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REPORT TO THE CONGRESS

Too Many Crew Members Assigned Too Soon To Ships Under Construction B-172632

B-172632

Department of the Navy

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

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AUG 9, 1971



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON DC 20548

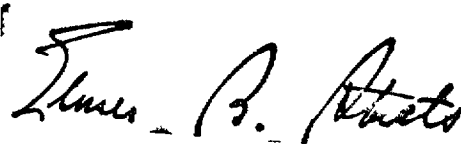
B-172632

To the President of the Senate and the
Speaker of the House of Representatives

This is our report on too many crew members assigned
too soon by the Department of the Navy to ships under con-
struction

Our review was made pursuant to the Budget and Account-
ing Act, 1921 (31 U S C 53), and the Accounting and Auditing
Act of 1950 (31 U S C 67)

Copies of this report are being sent to the Director, Of-
fice of Management and Budget, the Secretary of Defense, and
the Secretary of the Navy

A handwritten signature in black ink, appearing to read "James B. Argets".

Comptroller General
of the United States

D I G E S T

WHY THE REVIEW WAS MADE

The Navy assigns nucleus or skeleton crews for temporary duty periods up to 6 months to ships under construction to ensure delivery of ships with trained, well-organized crews

Since the assignment of nucleus crews of experienced personnel to ships at construction sites involves a significant amount of valuable manpower and since the payment of per diem to these crew members while on temporary duty increases ship construction costs, the General Accounting Office (GAO) examined into whether personnel assigned to these ships were being used efficiently

FINDINGS AND CONCLUSIONS

Over 2,800 enlisted men representing more than 980 man-years costing about \$6.2 million had been assigned to temporary duty as nucleus crews for 43 ships during the 12-month period ended July 31, 1970 (See p 6.)

GAO reviewed crew assignments for five of these ships and found that

- The number of personnel assigned to a nucleus crew was based on personal judgment and precedent, rather than on actual need (See p 8)
- Some crew members had been sent to construction sites before they were needed. They also had been assigned to perform certain tasks that already were the responsibilities of other Navy organizations (See p 10)
- The Navy had not evaluated work requirements to determine the type of personnel that should be included in a nucleus crew (See pp 13 and 22)
- The system for obtaining information on the use of nucleus crews was inadequate (See p 22)

In January 1971 the Navy approved a pilot program to place a Fleet Introduction Team on permanent shore duty at building sites to accomplish many of the tasks currently performed by nucleus crews (See pp 19 and 24)

This pilot program represents a significant departure from traditional manning practices for new-construction ships. GAO believes that the Navy can provide a means for better use of manpower resources if it limits the assignment of nucleus crews to the minimum size and composition needed to fulfill their missions.

RECOMMENDATIONS OR SUGGESTIONS

Because of the Navy's opportunity to reduce manpower requirements and per diem expenditures, GAO is recommending that the Secretary of the Navy

- Determine the essential functions that nucleus crews should perform
- Evaluate the composition and duration of manpower needed to perform these functions.
- Assign to nucleus crews only the required rates and ratings for the man-months needed
- Establish procedures which will provide for a continual evaluation of nucleus crew needs, including the requirement that prospective commanding officers recommend needed changes to nucleus crew authorization in their monthly ships' progress reports
- Monitor the actions already taken by the Navy, to make certain that valuable manpower resources are used efficiently.

AGENCY ACTIONS AND UNRESOLVED ISSUES

The Navy concurs with GAO's recommendations (See app I) Actions to refine current manpower assignment practices, with the goal of using available manpower effectively, have been initiated by the Navy (See p 24) These actions include

- Establishing an ad hoc panel to study and recommend solutions to problems associated with the delivery of new ships.
- Performing a manpower survey, using applied work-measuring techniques, to document the manpower needed for a nucleus crew

The Navy is generally deferring further comments on these actions until its studies have been completed and reviewed.

GAO believes that the actions initiated by the Navy are important steps toward determining more valid nucleus crew manpower requirements.

MATTERS FOR CONSIDERATION BY THE CONGRESS

In the light of recent and anticipated budgetary restraints, this report is to inform the Congress of the Navy's opportunity to reduce costs and manpower needs by modifying its nucleus crew program

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ABBREVIATIONS

CO	commanding officer
FIT	Fleet Introduction Team
GAO	General Accounting Office
PCO	prospective commanding officer

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CHAPTER 1

INTRODUCTION

Navy officer and enlisted personnel normally are assigned to the crew of a non-nuclear-powered surface ship undergoing construction or conversion in two general groups, the nucleus crew and the balance crew. Nucleus crew personnel are ordered directly to the building shipyard or conversion site prior to commissioning of the ship. Balance crew personnel report to the ship about the time the ship is completed or commissioned.

The nucleus crew consists of experienced personnel. Officers of the nucleus crew normally are the prospective commanding officer (PCO)¹ and the department heads. Also part of the nucleus crew is a cross section of the senior enlisted pay grades within the crew allowance and the majority of the key enlisted ratings of the supply and engineering departments.

