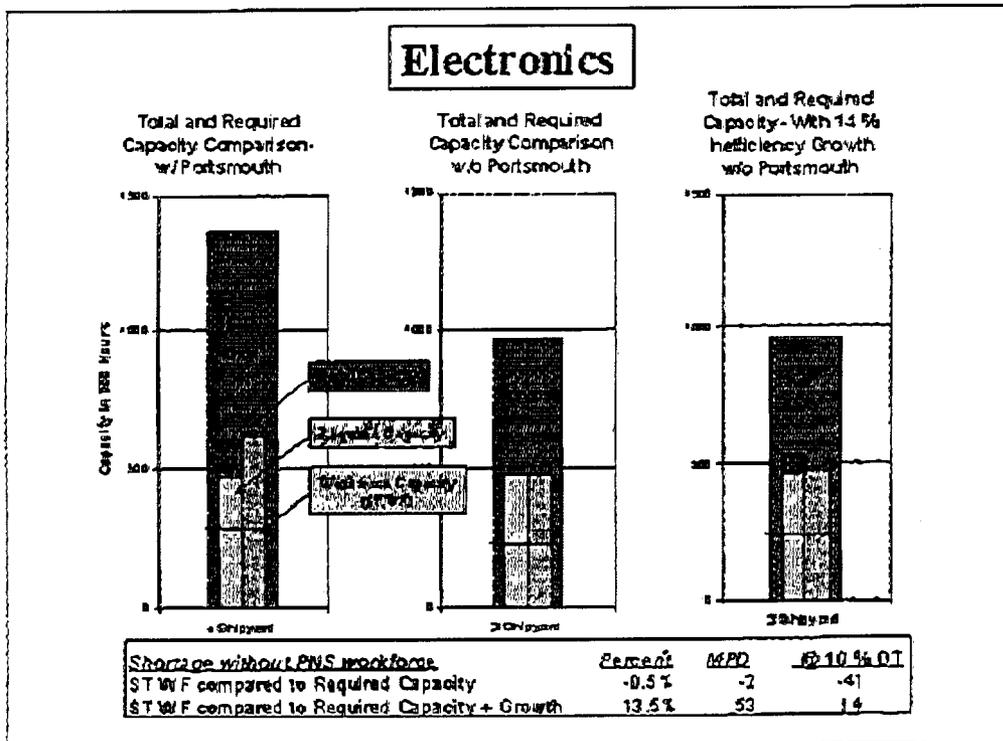
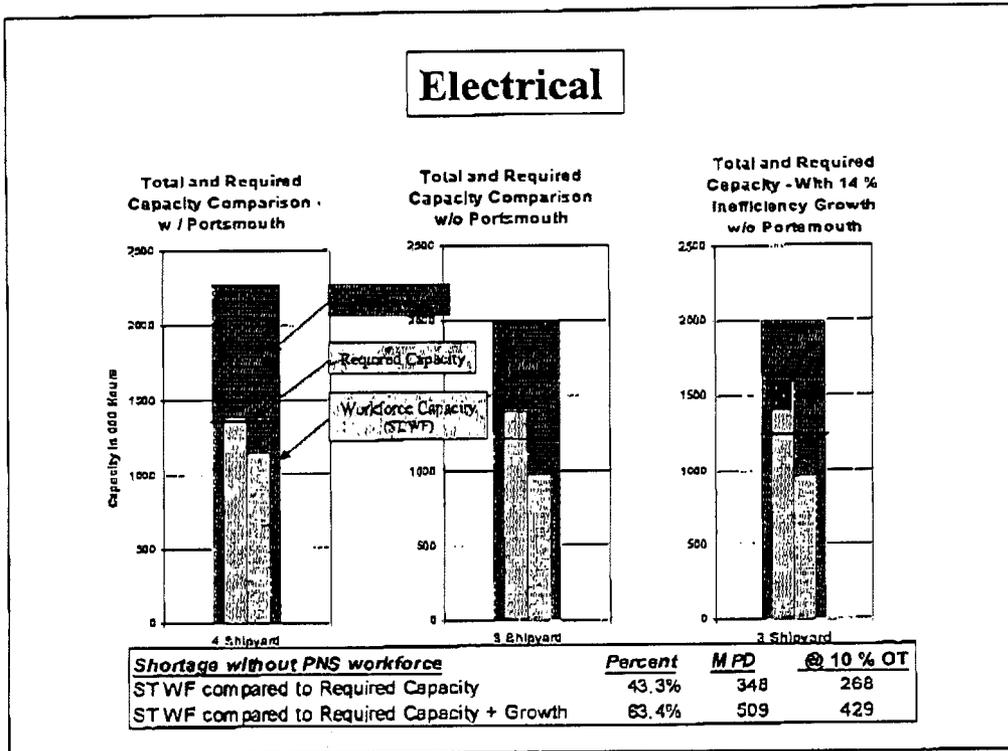
<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

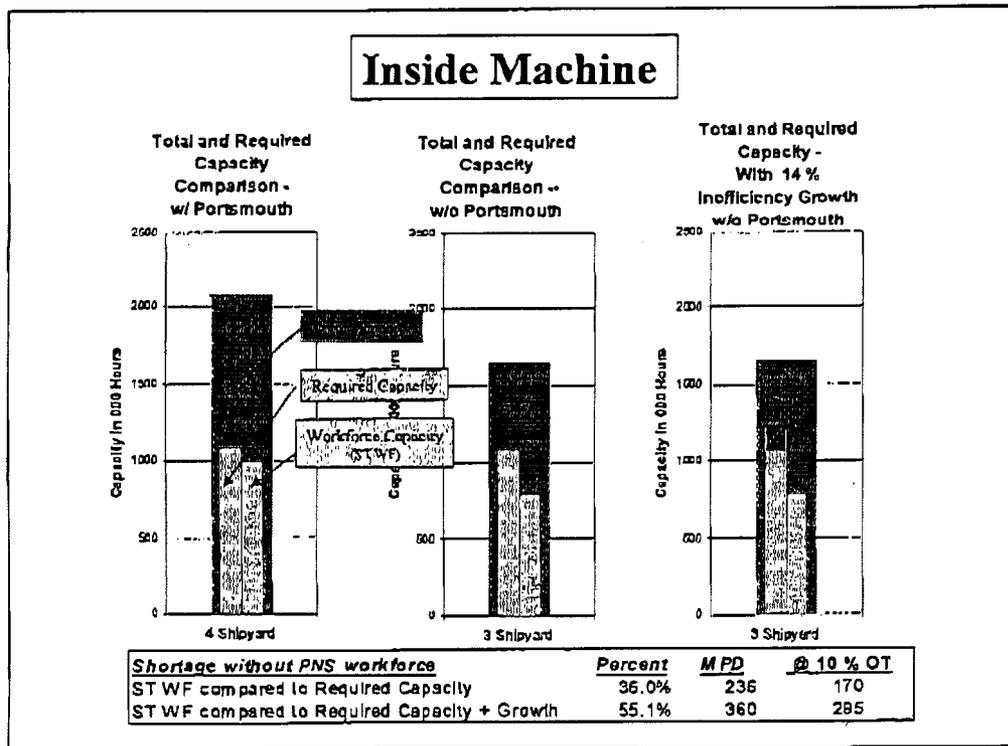
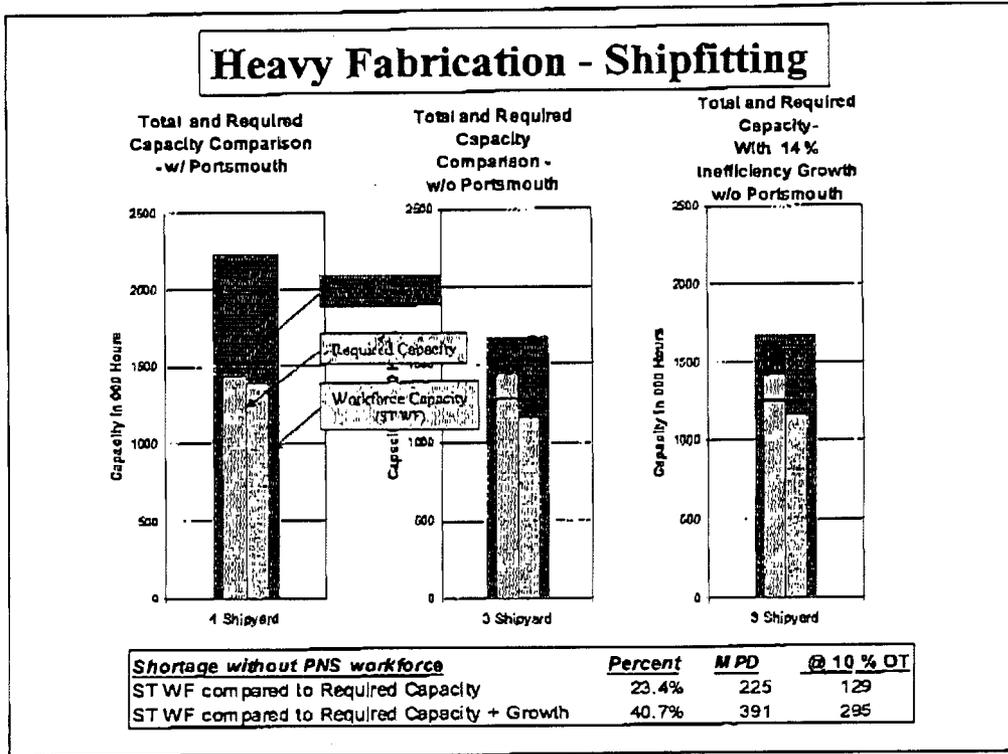
<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

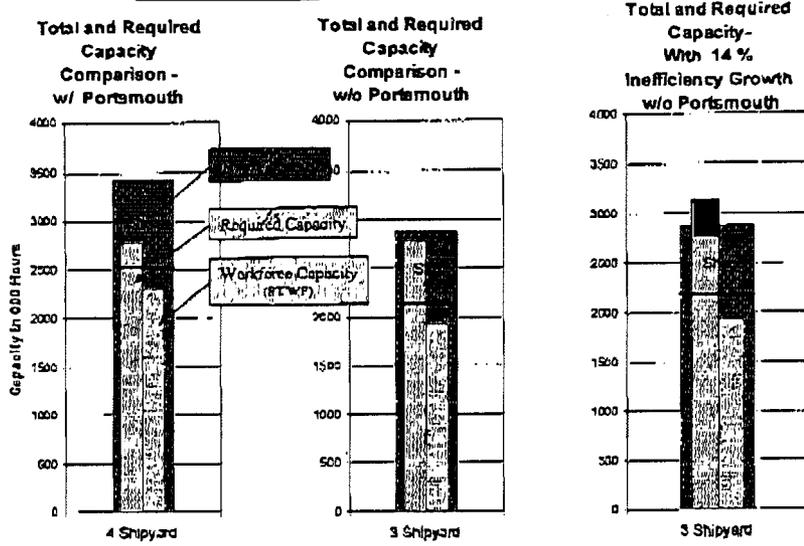
<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.



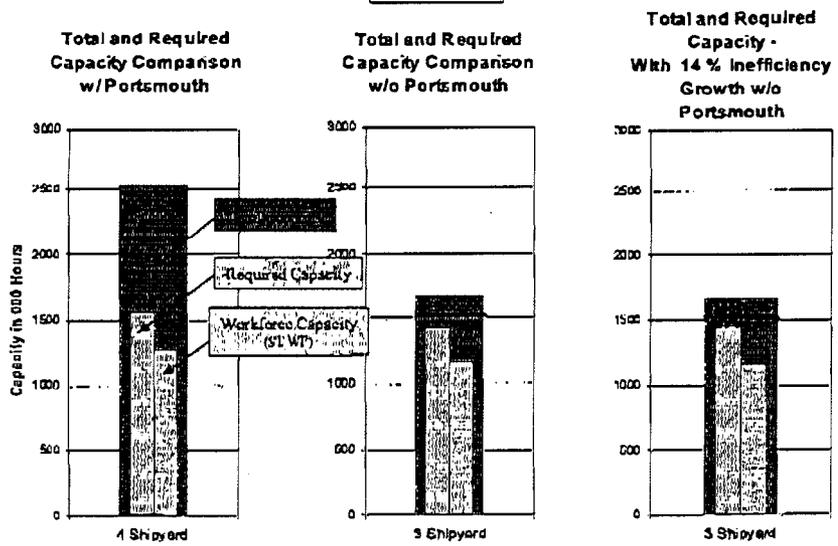


### Marine (Outside) Machinist

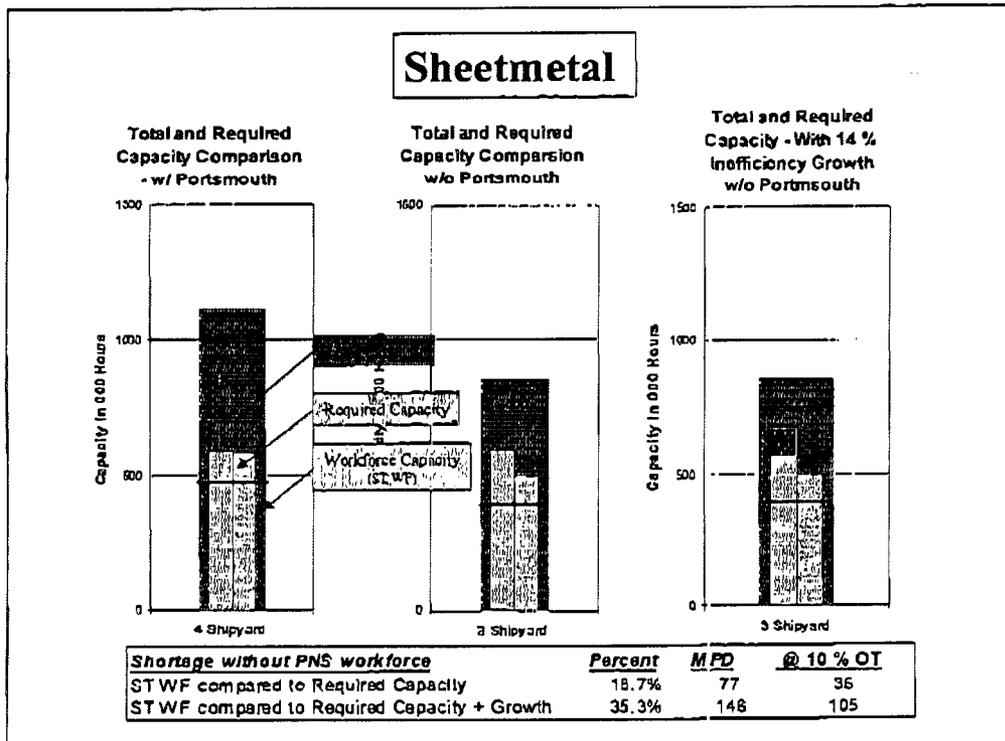
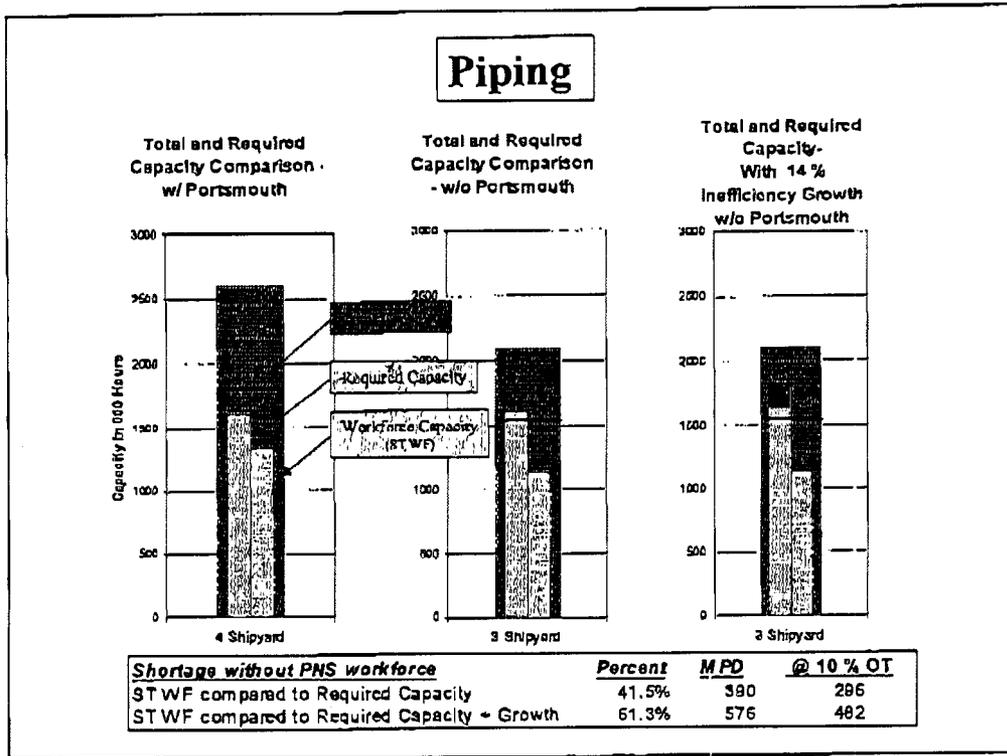


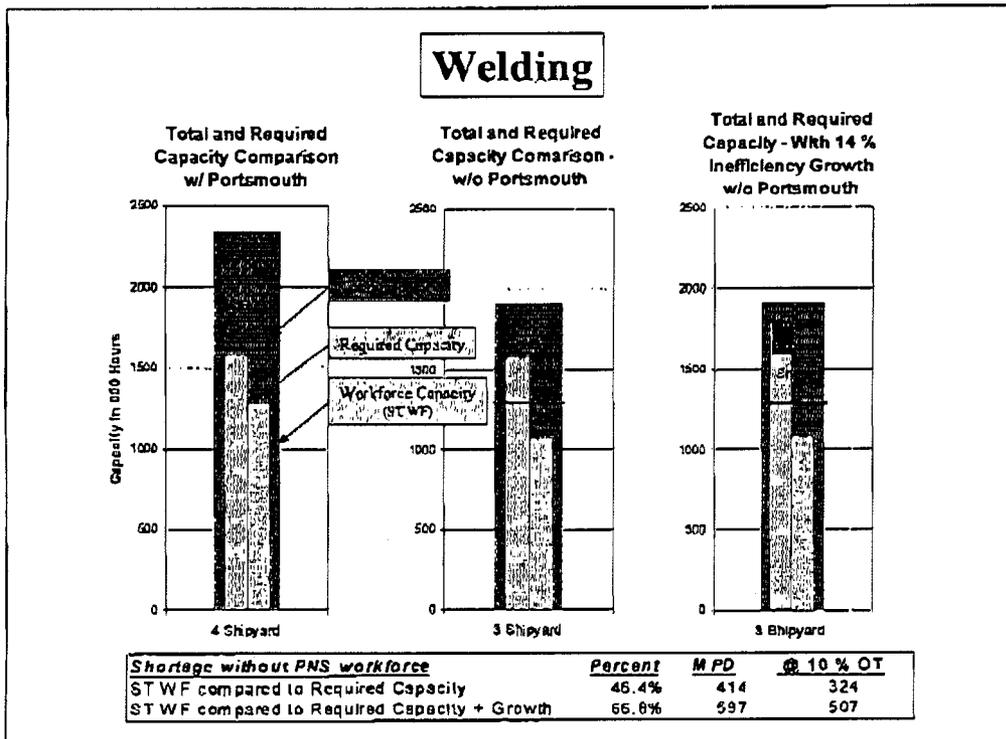
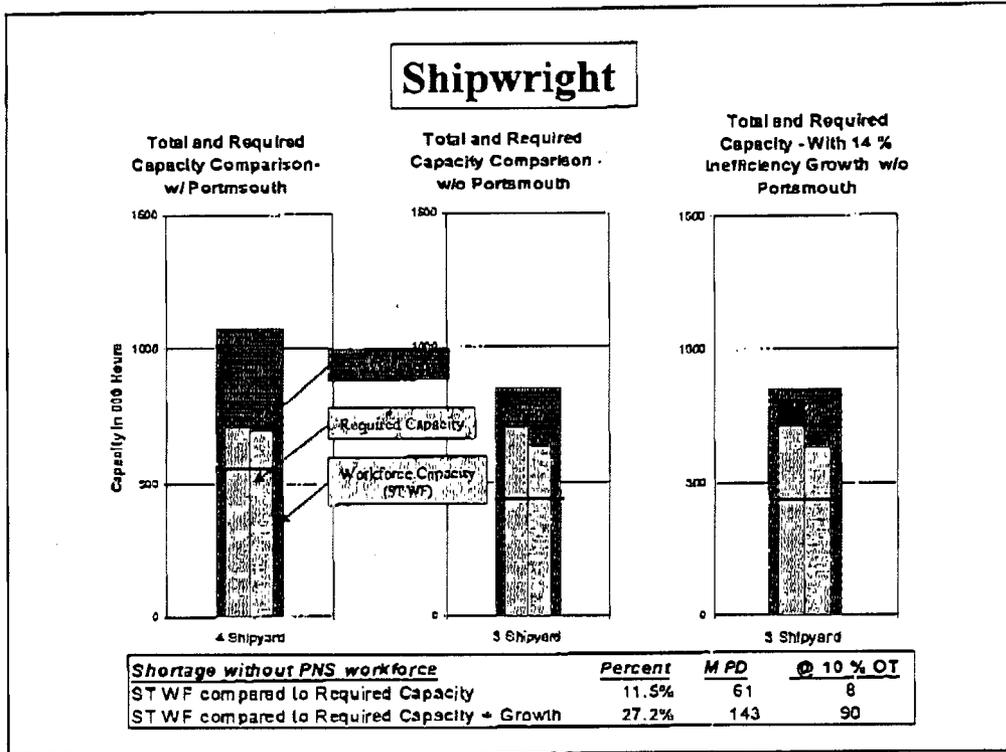
Shortage without PNS workforce	Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity	43.1%	668	528
ST WF compared to Required Capacity + Growth	63.1%	1008	848

### Paint



Shortage without PNS workforce	Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity	75.3%	557	483
ST WF compared to Required Capacity + Growth	99.8%	738	664





The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

---

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

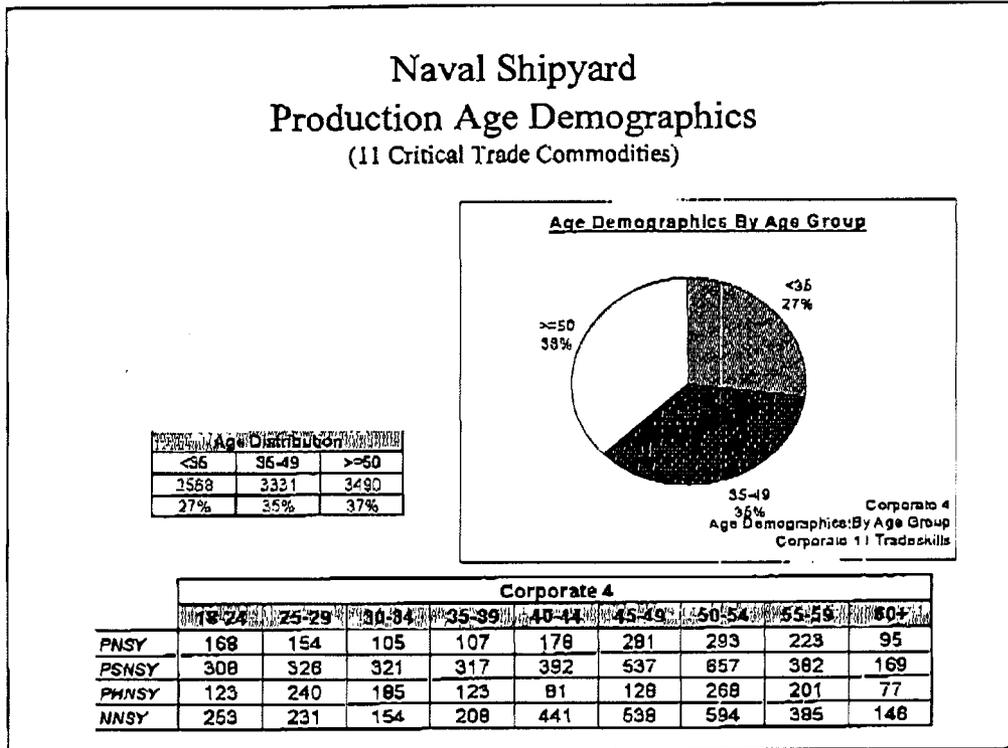
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .

//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE



COMMITTEE ON THE BUDGET  
COMMITTEE ON  
ENERGY AND COMMERCE  
SUBCOMMITTEES:  
HEALTH  
ENERGY AND AIR QUALITY  
ENVIRONMENT AND HAZARDOUS MATERIALS  
HOUSE OCEANS CAUCUS  
CO-CHAIR  
AFFORDABLE MEDICINES TASK FORCE  
CO-CHAIR

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-8116

Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

57 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-5019  
209 MAIN STREET, SUITE 103  
SACO, ME 04072  
(207) 283-8054

<http://tomallen.house.gov>

FAX COVER

DATE: 7-22-2005  
TO: BRAC COMMISSION  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14

703-699-2735

MESSAGE:

ENCLOSURE

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

General James T. Hill  
BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Commissioner Hill:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>14</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>15</sup>. If replicating this culture at other shipyards were easy, it would have

<sup>14</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

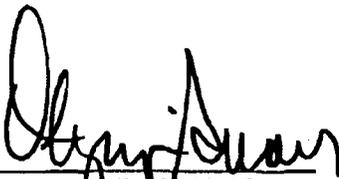
<sup>15</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,

  
OLYMPIA J. SNOWE  
United States Senator

  
JUDD GREGG  
United States Senator

  
SUSAN M. COLLINS  
United States Senator

  
JOHN E. SUNUNU  
United States Senator

  
JEB BRADLEY  
United States Representative

  
THOMAS H. ALLEN  
United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 67)

<sup>2</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 66)

<sup>3</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 64)

<sup>4</sup> NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup> PNS assessment of workload distribution between Backshops and Drydocks

We have created "thermometer graphs" to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05). Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity's capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don't man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

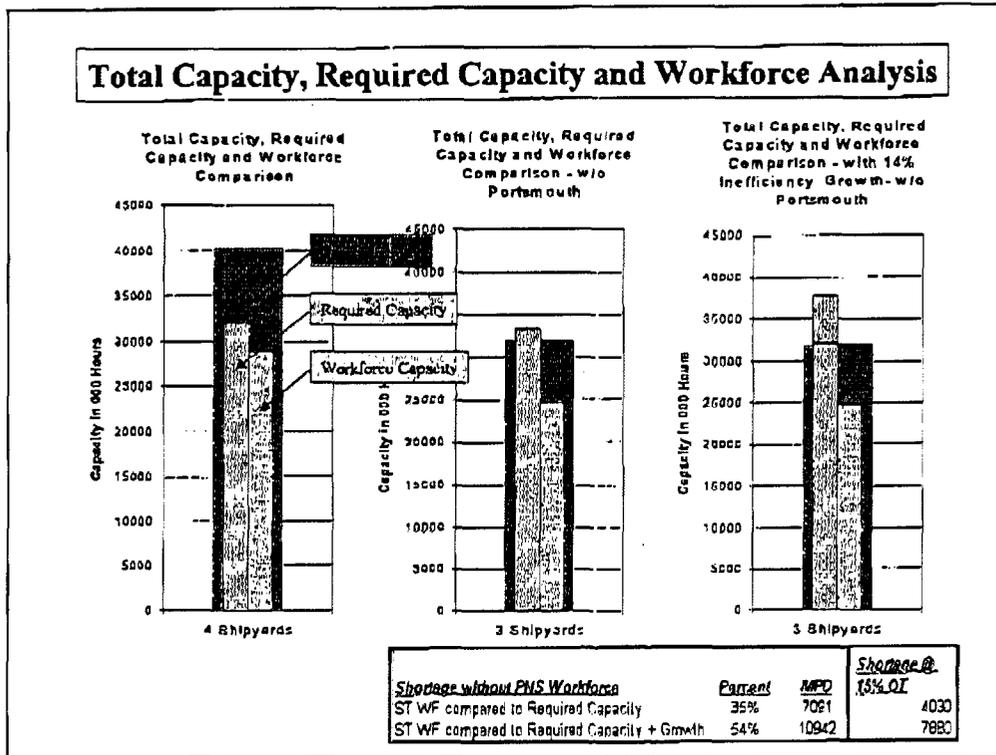
<sup>7</sup> Naval Shipyard Available Forcc Data (Avg. Oct 04 - Feb 05); found in [www.ndc.navy.mil](http://www.ndc.navy.mil), then go to WEBWARR, workforce, and use available forcc data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity +14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the shortage (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

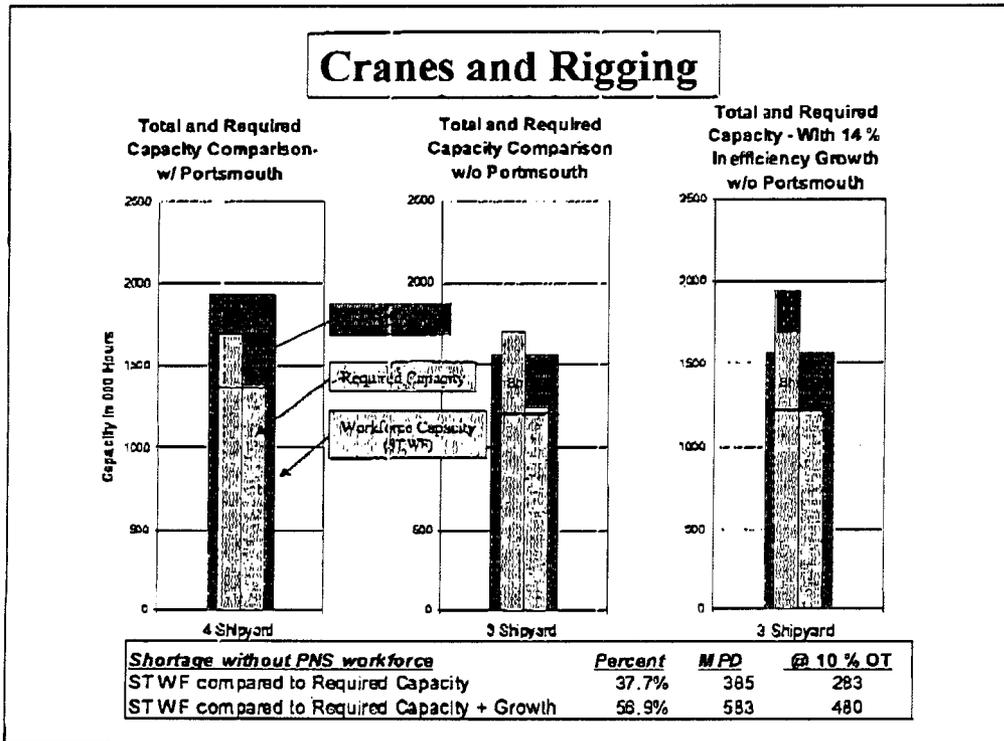
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are “thermometer graphs” for 11 of Navy’s most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

