

PNSY ORIGINAL DATA SUBMISSION (est.)Submitted: 12/21/2004

Year	in thousands					
	2006	2007	2008	2009	2010	2011
Q 18 One time unique costs	\$0	\$0	\$454,678	\$0	\$0	\$0
Q 19 one time unique savings	\$0	\$0	\$0	\$0	\$0	\$0
Q 20 one time moving costs	\$0	\$0	\$15,758	\$0	\$0	\$0
Q 21 one time moving savings	\$0	\$0	\$0	\$0	\$0	\$0
Q 22 mission costs	\$0	\$148,150	\$83,800	\$75,100	\$83,800	\$101,200
Q 23 mission savings	\$0	\$0	\$0	\$0	\$0	\$0
Q 24 Mission contract termination costs	\$0	\$0	\$0	\$0	\$0	\$0
Q 25 Support contract termination costs	\$0	\$0	\$28,834	\$0	\$0	\$0
Q 26 Misc Recurring Costs	\$0	\$0	\$21,642	\$22,038	\$22,511	\$22,894
Q 27 Misc Recurring savings	\$0	\$0	\$24,972	\$40,612	\$42,125	\$43,351
Q 28 Procurement cost avoidances	\$0	\$0	\$0	\$8,052	\$8,290	\$8,483
Q 29 Mill Con Cost avoidances	\$0	\$0	\$0	\$0	\$0	\$0
Sub-total costs	\$0	\$148,150	\$604,712	\$97,138	\$106,311	\$124,094
Sub-total savings plus cost avoidances	\$0	\$0	\$24,972	\$48,664	\$50,415	\$51,834
NET OF COST LESS SAVINGS	\$0	\$148,150	\$579,740	\$48,474	\$55,896	\$72,260
				TOTAL COST		\$904,520

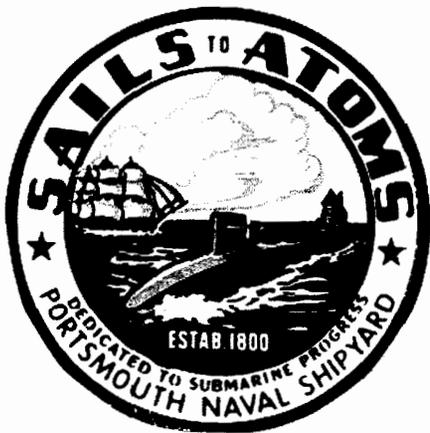
PNSY FINAL DATA SUBMISSION (est.)Submitted: 4/20/2005

Q 18 One time unique costs	\$0	\$0	\$369,661	\$13,308	\$13,701	\$14,020
Q 19 one time unique savings	\$0	\$0	\$0	\$0	\$0	\$0
Q 20 one time moving costs	\$0	\$0	\$15,422	\$0	\$0	\$0
Q 21 one time moving savings	\$0	\$0	\$0	\$0	\$0	\$0
Q 22 mission costs	\$0	\$0	\$0	\$0	\$0	\$0
Q 23 mission savings	\$0	\$0	\$0	\$0	\$0	\$0
Q 24 Mission contract termination costs	\$0	\$0	\$0	\$0	\$0	\$0
Q 25 Support contract termination costs	\$0	\$0	\$28,834	\$0	\$0	\$0
Q 26 Misc Recurring Costs	\$0	\$0	\$7,068	\$7,094	\$7,125	\$7,151
Q 27 Misc Recurring savings	\$0	\$0	\$0	\$0	\$0	\$0
Q 28 Procurement cost avoidances	\$0	\$0	\$0	\$0	\$0	\$0
Q 29 Mill Con Cost avoidances	\$0	\$0	\$0	\$0	\$0	\$0
Sub-total costs	\$0	\$0	\$420,985	\$20,402	\$20,826	\$21,171
Sub-total savings plus cost avoidances	\$0	\$0	\$0	\$0	\$0	\$0
NET OF COST LESS SAVINGS	\$0	\$0	\$420,985	\$20,402	\$20,826	\$21,171
				TOTAL COST		\$483,384
				DIFFERENCE		\$421,136



Portsmouth Naval Shipyard Implementation of Lean Initiatives on USS PITTSBURGH (SSN 720) EOH

“Deep Dive”



Fundamental Change in Ship Availability Management

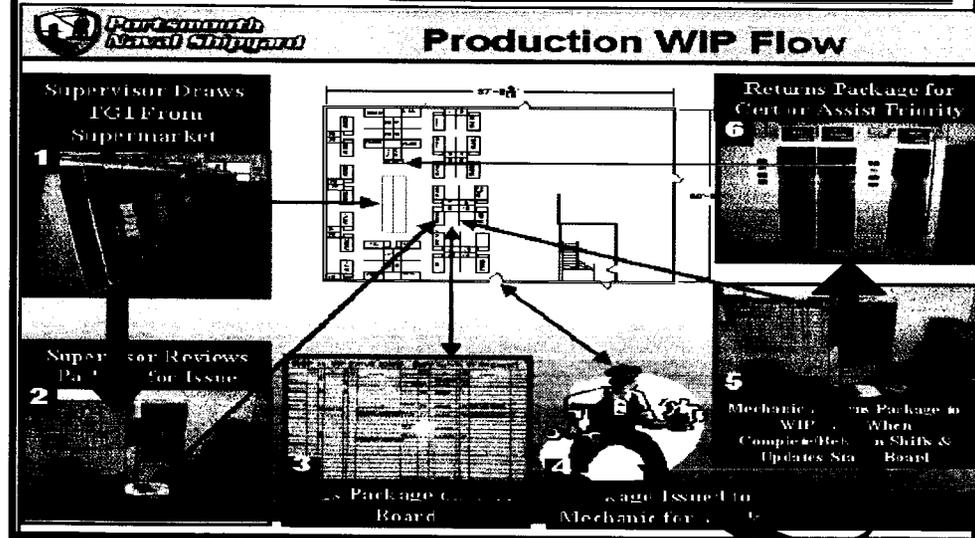
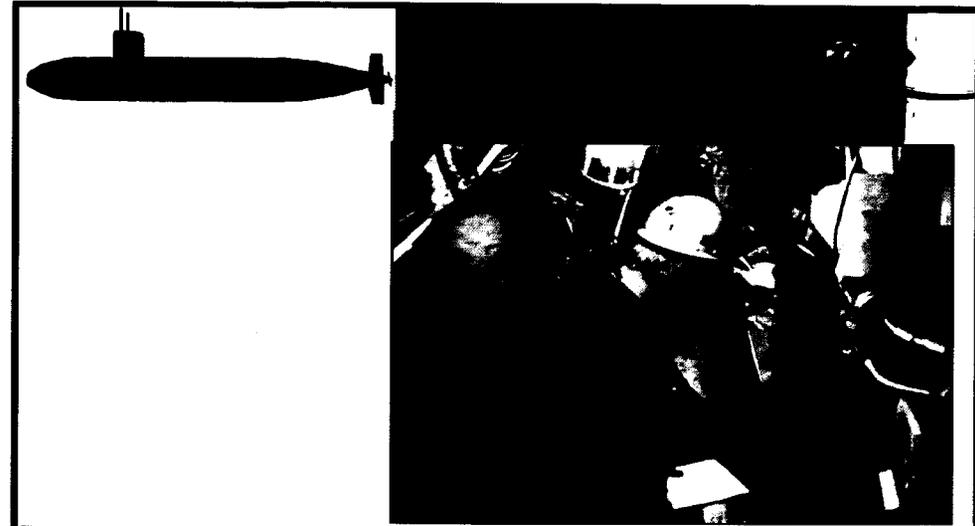
Assembly Line Approach to Ship Maintenance