The balance crew consists of the remaining ship's crew allowance not assigned to the nucleus crew. The balance crew's enlisted men and officers, including the prospective executive officer, department assistants, and division officers, are ordered to a Fleet Training Center for 5 to 6 weeks of organized precommissioning training. This training usually is scheduled to permit the balance crew to report to a naval activity in the vicinity of the delivery point 1 week prior to the ship's completion or commissioning date.

The Navy's Career Enlisted Rotation System provides for rotation of eligible enlisted personnel from sea duty to shore duty and from shore duty to sea duty. The period of time personnel are assigned to either a nucleus crew or a balance crew is considered to be part of their sea duty obligation. Enlisted personnel assigned to a converted or newly constructed ship generally are completing, and are assigned from, a normal tour of shore duty. They can, however, be transferred from a sea duty assignment.

¹Officer in charge of a ship not yet commissioned. The PCO becomes the commanding officer when the ship is commissioned and turned over to his command.

During the period of assignment to a nucleus or balance crew, the officer and enlisted personnel are normally on temporary duty and receive per diem in accordance with the Joint Travel Regulations applicable to military personnel. The current prescribed daily rate of \$25 is subject to reduction when adequate Government quarters and/or messing facilities are available.

Navy officials told us that a nucleus crew was assigned to a ship under construction to ensure that the best possible product, consisting of both a ship and a trained, well-organized crew, would be delivered. To accomplish this objective a nucleus crew (1) assists in identifying ship construction deficiencies, (2) assists in assembling the pre-commissioning outfit (materials, repair parts, and other supply items), (3) prepares the organization of the ship, and (4) becomes familiar with the details of the ship's operation.

PERSONNEL ASSIGNED TO NUCLEUS CREWS

The Chief of Naval Operations is responsible for establishing the number and type of positions authorized for nucleus and balance crews. The process of assembling a crew for a ship under construction or conversion begins when the Chief of Naval Personnel issues a ship-manning directive. The manning directive includes the requirements for the nucleus and balance crews, the requirements for ratings, and the places and dates for the crews to report.

For the 12-month period ended July 31, 1970, ship-manning directives had been issued for 43 ships under construction or conversion. These directives had provided for the assignment of over 2,800 enlisted personnel to nucleus crews for periods of 3 to 6 months. The total enlisted manpower authorized by these directives represented almost 11,800 man-months, or over 980 man-years costing about \$6.2 million. Depending on the extent of Government quarters and messing facilities available for assignment to the nucleus crew, the per diem paid to these enlisted personnel, based on the current rate, could vary from about \$720,000 to almost \$9 million.

The above man-months and per diem cost figures do not take into account slippages in the delivery or commissioning dates of the ships to which personnel are being assigned. Nucleus crew members are selected for assignment and placed under orders between 8 and 10 months prior to the ship's projected commissioning date. Although projected delivery dates at the 10-month time frame permit personnel planning, they have been sufficiently inaccurate to result in costly and inefficient manpower management.

Of 20 ships delivered in fiscal year 1969, only five were commissioned in the month forecasted at the time manning decisions had to be made. Past experience has shown that delays of 2 or 3 months in scheduled delivery or commissioning dates may be expected. These delays will substantially increase the man-months and per diem cost figures cited above.

We made a brief inquiry into the costly and inefficient manpower management resulting from inaccurate delivery

dates. Also the Navy recognized the need to improve communications concerning slippage in ship construction schedules with officials responsible for assigning nucleus crew personnel. The Navy issued an instruction which, if properly implemented, we believe will minimize the adverse effects on manpower resources caused by delays. Consequently we concentrated our review on examining into whether personnel assigned to nucleus crews were being used efficiently.

CHAPTER 2

OPPORTUNITY TO BETTER USE MANPOWER RESOURCES

AND TO SAVE PER DIEM COSTS

The assignment of nucleus crews to ships under construction or conversion is based on precedent rather than current need. Some nucleus crew members were not needed, some were not needed for the full length of time assigned, and some that were needed were not authorized. Valuable manpower which was already in short supply was not being used in the most efficient manner, and per diem costs were being incurred unnecessarily. On the basis of a comparison of the manpower authorized with that reported as needed for five ships we reviewed, at least 380 man-months costing about \$200,000 might have been better used and per diem costs of nearly \$200,000 might have been saved. (See p.18.)

NUCLEUS CREW MANPOWER REQUIREMENTS

Manpower authorized for a nucleus crew is not based on an accurate estimate of need. The number of personnel authorized to be assigned to a nucleus crew and the period of time the nucleus crew is at the construction site depends on the ship's total crew allowance. Under present Navy policy applicable to all ships, a nucleus crew numbers about one fourth of the ship's total allowance. The number of personnel assigned to a nucleus crew is based on personal judgment and historical practice. Navy officials were unable to provide us with any other justification and did not know of any pertinent regulations or instructions governing the size of a nucleus crew.