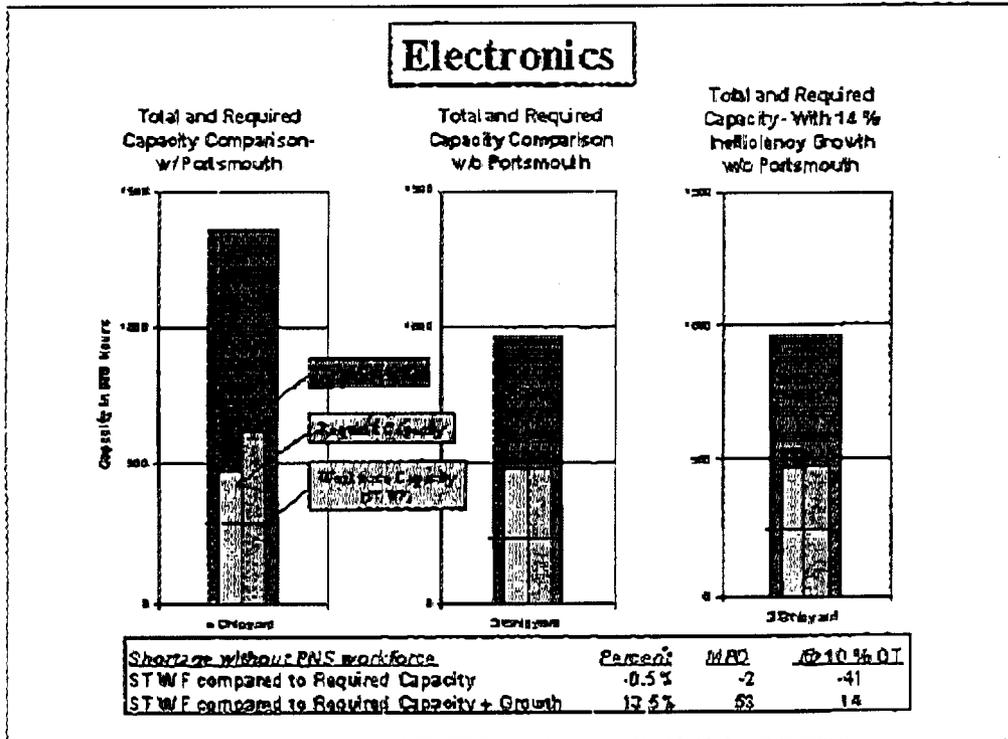
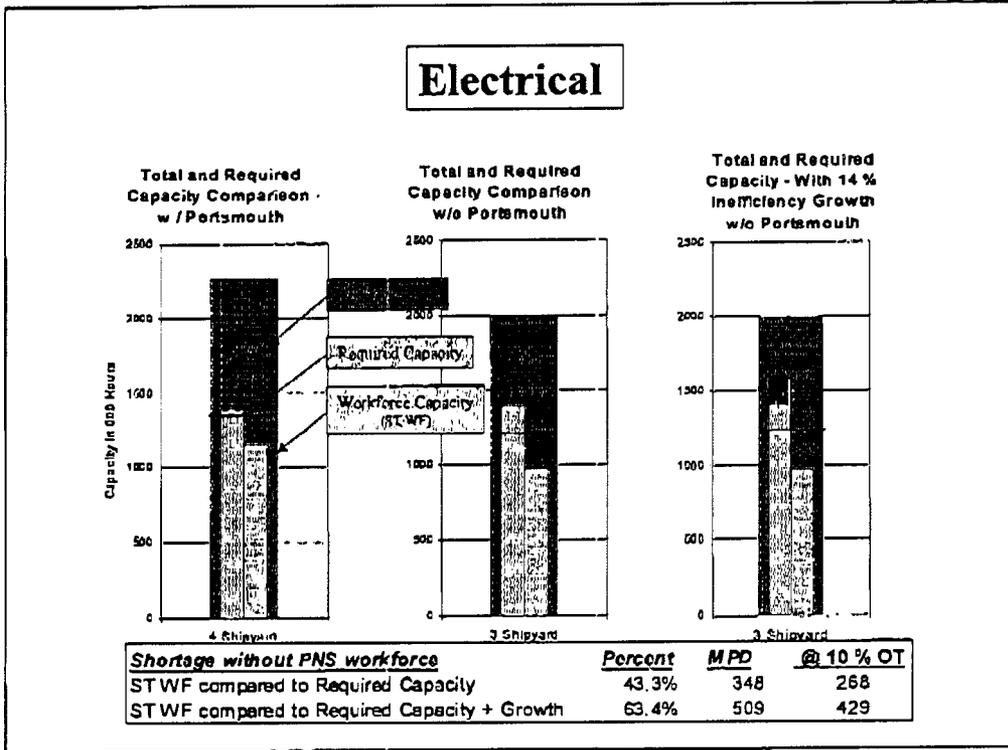
<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

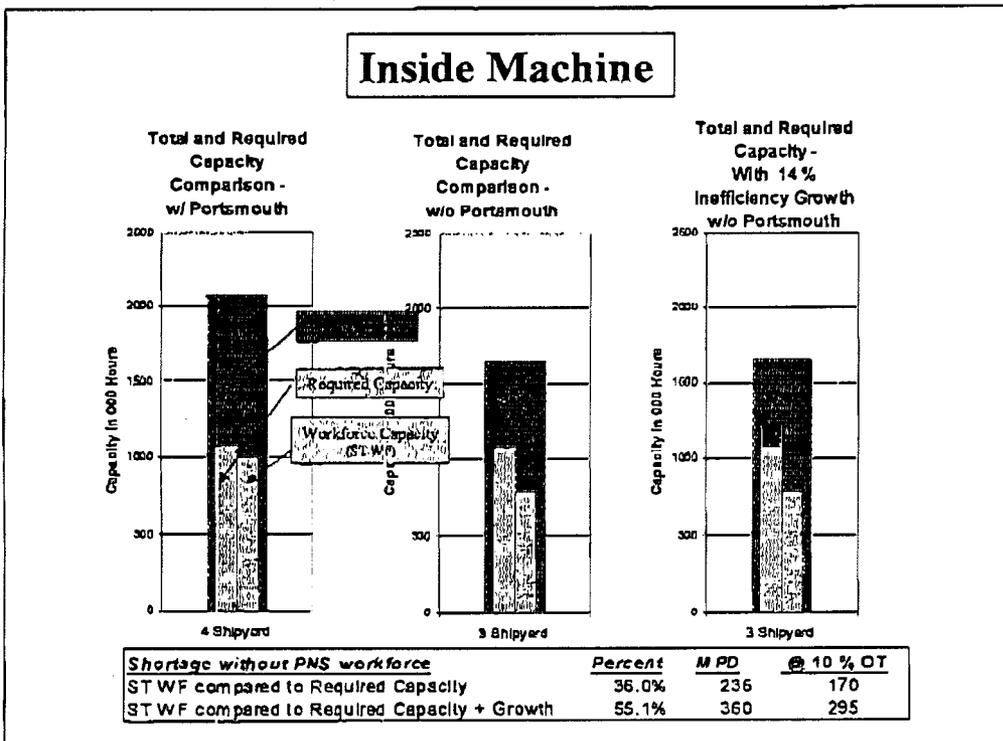
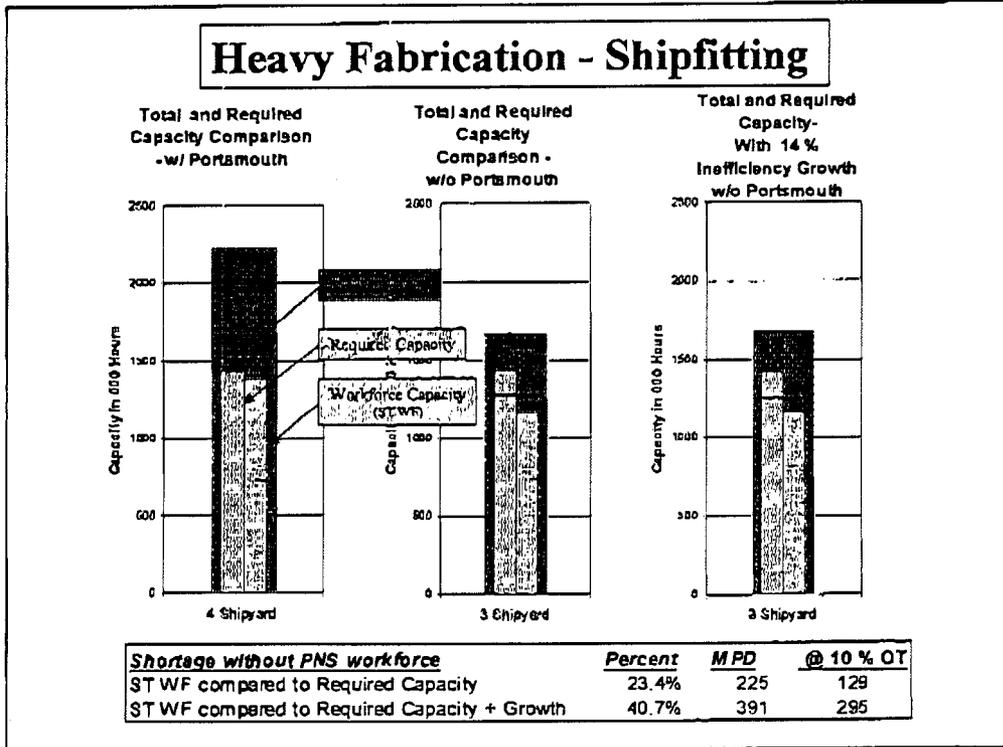
<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

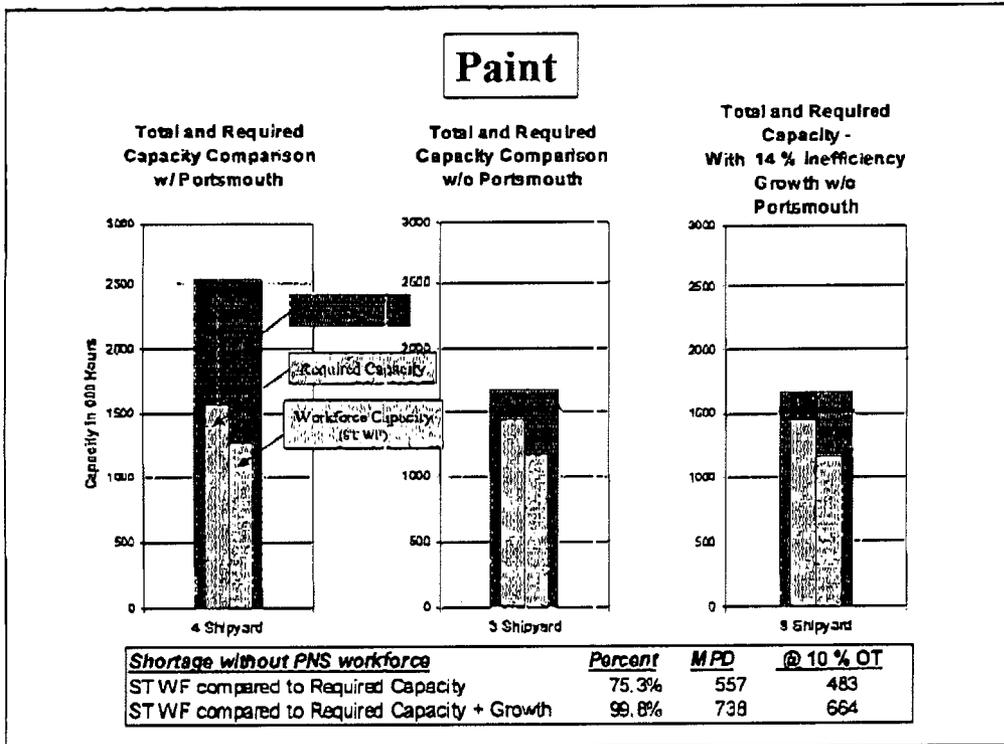
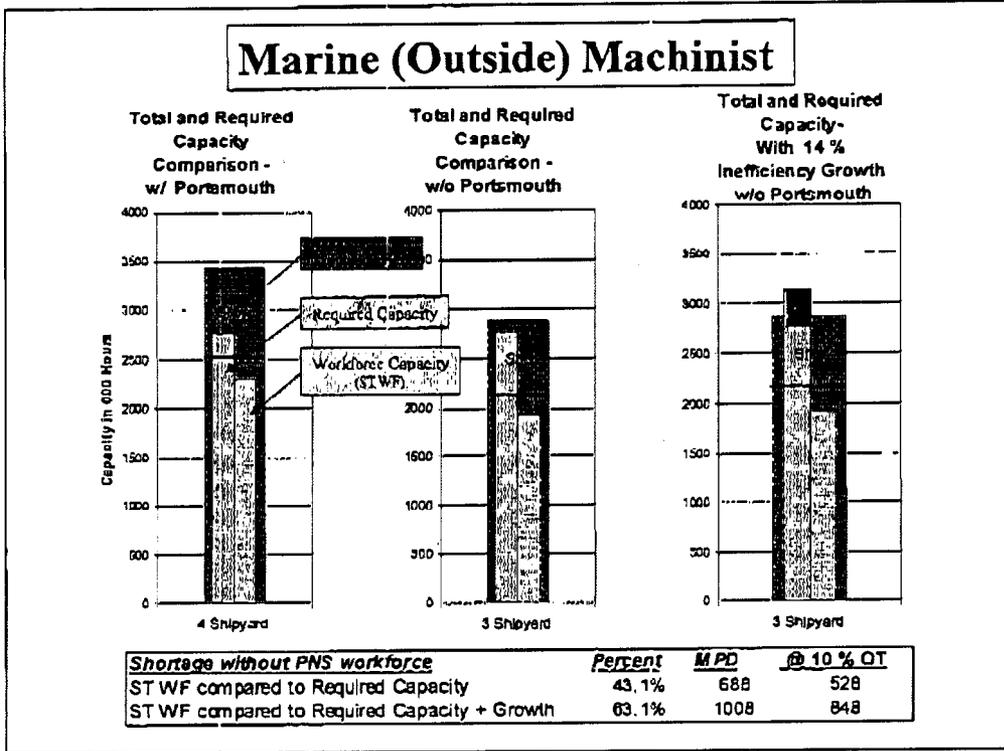
<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

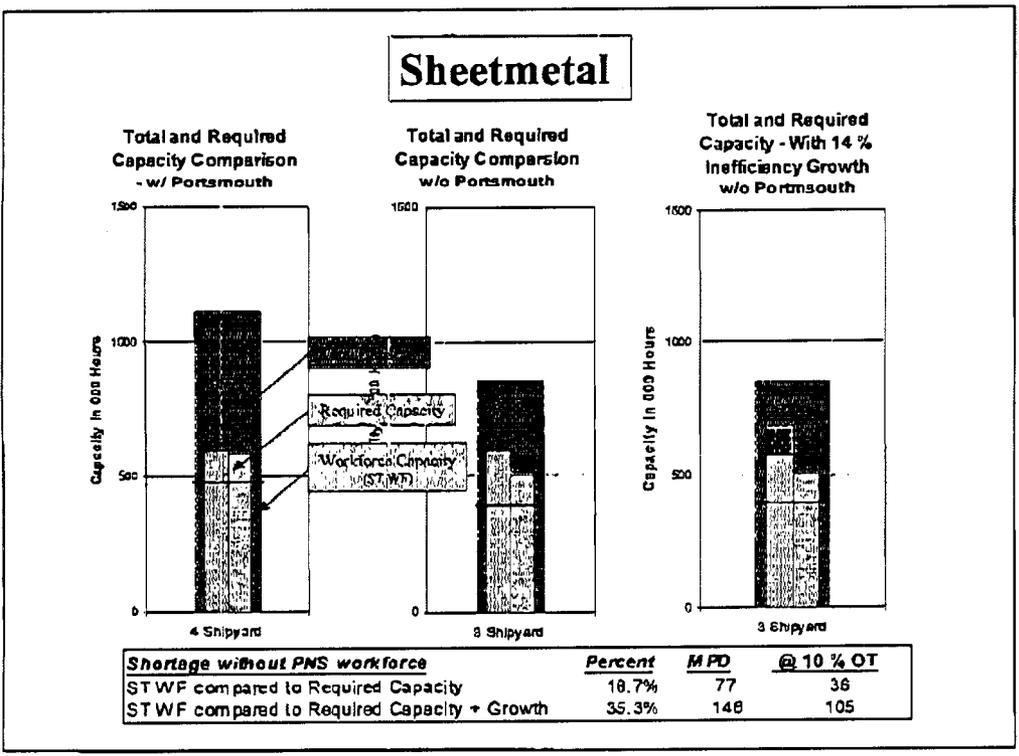
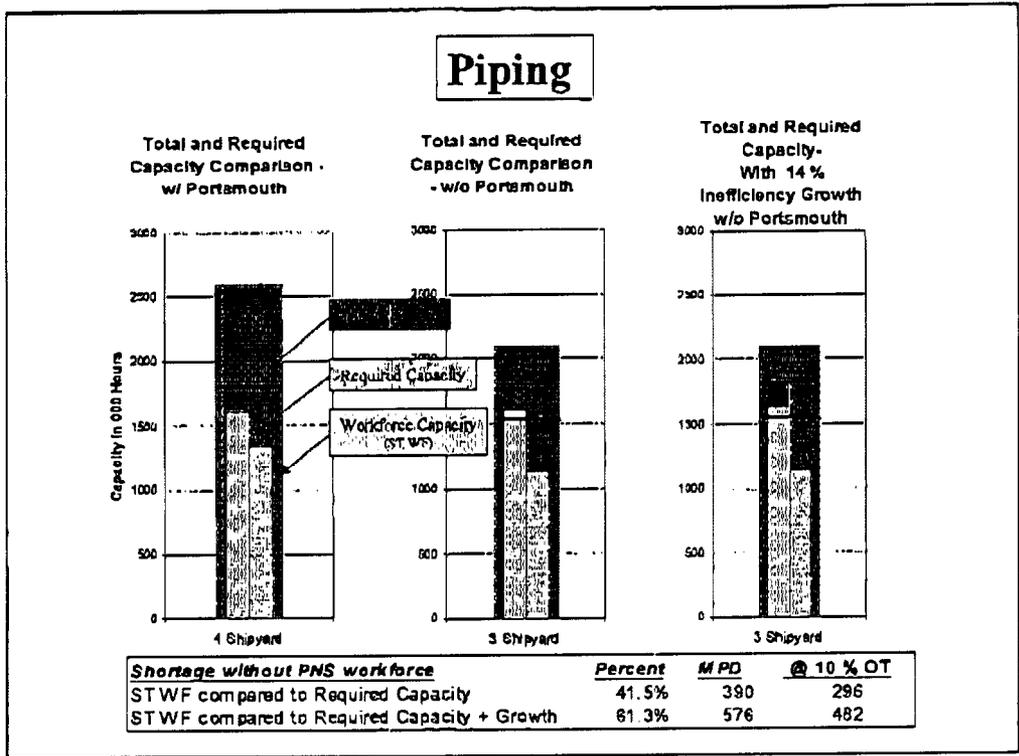
<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

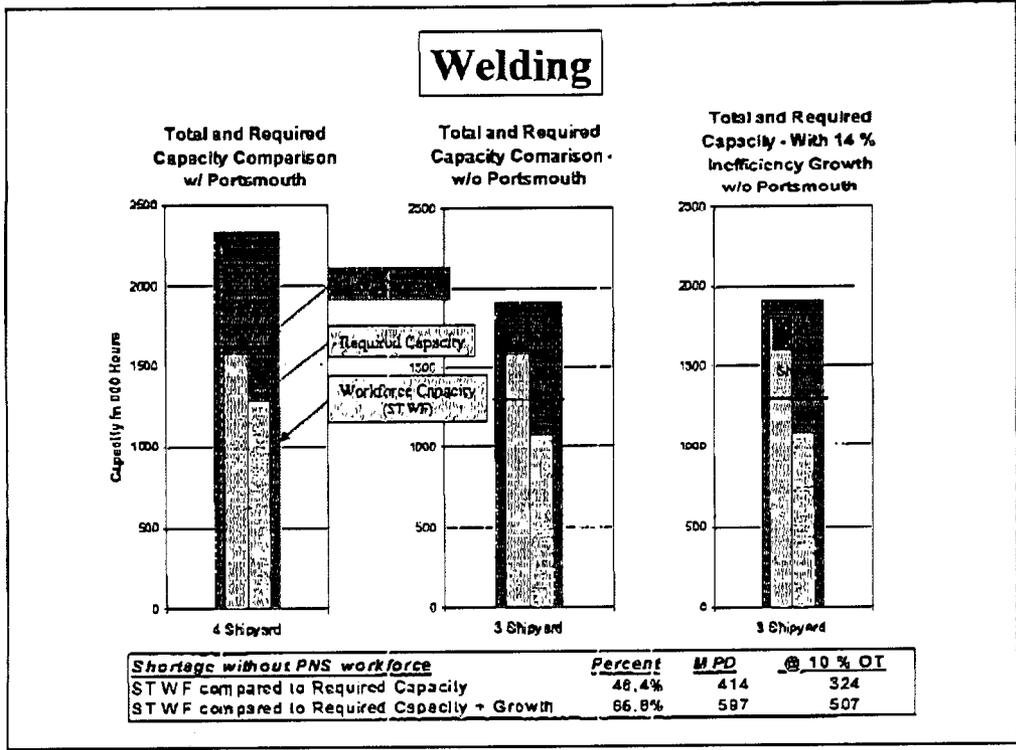
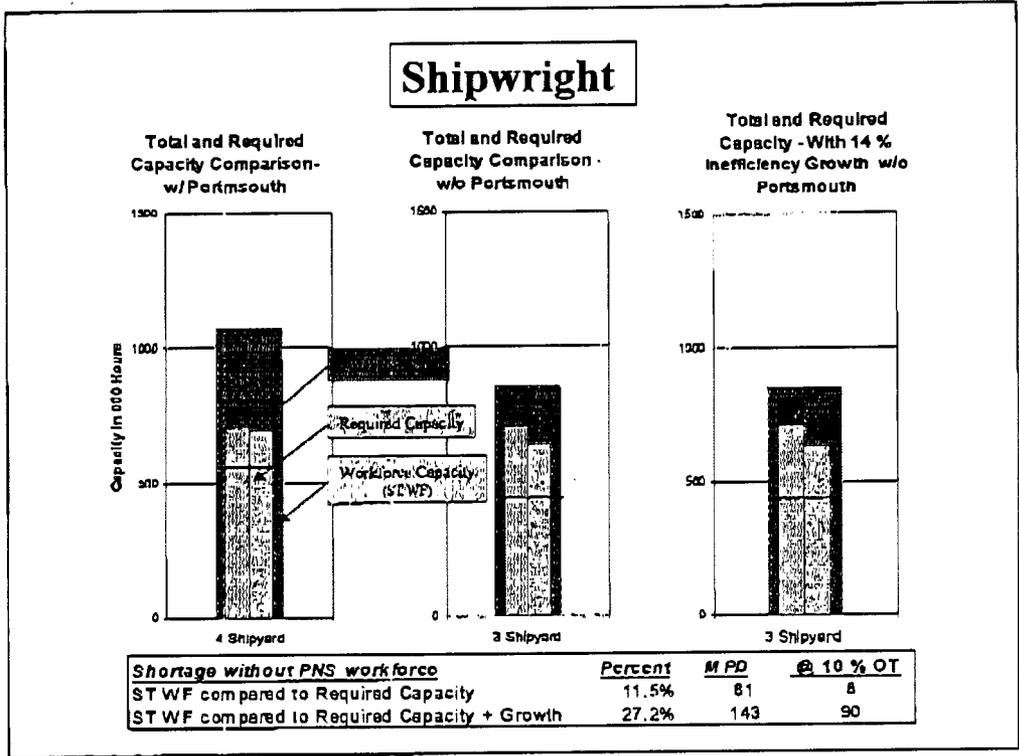
<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.











The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

---

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

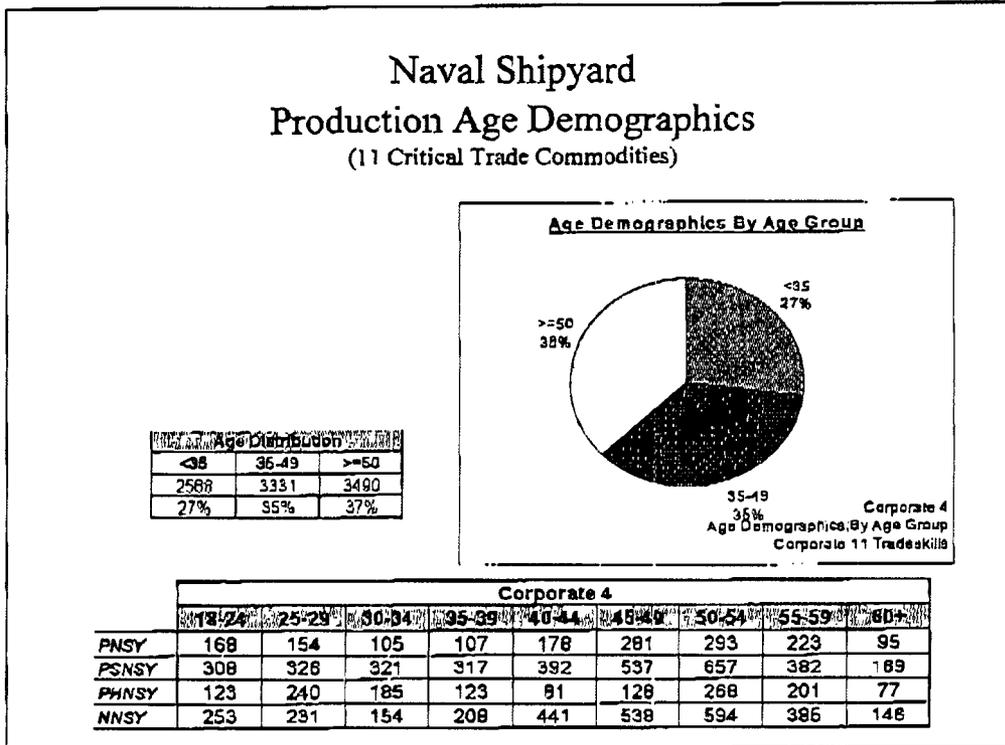
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R. Donnell Jr .  
//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE



COMMITTEE ON THE BUDGET  
COMMITTEE ON  
ENERGY AND COMMERCE

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-6116

57 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-6019

209 MAIN STREET, SUITE 103  
SACO, ME 04072  
(207) 283-8054

Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

SUBCOMMITTEES:  
HEALTH  
ENERGY AND AIR QUALITY  
ENVIRONMENT AND HAZARDOUS MATERIALS  
HOUSE OCEANS CAUCUS  
CO-CHAIR  
AFFORDABLE MEDICINES TASK FORCE  
CO-CHAIR

(1)

<http://tomallen.house.gov>

FAX COVER

DATE: 7-22-2005  
TO: BRAC COMMISSION 703-699-2735  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14

MESSAGE:

ENCLOSURE

---

---

---

---

---

---

---

---

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

Admiral Harold W. Gehman, Jr.  
BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Commissioner Gehman:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>10</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>11</sup>. If replicating this culture at other shipyards were easy, it would have

<sup>10</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

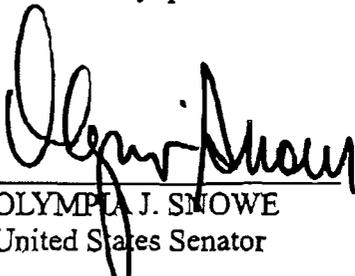
<sup>11</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

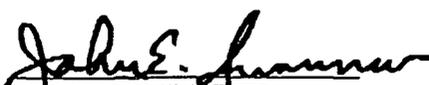
As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,

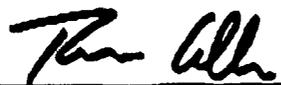
  
 OLYMPIA J. SNOWE  
 United States Senator

  
 JUDD GREGG  
 United States Senator

  
 SUSAN M. COLLINS  
 United States Senator

  
 JOHN E. SUNUNU  
 United States Senator

  
 JEB BRADLEY  
 United States Representative

  
 THOMAS H. ALLEN  
 United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup>Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 67)

<sup>2</sup>Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 66)

<sup>3</sup>Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 64)

<sup>4</sup>NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup>PNS assessment of workload distribution between Backshops and Drydocks

We have created “thermometer graphs” to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05. Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity’s capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don’t man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

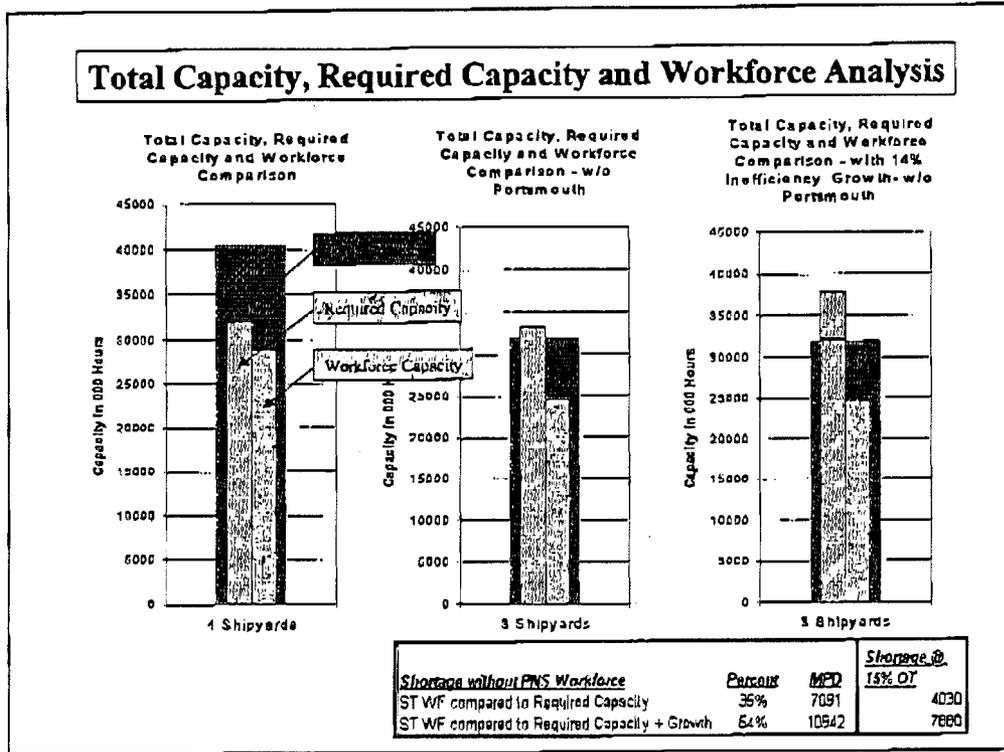
<sup>7</sup> Naval Shipyard Available Force Data (Avg. Oct 04 – Feb 05); found in [www.nde.navy.mil](http://www.nde.navy.mil), then go to WEBWARR, workforcc, and use available force data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity + 14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