Boeing



Flow the work - Keep the work moving

Naval Shipyards



Flow the TWD - Keep the work & workers moving

Fundamental Change in Ship Availability Management

Improve Work & Worker Flow

- 4-day work week
- 1-hour gap between Day and Swing Shifts

Deficiency Resolution Shipboard



**Material
Distribution**

Worksite Coordination



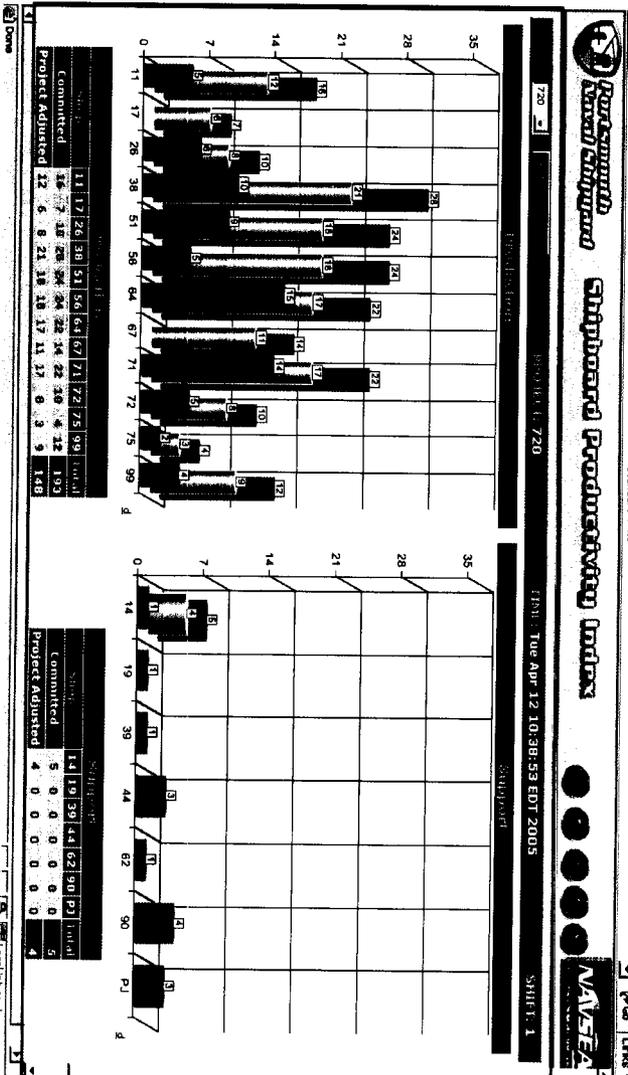
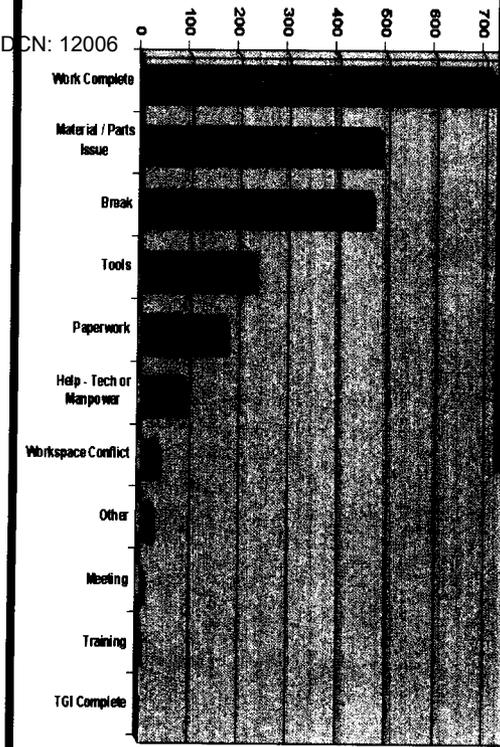
Fundamental Change in Ship Availability Management

Data Driven Approach to Improvement

Real Time Data

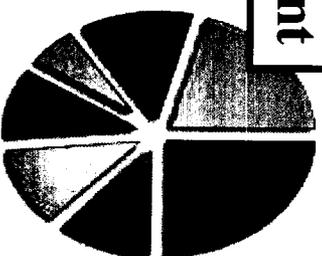


Identify Problems



Hours on Board	Number on Board
Less Than 1 Hour	42
1-2 Hours	19
2-3 Hours	20
3-4 Hours	18
4-5 Hours	11
5-6 Hours	22
Greater Than 6 Hours	35
Total Onboard: 167	
Average Onboard Time: 3.5	

Improvement



- Less than 1hr
- 1hr-2hrs
- 2hrs-3hrs
- 3hrs-4hrs
- 4hrs-5hrs
- 5hrs-6hrs
- Greater than 6 hrs