A nucleus crew is authorized to be assigned at the construction site 4 months prior to the date the ship is to be commissioned. In addition, for a ship with a total crew allowance of more than 350, five of the nucleus crew officers and 30 of the nucleus crew enlisted personnel are authorized to be at the construction site 2 additional months, or a total of 6 months prior to the commissioning date. We were told by officials in the Bureau of Naval Personnel that the Navy had no official basis for the period nucleus crew personnel were to be assigned.

According to these officials, the period of temporary duty cannot exceed the 6-month time limitation that per diem can be paid without special justification.

A nucleus crew is usually composed of personnel representing each ship department, such as supply, weapons, engineering, and operations. Officials in the Office of the Chief of Naval Operations furnished us with a memorandum dated May 22, 1969, which contained their rationale for assigning particular ratings (such as boilerman) and rates (such as first class) to represent these departments for new-construction escort ships.

The memorandum did not cover the question of whether there was a need for particular rates and ratings at the construction site or a need for the ship departments to be represented by nucleus crew personnel. It stated that almost all nucleus crew members were senior petty officers with many years of experience in their particular ratings and that these crew members had been responsible for all areas in which they were required to be knowledgeable for their ratings. Navy officials said that experience gained in previous precommissioning operations provided the basis for continuing to make assignments in the manner followed by the Chief of Naval Operations.

Necessary functions and responsibilities

The Navy is authorizing manpower for nucleus crews to perform functions and responsibilities that may be better performed by personnel other than those of the nucleus crew.

Supervisors of Shipbuilding, Conversion, and Repair have as their basic missions the responsibilities to administer Department of the Navy and other Department of Defense shipbuilding, design, conversion, repair, and facility contracts at assigned private shipyards. Some of the specific tasks and functions assigned in the accomplishment of their missions are the same as those performed by a nucleus crew.

Some of the tasks for which we noted that dual responsibility existed included (1) detecting contractor's work which was not in conformance with contract requirements, (2) discovering a need for and recommending operational design improvements, (3) assessing the progress of the work, and (4) determining that the contractor properly performed his fitting-out functions, such as binning and stowage of repair parts. The most apparent difference in responsibility between the two activities is that the Supervisors of Shipbuilding have continuing responsibility for these tasks and functions during construction of the ship and the nucleus crew is responsible only during the final stages of construction.

Navy officials acknowledged instances in which Supervisors of Shipbuilding had relied on the nucleus crews to perform some tasks and functions for which there had been dual responsibility. Since the Supervisors of Shipbuilding should have the capability to perform the tasks and functions required to accomplish their basic missions, the Navy might better use its manpower if nucleus crew personnel were not also expected to perform some of these tasks and functions. Eliminating some of a nucleus crew's tasks and functions, such as those where dual responsibility exists, should enable the Navy to decrease nucleus crew manpower. This would permit the use of enlisted men's skills (particularly for those ratings and rates of which there are shortages) for longer periods of time in the operating fleet.

Nucleus crews receive training (familiarization and indoctrination) by observing the ship's being constructed and by witnessing the testing of machinery and equipment. Nucleus crew personnel, however, generally are not allowed to operate any of the machinery or equipment until after the ship is delivered to the Navy. PCOs of the ships we reviewed expressed different opinions regarding the value of training received by the nucleus crews. For example, one PCO told us that the amount of experience received by his nucleus crew at the shipyard was minimal. Another believed that the training received by his nucleus crew was invaluable.

Training in actual operation of the ship's equipment is accomplished during the 10- to 60-day fitting-out-availability period at the Navy yard after the contractor delivers the ship. Following the fitting-out-availability period is the readiness-for-sea period of 1 to 3 weeks. The purpose of this period is to provide the commanding officer (CO) with an opportunity to prepare for, among other things, the organization of the ship and the training of the crew to the maximum attainable level of combat readiness.

In January 1970 the Office of the Chief of Naval Operations recognized that, for at least one class of ship, 2 months of training aboard an operating ship would be more than equivalent to 6 months of observing a ship's being constructed.

Beginning with the second ship in instances when several ships of the same class are constructed, part of the personnel assigned to the nucleus crew will report 2 months in advance of delivery and will train on one of the completed ships. Other nucleus crew personnel will be sent to the Fleet Training Center as part of the balance crew. Such a change in procedure will allow the Navy to benefit in two important ways (1) the crew will be better trained when reporting aboard at delivery and (2) a manpower and per diem saving will result because of the reduced nucleus crew requirement at the building shipyard.

Since the Navy considers the time spent by personnel assigned to a nucleus crew as lost to the operating fleet, any reduction in the nucleus crew's authorized manpower

would be economical because this manpower could be retained by the operating fleet. The Navy considers a second-class petty officer or pay grade E-5 to be a representative rate for the nucleus crew. Department of Defense Instruction 7220.25 lists the man-year cost for a pay grade E-5 as \$6,299. A reduction in nucleus crew manpower would result in per diem savings which could be as much as \$750 a month for each man.