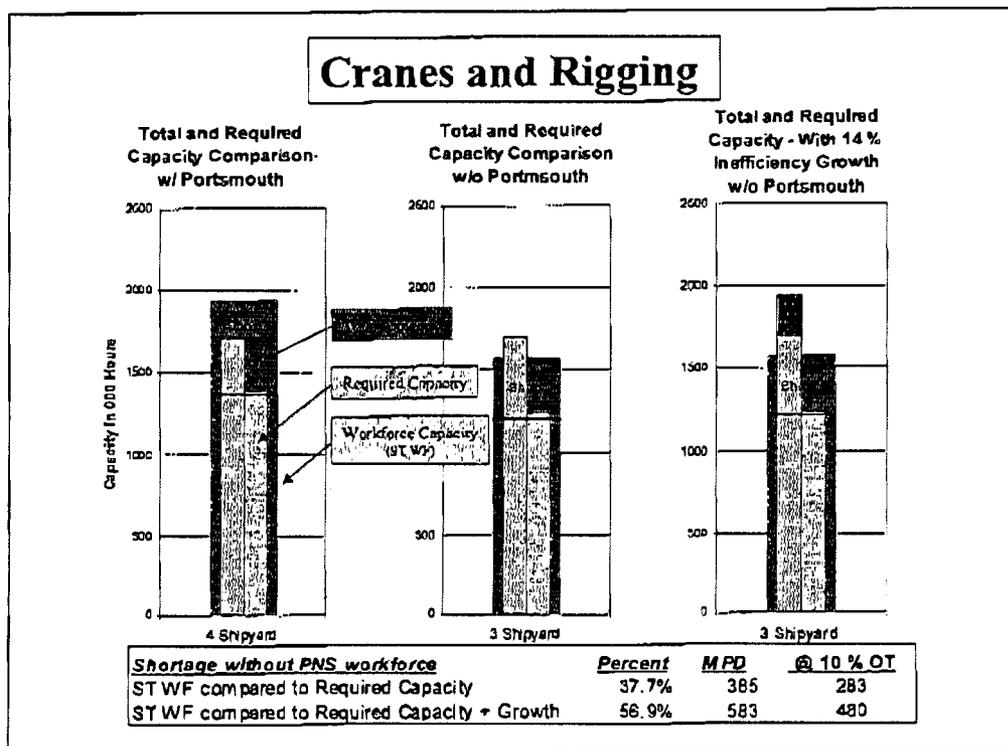
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are “thermometer graphs” for 11 of Navy’s most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

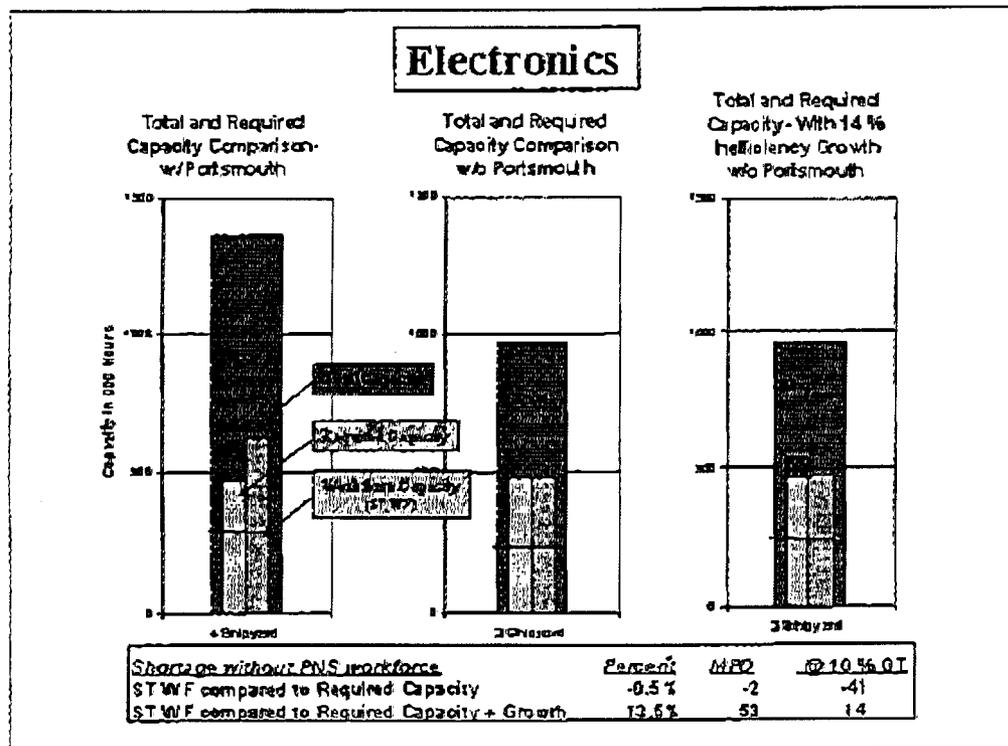
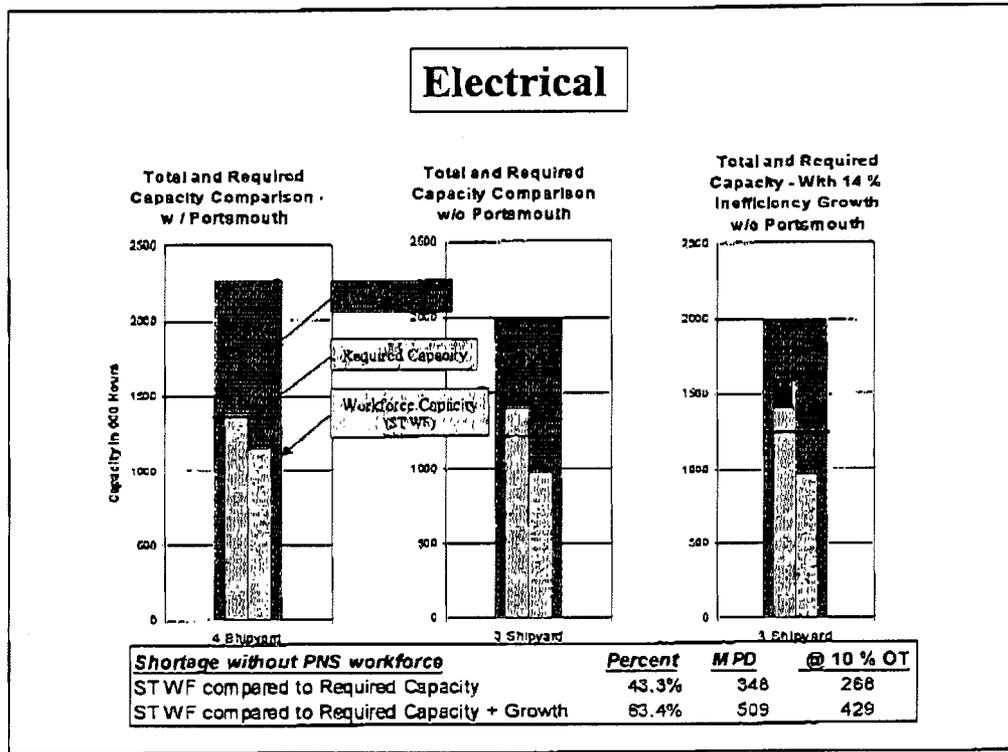
<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

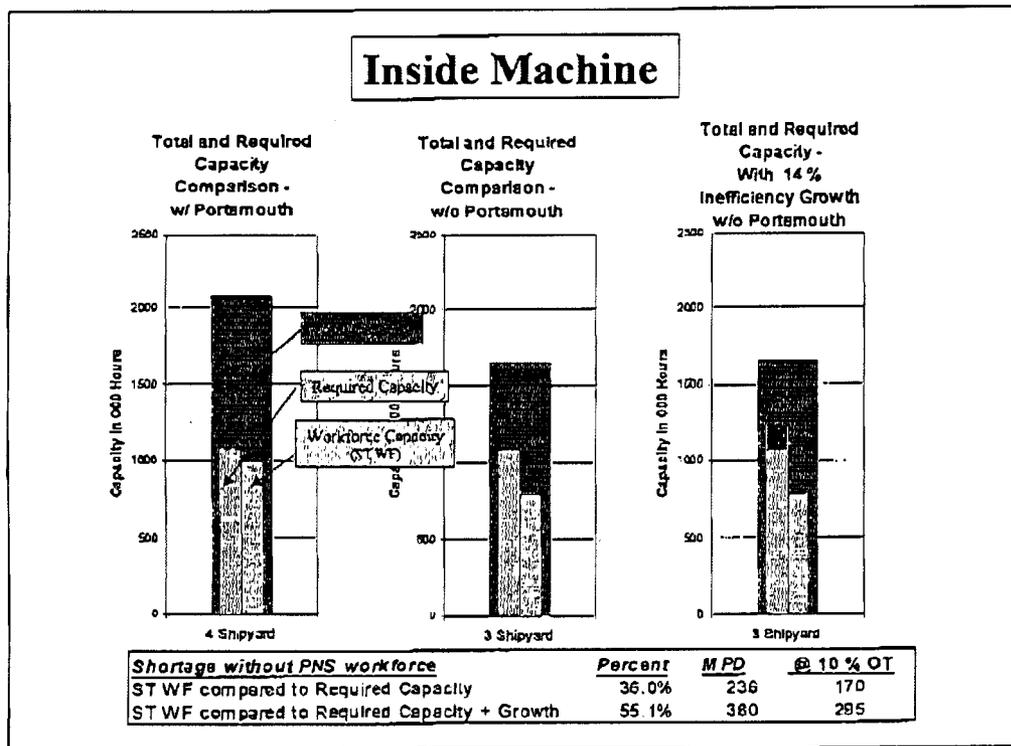
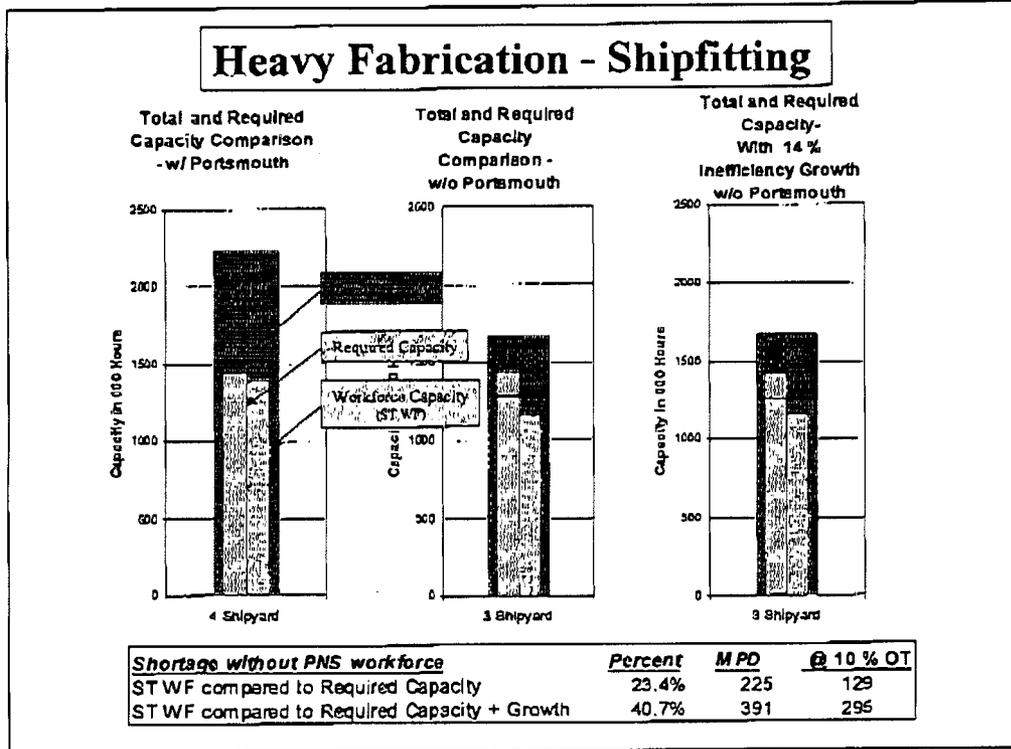
<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

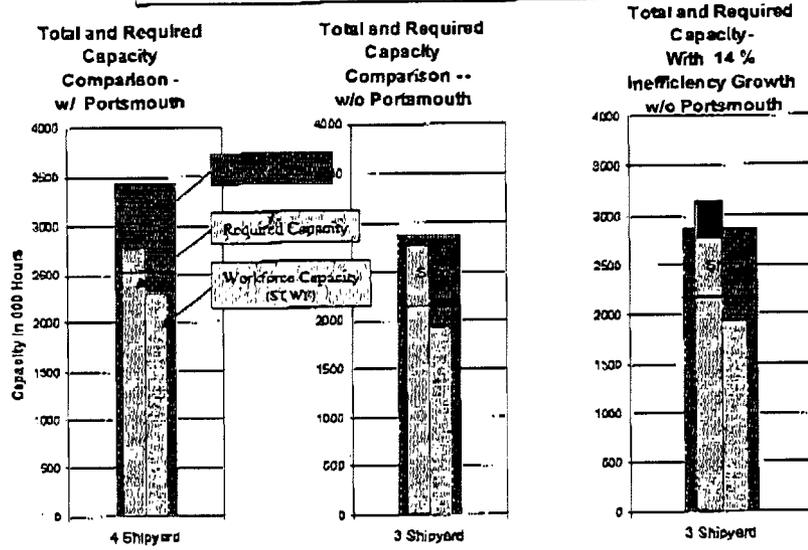
<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.



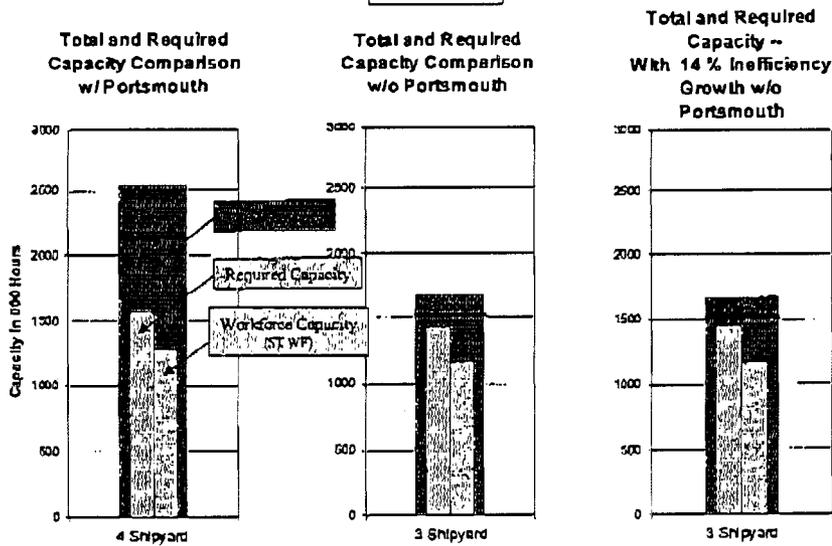


### Marine (Outside) Machinist

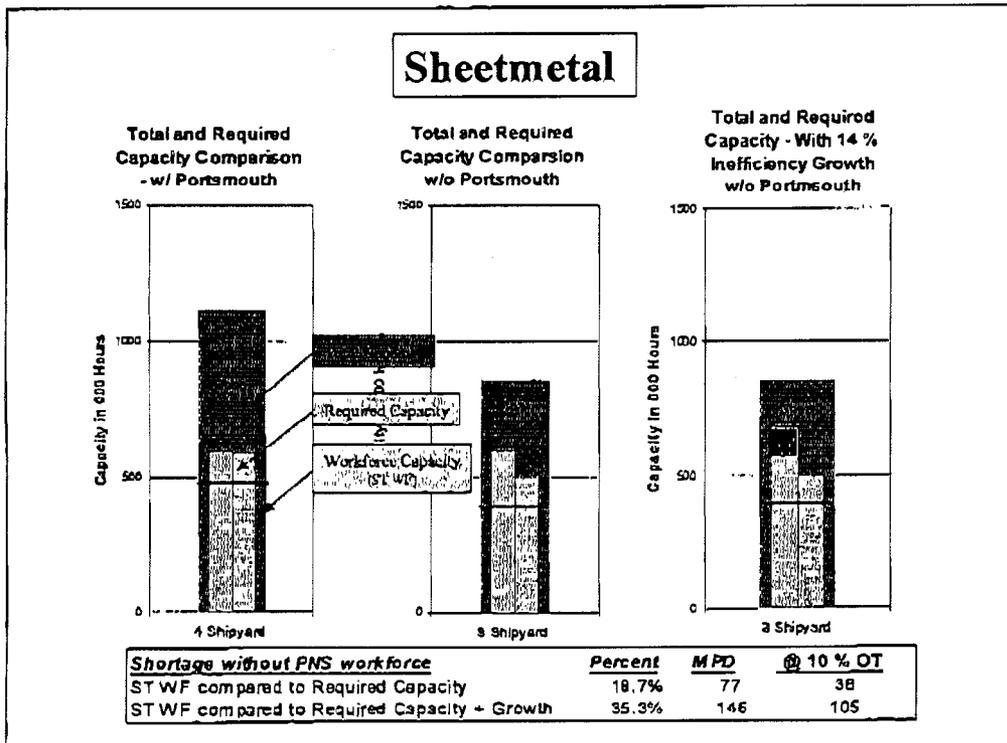
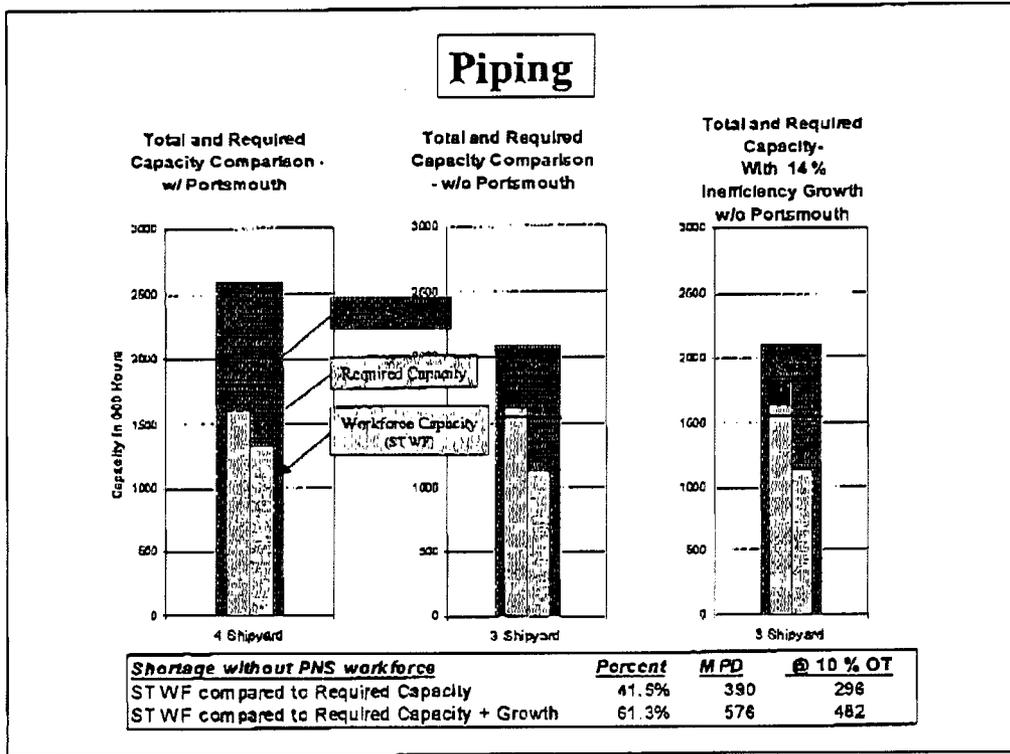


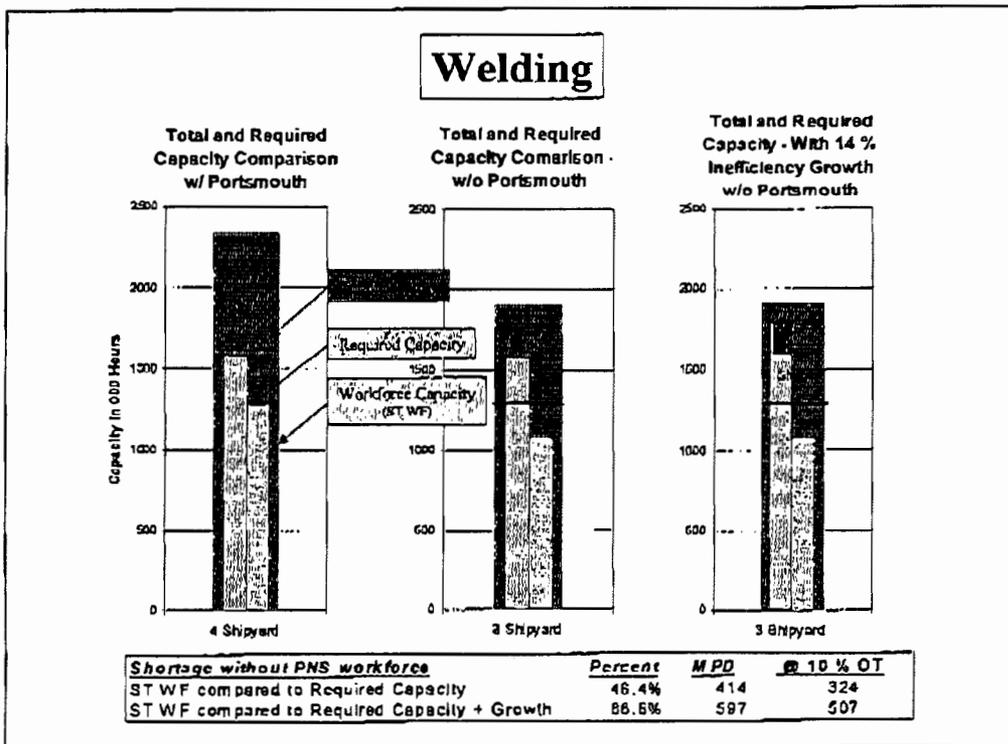
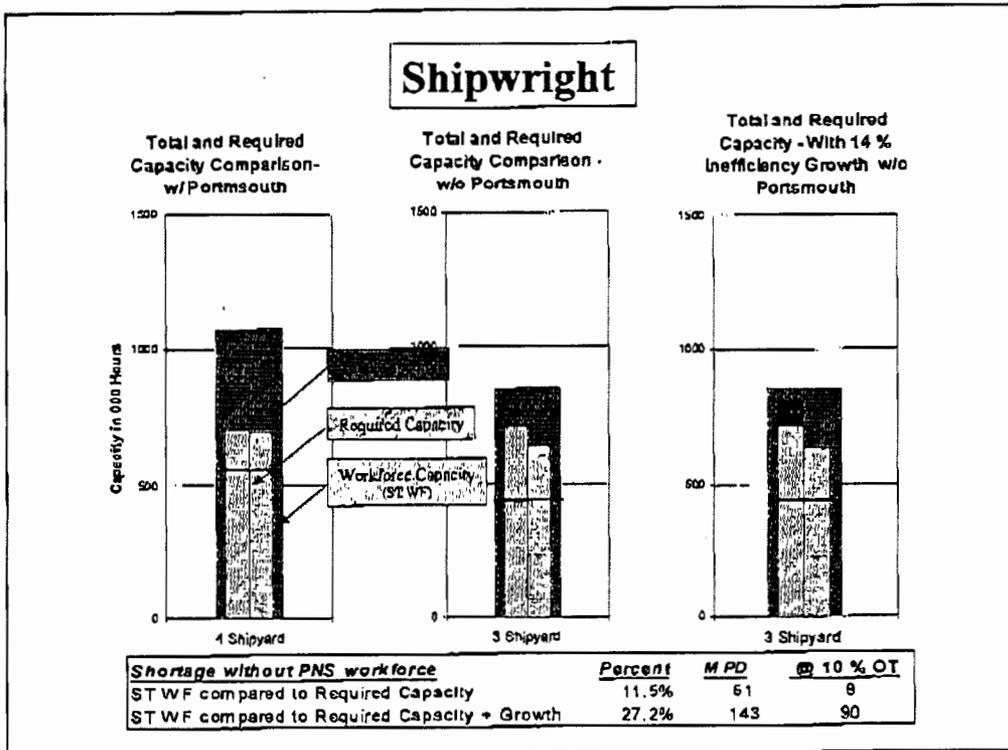
<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		43.1%	688	528
ST WF compared to Required Capacity + Growth		63.1%	1008	848

### Paint



<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		75.3%	557	483
ST WF compared to Required Capacity + Growth		99.8%	738	664





The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

---

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

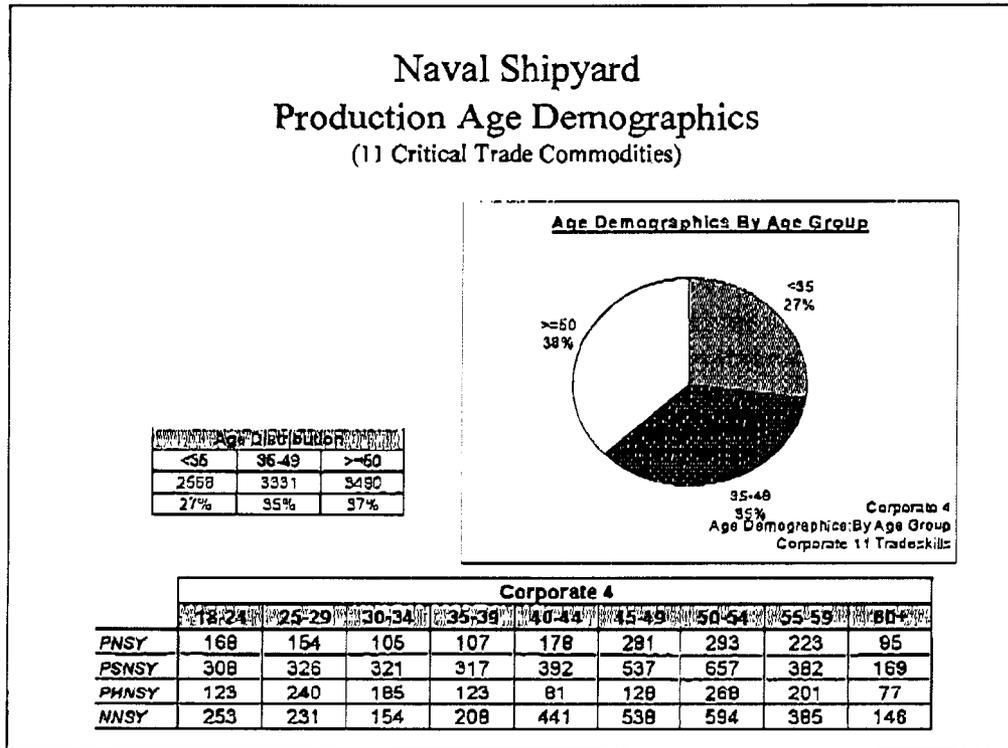
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .  
//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-6116

57 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-6019

209 MAIN STREET, SUITE 103  
SACCO, ME 04072  
(207) 283-8064

<http://tomallen.house.gov>



Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

COMMITTEE ON THE BUDGET  
COMMITTEE ON  
ENERGY AND COMMERCE  
SUBCOMMITTEES:  
HEALTH  
ENERGY AND AIR QUALITY  
ENVIRONMENT AND HAZARDOUS MATERIALS  
HOUSE OCEANS CAUCUS  
Co-CHAIR  
AFFORDABLE MEDICINES TASK FORCE  
Co-CHAIR

FAX COVER

DATE: 7-22-2005  
TO: BRAC COMMISSION 703-699-2735  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14

MESSAGE:

ENCLOSURE

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

The Honorable James H. Bilbray  
BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Commissioner Bilbray:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>6</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>7</sup>. If replicating this culture at other shipyards were easy, it would have

<sup>6</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

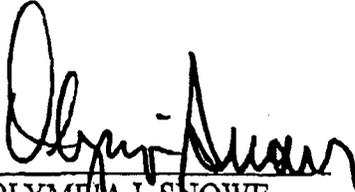
<sup>7</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,

  
OLYMPIA J. SNOWE  
United States Senator

  
TODD GREGG  
United States Senator

  
SUSAN M. COLLINS  
United States Senator

  
JOHN E. SUNUNU  
United States Senator

  
JEE BRADLEY  
United States Representative

  
THOMAS H. ALLEN  
United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull.... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 67)

<sup>2</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 66)

<sup>3</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 64)

<sup>4</sup> NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup> PNS assessment of workload distribution between Backshops and Drydocks

We have created "thermometer graphs" to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05). Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity's capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don't man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

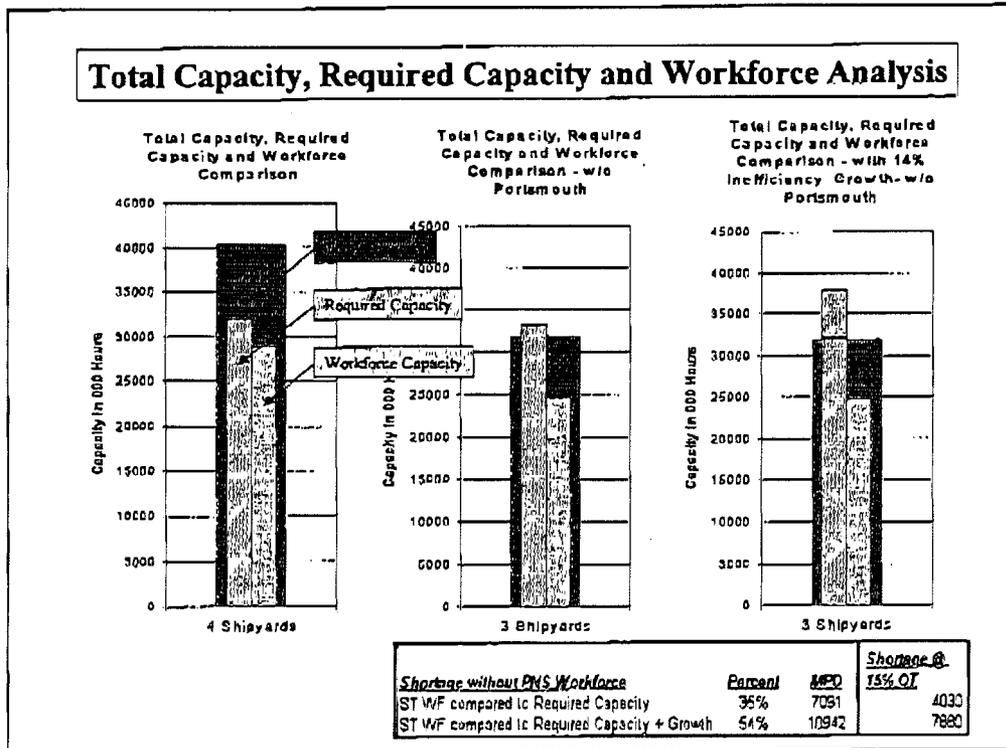
<sup>7</sup> Naval Shipyard Available Force Data (Avg. Oct 04 – Feb 05); found in [www.nde.navy.mil](http://www.nde.navy.mil), then go to WEBWARR, workforce, and use available force data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity +14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