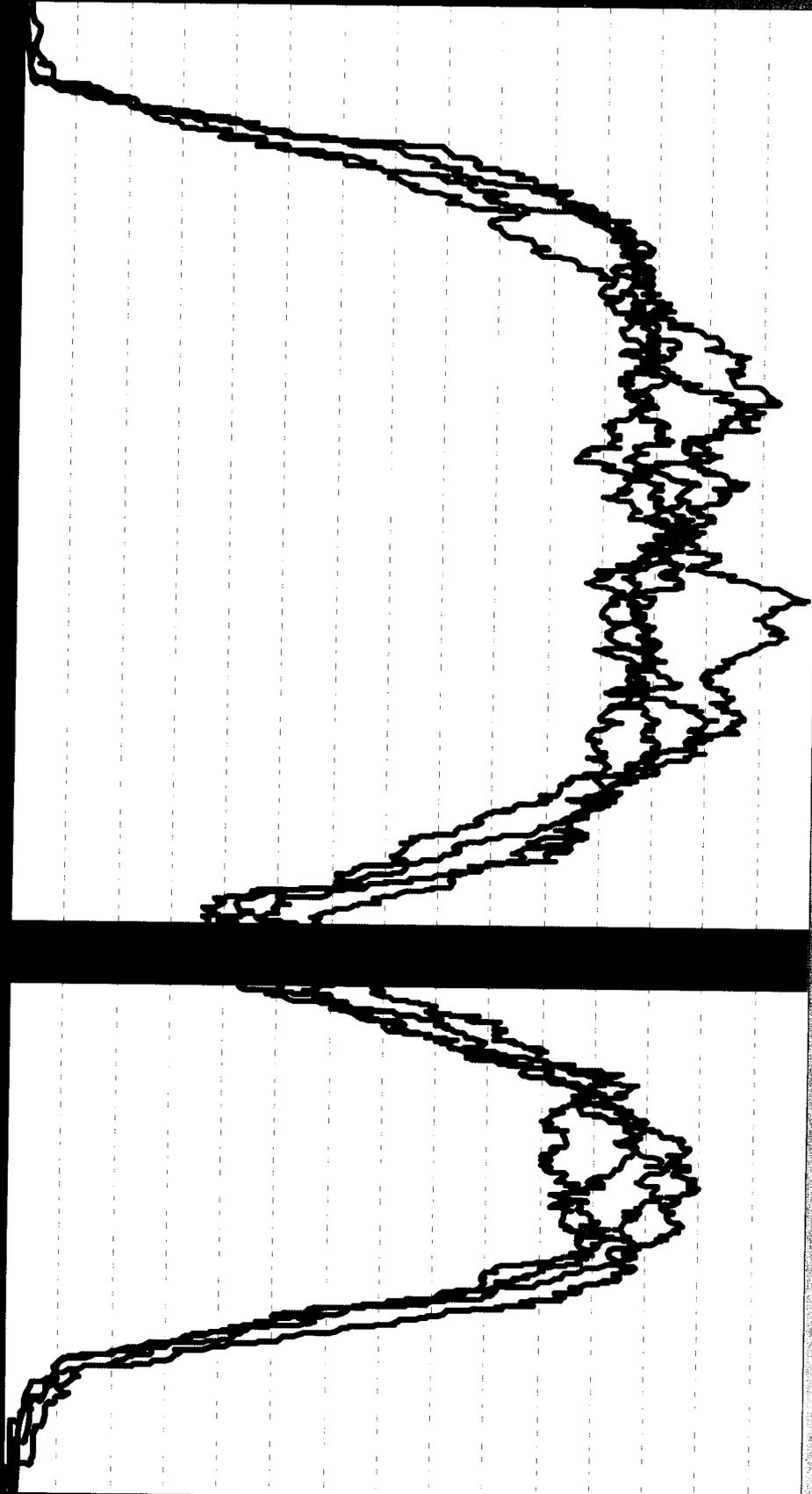
04/08/2005 - SSN: 720
Dept: 900 - Ship; All - Supv; All - Shift: 1

Bottom Line Goal: \$21M Less than SSN 719 Return Costs

More People on Ship for Longer Period Each Week

USSD 010000Z 050505
FM JCRC
TO: JCRC
INFO: JCRC

CLASS: UNCLAS//FOUO//NF



— Prod Total 4/27 — Prod Total 5/4 — Prod Total 5/11 — Prod Total 5/18

More Shipboard Hours per Person Assigned to PITTSBURGH than Other Projects in Yard

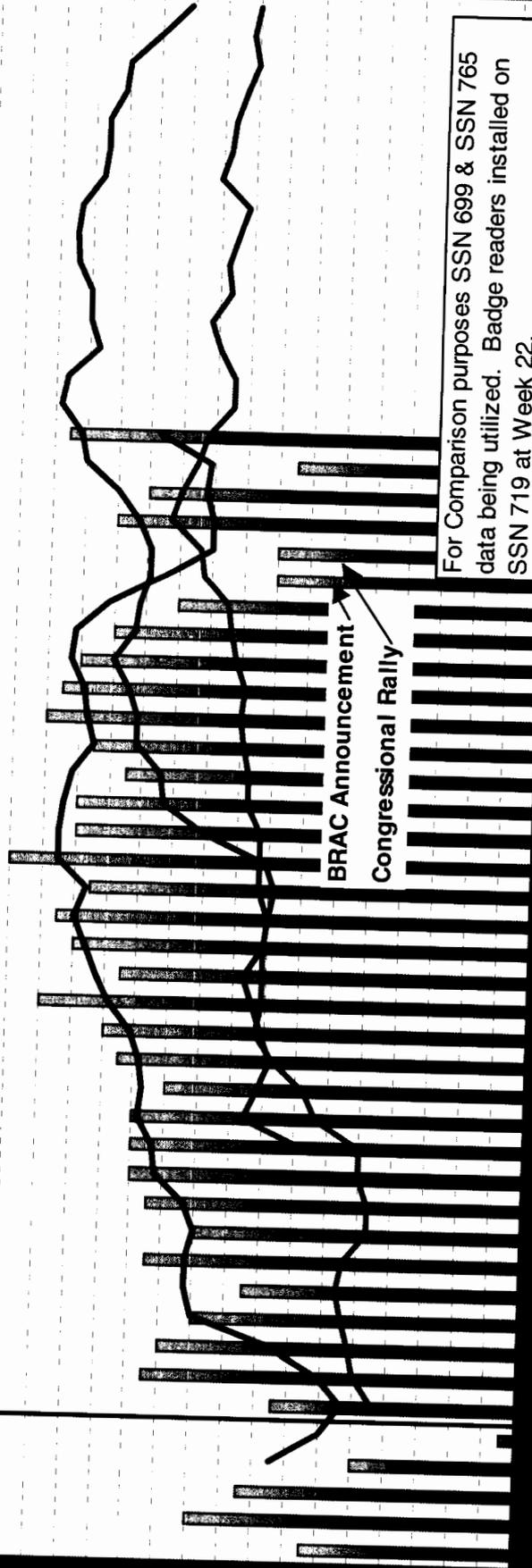
2006

Shipboard Hours per Person Assigned to
Shipboard Productivity Index (SBPI)