Manpower required for present
functions and responsibilities

For the five ships in our review, the Navy had authorized more man-months than were required to perform the functions and responsibilities assigned to nucleus crews. In addition, the manpower authorization for these ships had not provided for some personnel with the ratings and rates needed as part of the nucleus crews.

Without exception, PCOs and COs of the ships we reviewed told us that more nucleus crew man-months had been authorized than they had considered necessary for discharging assigned functions and responsibilities. Most of these officers believed that the number of personnel assigned and the period of assignment should be reduced. All the officers recommended a revision in the composition (ratings and rates) of the nucleus crew. Our findings for the three classes of ships in our review follow.

Amphibious transport dock (LPD class)

This class of ship has a total enlisted crew allowance of 421 men. The authorized nucleus crew consists of 30 enlisted men to be assigned 6 months prior to the ship's commissioning and an additional 75 enlisted men to be assigned 4 months prior to the ship's commissioning. The manpower authorization provides for the nucleus crew personnel to expend a total of 480 man-months prior to the ship's commissioning.

A PCO of one ship we reviewed told us that some of the authorized nucleus crew ratings and rates should be revised. He believed that about 375 man-months, or over 100 man-months less than authorized, would have been sufficient for his nucleus crew to perform its assigned responsibilities. The proposed decrease in man-months was based on his belief that some nucleus crew personnel should be assigned for shorter periods of time and that the number of personnel assigned should be reduced about 10-percent. Some of the more significant changes he advocated are shown below.

Ratings and rates	Nucleus crew manpower for LPD-class ship					
	Authorized			Recommended by PCO		
	Number of men	Number of months	Total man- months	Number of men	Number of months	Total man- months
Boatswain's mate						
BMCS	1	6	6	-	-	-
BMC	1	6	6	1	6	6
BMC	-	-	-	1	5	5
BM1	2	6	12	1	6	6
BM2	2	4	8	1	5	5
BM3	<u>2</u>	4	<u>8</u>	<u>-</u>	-	<u>-</u>
	<u>8</u>		<u>40</u>	<u>4</u>		<u>22</u>
Engineman.						
ENC	1	6	6	1	5	5
EN1	2	4	8	1	3	3
EN2	4	4	16	1	2	2
EN3	-	-	-	1 ^a	2	2
ENFN	<u>-</u>	-	<u>-</u>	<u>1^a</u>	-	<u>-</u>
	<u>7</u>		<u>30</u>	<u>4</u>		<u>12</u>
Radioman.						
RMC	3	4	12	1	6	6
RMC	-	-	-	1	3	3
RM1	<u>1</u>	6	<u>6</u>	<u>-</u>	-	<u>-</u>
	<u>4</u>		<u>18</u>	<u>2</u>		<u>9</u>
Electrician's mate.						
EMC	1	6	6	1	6	6
EM1	2	4	8	2	4	8
EM2	-	-	-	2 ^a	2	4
EM3	<u>-</u>	-	<u>-</u>	<u>2^a</u>	-	<u>-</u>
	<u>3</u>		<u>14</u>	<u>5</u>		<u>18</u>
Total	<u>22</u>		<u>102</u>	<u>15</u>		<u>61</u>

^aEither rate would be acceptable.

In addition to savings that could result from better use of manpower, savings of about \$45,000 in per diem could result from a temporary-duty decrease of 100 man-months. At the yard where this ship was constructed, only those nucleus crew personnel having second-class rates and above received

the maximum daily rate of \$25. Men with third-class rates and below were provided with Government quarters and mess, and each received \$2 per diem.

Replenishment oiler (AOR class)

This class of ship has a total enlisted crew allowance of 350 men. For one ship we reviewed, 84 enlisted men were authorized to be assigned to the nucleus crew for about 5 months, a total authorization of 420 man-months. The CO believed that a nucleus crew of approximately the same number as that authorized should be assigned but that the period of assignment for most of the personnel should be reduced. He believed also that the nucleus crew would require only 325 man-months, or about 100 man-months less than authorized, to accomplish the required work.

The CO of another ship of the same class proposed a nucleus crew of 55 enlisted men for a total of 182 man-months of duty. The Navy authorization for his ship provided for 30 enlisted men to be assigned to the nucleus crew for about 4-1/2 months and an additional 59 enlisted men to be assigned for about 3 months, for a total of about 300 man-months. This was over 100 man-months more than the CO believed necessary. In addition to reducing the period of assignment from that authorized for some nucleus crew personnel, he deleted as unnecessary certain personnel authorized as nucleus crew members. Ratings and rates deleted included first- and second-class gunners' mates, first- and second-class electricians, and firemen.