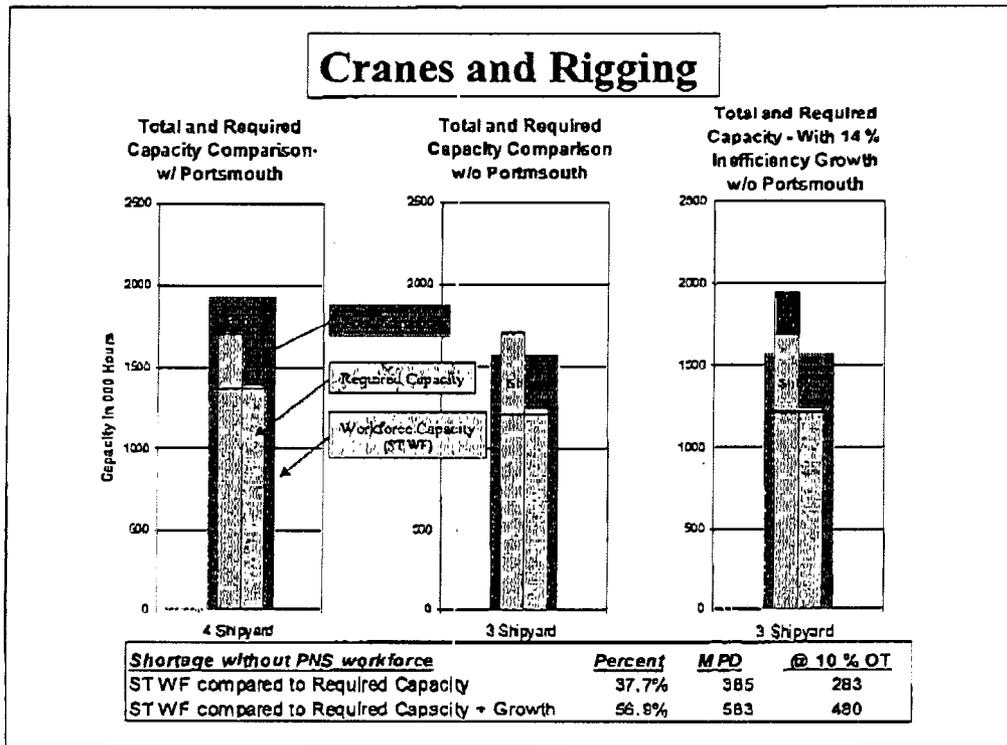
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are “thermometer graphs” for 11 of Navy’s most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

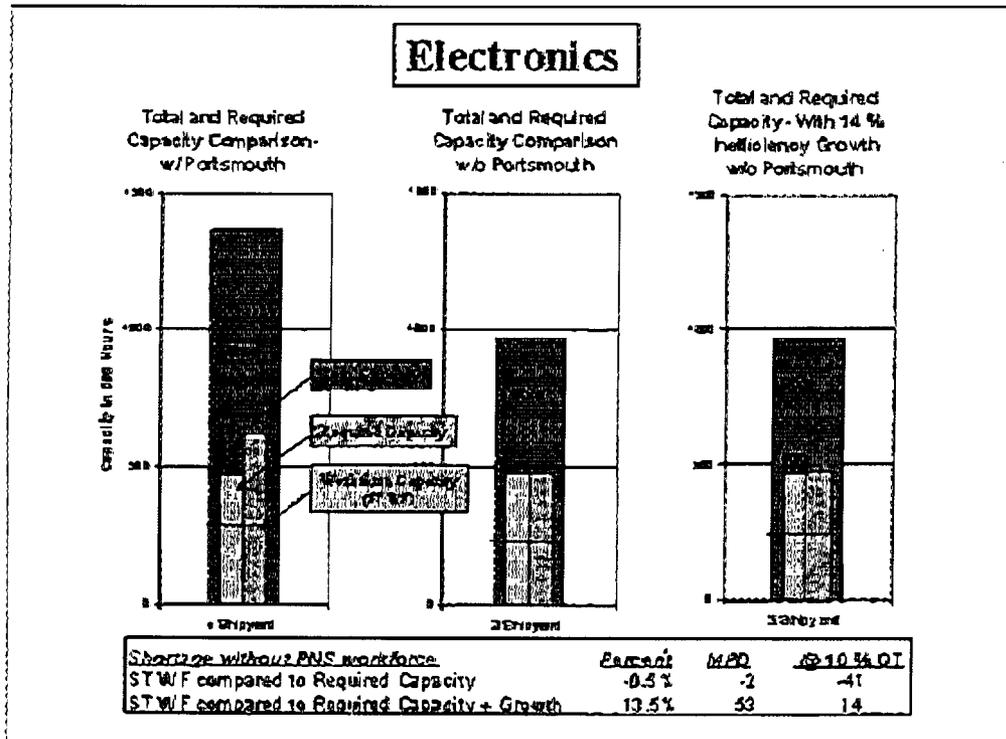
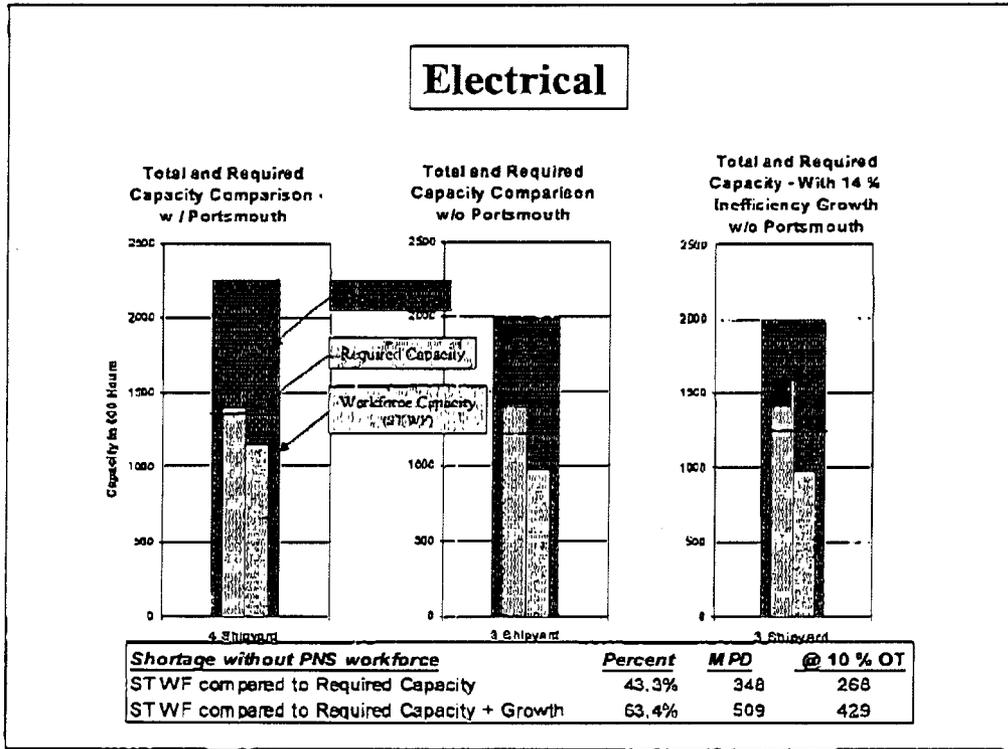
<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

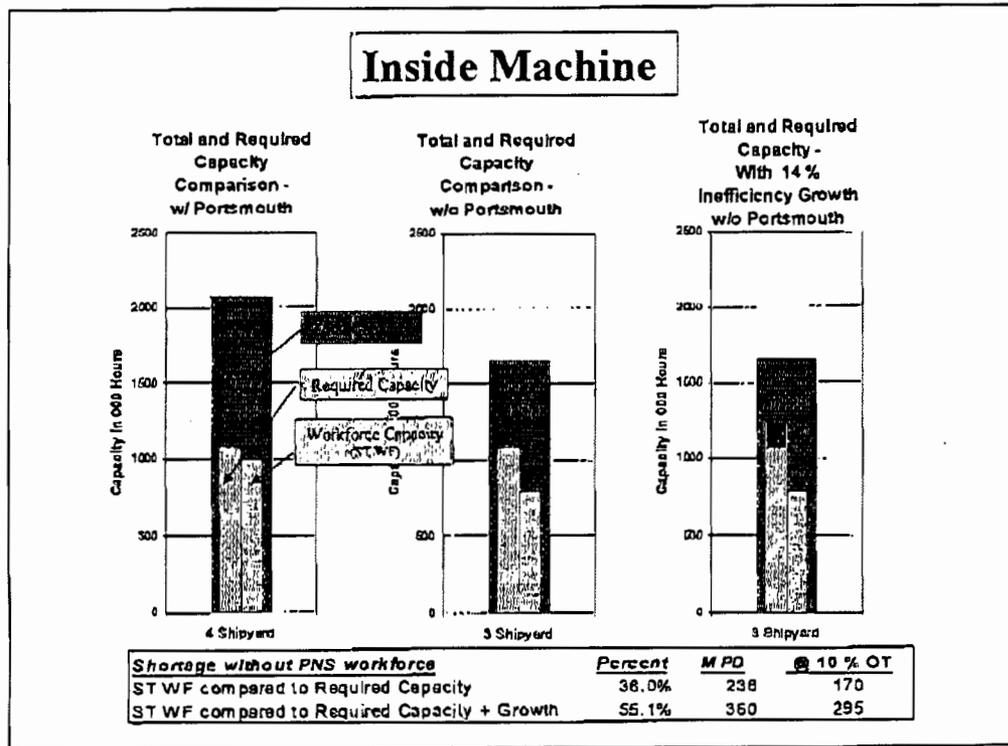
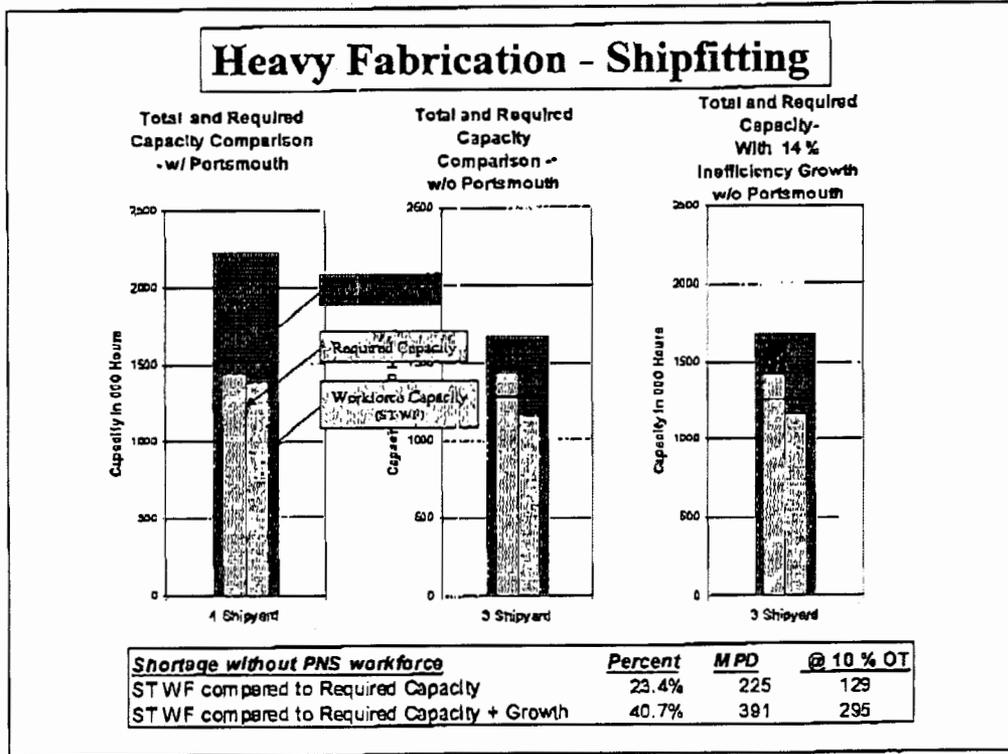
<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

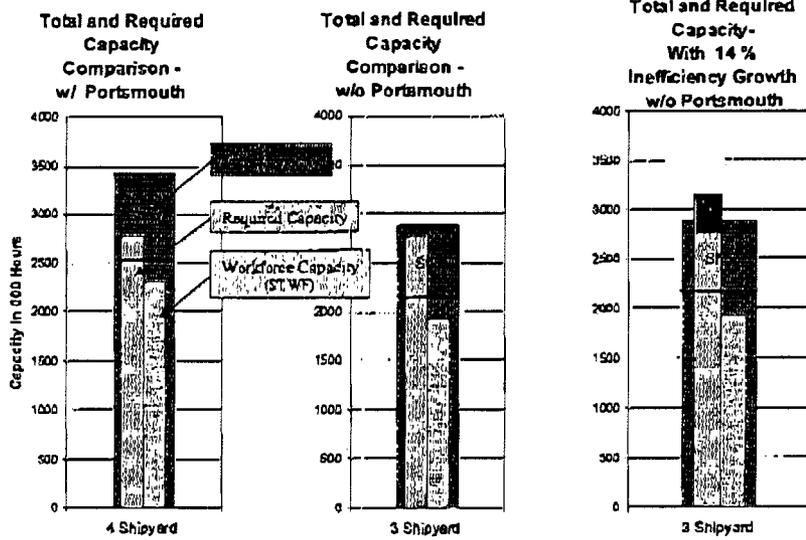
<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.



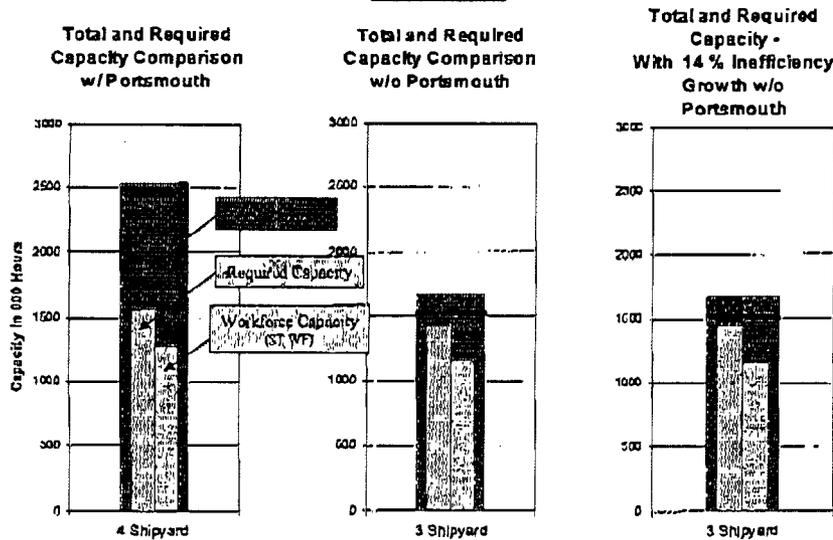


### Marine (Outside) Machinist

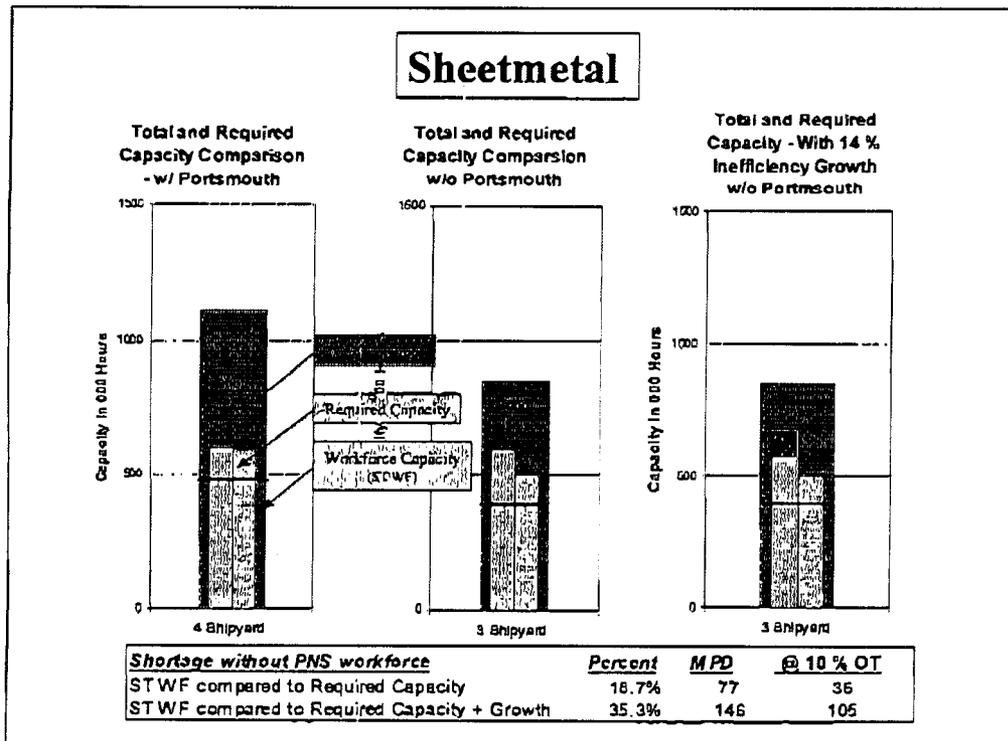
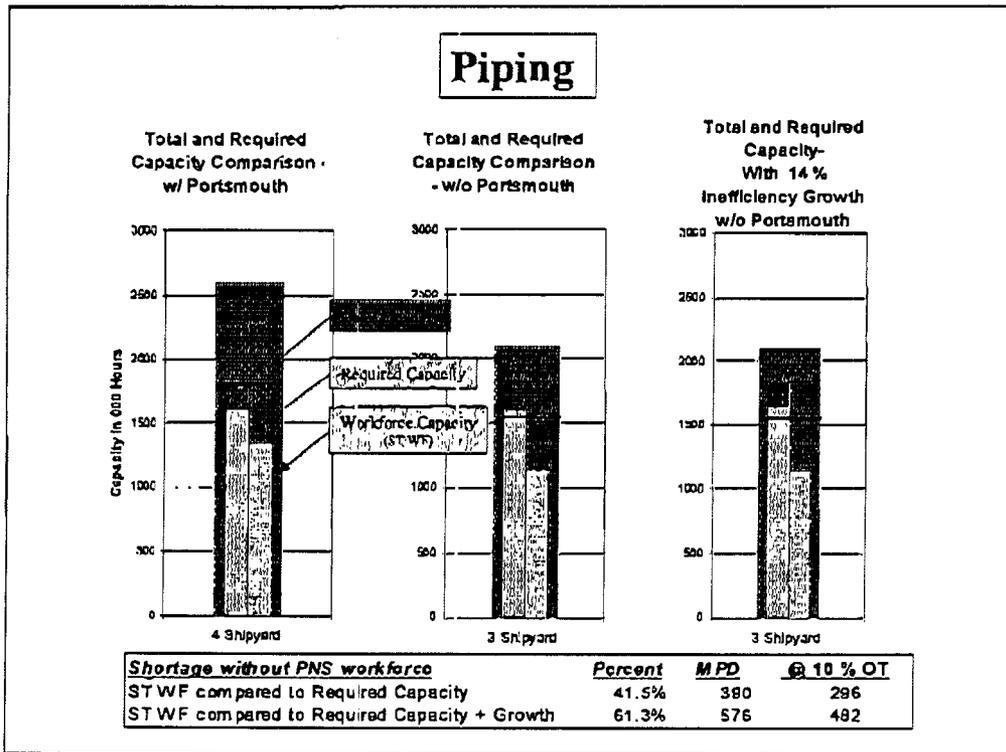


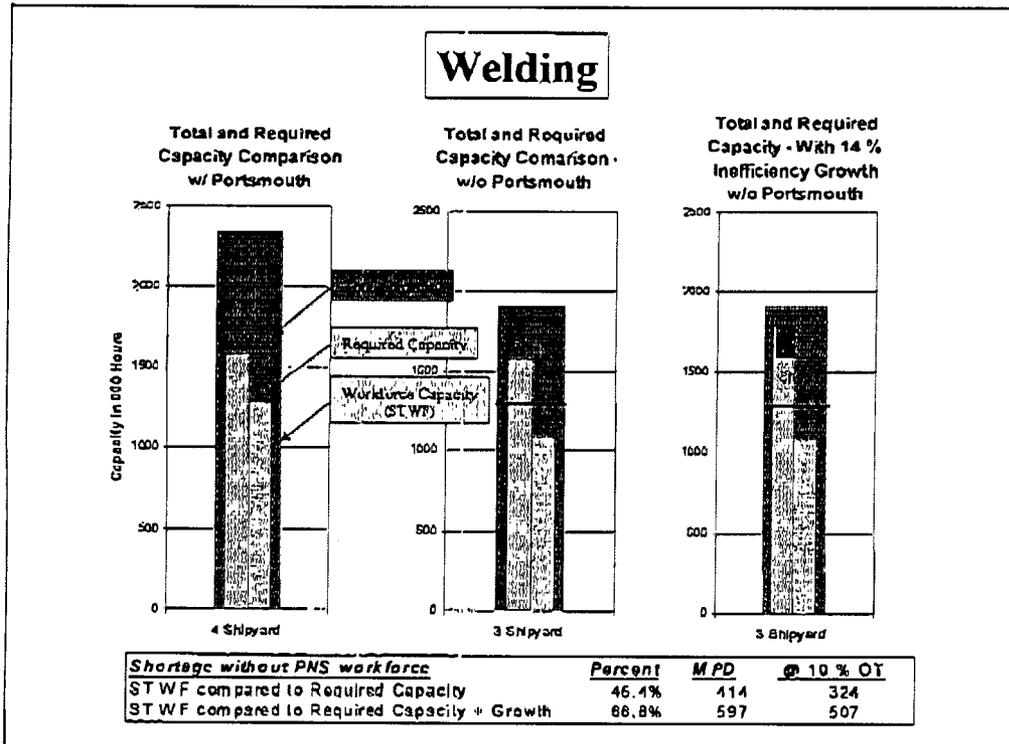
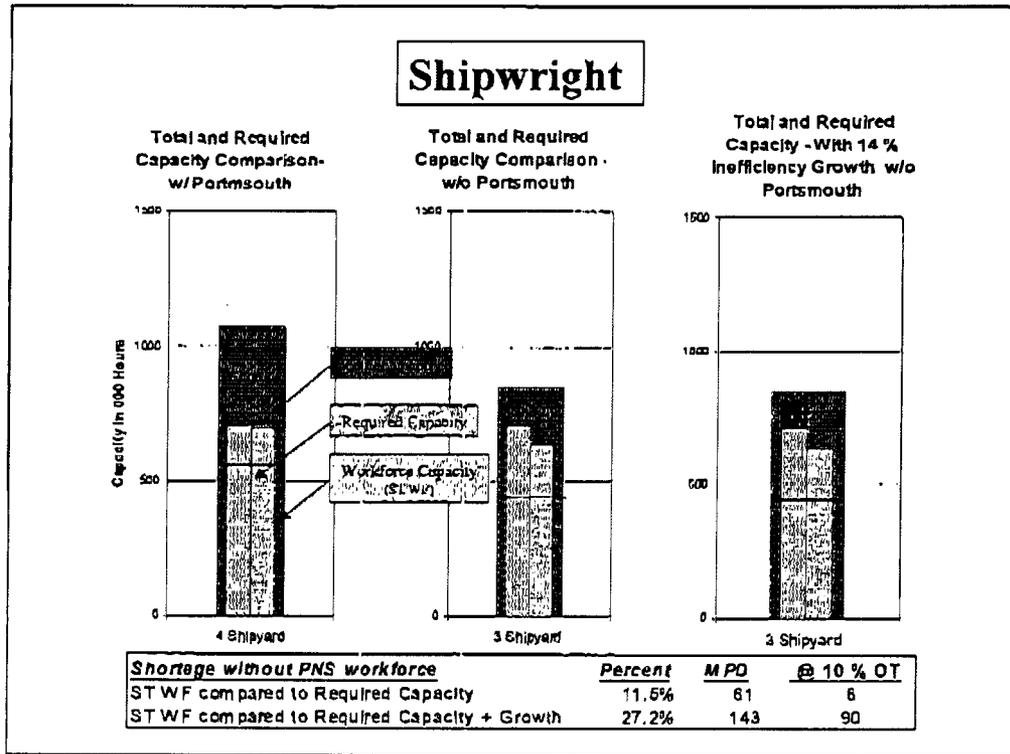
<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		43.1%	688	528
ST WF compared to Required Capacity + Growth		63.1%	1008	848

### Paint



<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		75.3%	557	483
ST WF compared to Required Capacity + Growth		99.8%	738	664





The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

---

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

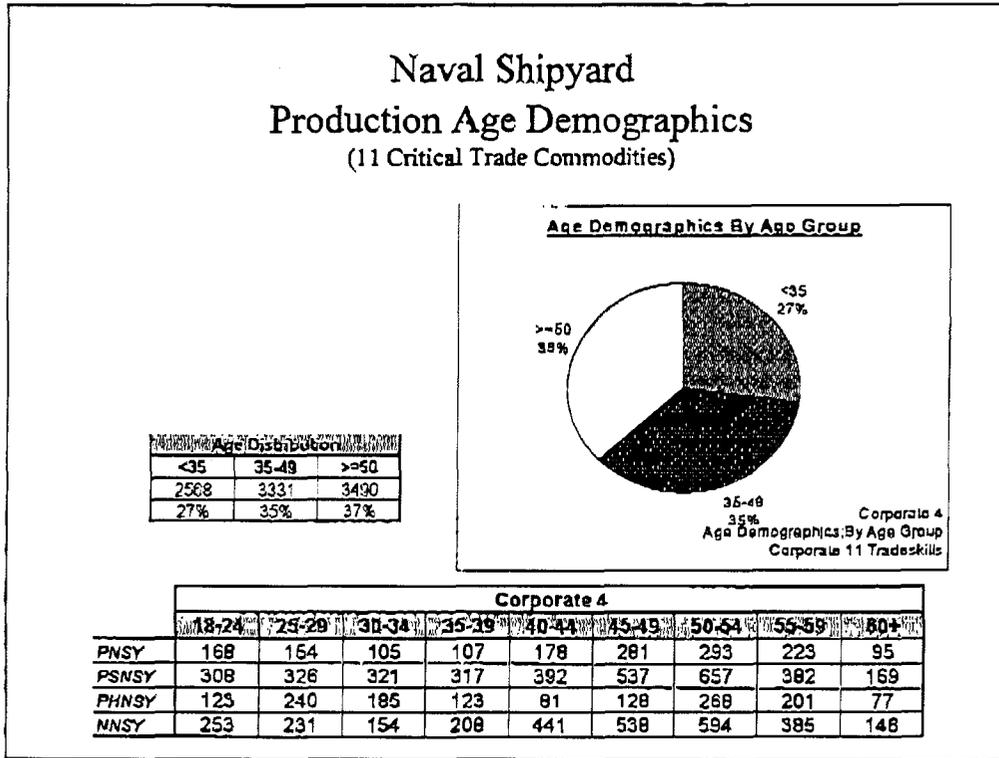
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .  
//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE



COMMITTEE ON THE BUDGET  
COMMITTEE ON  
ENERGY AND COMMERCE  
SUBCOMMITTEES:  
HEALTH  
ENERGY AND AIR QUALITY  
ENVIRONMENT AND HAZARDOUS MATERIALS  
HOUSE OCEANS CAUCUS  
CO-CHAIR  
AFFORDABLE MEDICINES TASK FORCE  
CO-CHAIR

5

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-6118  
57 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-5019  
209 MAIN STREET, SUITE 103  
SACO, ME 04072  
(207) 283-8054

Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

http://tomallen.house.gov

FAX COVER

DATE: 7-22-2005  
TO: BRAC COMMISSION  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14  
MESSAGE:

703-699-2735

ENCLOSURE

---

---

---

---

---

---

---

---

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

Mr. Philip E. Coyle  
BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Commissioner Coyle:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>8</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>9</sup>. If replicating this culture at other shipyards were easy, it would have

<sup>8</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

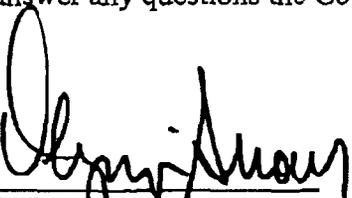
<sup>9</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,



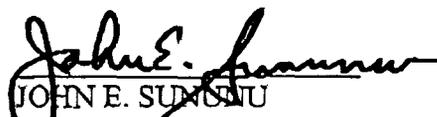
OLYMPIA J. SNOWE  
United States Senator



JUDD GREGG  
United States Senator



SUSAN M. COLLINS  
United States Senator



JOHN E. SUNUNU  
United States Senator



JEP BRADLEY  
United States Representative



THOMAS H. ALLEN  
United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 67)

<sup>2</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 66)

<sup>3</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 64)

<sup>4</sup> NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup> PNS assessment of workload distribution between Backshops and Drydocks

We have created "thermometer graphs" to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05. Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity's capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don't man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

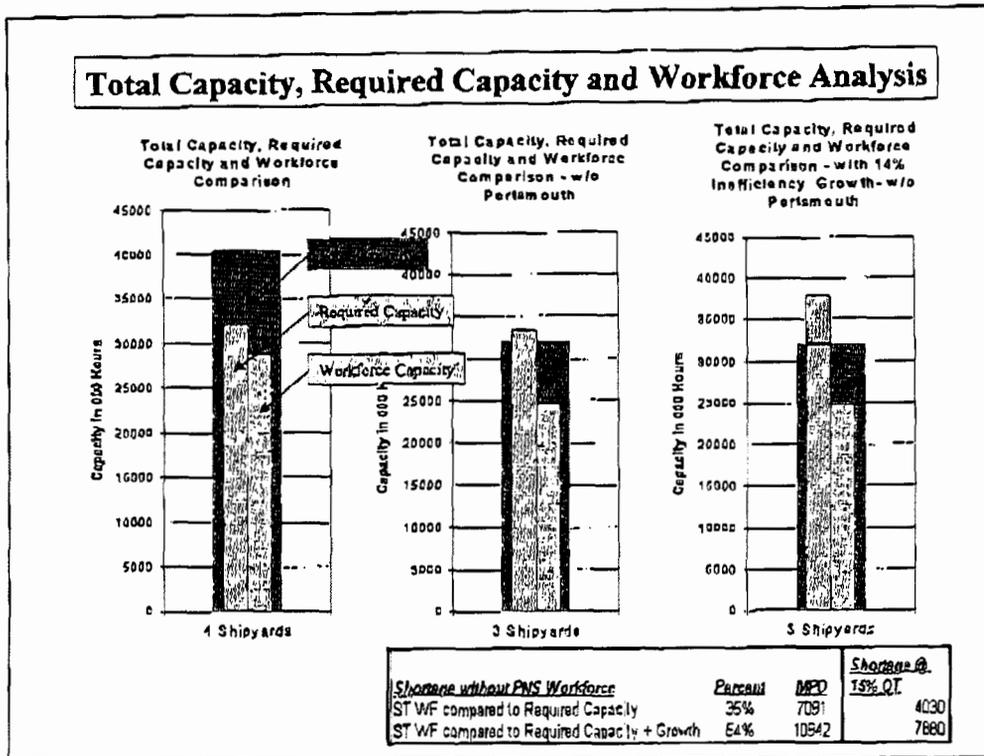
<sup>7</sup> Naval Shipyard Available Force Data (Avg. Oct 04 – Feb 05); found in [www.nde.navy.mil](http://www.nde.navy.mil), then go to WEBWARR, workforce, and use available force data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity +14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