Data Date: 05/20/2005

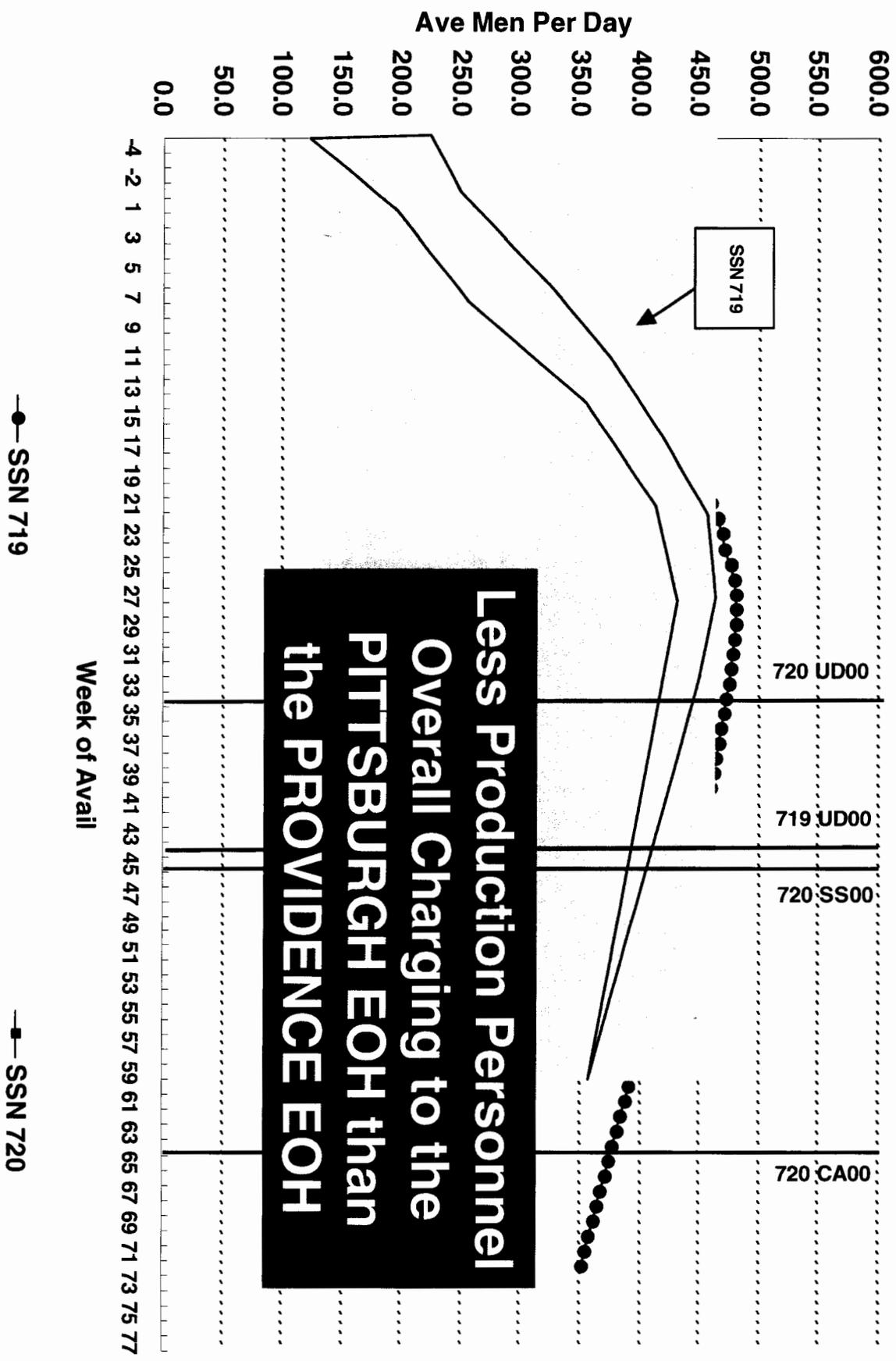
SA00

SSN 699 & SSN 765 data
normalized for 10 hr
workday and weekday OT.



■ SSN 720 — 4 per. Mov. Avg. (SSN 720) — 4 per. Mov. Avg. (SSN 699 10 Hr) — 4 per. Mov. Avg. (SSN 765 10 Hr)

SSN EOH Production ST Total Ave Mpd From SA00-4



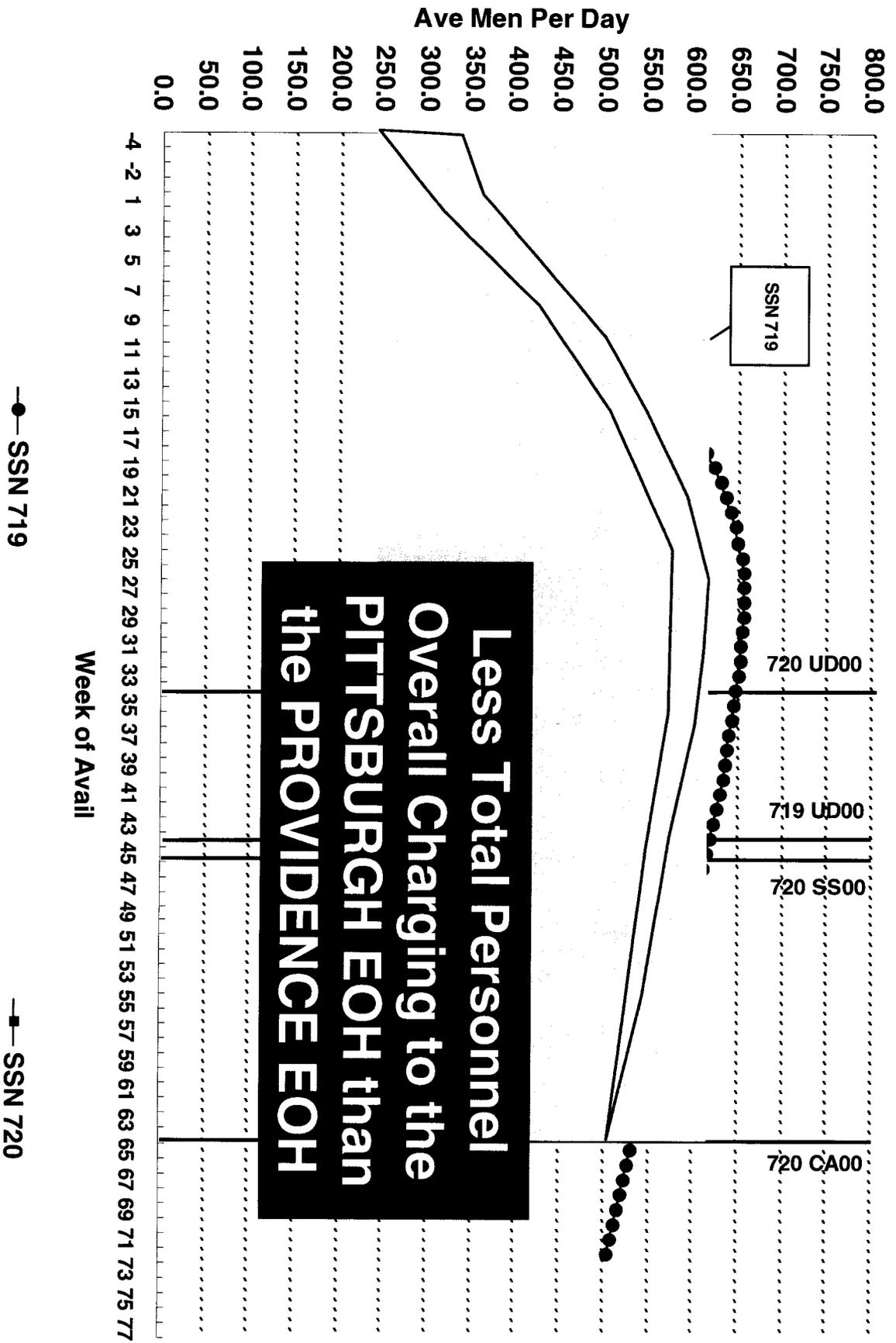
Less Production Personnel Overall Charging to the PITTSBURGH EOH than the PROVIDENCE EOH