A summary of the manpower of the authorized nucleus crew compared with that recommended by the COs follows.

<u>Authorized</u>		
<u>Number of men</u>	<u>Number of months</u>	<u>Total man-months</u>

<u>Recommended by COs</u>		
<u>Number of men</u>	<u>Number of months</u>	<u>Total man-months</u>

Ship 1

84 5 420

8 6 48
 13 5 65
 20 4 80
44 3 132

85 325

Ship 2

30 4-1/2 135
59 3 177

89 312

1 6 6
 10 5 50

19 4 76

25 2 50

55 182

Escort ship (DE-1052 class)

This class of ship has a total enlisted crew allowance of 210 men. The authorized enlisted nucleus crew for this class of ship consists of about 50 men assigned 4 months prior to commissioning, or a total of 200 man-months. PCOs of two ships we reviewed believed that there could be a net reduction in the total man-month authorization. The method by which each PCO arrived at a reduced man-month requirement, however, was different. One increased the number of personnel to be assigned to the nucleus crew and decreased the net period of assignments and the second decreased the number of personnel to be assigned and increased the net period of assignments.

Both PCOs believed that the authorized composition of the nucleus crew should be revised. For instance, they both believed that the number of ratings and rates in the engineering departments should be increased and that the number of ratings and rates in the weapons departments should be decreased. A chart of the changes recommended by the two PCOs is shown below.

Rating and rates	Number of men			Number of months			Total man-months		
	Autho- rized	Recommended by PCO		Autho- rized	Recommended by PCO		Autho- rized	Recommended by PCO	
		No 1	No 2		No 1	No 2		No 1	No 2
Engineering department									
Boilerman									
BTC	1	1	1	4	6	4	4	6	4
BT1	2	2	2	4	4	4	8	8	8
BT1	-	-	1	-	-	1 5	-	-	1 5
BT2	-	-	2	-	-	1 5	-	-	3
	<u>3</u>	<u>3</u>	<u>6</u>				<u>12</u>	<u>14</u>	<u>16 5</u>
Weapons department									
Gunner's mate									
GMC1	1	1	2	4	4	3	4	4	6
GMC2	2	1	-	4	4	-	8	4	-
GMC3	<u>1</u>	-	-	4	-	-	<u>4</u>	-	-
	<u>4</u>	<u>2</u>	<u>2</u>				<u>16</u>	<u>8</u>	<u>6</u>

The difference between the two PCOs' recommendations for fewer man-months and revised nucleus crew compositions emphasizes the need for review of the Navy's nucleus crew program, to establish more realistic manpower requirements.

Reductions in authorized man-months proposed by the PCOs and COs of the five ships (three classes) we reviewed and the value of the manpower which could be used more efficiently are summarized below. Also shown is the per diem cost which could be saved by reducing the total man-month authorizations. None of the figures shown take into consideration the possible manpower or man-month reductions that would result from the elimination of functions for which there are dual responsibilities.

Type of ship	<u>Authorized</u>		<u>PCO and CO recommended</u>		<u>Net decrease</u>		<u>Value of man-months</u>	<u>Per diem (note a)</u>	<u>Total</u>
	<u>Men</u>	<u>Man-months</u>	<u>Men</u>	<u>Man-months</u>	<u>Men</u>	<u>Man-months</u>			
DE	51	204	69	170	18 ^b	34	\$ 18,000	\$ 8,000	\$ 26,000
DE	50	200	43	180	7	20	10,000	1,000	11,000
AOR	84	420	85	325	1 ^b	95	50,000	46,000	96,000
AOR	89	312	55	182	34	130	68,000	98,000	166,000
LPD	<u>105</u>	<u>480</u>	<u>94</u>	<u>375</u>	<u>11</u>	<u>105</u>	<u>55,000</u>	<u>45,000</u>	<u>100,000</u>
	<u>379</u>	<u>1,616</u>	<u>346</u>	<u>1,232</u>	<u>33</u>	<u>384</u>	<u>\$201,000</u>	<u>\$198,000</u>	<u>\$399,000</u>

^a Computed on the basis of the per diem normally received by nucleus crew enlisted personnel at each building site

^b Increase

FLEET INTRODUCTION TEAM

Early in our review we discussed with Navy officials the possibility of assigning qualified personnel to shipyards on a permanent basis, in lieu of a nucleus crew to each ship, to supervise all ships of the class or type under construction at the particular shipyards. The Navy recognized that the concept of a nucleus crew as constituted resulted in the loss of manpower resources to the operating forces and on June 2, 1970, issued a proposal on "Manning of New Construction Non-Nuclear Powered, Surface Ships." This proposal provides that a Fleet Introduction Team (FIT), under the administrative control of the Supervisor of Shipbuilding, be placed at designated private building sites on a permanent shore-duty basis.