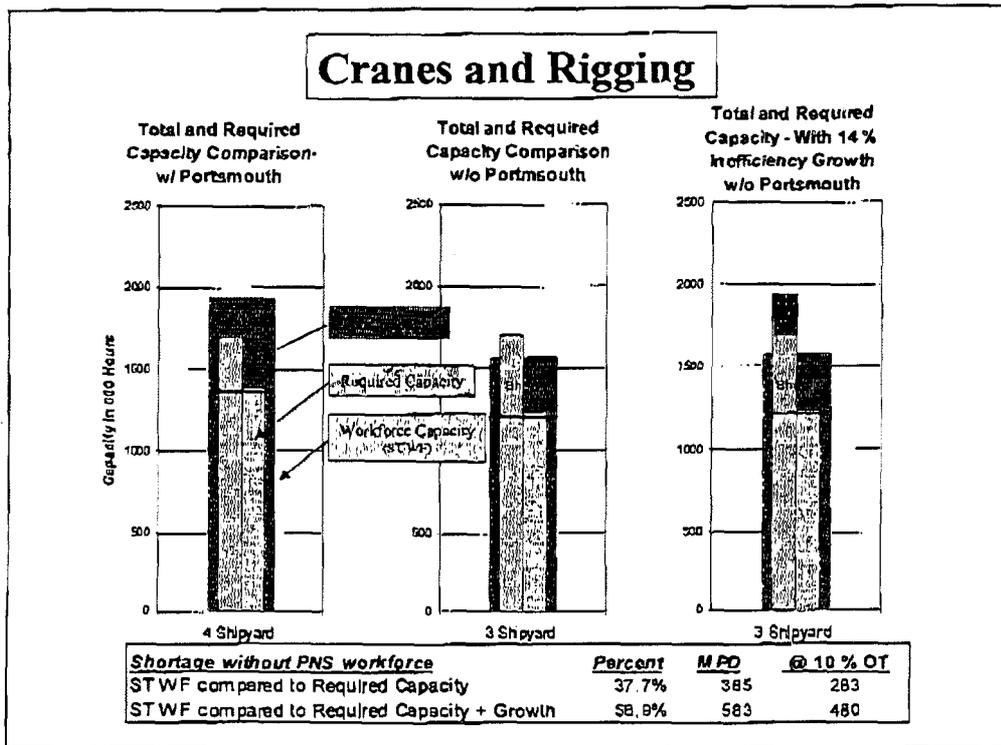
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are “thermometer graphs” for 11 of Navy’s most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

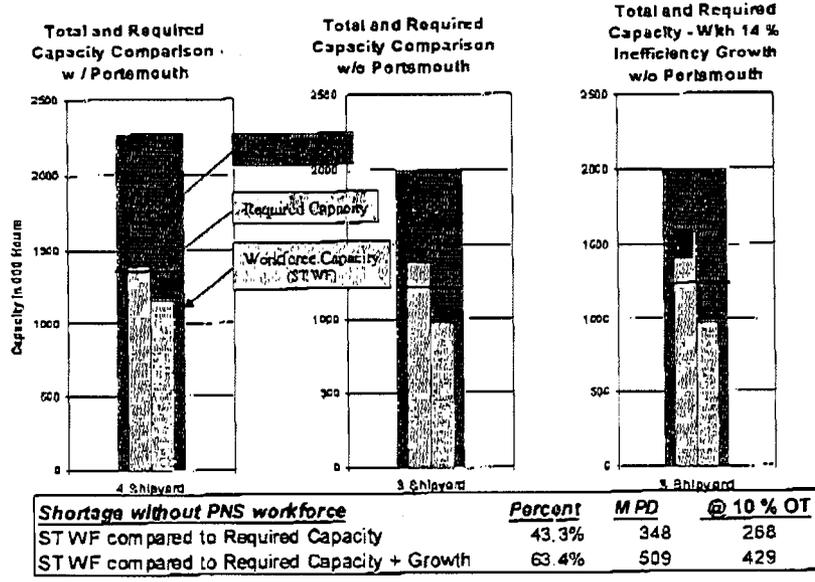
<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

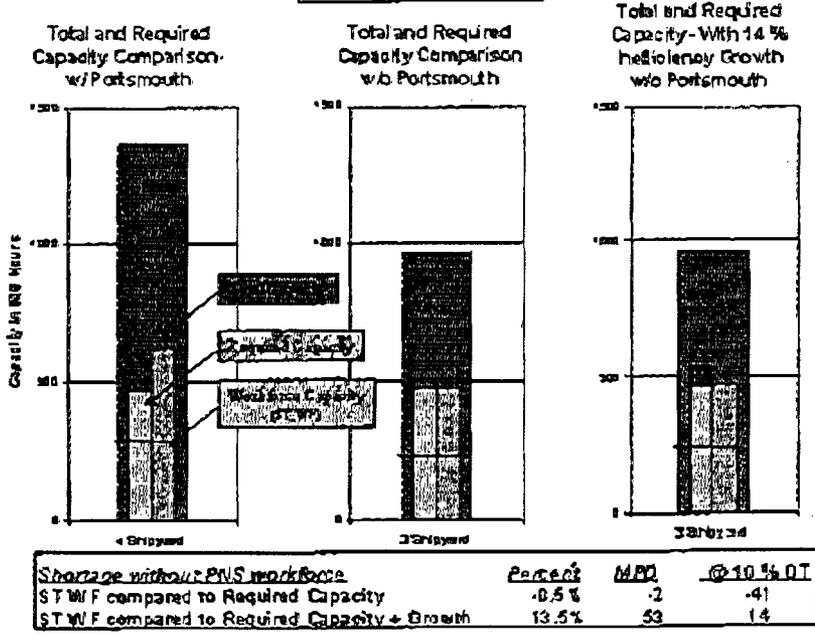
<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

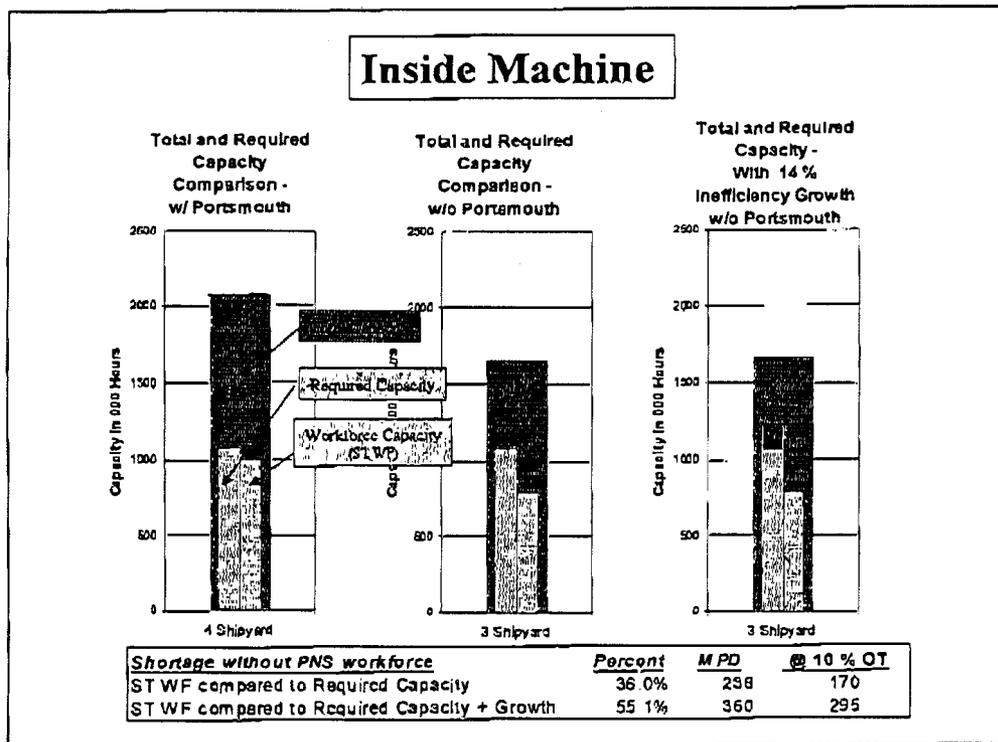
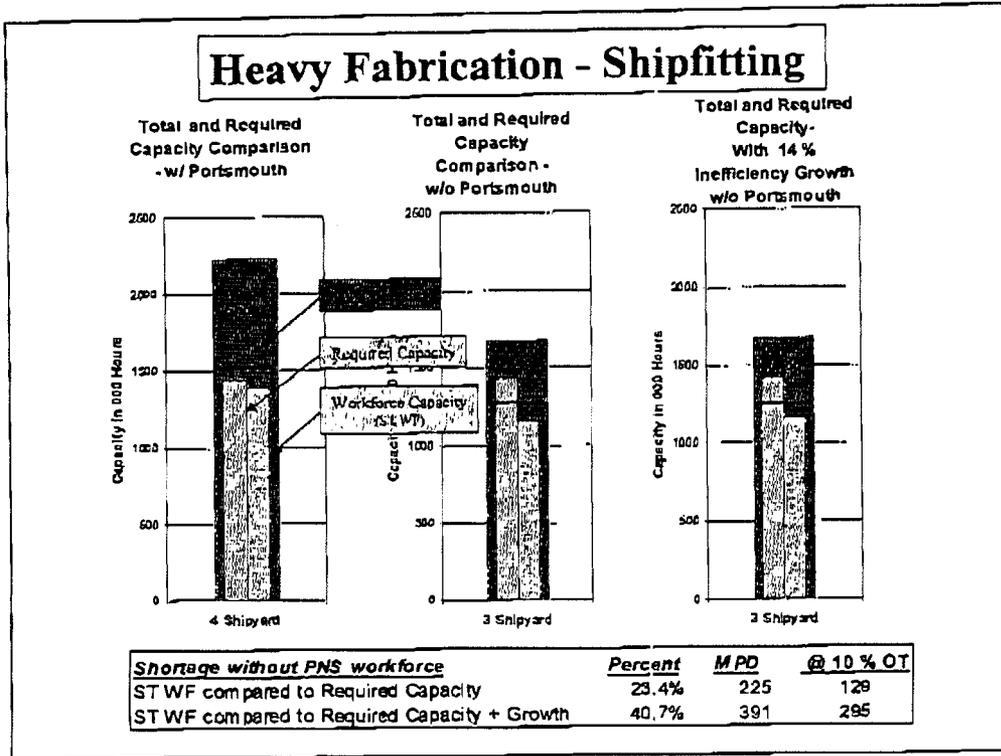
<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.

### Electrical

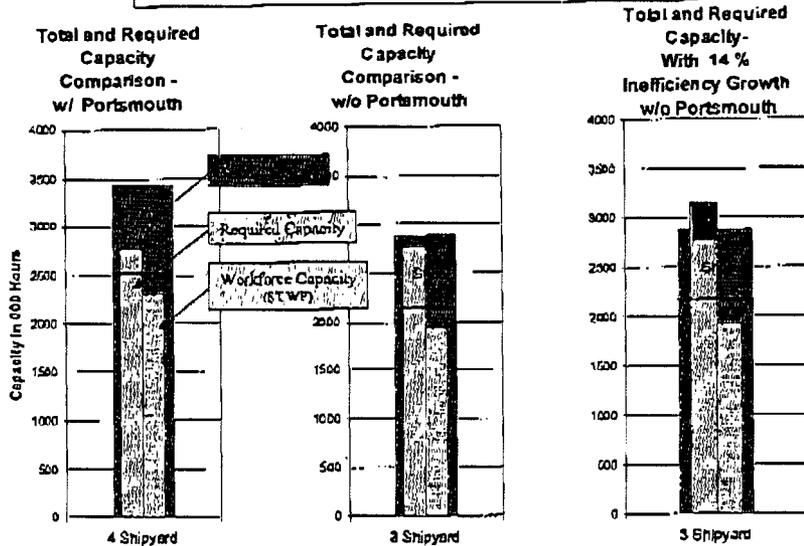


### Electronics



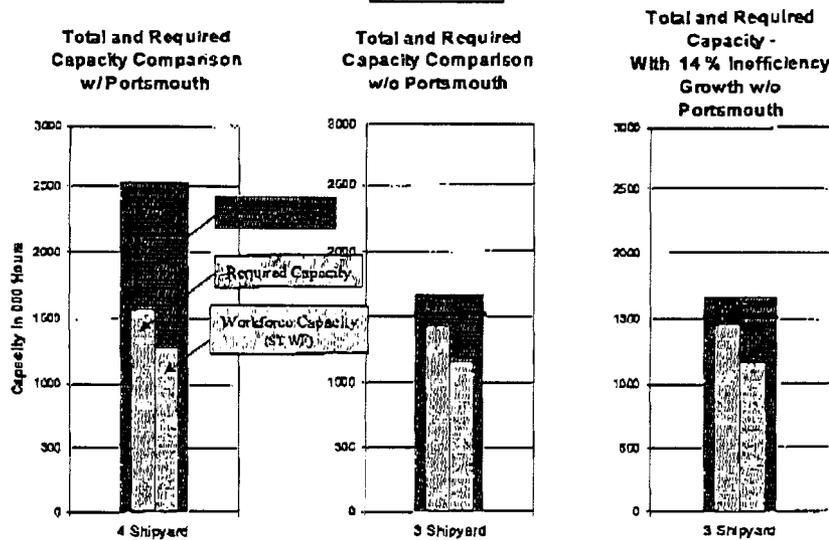


### Marine (Outside) Machinist

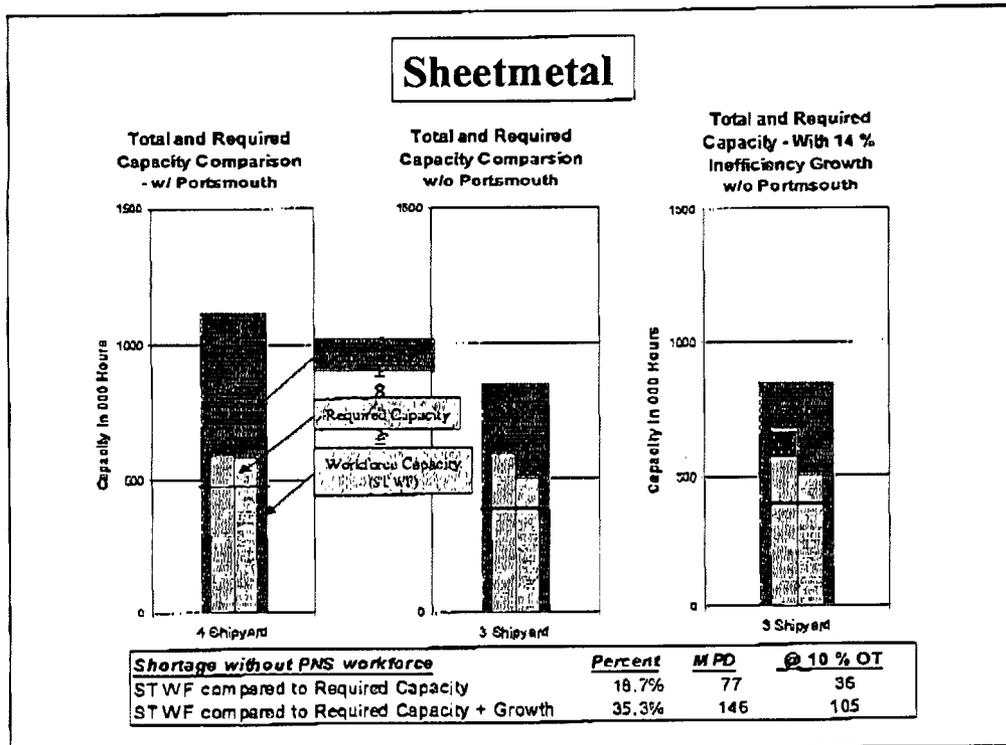
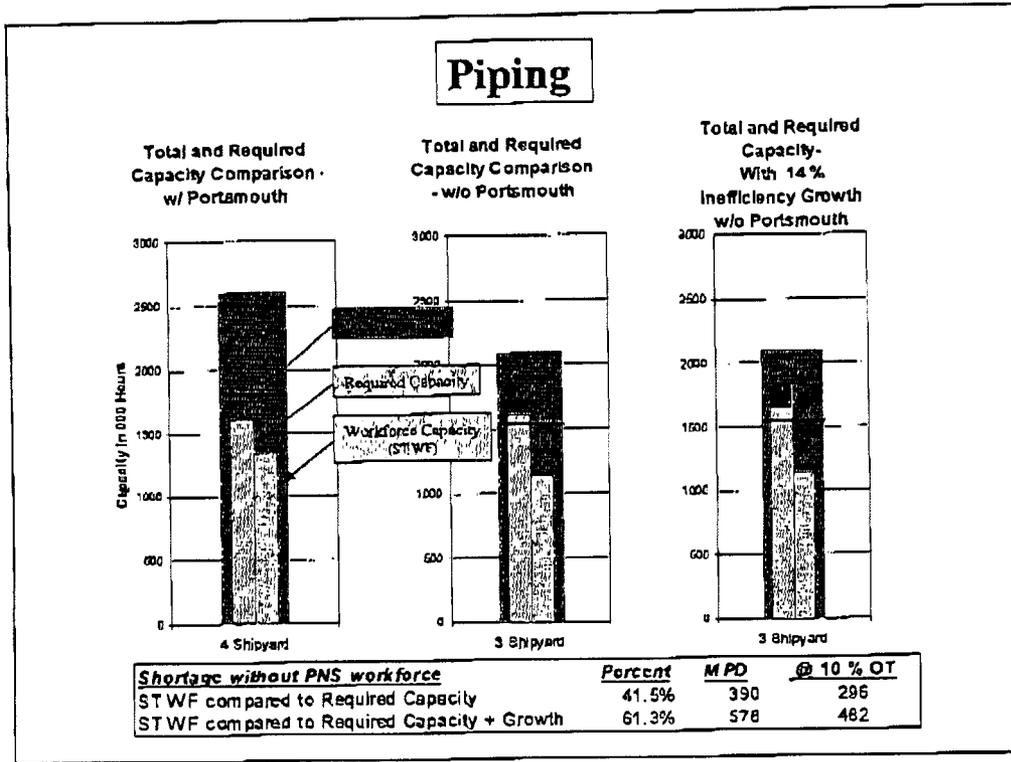


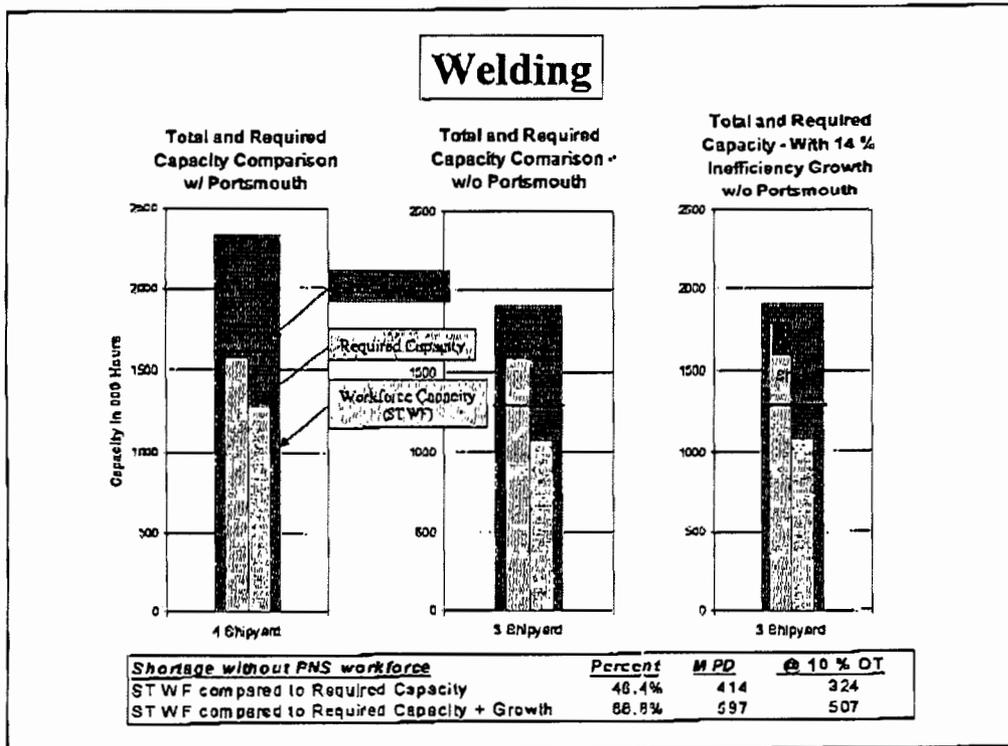
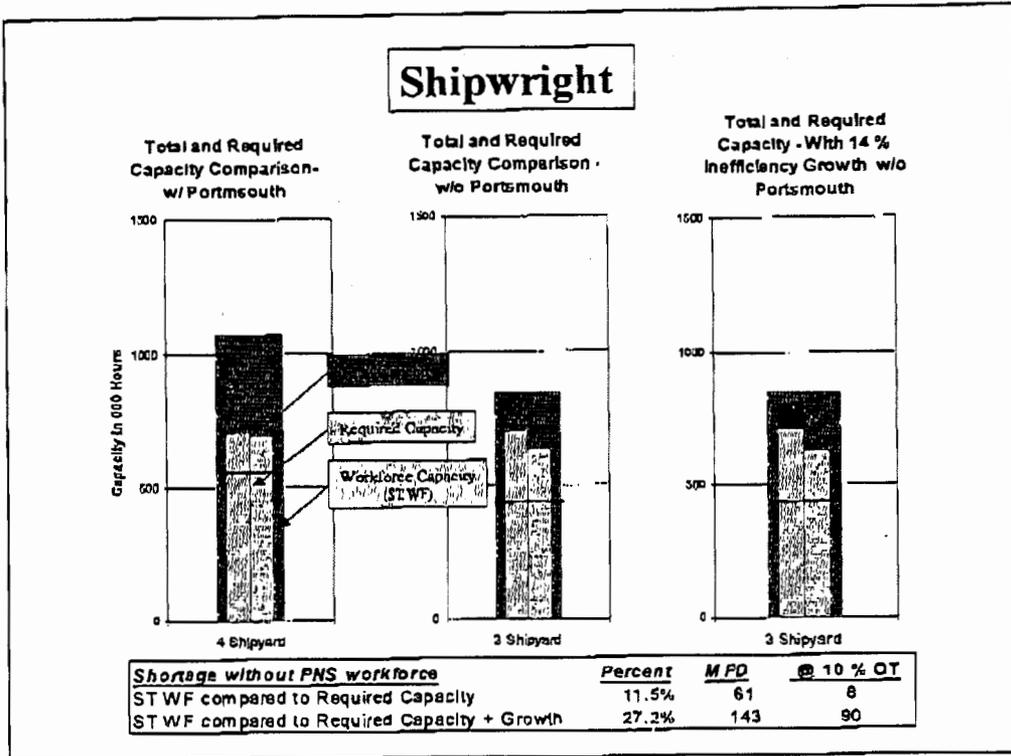
<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		43.1%	668	528
ST WF compared to Required Capacity + Growth		63.1%	1008	848

### Paint



<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		75.3%	557	483
ST WF compared to Required Capacity + Growth		99.8%	738	664





The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

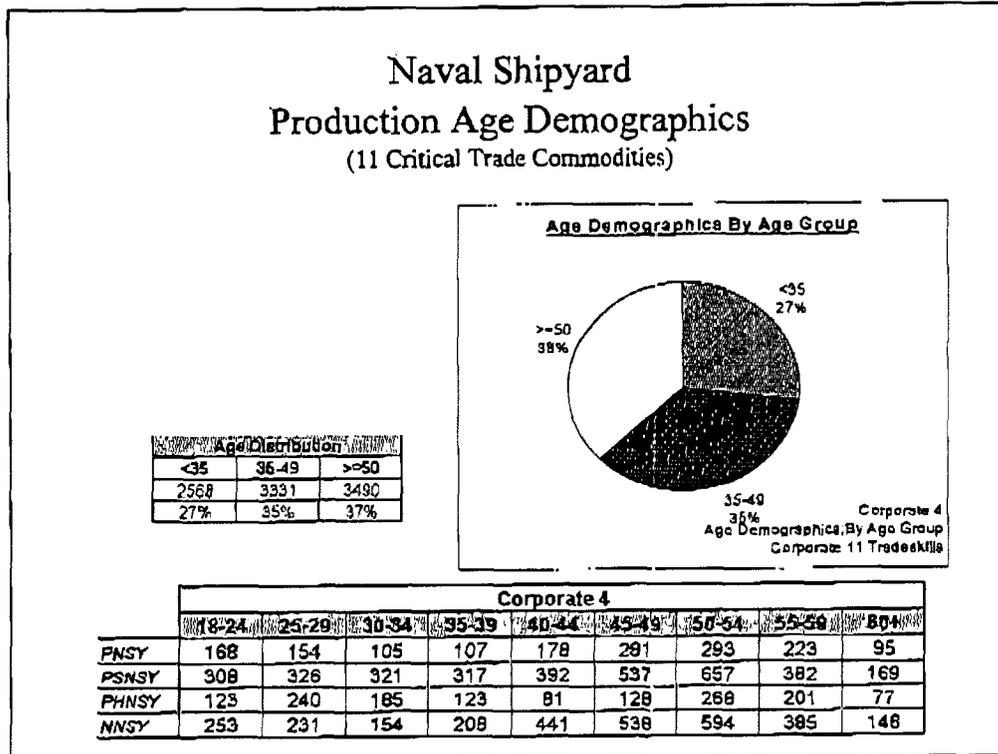
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .  
//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-6116

57 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-6019

209 MAIN STREET, SUITE 103  
SACO, ME 04072  
(207) 283-8064

<http://tomallen.house.gov>



Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

COMMITTEE ON THE BUDGET  
COMMITTEE ON  
ENERGY AND COMMERCE (2)  
SUBCOMMITTEES:  
HEALTH  
ENERGY AND AIR QUALITY  
ENVIRONMENT AND HAZARDOUS MATERIALS  
HOUSE OCEANS CAUCUS  
CO-CHAIR  
AFFORDABLE MEDICINES TASK FORCE  
CO-CHAIR

FAX COVER

DATE: 7-22-2005  
TO: BRAC COMMISSION  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14

703-699-2735

MESSAGE:

ENCLOSURE

---

---

---

---

---

---

---

---

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

General Lloyd Newton  
BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Commissioner Newton:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>16</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>17</sup>. If replicating this culture at other shipyards were easy, it would have

<sup>16</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

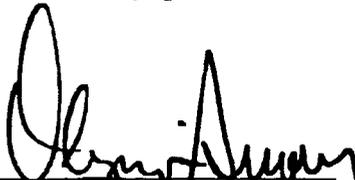
<sup>17</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,

  
OLYMPIA J. SNOWE  
United States Senator

  
TODD GREGG  
United States Senator

  
SUSAN M. COLLINS  
United States Senator

  
JOHN E. SUNUNU  
United States Senator

  
JEB BRADLEY  
United States Representative

  
THOMAS H. ALLEN  
United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull.... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 67)

<sup>2</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 66)

<sup>3</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 64)

<sup>4</sup> NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup> PNS assessment of workload distribution between Backshops and Drydocks

We have created "thermometer graphs" to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05). Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity's capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don't man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

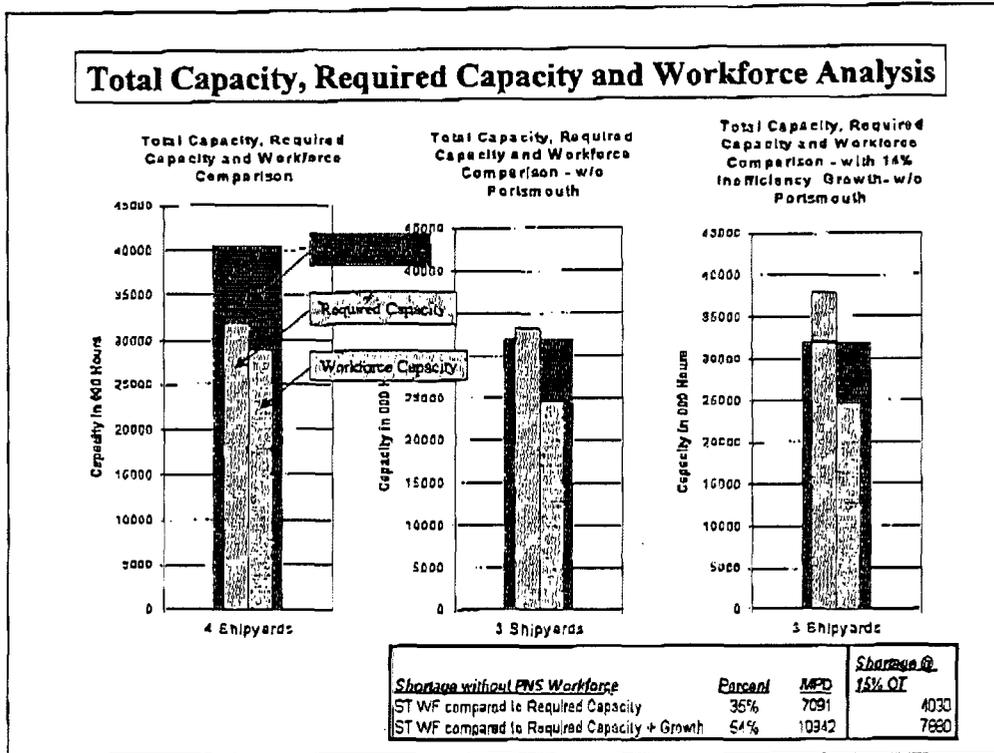
<sup>7</sup> Naval Shipyard Available Force Data (Avg. Oct 04 – Feb 05); found in [www.nde.navy.mil](http://www.nde.navy.mil), then go to WEBWARR, workforce, and use available force data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity +14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