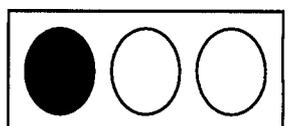
—●— SSN 719

- - -■- - SSN 720

SSN EOH Total ST Ave Mppd From SA00-4

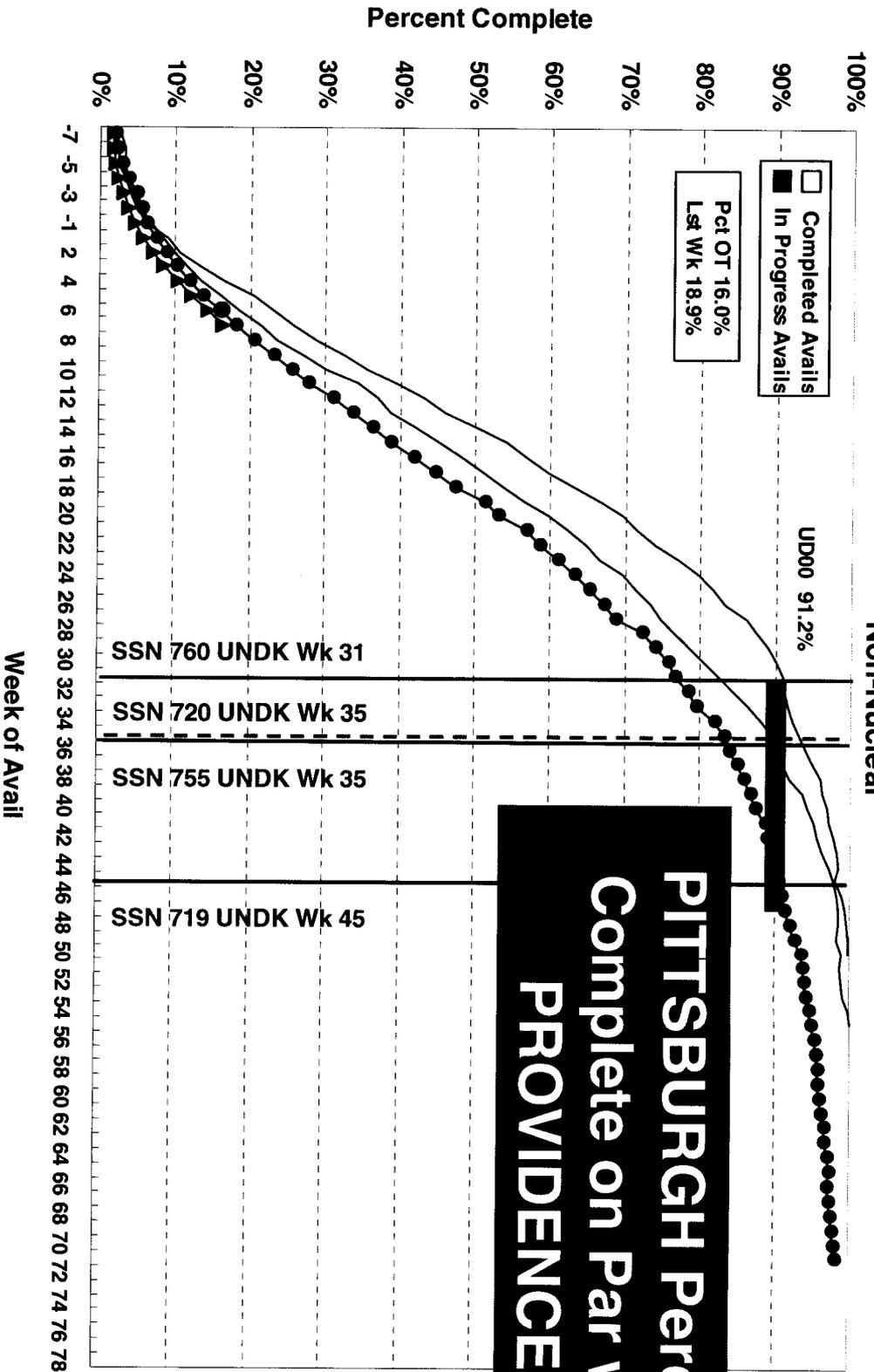


DCN: 12006



Data Date: 5/20/05

EOH Comparison
SWLIN Series 100 - 700
Non-Nuclear



▲ SSN 720 ● SSN 719 ■ SSN 760 ◆ SSN 755

SSN 720	QAC	BQWPlwK	91%	AQWPlwK RPD						
Total	62,487	RPD	16.2%	CP	4/22	4/29	5/6	5/13	5/20	Req Lin
				1.03	184.0	219.0	240.0	247.0	253.0	333.9

Corporate Process Implementation

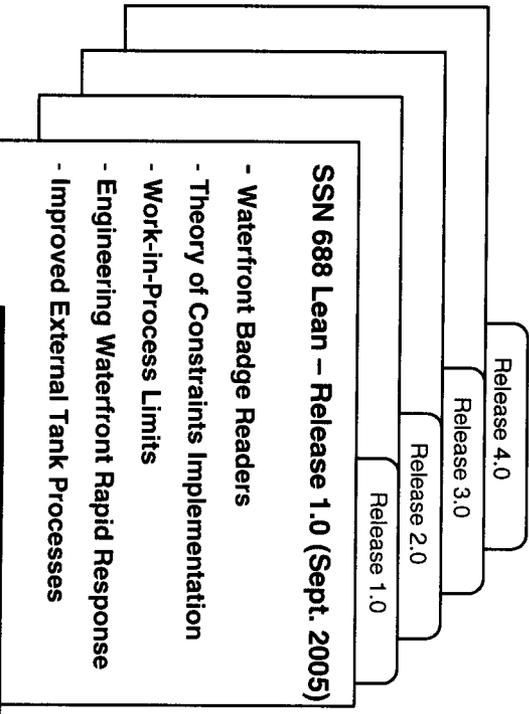
- Local Process Improvements**
- Value Stream Analysis
 - Rapid Improvement Events
 - Lean Six Sigma Projects
- 1. LOCAL INNOVATION**