FIT would be composed of a minimum of four officers or warrant officers and an unspecified number of enlisted men, handpicked for their talent, experience, and ability. The function of FIT would be to accomplish certain specific tasks, including some of those in the inspection and supply areas presently accomplished by a nucleus crew. Also FIT would establish a formal training program, to be conducted both on board and in the classroom, to introduce the nucleus crew to its ship and the ship's equipment. The proposal does not eliminate the nucleus crew. It provides for a reduction in the period of time the nucleus crew would be assigned but not for a reduction in the number of personnel to be assigned or for a change in the nucleus crew's composition.

As proposed, nucleus crew personnel would report in two increments. The first increment would consist of five officers (including the PCO) and five enlisted personnel who would report 4 months prior to the scheduled delivery of the ship. The second increment would consist of the remainder of the authorized nucleus crew, who would report to the building site to begin familiarization with the ship and installed equipment about 2 months prior to the ship's commissioning. This delay in the second increment's reporting would provide an additional 2 months for the Navy to analyze the accuracy of the ship's projected delivery and commissioning dates.

The balance crew would report at about the same time as it does under the present manning policy. It would go to the precommissioning training center for 5 to 6 weeks of training and then join the ship just prior to its delivery or commissioning.

According to the proposal FIT would reduce markedly the administrative work loads of both the balance and the nucleus crews and thereby enable concentration of effort on organization, training, and indoctrination. The man-months' savings from delayed reporting of the majority of nucleus crew personnel would accrue to the fleet. In addition, there would be a reduction in per diem costs, the amount depending upon Government quarters and messing facilities available in the vicinity of the ship's building site. In summation, the Navy pointed out in the proposal that:

"A stable permanently assigned FIT, not requiring the repetitive indoctrination/orientation period needed by each ship's company, would soon develop the technical proficiency (learning curve), knowledge of shipyard operations, range of personal contacts, and procedural expertise, rarely if ever accumulated by a nucleus crew. This talent, coupled with a continually growing fund of experience and feedback from the fleet and type commanders, should produce cost efficiencies in manpower utilization far beyond the gross savings accruing from implementation of the Team itself. An additional side effect would be the improved sea/shore rotation for several ratings presently considered in the deprived category."

The proposal was circulated and comments were requested from various sources. Two of the Supervisors of Shipbuilding for the building sites included in our review opposed the idea. The third was in favor of the proposal but recommended several revisions to eliminate potential areas of conflict. One of his recommendations was that FITs be under the administrative control of the Type Commander¹ instead of

¹A type command is a subdivision of a fleet involving ships of the same type.

the Supervisor of Shipbuilding. We concur with this recommendation and believe that FIT should be under the command of another Navy activity to adequately represent the requirements of fleet operating personnel.

One Supervisor of Shipbuilding believed that a potential area of conflict would arise because the proposal, as written, included the suggestion of imposing an additional tier of inspection on the contractor. Another supervisor believed that implementation of the proposal would result in claims from the contractor for the added burden of double inspection.

All three supervisors believed that some of the other tasks that FIT was to perform, such as monitoring the progress of the shipyard's work in the later stages of construction and ensuring that supply items were placed on order timely, would duplicate their functions. As previously pointed out, dual responsibility for some of these tasks currently existed between the Supervisors of Shipbuilding and the nucleus crews.

NAVY REVIEW PROCEDURES

The Deputy Chief of Naval Operations (Manpower and Naval Reserve) currently has the responsibility for manpower validation. Navy officials informed us that no in-depth study had ever been made on the use of nucleus crews. Also we found no indication that this matter had ever been looked into by the Navy's internal audit organization.

We were told that the Navy had no procedures for obtaining information regarding the use or effectiveness of the nucleus crew other than the requirement that the PCO inform the Chief of Naval Operations of the status of ship construction. The PCO is required to submit progress reports to apprise the Chief of Naval Operations, among others, of the general condition and progress of the ship, including information and warnings of possible need for changes or exceptions to plans and policies.

The Navy officials could not recall any instance when it had been reported that nucleus crew personnel were not needed at the construction site or that the nucleus crew was being ineffectively used. We noted that in only one of the progress reports submitted for the ships included in our review had a recommendation been made to change the authorized nucleus crew's manpower. All the officers we interviewed, however, told us that, in their opinions, some changes in the authorized nucleus crew's manpower, ratings, and rates should be made.

CONCLUSIONS

The Navy has not evaluated nucleus crew work requirements to determine needed ratings and rates. The assignment of personnel to nucleus crews is based on personal judgment and historical practice rather than on established need. As a result more manpower is authorized for nucleus crews than is needed to perform presently assigned functions. Some assigned functions might be better performed by personnel other than the nucleus crew because dual responsibility exists for some of these functions.

The Navy's proposal to establish FIT represents a significant departure from traditional new-construction manning practices and could provide a means for better using manpower

resources. The need to assign the same number of personnel to nucleus crews is questionable, however, since FIT should be performing some of the tasks normally performed by the nucleus crew. To adequately represent the requirements of the fleet, FIT should not be under the administrative control of the Supervisor of Shipbuilding.