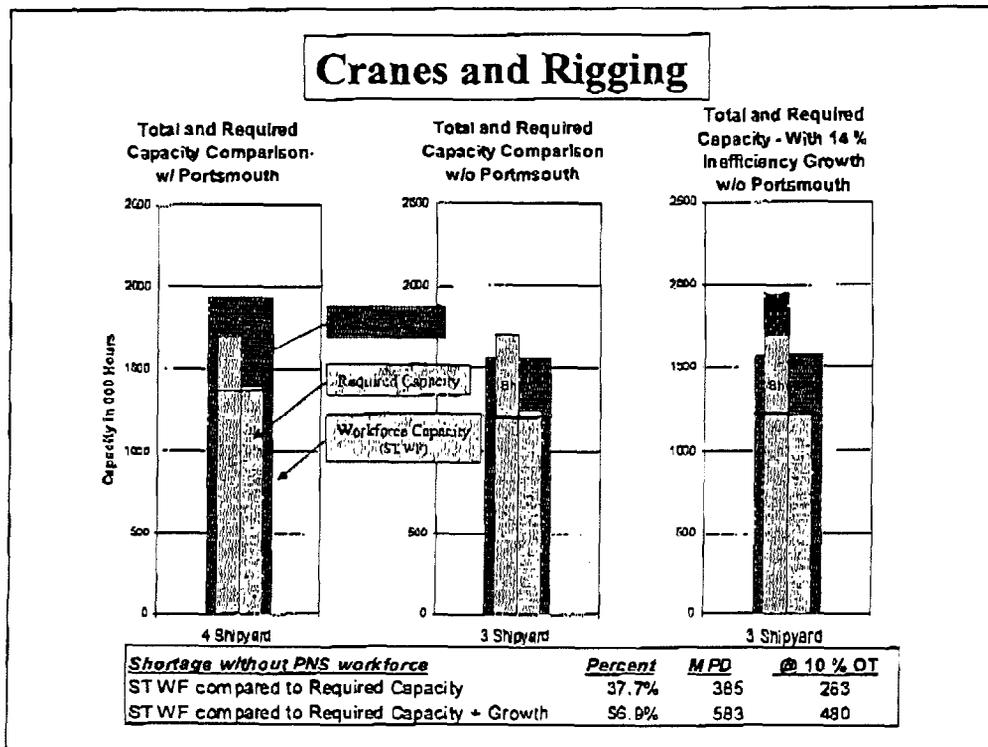
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are "thermometer graphs" for 11 of Navy's most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

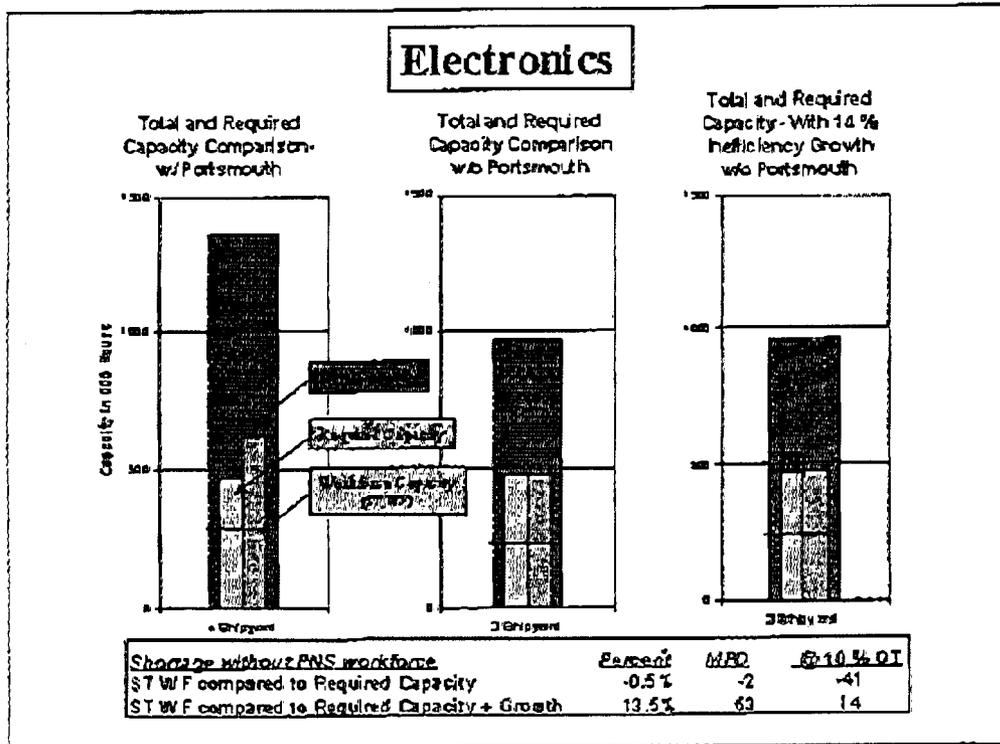
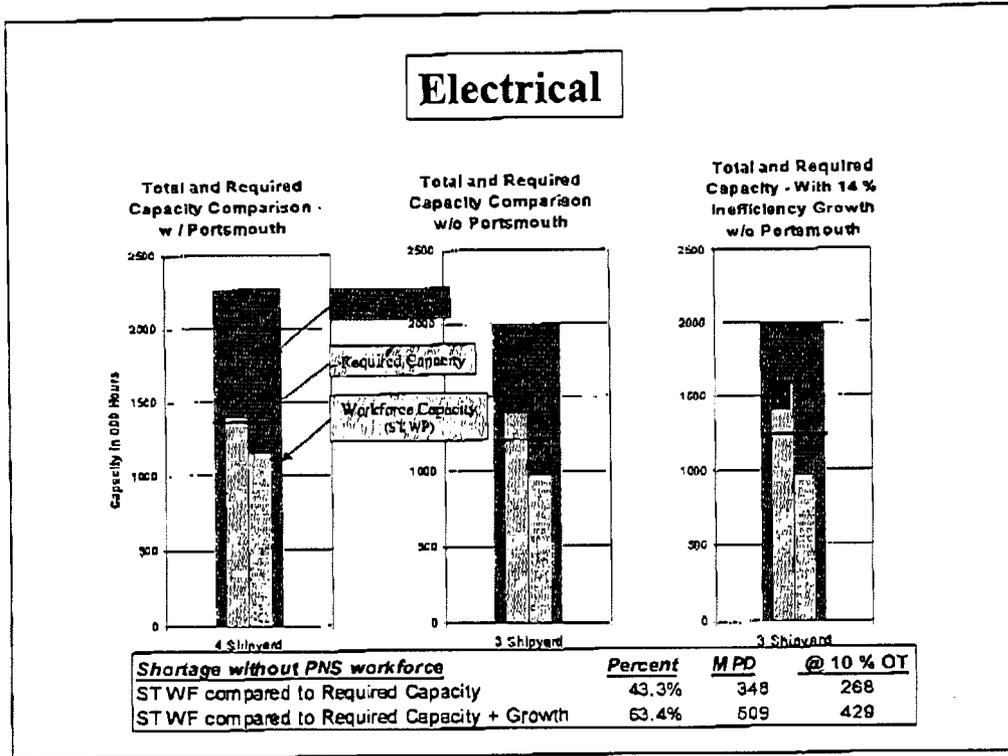
<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of "workforce" and compare current start/complete dates to notional duration

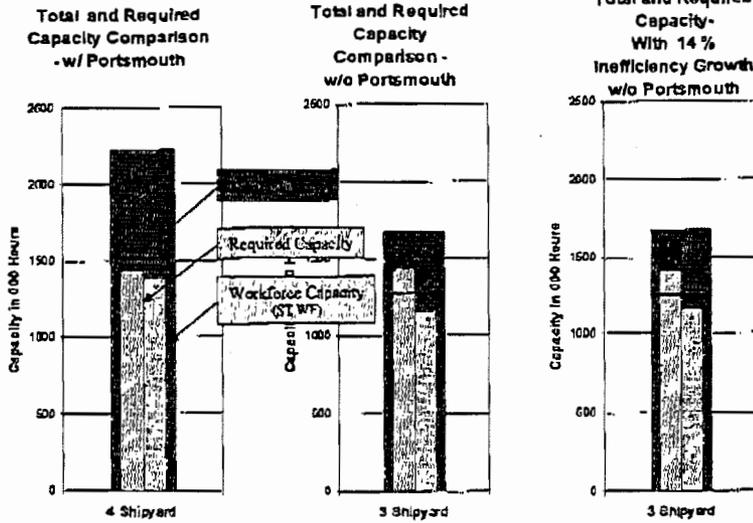
<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of "workforce" and compare current start/complete dates to notional duration

<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.

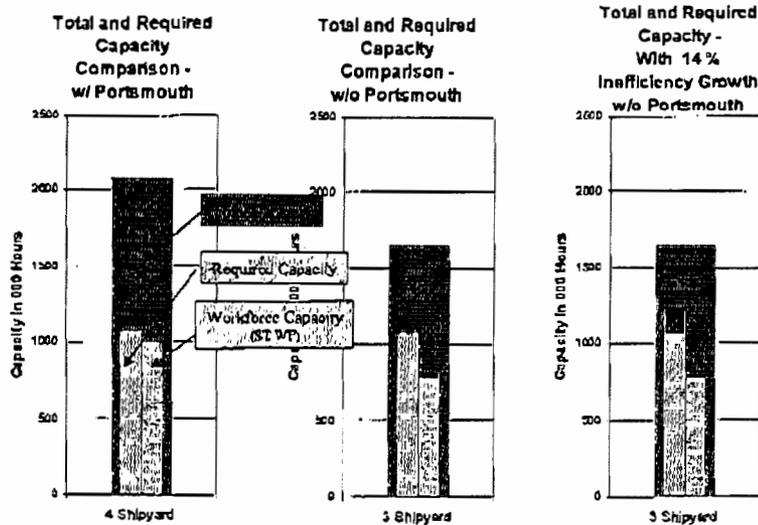


### Heavy Fabrication - Shipfitting

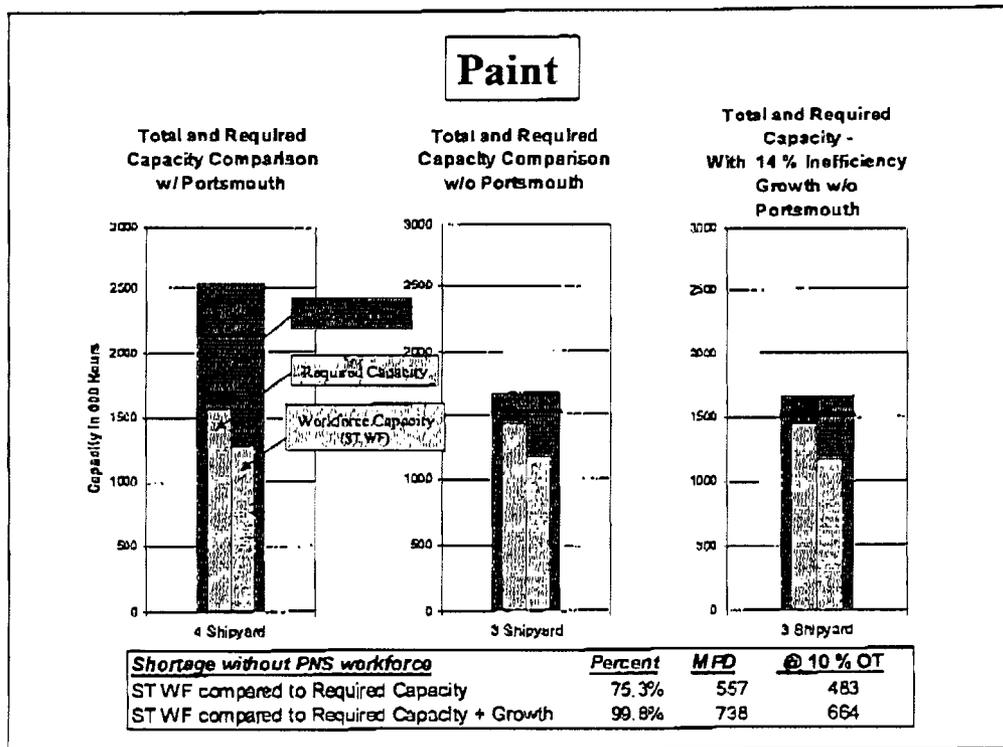
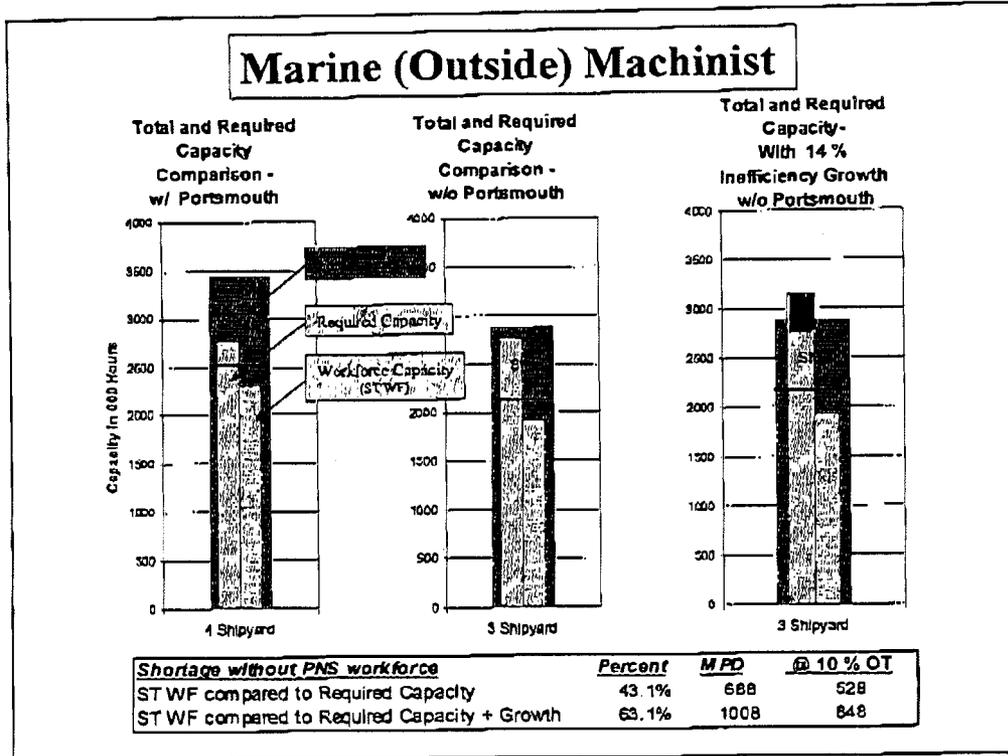


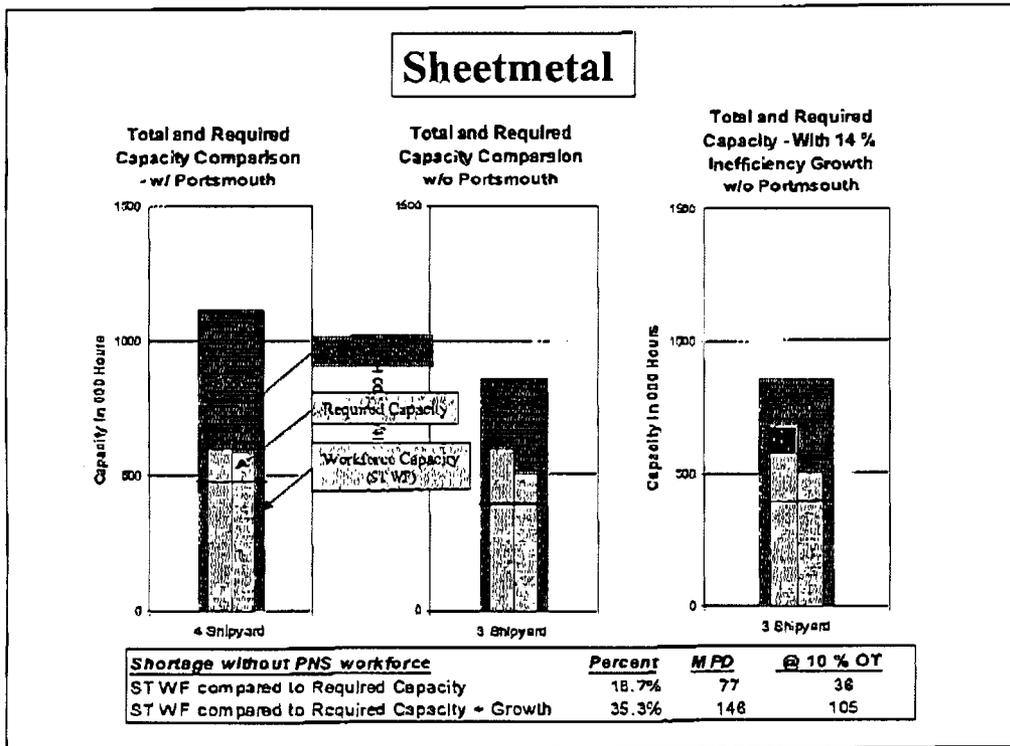
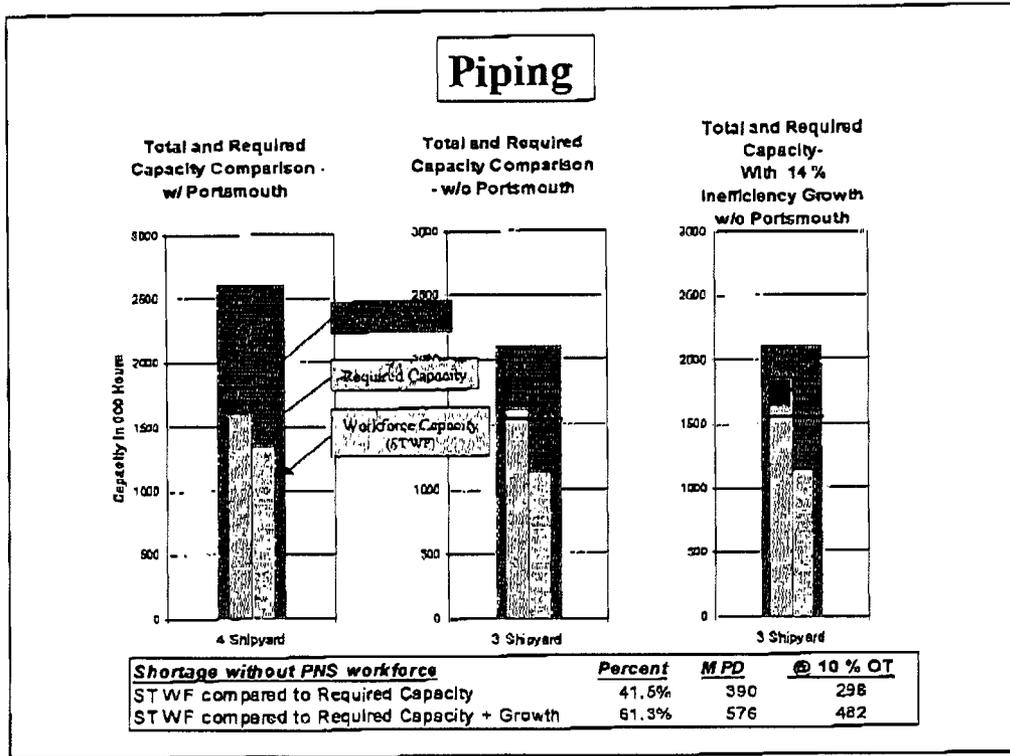
<i>Shortage without PNS workforce</i>		<i>Percent</i>	<i>MPD</i>	<i>@ 10 % OT</i>
ST WF compared to Required Capacity		23.4%	225	129
ST WF compared to Required Capacity + Growth		40.7%	391	295

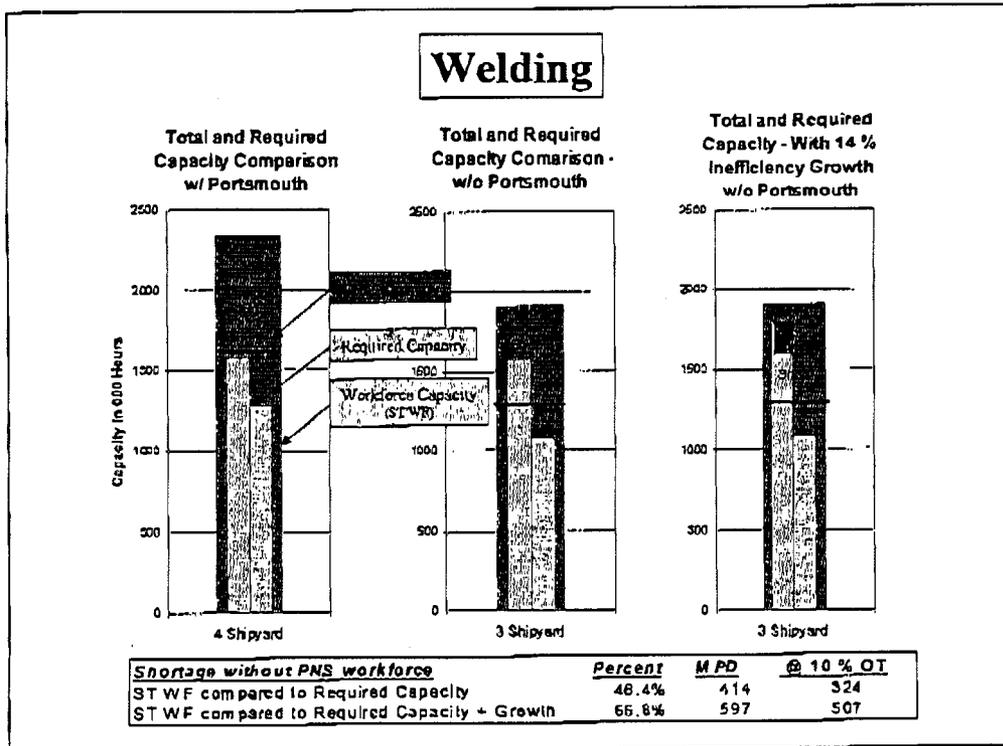
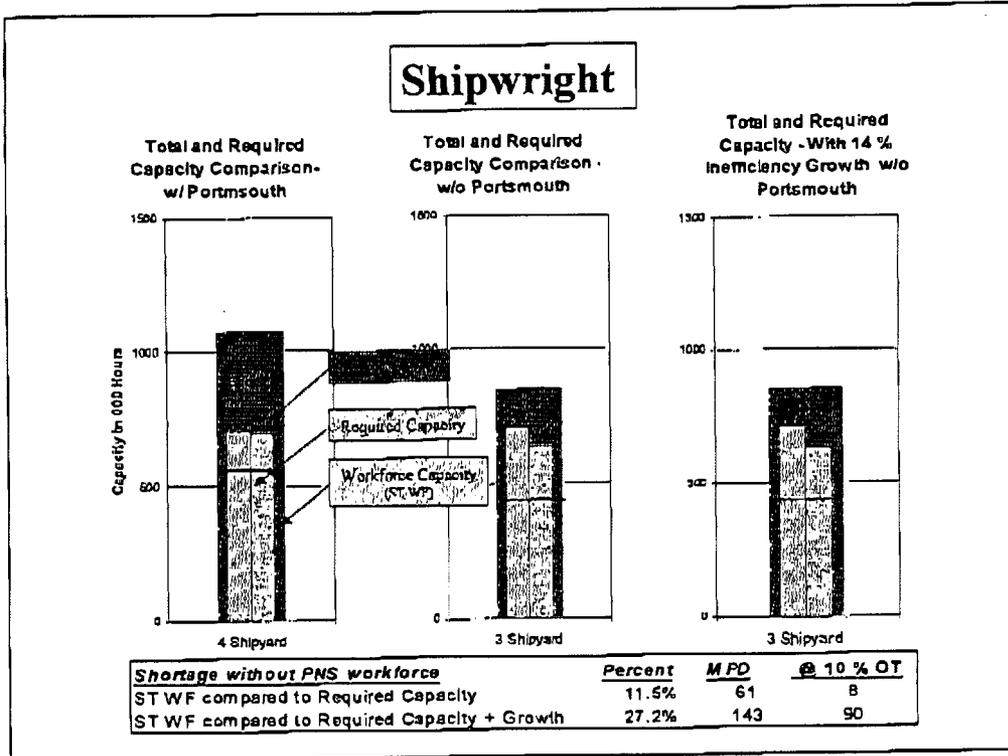
### Inside Machine



<i>Shortage without PNS workforce</i>		<i>Percent</i>	<i>MPD</i>	<i>@ 10 % OT</i>
ST WF compared to Required Capacity		36.0%	236	170
ST WF compared to Required Capacity + Growth		55.1%	360	295







The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

---

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

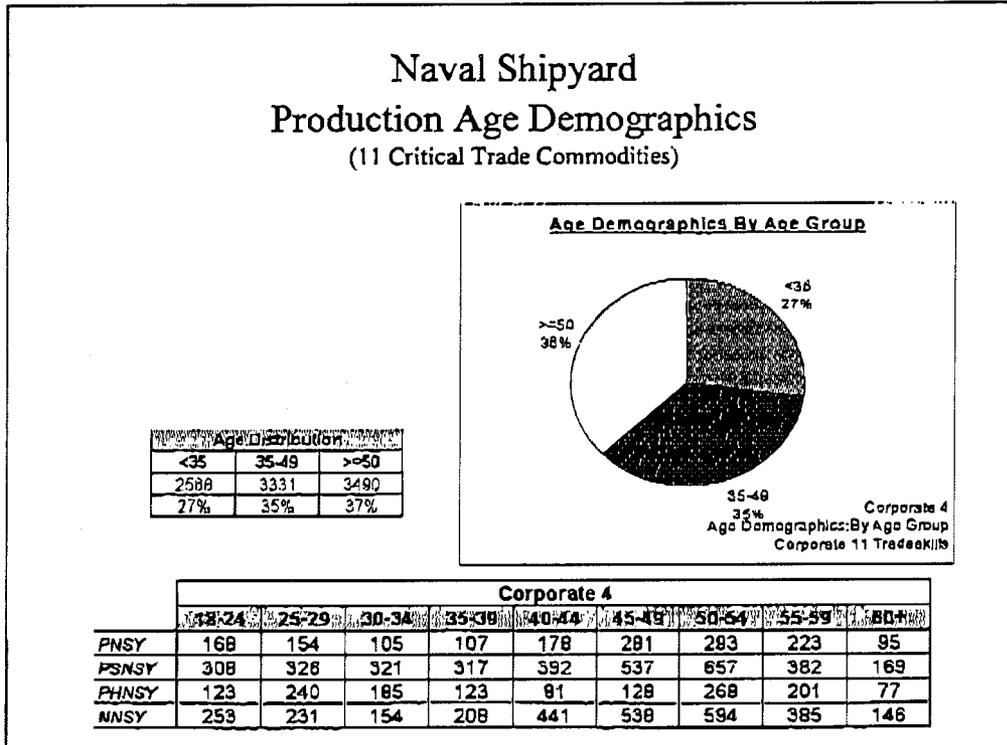
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .  
//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20516  
(202) 225-6118

57 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-5019

209 MAIN STREET, SUITE 103  
SACO, ME 04072  
(207) 283-8054

<http://tomallen.house.gov>



Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

COMMITTEE ON THE BUDGET  
COMMITTEE ON  
ENERGY AND COMMERCE

SUBCOMMITTEES:

HEALTH

ENERGY AND AIR QUALITY

ENVIRONMENT AND HAZARDOUS MATERIALS

HOUSE OCEANS CAUCUS

CO-CHAIR

AFFORDABLE MEDICINES TASK FORCE

CO-CHAIR

FAX COVER

DATE: 7-22-2005  
TO: BRAC COMMISSION  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14

703-699-2735

MESSAGE:

ENCLOSURE

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

The Honorable James V. Hansen  
BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Commissioner Hansen:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>12</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>13</sup>. If replicating this culture at other shipyards were easy, it would have

<sup>12</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

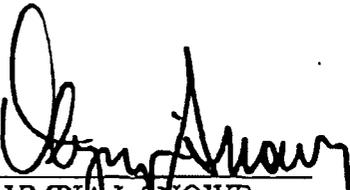
<sup>13</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,



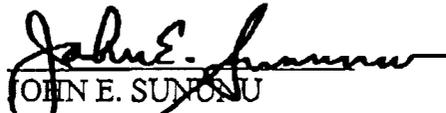
OLYMPIA J. SNOWE  
United States Senator



JUDD GREGG  
United States Senator



SUSAN M. COLLINS  
United States Senator



JOHN E. SUNUNU  
United States Senator



JEB BRADLEY  
United States Representative



THOMAS H. ALLEN  
United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull.... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 67)

<sup>2</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 66)

<sup>3</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 64)

<sup>4</sup> NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup> PNS assessment of workload distribution between Backshops and Drydocks

We have created "thermometer graphs" to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05. Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity's capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don't man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

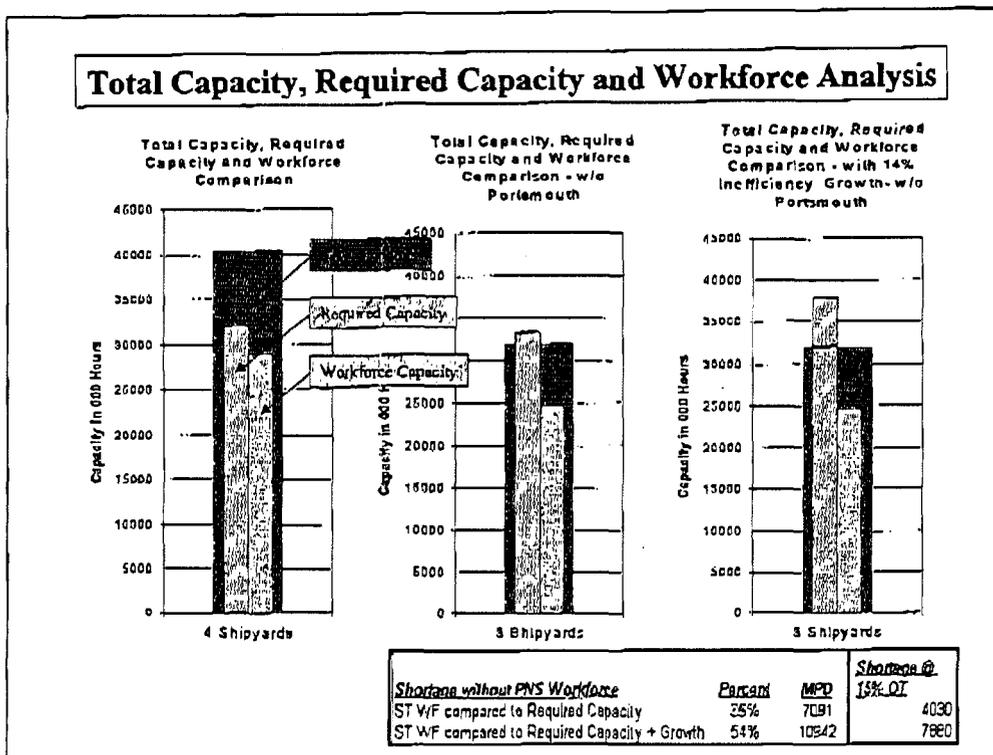
<sup>7</sup> Naval Shipyard Available Force Data (Avg. Oct 04 - Feb 05); found in [www.nde.navy.mil](http://www.nde.navy.mil), then go to WEBWARR, workforce, and use available force data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity + 14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