NEED FOR CHANGE

3. ENTERPRISE SAVINGS
Rapidly Deploy Improvement Initiatives on Ship Availabilities

- 2. "ONE SHIPYARD" IMPLEMENTATION**
Build Corporate Release Plan
- Update Quarterly
 - Optimize Lessons Learned

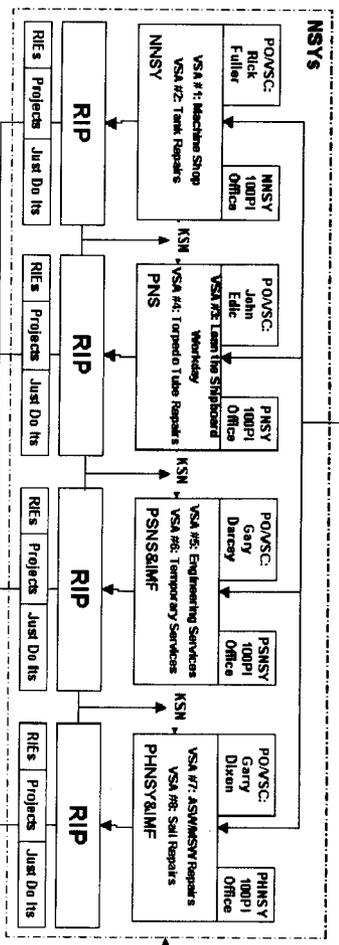
SSN & SSBN Corporate Lean Release Version 1.0



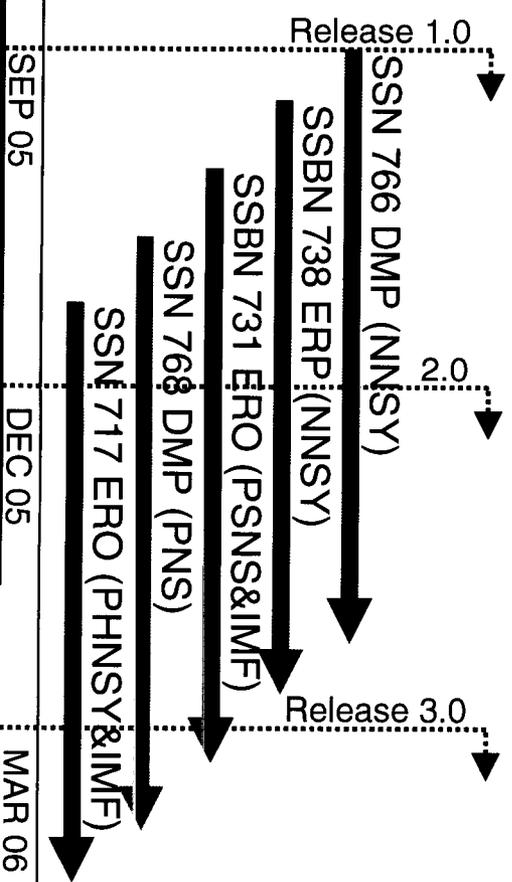
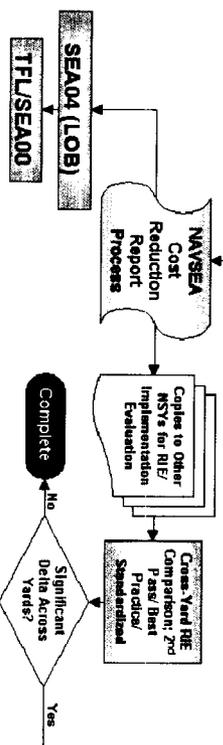
DCN: 12006

A Revolution in Process Change Deployment

EPS/NSA
National Value Streams -
Local Alignment



Note:
PM - Process Manager
EPS - Executive Planning Session
NSA - Value Stream Analysis
PO - Process Owner
VSC - Value Stream Champion
BB - Back Back
RIE - Rapid Improvement Event



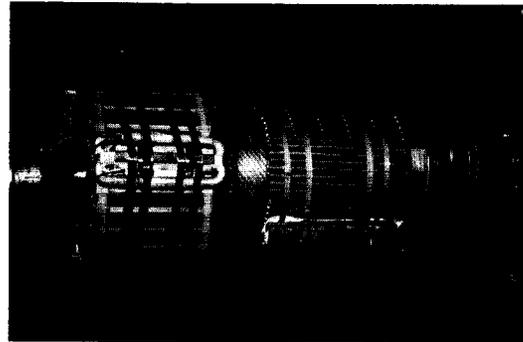
On-Site . . .

Services . . .

Research & Development . . .

STATOR REWIND

We can rewind and reinsulate your stator whether it's on or off the ship.



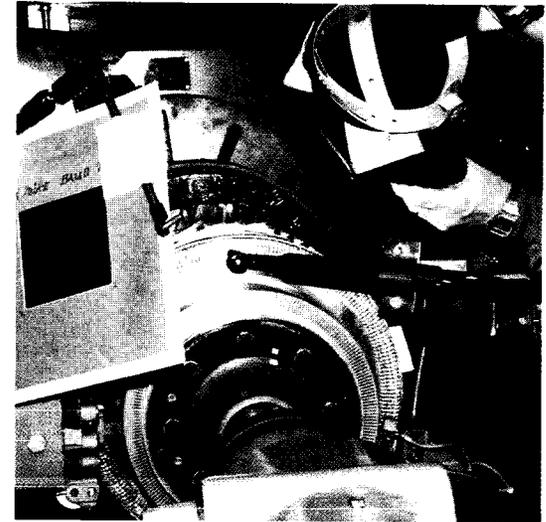
ROTOR REWIND

VPI* OF ROTOR WITH TEST COILS

These are some of the services we provide:

- ☞ 300KW and 500KW Stator and Rotor rewind and VPI*
- ☞ VPI*, dip & bake and trickle-pour insulation systems.
- ☞ All submarine 400HZ MG Rotor and Stator rewind/VPI*
- ☞ NAVSEA certified 300/500KW armature end turn encapsulation program
- ☞ Hermetically sealed motors such as R-114 compressor Rotor and Stator
- ☞ Engineering and rewind or partial rewind of large AC motors
- ☞ Hatchable rotor modification for 500 KW MG Sets
- ☞ Rewind of all sized AC and DC motors used in submarines
- ☞ Testing of complete motor-generator systems
- ☞ Diesel generator stator rewind and rotor work

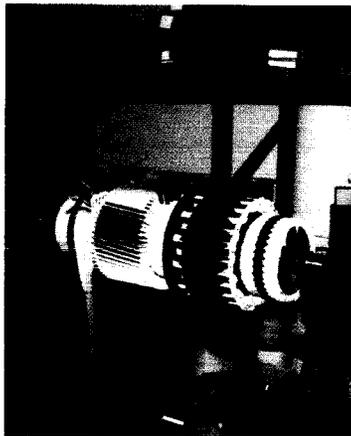
*Vacuum-Pressure Impregnation



Our engineers and technicians are ready to tackle your R&D projects, too! Some of our projects include:

- ☞ A procedure so that EDY 54KW 400Hz Generator Stators can be removed from the machine, rewound and VPI* treated in place to avoid a hull cut.
- ☞ NAVSEA research on VITON damage during welding of commutator bars
- ☞ Sealed insulation systems
- ☞ Test coils for Westinghouse Electric and NAVSEA for insulation aging tests
- ☞ Uniform Industrial Process Instruction for TIG welding of commutators

*Vacuum-Pressure Impregnation

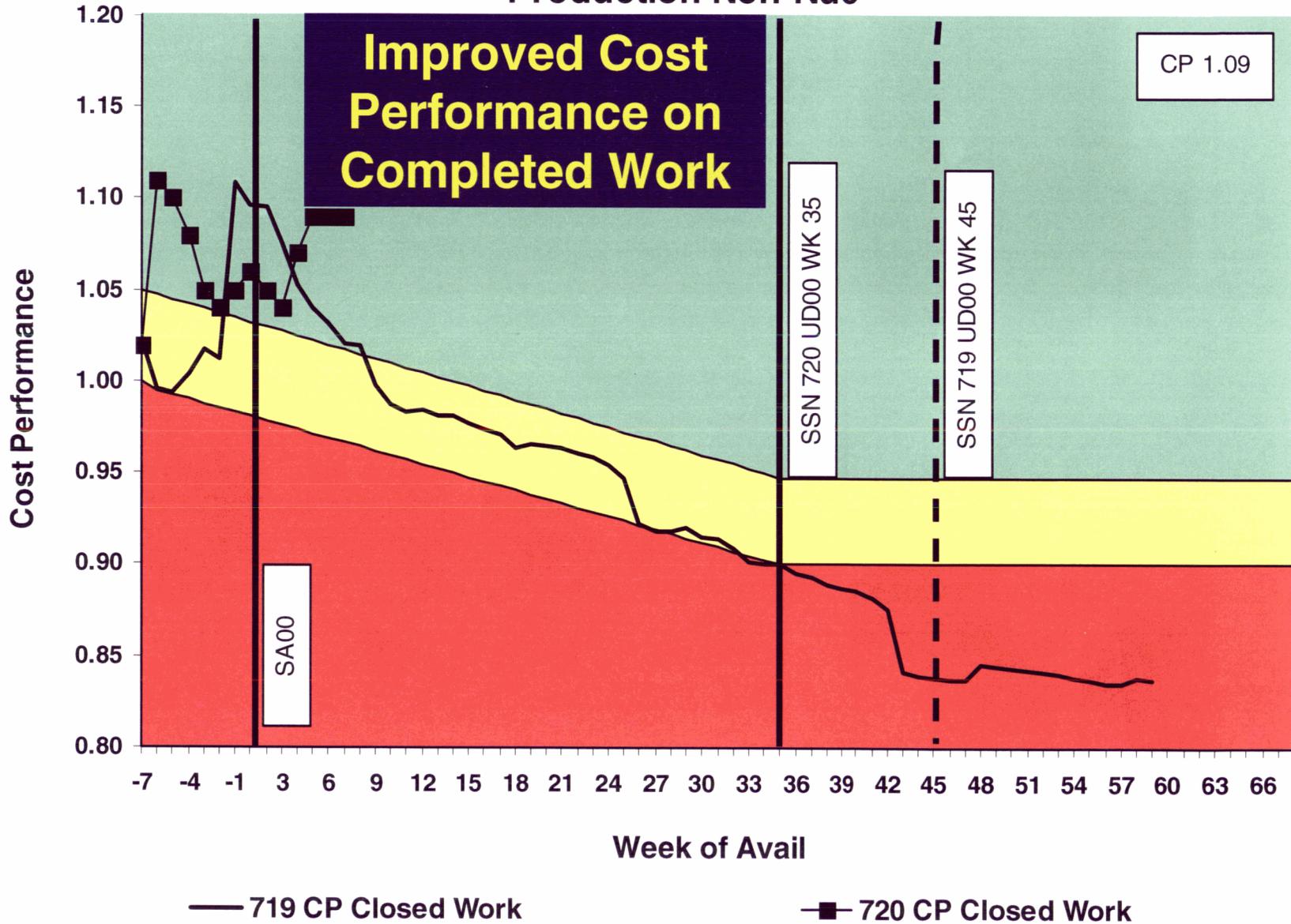


If you can't wait for a hull cut, we can rewind and re-insulate (using a trickle pour method) your 300KW, 64KW, or 43KW MG set stator or large AC motor in hull in 21 to 28 days from ripout to completion of retest.

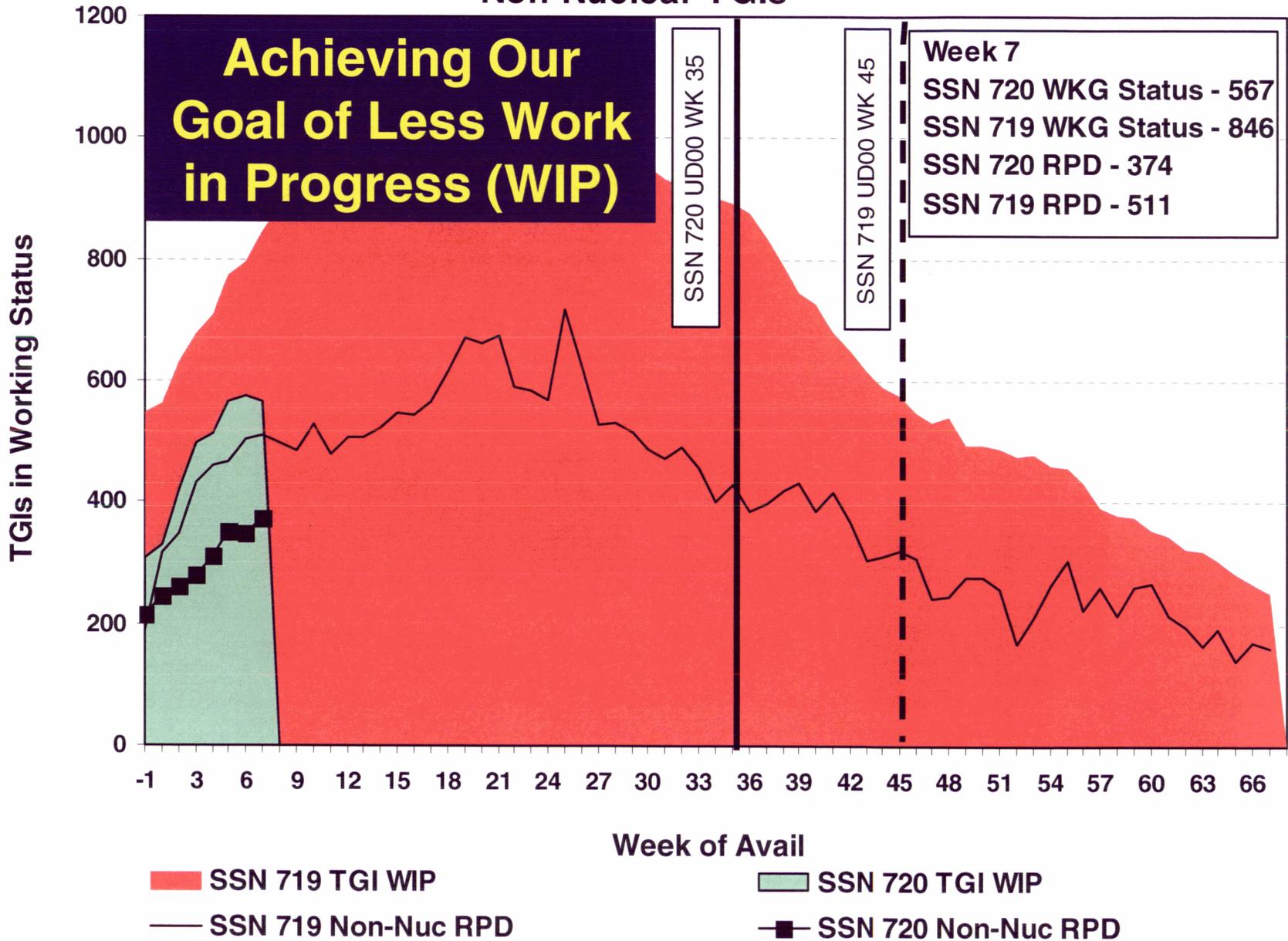
We have rewound and reinsulated, in hull, a 300KW stator in 18 days and a 43KW stator in 9 days!