We believe that, in validating nucleus crew manpower requirements, the Navy should examine critically the actual need for any task currently performed at the construction or conversion site and should eliminate any duplication of responsibility. The Navy also should assign to nucleus crews only those personnel who have valid and necessary functions to perform at the building site and should assign those personnel for only the period required to perform the necessary functions.

RECOMMENDATIONS

Because of the Navy's opportunity to reduce manpower requirements and per diem expenditures, we recommend that the Secretary of the Navy:

- Determine the essential functions that nucleus crews should perform.
- Evaluate the composition and duration of manpower needed to perform those functions.
- Assign to nucleus crews only the required rates and ratings for the man-months needed.
- Establish procedures which will provide for a continual evaluation of nucleus crew needs, including the requirement that PCOs recommend needed changes to nucleus crew authorizations in their monthly ships' progress reports.
- Monitor the actions already taken by the Navy, to make certain that valuable manpower resources are used efficiently.

CHAPTER 3

AGENCY COMMENTS AND GAO EVALUATION

The Assistant Secretary of the Navy (Financial Management) in commenting on our draft report (see app. I), stated that the Navy concurred with our recommendations but did not concur fully with all the findings as they were stated in the draft report. His specific comments are summarized below.

The Assistant Secretary stated that the Navy recognized the need to refine current manpower assignment practices, with the goal of using available manpower assets effectively and reducing the expenditure of per diem funds. He stated also that an ad hoc panel had been initiated in April 1970 to study and recommend solutions to problems associated with the delivery of new-construction and conversion ships. He stated further that the panel's draft report, dated December 2, 1970, was currently in distribution within the Navy for review and comments.

In January 1971 the Chief of Naval Operations approved the institution of a pilot program for two FITs and requested a manpower survey of precommissioning crews (nucleus and balance crews). The manpower survey will document through applied work-measuring techniques, the manpower required for a nucleus crew. This survey will also evaluate work requirements to determine the rates and ratings that should be included in a nucleus crew. The results of the manpower survey are anticipated by the end of June 1971, and manning adjustment will be implemented at that time. The Assistant Secretary stated further that the Navy initiated a reduced nucleus crew program, whereby the number of men assigned to the nucleus crews for two ships had been reduced to about half the number formerly assigned.

The Assistant Secretary deferred comment on the Navy's further plans for using manpower assets more effectively until the evaluation is complete and results of the current Navy studies and programs have been reviewed. Comment was deferred also on the FIT concept until after the implementation and evaluation of the approved pilot program and until

a decision could be made as to whether FITs should be under the administrative control of the Supervisor of Shipbuilding.

During our fieldwork we were told that the period that personnel were assigned to a nucleus crew could not exceed the 6-month time limitation that per diem could be paid. In his reply to our draft report, however, the Assistant Secretary stated that the Navy's staffing plan was not oriented to the 6-month time limitation for per diem funds. He said that the staffing plan currently being used had evolved from past experience, the need to manage properly manpower assets, and the monitoring of authorized nucleus crew assets. He stated also that the staffing plan for new construction and major conversion of ships had not been promulgated in its entirety. A Navy directive promulgating the staffing plan is in draft form and is scheduled to be issued by the end of June 1971.

Regarding our recommendation that the Navy establish procedures to ensure continual evaluation of nucleus crew needs, the Assistant Secretary stated that instructions would be updated to provide for comments from the PCO on the use of a nucleus crew. These comments will be submitted as part of the Progress and Readiness Reports which the PCO presently is required to submit.

We believe that the actions initiated by the Department of the Navy are important steps toward determining more valid nucleus crew manpower requirements.

CHAPTER 4

SCOPE OF REVIEW

Our work included an examination into Navy policies, procedures, and practices relating to the assignment of nucleus crews to ships under construction or conversion. We also had discussions with officials in the Office of the Chief of Naval Operations and the Bureau of Naval Personnel; with Supervisors of Shipbuilding, Conversion, and Repair; and with appropriate personnel concerned with the ships included in our review. Our fieldwork was performed from January to September 1970 with the Supervisors of Shipbuilding, Conversion, and Repair in Seattle, Washington; Quincy, Massachusetts; and New Orleans, Louisiana.

APPENDIXES



DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON D C 20350

Mr Charles M. Bailey
Director, Defense Division
U. S. General Accounting Office
Washington, D. C. 20548

23 FEB 1971

Dear Mr. Bailey:

The Secretary of Defense has asked me to reply to your letter of 14 December 1970 which forwarded the GAO draft report on assignment of nucleus crews to ships under construction or conversion.

I am enclosing the Department of the Navy reply to the report

Sincerely yours,

A handwritten signature in cursive script that reads "Charles A. Bowsher".

CHARLES A. BOWSHER
ASSISTANT SECRETARY OF THE NAVY
(FINANCIAL MANAGEMENT)

Encl.