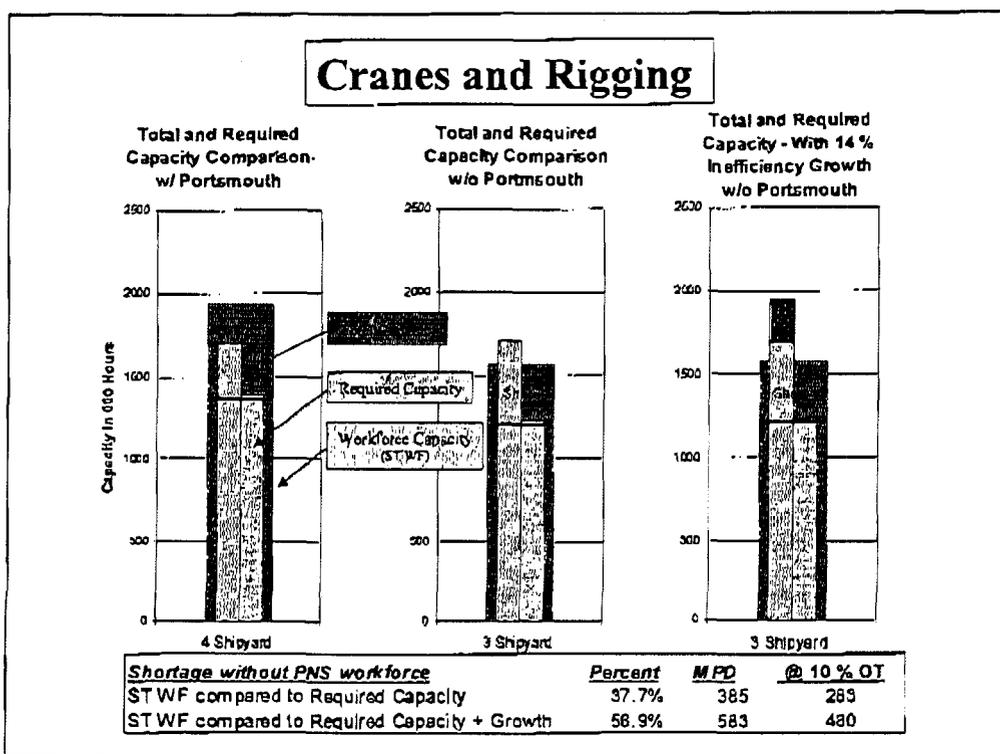
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are "thermometer graphs" for 11 of Navy's most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

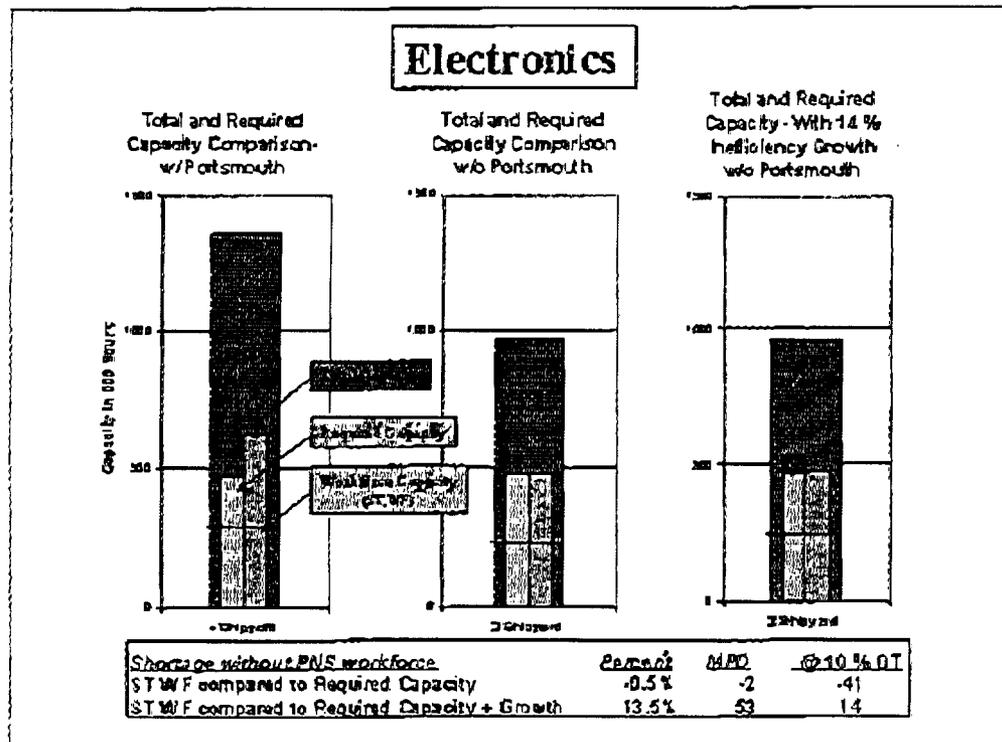
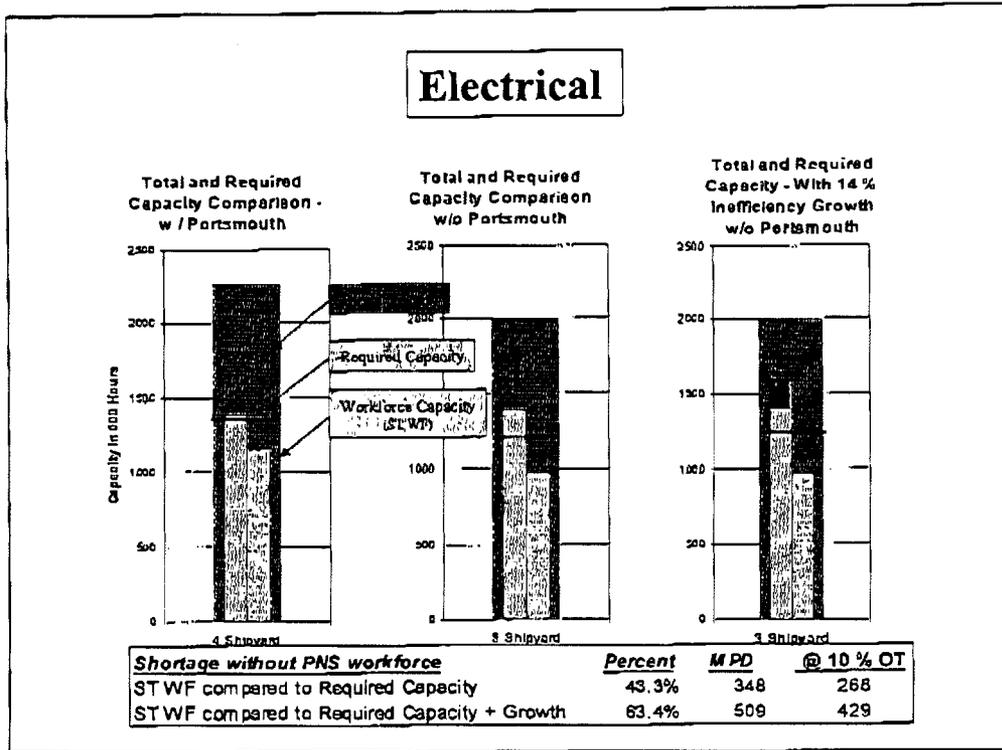
<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of "workforce" and compare current start/complete dates to notional duration

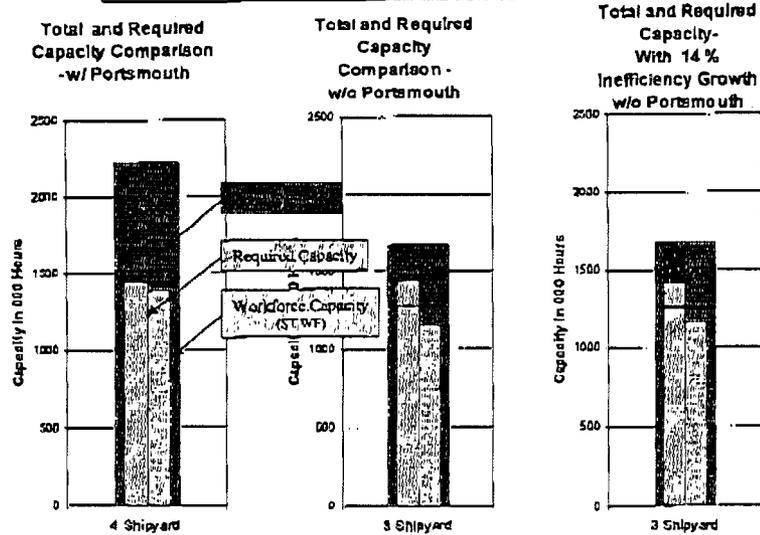
<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of "workforce" and compare current start/complete dates to notional duration

<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.

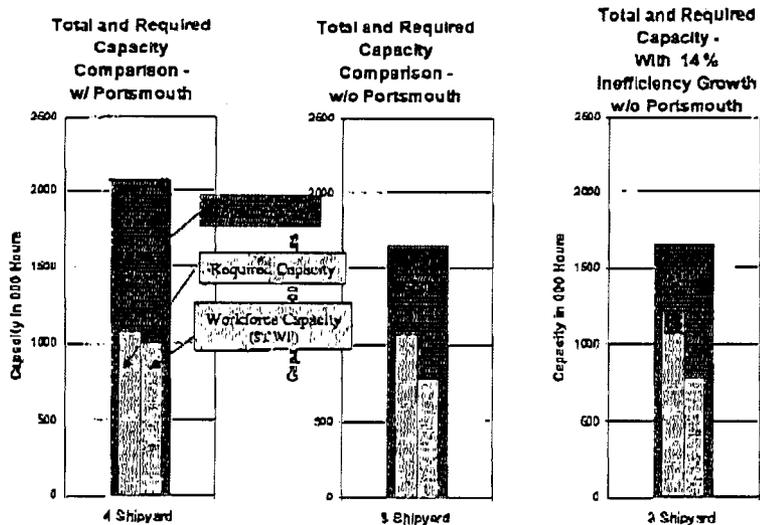


### Heavy Fabrication - Shipfitting



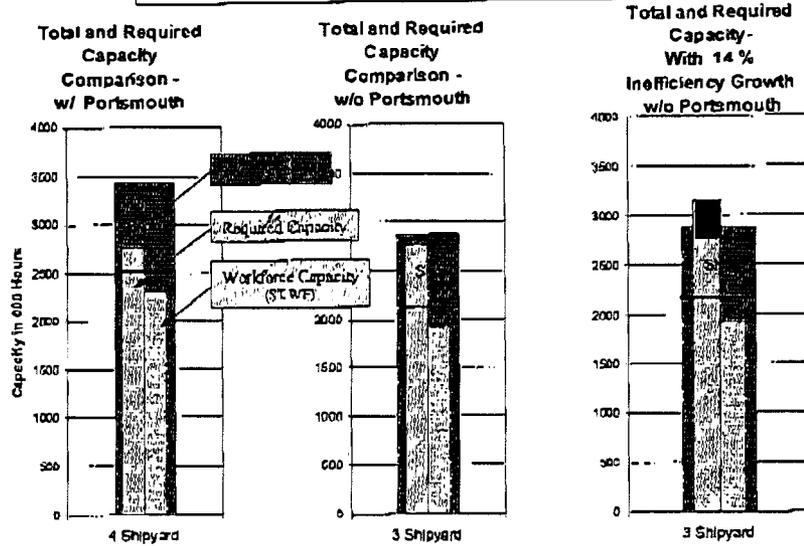
<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		23.4%	225	129
ST WF compared to Required Capacity + Growth		40.7%	381	295

### Inside Machine



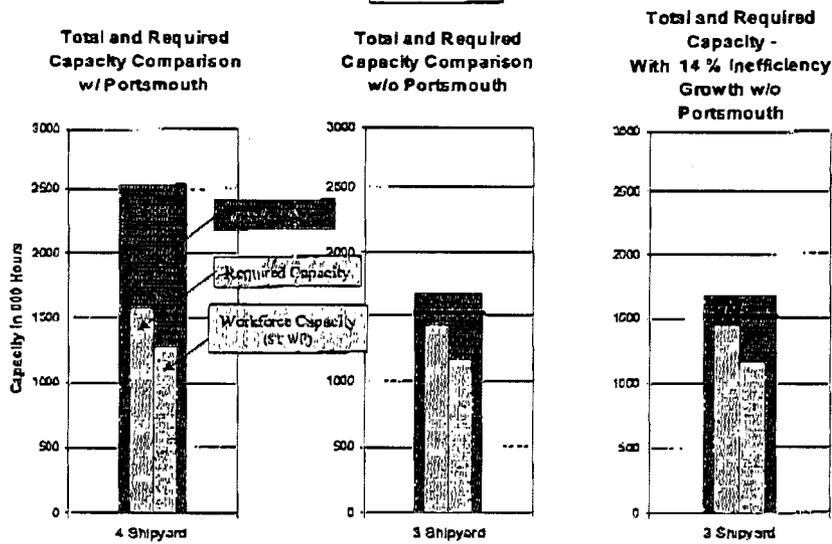
<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		36.0%	236	170
ST WF compared to Required Capacity + Growth		55.1%	360	295

### Marine (Outside) Machinist

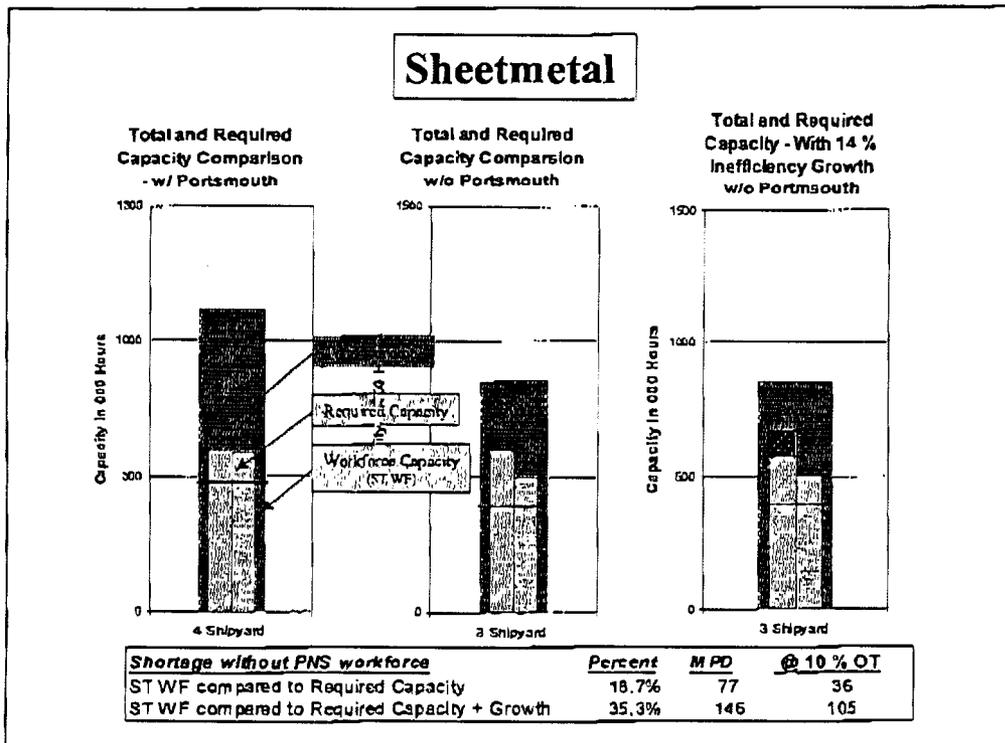
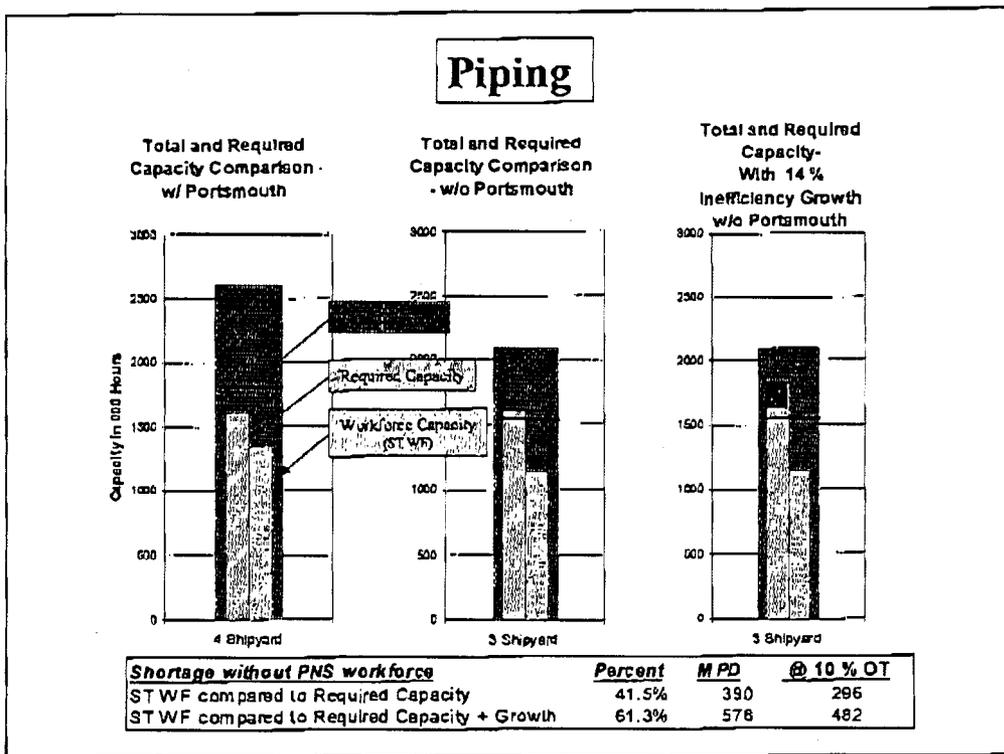


Shortage without PNS workforce	Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity	43.1%	688	528
ST WF compared to Required Capacity + Growth	63.1%	1008	848

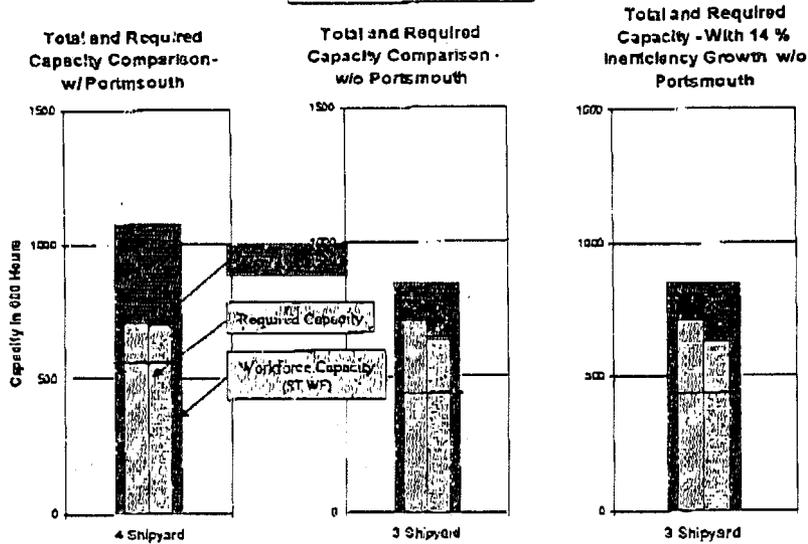
### Paint



Shortage without PNS workforce	Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity	75.3%	557	483
ST WF compared to Required Capacity + Growth	99.8%	738	664

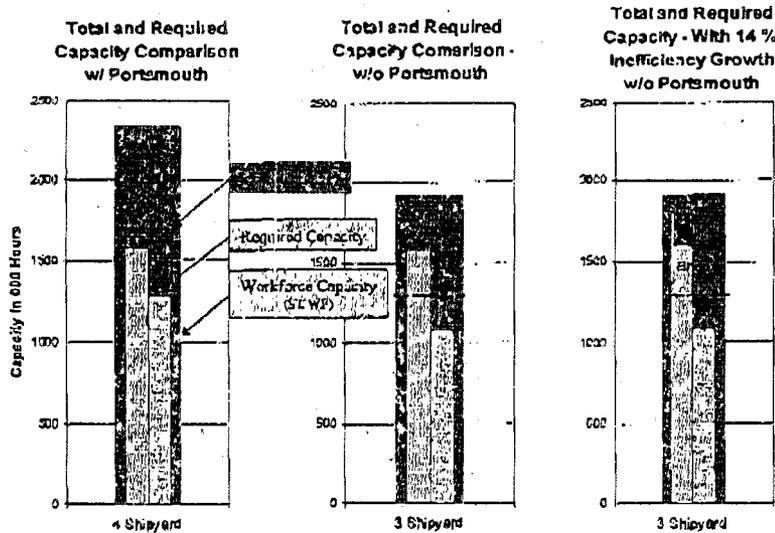


### Shipwright



<u>Shortage without PNS workforce</u>			
	<u>Percent</u>	<u>M PD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity	11.5%	61	8
ST WF compared to Required Capacity + Growth	27.2%	143	90

### Welding



<u>Shortage without PNS workforce</u>			
	<u>Percent</u>	<u>M PD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity	46.4%	414	324
ST WF compared to Required Capacity + Growth	66.8%	697	507

The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

---

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

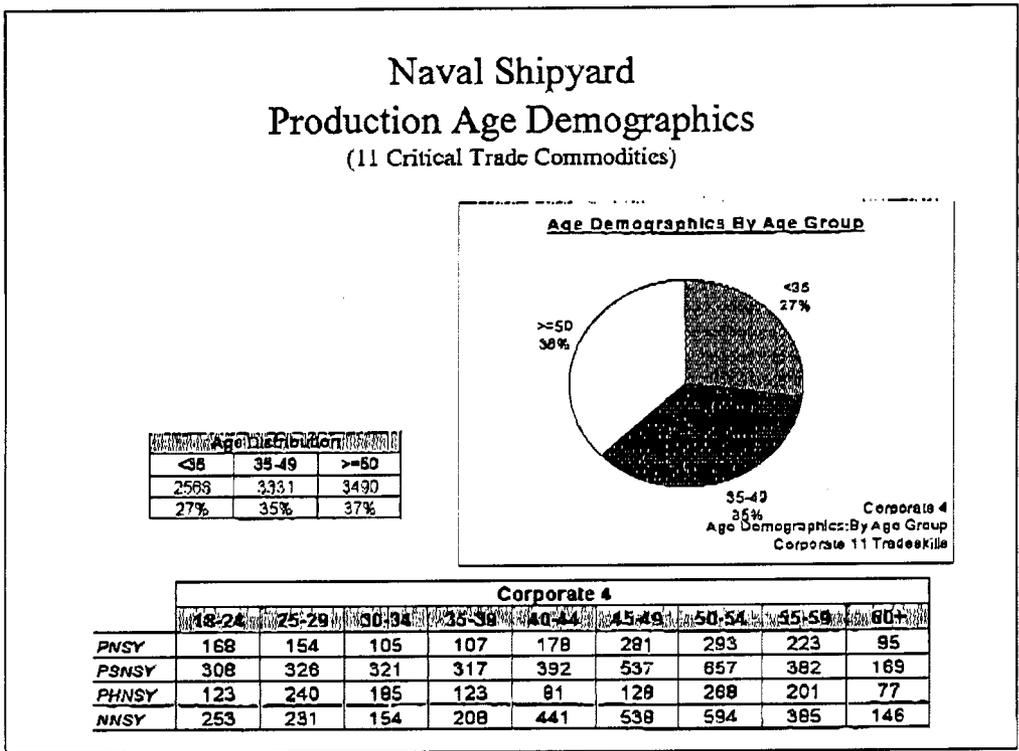
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .

//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

THOMAS H. ALLEN  
1ST DISTRICT OF MAINE



COMMITTEE ON THE BUDGET  
COMMITTEE ON  
ENERGY AND COMMERCE  
SUBCOMMITTEES:  
HEALTH  
ENERGY AND AIR QUALITY  
ENVIRONMENT AND HAZARDOUS MATERIALS  
HOUSE OCEANS CAUCUS  
CO-CHAIR  
AFFORDABLE MEDICINES TASK FORCE  
CO-CHAIR

9

1127 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-6116

57 EXCHANGE STREET, SUITE 302  
PORTLAND, ME 04101  
(207) 774-8019

208 MAIN STREET, SUITE 103  
SACO, ME 04072  
(207) 283-8054

Congress of the United States  
House of Representatives  
Washington, DC 20515-1901

http://tomallen.house.gov

FAX COVER

DATE: 7-22-2005  
TO: BRAC COMMISSION  
FROM: ME-NH DELEGATION  
SUBJECT: WORKLOAD CAPACITY AT PORTSMOUTH  
NUMBER OF PAGES (W/ COVER): 14

703-699-2735

MESSAGE:

ENCLOSURE

---

---

---

---

---

---

---

---

**Congress of the United States**  
**Washington, DC 20515**

July 21, 2005

The Honorable Anthony J. Principi  
Chairman, BRAC Commission  
2521 South Clark Street  
Suite 600  
Arlington, VA 22202

Dear Chairman Principi:

We believe that the nation needs four public Navy Shipyards. Evidence we have provided to the Commission shows that there is insufficient excess capacity among the shipyard corporation. Closure of one shipyard would create the unacceptable risk that the Navy would not be able to execute the planned schedule of submarine maintenance without a loss of operational time.

As the Commission debates the recommendation to close the Portsmouth Naval Shipyard, we would like to focus your attention on the following points:

- An analysis of human capacity reveals that, with the closure of Portsmouth, the Navy will not have enough skilled government workers to perform scheduled submarine maintenance, not to mention emergency repair work (such as on USS SAN FRANCISCO). The Defense Department failed to properly analyze human capacity as a component of total capacity. By measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity, the Department created a woefully inadequate assessment of Navy's industrial capacity. Specifically, the methodology used by DOD resulted in a calculated excess capacity of 3,565 direct labor people/Commodities, even though the shipyard corporation is actually short 2,186 direct labor people/Commodities. The calculation of human capacity is essential to the question of excess capacity, but was omitted from the DOD methodology. The attached point paper discusses this issue in more detail.
- The highly-skilled and specialized workforce at a nuclear shipyard takes years to train, and cannot be easily or quickly replicated. It takes eight to ten years to fully train a worker for the skills needed to work on a nuclear submarine. There is no national labor pool for these workers. According to Defense Department estimates, more than two thirds of Portsmouth's workforce would be lost if the Shipyard closed. The Shipyard estimates the loss would be more than 90 percent, based on historical experience<sup>4</sup>. Loss of such a significant portion of the corporate shipyard workforce would have a negative effect on overall efficiency and the ability to maintain submarines on schedule. Further, the top-rated performance at Portsmouth is due to the unique workforce culture at the Shipyard, which is made possible by the strong labor-management relations developed there over years<sup>5</sup>. If replicating this culture at other shipyards were easy, it would have

---

<sup>4</sup> Testimony of Mr. Earl Donnell, BRAC Regional Hearing, Boston, July 6, 2005

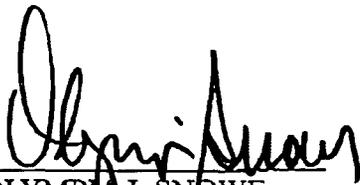
<sup>5</sup> Testimony of Mr. Paul O'Connor, BRAC Regional Hearing, Boston, July 6, 2005

already been done. It hasn't. DOD can transfer the billets but not the culture. Loss of the unique workforce culture at Portsmouth will result in a reduction of efficiency among the remaining Navy shipyards and a resulting loss of operational time as submarines remain longer in depot.

- A nuclear shipyard, if lost, is nearly impossible to reconstitute if needed in the future. The cost of reconstitution would be enormous, and should bear on the Commission's analysis. There will always be impediments to establishing a nuclear permitted facility in any community. Land values and coastal development make it exceedingly difficult and expensive to establish any deep water facilities, let alone nuclear facilities. The cost of building new dry-docks must also be considered. The most recent study of the construction a new dry-dock estimated the cost to be \$400 million<sup>3</sup>, and a minimum four years for design, permitting and construction.

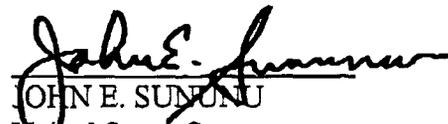
As demonstrated in the enclosure and documents previously provided to the Commission, the closure of the Portsmouth Naval Shipyard would result in insufficient capacity to perform the scheduled submarine maintenance backlog. As always, we stand ready to answer any questions the Commission may have.

Sincerely,

  
 OLYMPIA J. SNOWE  
 United States Senator

  
 JUDD GREGG  
 United States Senator

  
 SUSAN M. COLLINS  
 United States Senator

  
 JOHN E. SUNUNU  
 United States Senator

  
 JEE BRADLEY  
 United States Representative

  
 THOMAS H. ALLEN  
 United States Representative

Enclosure

<sup>3</sup> The cost estimate for a new drydock is based on the two most recent data points available: The newest drydock in the Navy's inventory is at the Trident Refit Facility at Kings Bay, Georgia. The drydock was completed in 1989. Authorized costs were \$125 million. However, the costs did not include utilities and road construction. Access to the drydock also requires dredging that was not included as a cost. There were few environmental hurdles and social impediments with the location which also contributed to fewer costs. Adjusted with a 4% rate the cost would equate to a \$285 million in 2005 dollars. The Department of the Navy completed a study recently for the construction of a single new dry dock at the Trident Refit Facility at Bangor, Washington. This study concluded a potential cost of between \$425 to \$600 million.