Our procedures and materials are NAVSEA approved. Detailed failure analysis and sound engineering principles help to guarantee the quality and to ensure that the problem won't return.

EOH Comparison Closed Key Op Cost Performance Production Non-Nuc



EOH Comparison Work In Process (WIP) Non-Nuclear TGIs

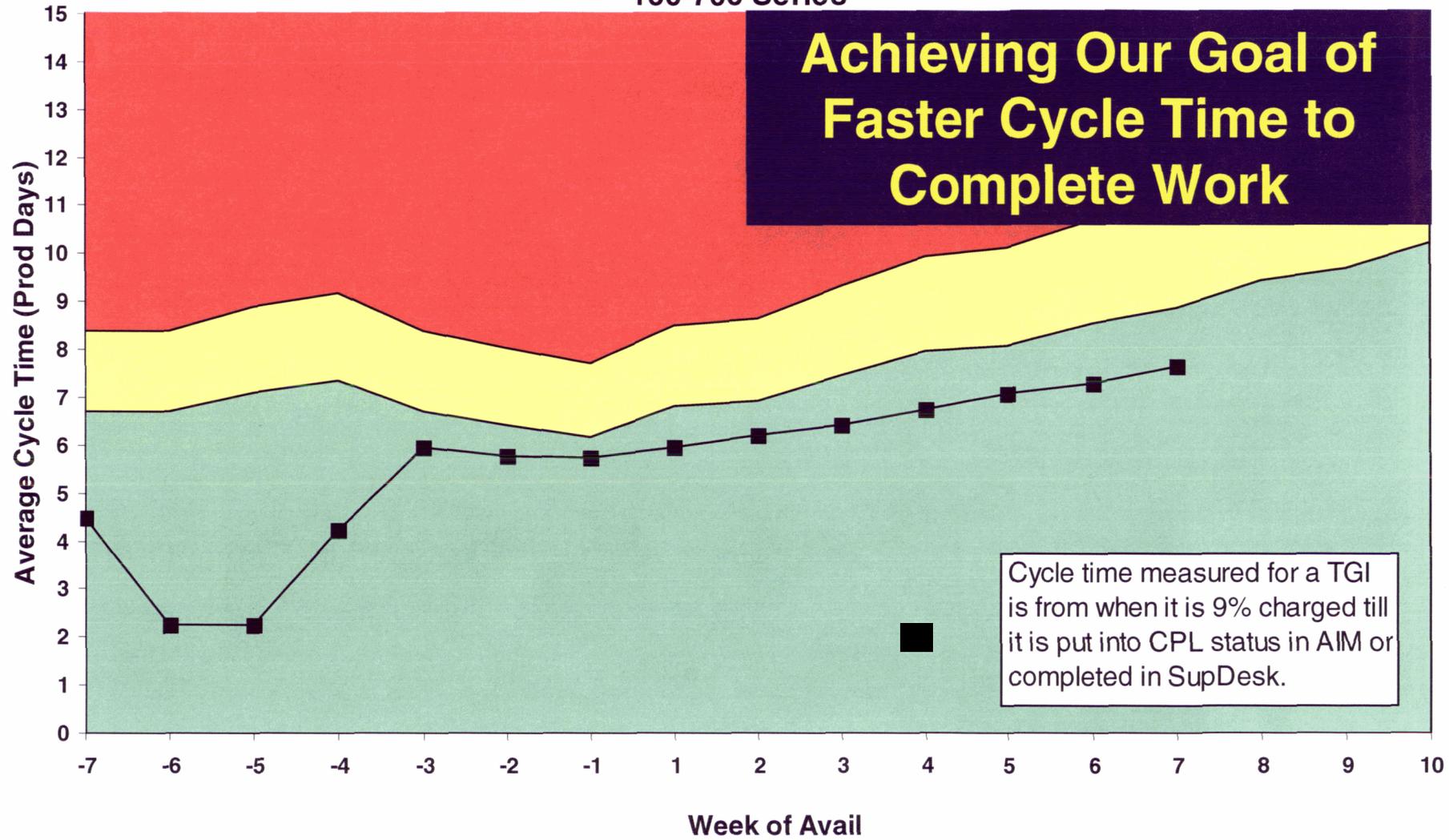


EOH Comparison

Closed Key Op Cycle Time (Cumulative Average)

100-700 Series

Achieving Our Goal of
Faster Cycle Time to
Complete Work



Cycle time measured for a TGI is from when it is 9% charged till it is put into CPL status in AIM or completed in SupDesk.

SSN 719
 SSN 720 Target (20% Improvement)
 SSN 720

Cycle Time	3/18	3/25	4/1	4/8	4/15	4/22	4/29	5/6	5/13	5/20
100-700	12.8	4.9	5.4	7.6	8.1	8.6	9.8	10.5	9.9	12.5

The Bottom Line

EOH Performance Comparison

At Week #7