## PORTSMOUTH NAVAL SHIPYARD

**Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?**

**Answer: NO**

**Discussion:** The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity<sup>1</sup> by soliciting separately for Drydock Capacity<sup>2</sup> and theoretical Building Capacity<sup>3</sup> (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions<sup>4</sup> read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull.... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.<sup>5</sup>

<sup>1</sup>Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 66), NAVSHIPYD\_NORFOLK\_VA (Page 75), NAVSHIPYD\_PORTSMOUTH\_NH (Page 115), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 67)

<sup>2</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 65), NAVSHIPYD\_NORFOLK\_VA (Page 73), NAVSHIPYD\_PORTSMOUTH\_NH (Page 114), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 66)

<sup>3</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR, HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 112), and NAVSHIPYD\_PUGET\_SOUND, WA (Page 64)

<sup>4</sup> NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

<sup>5</sup> PNS assessment of workload distribution between Backshops and Drydocks

We have created "thermometer graphs" to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)<sup>6</sup> and we have added Workforce Capacity<sup>7</sup> data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05). Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line<sup>8</sup> on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%<sup>9</sup> of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity's capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don't man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000<sup>10</sup> workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

<sup>6</sup> Found in [www.defenselink.mil/brac](http://www.defenselink.mil/brac), then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD\_AND\_IMF\_PEARL\_HARBOR\_HI (Page 63), NAVSHIPYD\_NORFOLK\_VA (Page 72), NAVSHIPYD\_PORTSMOUTH\_NH (Page 111), and NAVSHIPYD\_PUGET\_SOUND\_WA (Page 63)

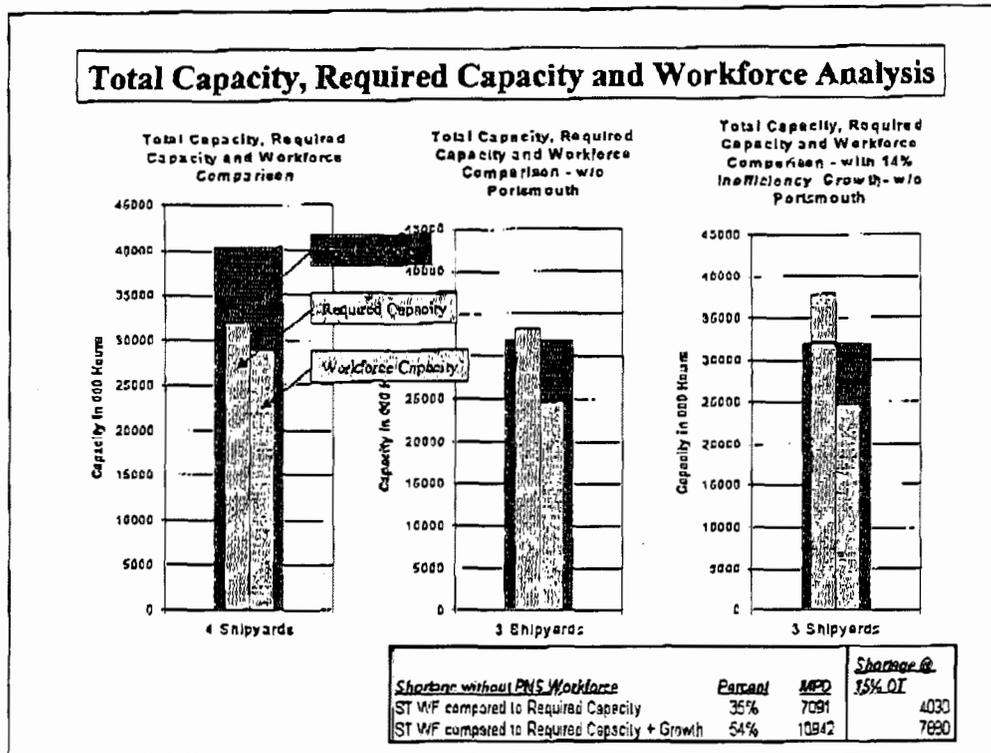
<sup>7</sup> Naval Shipyard Available Force Data (Avg. Oct 04 ~ Feb 05); found in [www.nde.navy.mil](http://www.nde.navy.mil), then go to WEBWARR, workforce, and use available force data

<sup>8</sup> (Same as footnote 3)

<sup>9</sup> PNS assessment

<sup>10</sup> Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900<sup>11</sup> workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%<sup>12</sup> overtime to achieve the Required Capacity of the right thermometer.



13

DoN reports excess in 27 of 35 commodities<sup>14</sup>. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments\_Excess\_Capacity\_DoD\_Response\_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

<sup>11</sup> (Same WF calculation as above) Compared WF capacity to Required Capacity +14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

<sup>12</sup> Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

<sup>13</sup> Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

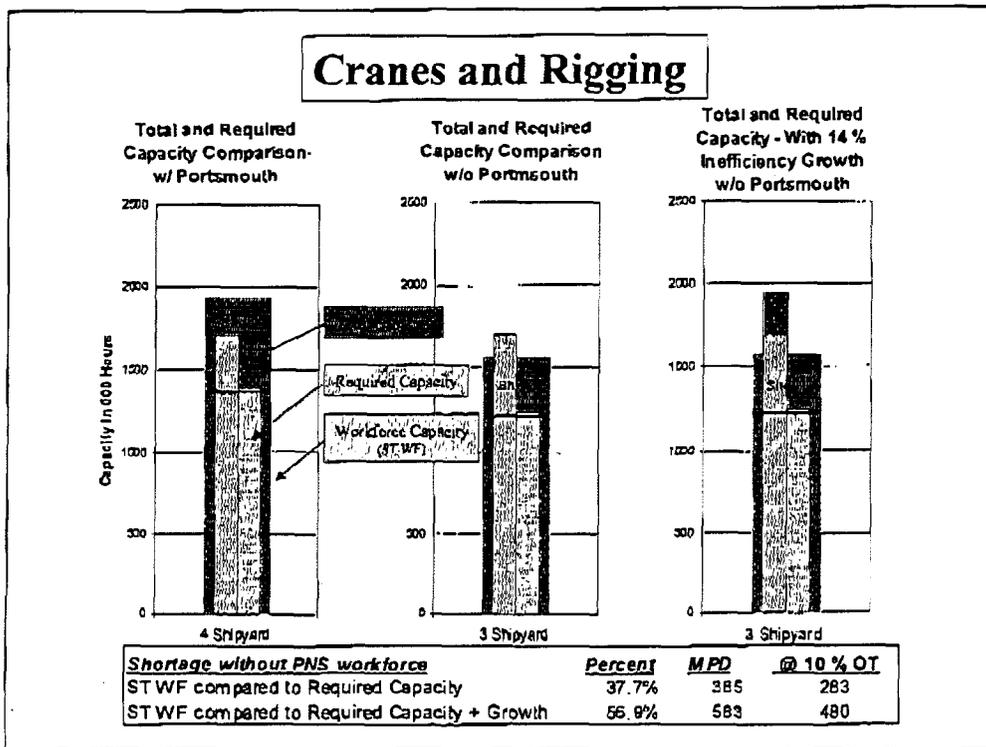
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

<sup>14</sup> DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess<sup>15</sup>. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)<sup>16</sup>. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)<sup>17</sup>.

The charts on the ensuing pages are “thermometer graphs” for 11 of Navy’s most critical Commodities (Trade Skills). These 11 Trades perform about 85%<sup>18</sup> of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



19

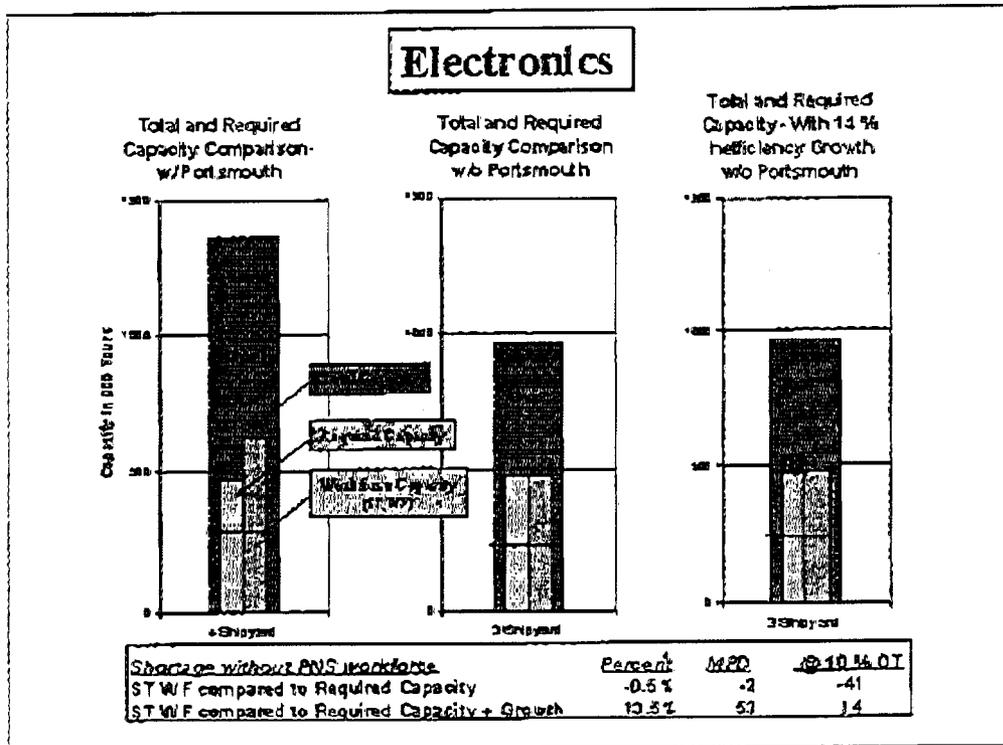
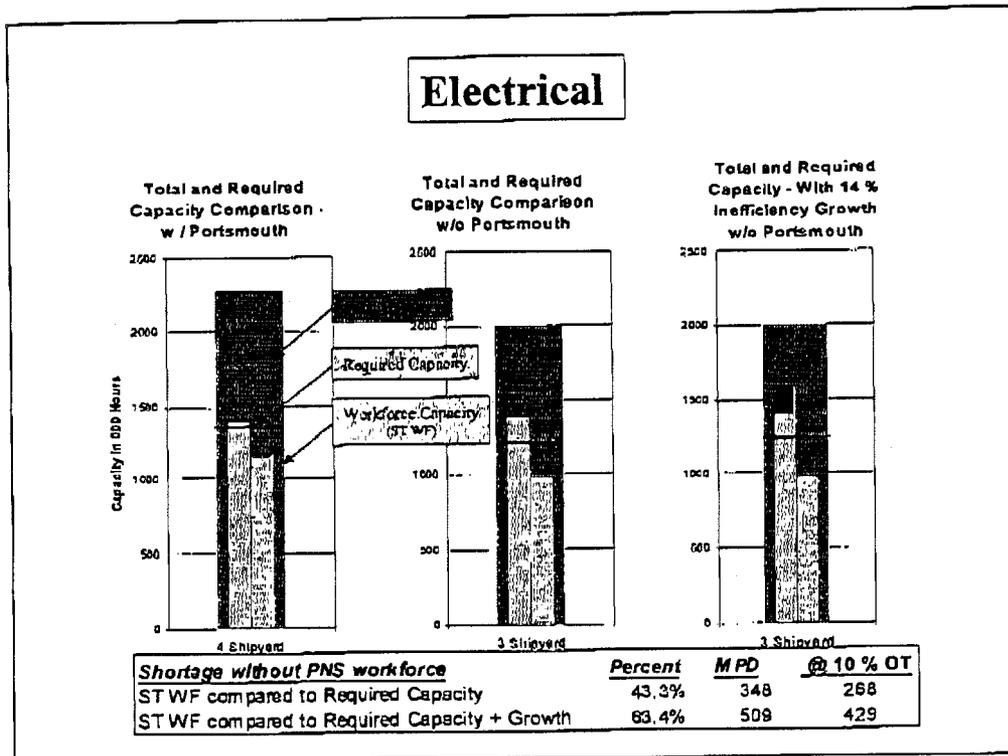
<sup>15</sup> Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

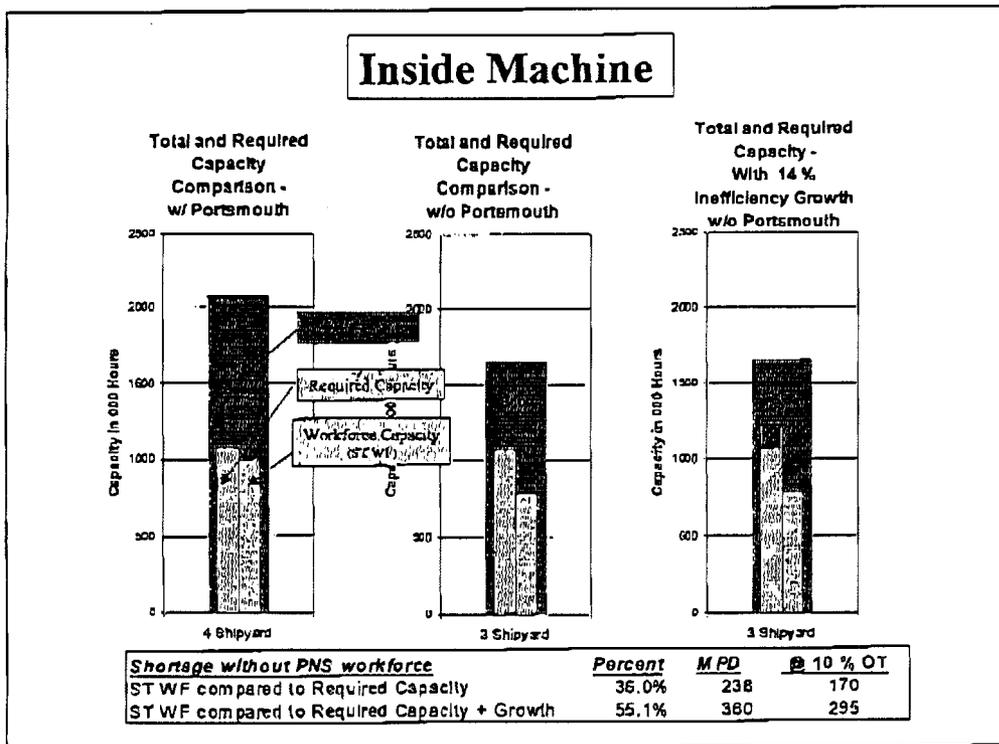
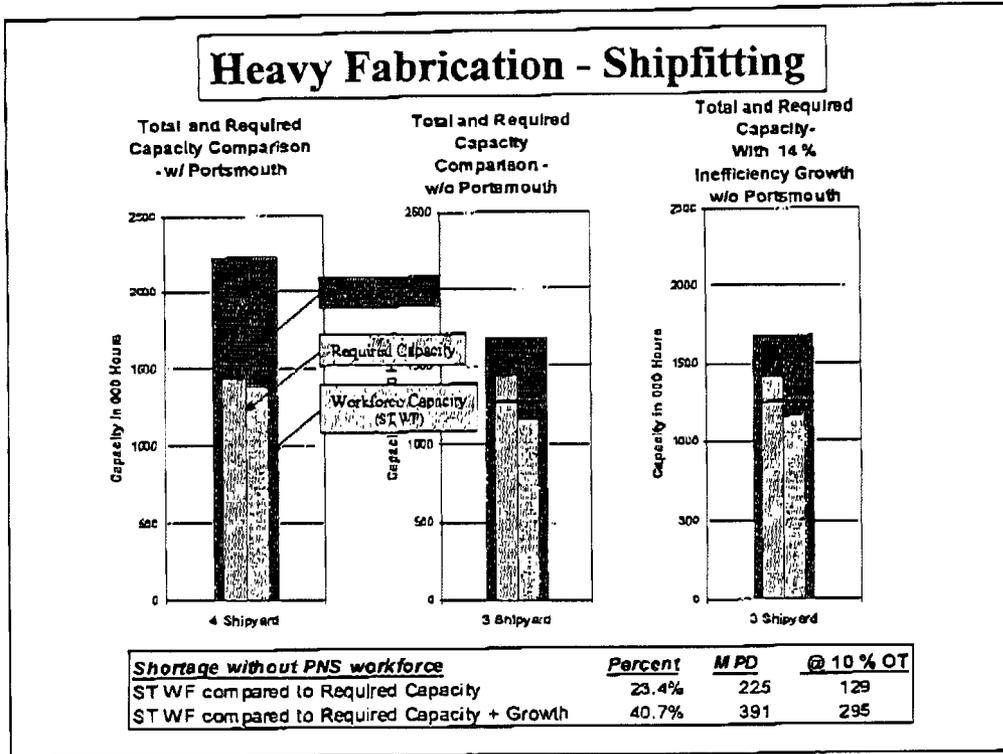
<sup>16</sup> June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

<sup>17</sup> June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

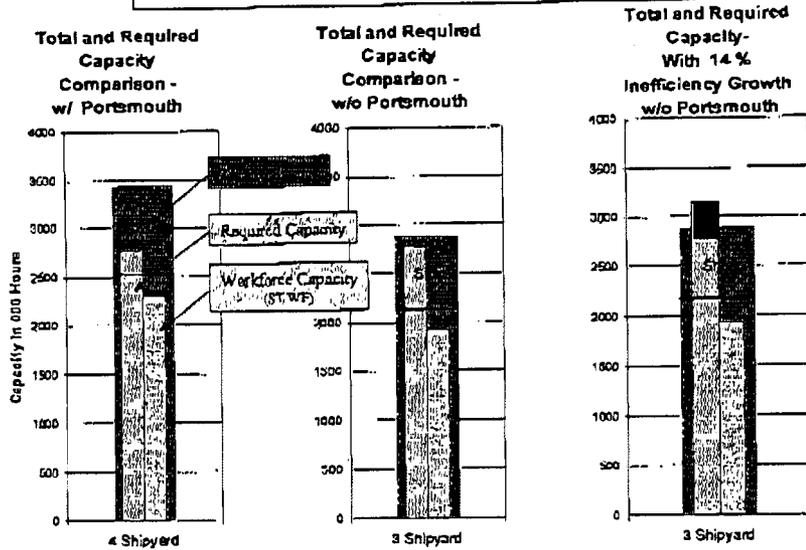
<sup>18</sup> CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

<sup>19</sup> All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.



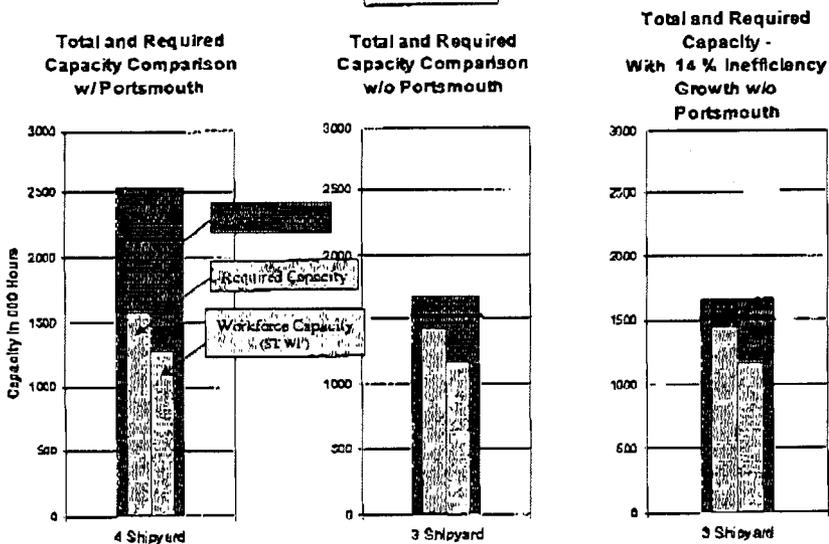


### Marine (Outside) Machinist

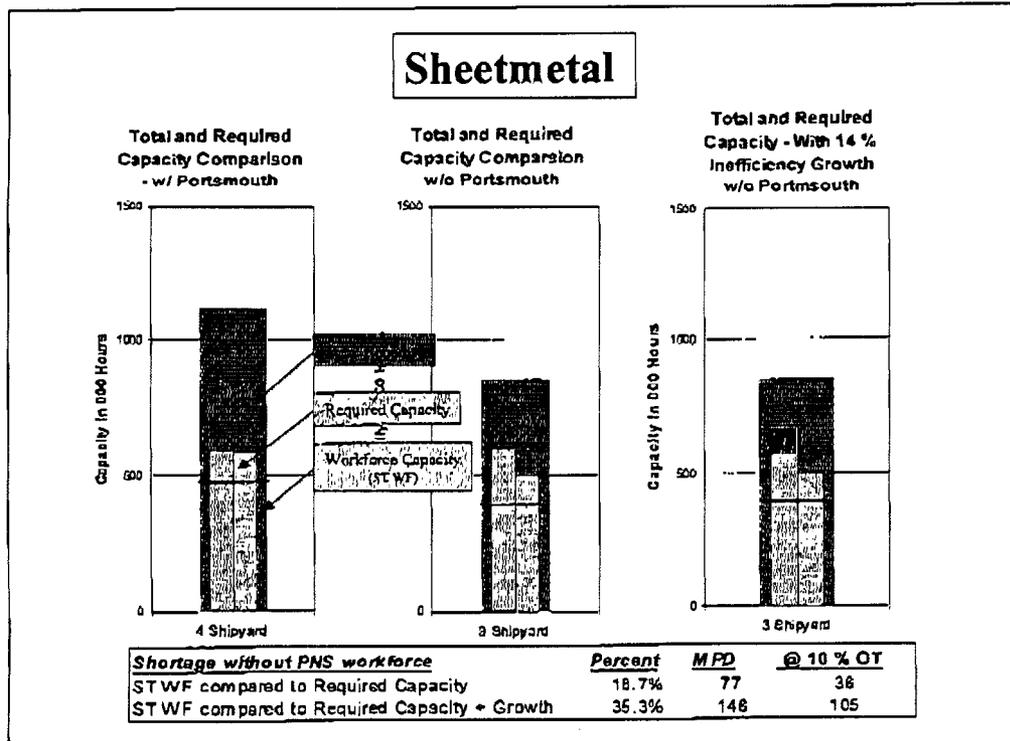
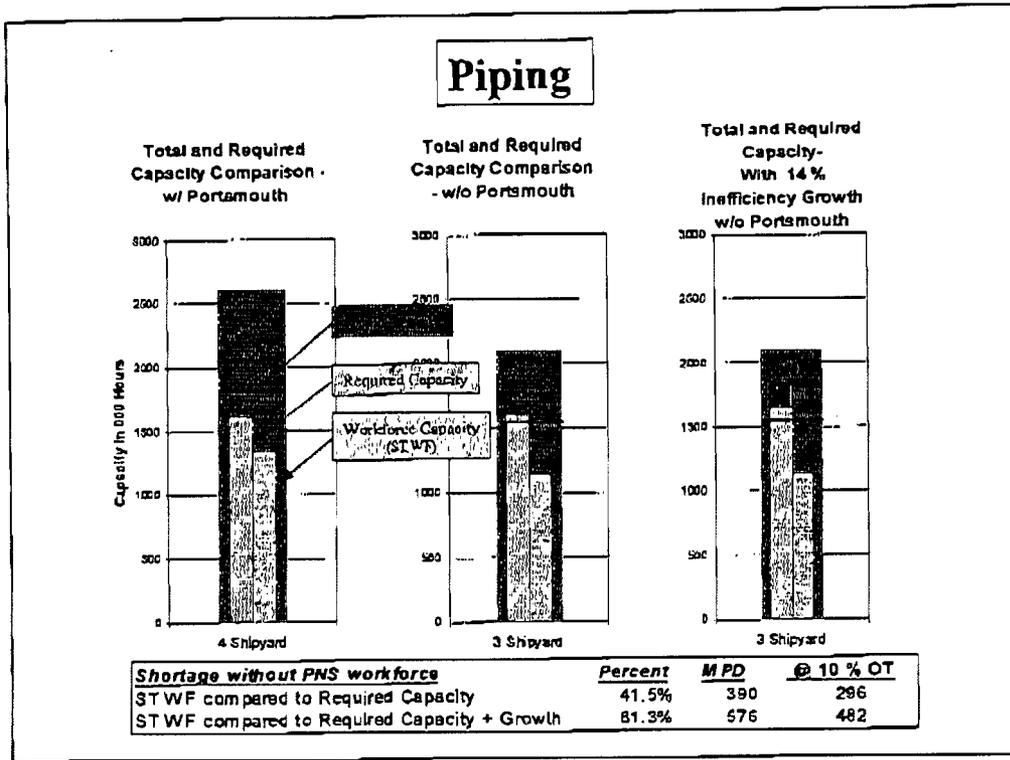


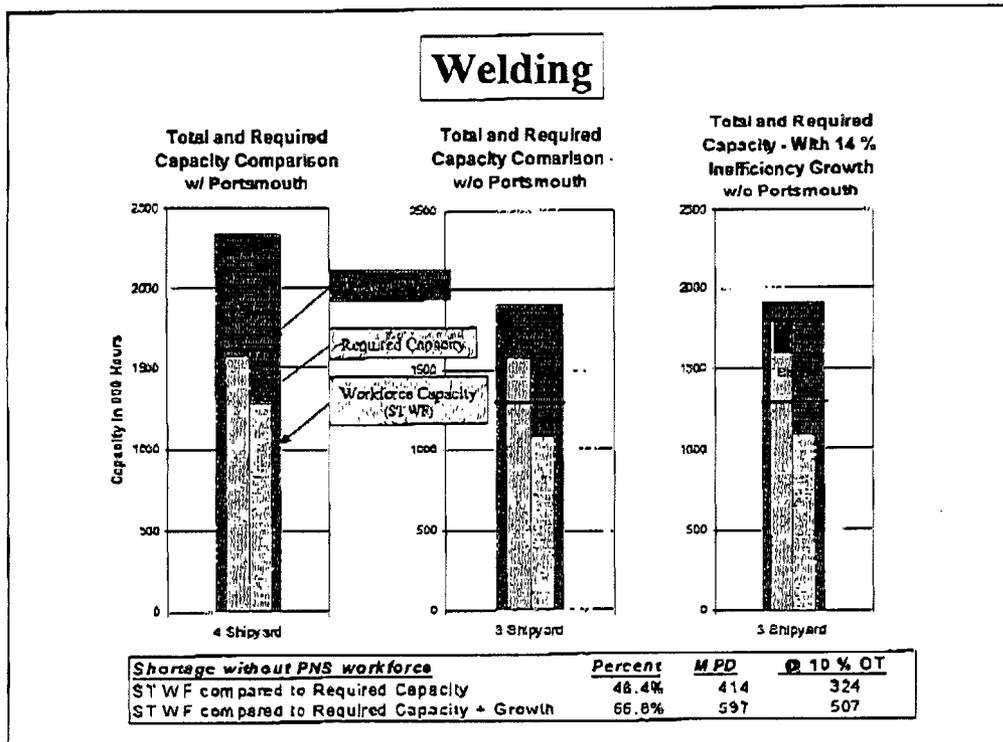
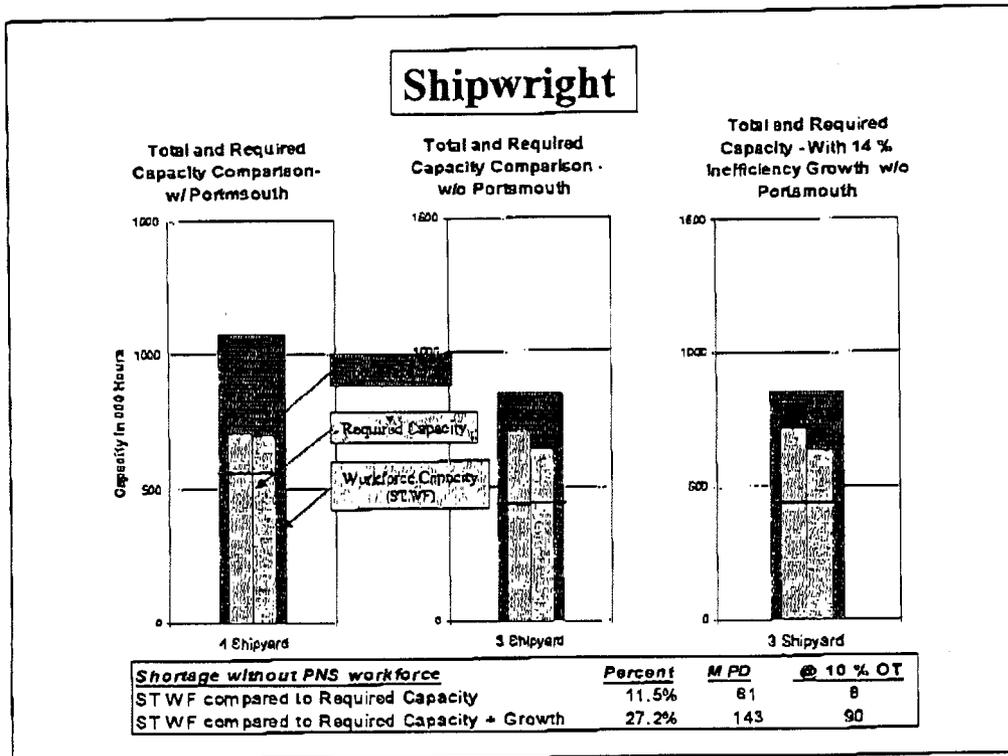
<u>Shortage without PNS workforce</u>	<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity	43.1%	688	528
ST WF compared to Required Capacity + Growth	63.1%	1008	848

### Paint



<u>Shortage without PNS workforce</u>	<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity	75.3%	557	483
ST WF compared to Required Capacity + Growth	99.0%	738	664





The charts above graphically depict a personnel shortage of ~2500<sup>20</sup> workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D<sup>21</sup> reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity<sup>22</sup> is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969<sup>23</sup> mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%<sup>24</sup> from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%<sup>25</sup> of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000<sup>26</sup> employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

<sup>20</sup> Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

<sup>21</sup> (Same as footnote 1)

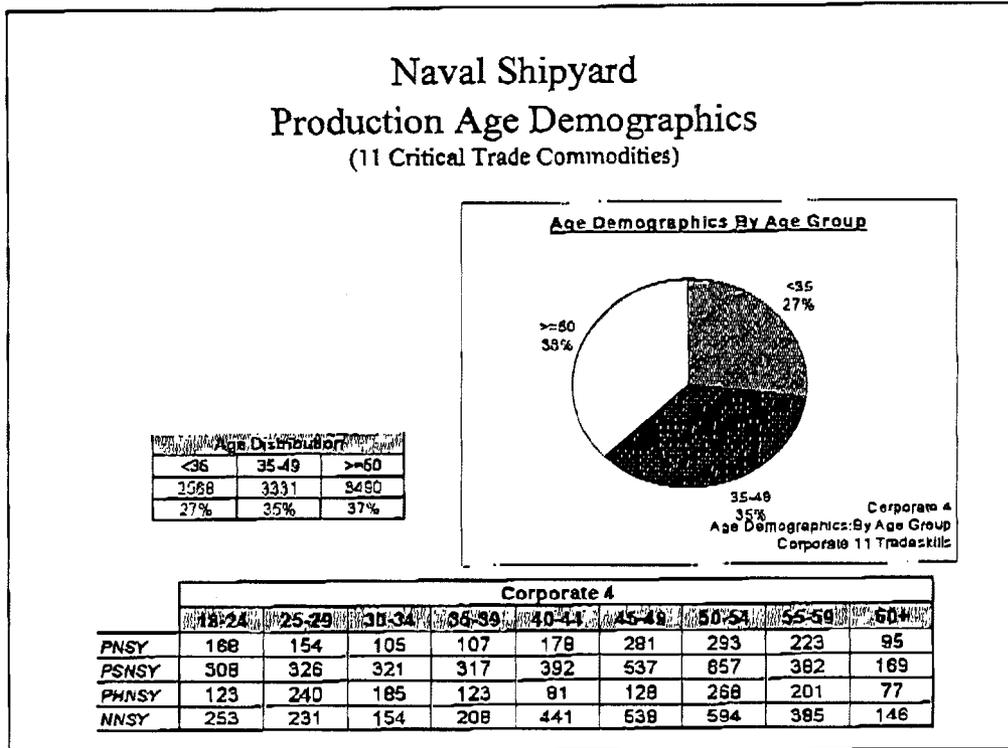
<sup>22</sup> (Same as footnote 7)

<sup>23</sup> June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

<sup>24</sup> Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

<sup>25</sup> CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

<sup>26</sup> June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))



27

**Conclusion:**

Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565<sup>28</sup> people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186<sup>29</sup> people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .  
//s//

<sup>27</sup> CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

<sup>28</sup> Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

<sup>29</sup> Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)