- (1) U. S. Navy Reply on the Review of the Assignment of Nucleus Crews to Ships Under Construction or Conversion (OSD Case #3212)

U S. NAVY REPLY
ON
THE REVIEW OF
THE ASSIGNMENT OF NUCLEUS CREWS
TO
SHIPS UNDER CONSTRUCTION OR CONVERSION
(OSD CASE # 3212)

I. GAO FINDINGS AND RECOMMENDATIONS.

GAO reviewed the Navy practice of assigning nucleus crews to ships under construction or conversion to determine whether personnel assigned to nucleus crews were being used efficiently. It was recognized that personnel are assigned on a temporary basis for up to 6 months and that per diem costs are involved. Furthermore it was observed that the purpose of the assignment was to insure the best possible products consisting of both ships and well organized and trained crews are delivered.

GAO FOUND

a. That there is an opportunity to transfer to other uses significant manpower and funds presently allocated to nucleus crews.

b. That in general, nucleus crews are sent to construction sites before they are needed to perform certain tasks that are already the responsibility of other Navy organizations.

c. That the present method of assigning nucleus crews is not based on actual need.

d. That the work requirements have not been evaluated to determine the rates and ratings that should be included in a nucleus crew.

e. That the number of personnel assigned to a nucleus crew is based on judgement and historical practice.

f. That the period of assignment is based on a 6 - month time limitation that per diem can ordinarily be paid.

g. That the system for obtaining information on the utilization of nucleus crews is inadequate.

GAO identified the recent formulation of a proposal to place a Fleet

Enclosure (1)

Introduction Team (FIT) at building sites on a permanent shore duty basis to accomplish certain tasks presently performed by nucleus crews. The proposal would reduce the length of time certain nucleus crew personnel would be assigned but would not alter the number of personnel assigned or the nucleus crews' composition.

GAO RECOMMENDS

a. That the Secretary of the Navy order

1. A review of the nucleus crew program to determine the essential functions that nucleus crews should perform.

2. An evaluation of the composition and duration of manpower needed to perform these functions and assignment of only those rates, ratings and man-months needed.

b. That procedures be established to insure continual evaluation of nucleus crew needs including requiring Prospective Commanding Officers to report in their ship's progress reports recommended increases and decreases in nucleus crew authorizations.

c. That the Fleet Introduction Team not be under the administrative control of the local supervisor of shipbuilding, conversion, and repair.

The GAO report covered a period of approximately 18 months from May 1969 to December 1970.

II. DEPARTMENT OF THE NAVY POSITION.

The Navy concurs with the recommendations contained in the GAO Draft Report. Of particular interest to the Navy is the recognition by GAO of the current Navy efforts in progress to improve the methods by which nucleus and balance crews are assigned to new construction and conversion ships.

The Navy does not agree fully with all of the findings as they are stated in the report. Specific comments concerning the areas of disagreement are contained in section III of this reply.

III. DEPARTMENT OF THE NAVY SUMMARY

The Navy initiated in April 1970 an AD HOC panel that was tasked to study and recommend solutions to problems associated with delivery of new construction and conversion ships and their introduction into the fleet. The draft report (TAB A) of the results of this AD HOC panel, dated 2 December 1970, is currently in distribution within Navy for review and comments. Concurrently, the Chief of Naval Operations approved on 4 January 1971 the institution of a pilot program for two Fleet Introduction Teams. GAO addressed the FIT concept and control of the

APPENDIX I

number of personnel to be assigned to the team. Furthermore, GAO identified the problem of the proper administrative assignment to preclude an augmentation of the local Supervisor of Shipbuilding, Conversion and Repair.

The Department of the Navy reserves comment on the FIT concept and the assignment thereof until after the implementation and evaluation of the approved pilot program.

Specific comments are submitted below.

A FINDING - The Navy has not evaluated work requirements to determine the rates and ratings that should be included in a nucleus crew.

COMMENT - The Office of the Chief of Naval Operations (OP-10) initiated a request on 4 January 1971 for a manpower survey of pre-commissioning crews (nucleus and balance crews). Ships of the DE-1052 and LST-1179 classes are the recommended sample hulls.

In May of 1969, upon first contact with GAO representatives, a memorandum (OP-100D ser 12368P10 of 22 May 1969) was provided. This document addressed the rationale then utilized for the assignment of particular rates/ratings for DE new construction ships.

As an instrument of self evaluation the Navy instituted in January 1970 a reduced nucleus crew program for two LST-1179 class ships building at National Steel and Shipbuilding Company, San Diego, California. Under this program the nucleus crew was reduced from 4 officers and 40 enlisted personnel to 4 officers and 20 enlisted. Realizing that the members of the nucleus crew spend considerable time and effort monitoring construction activities, the staff of Commander Amphibious Force, U S Pacific Fleet and other Amphibious Staffs in the vicinity of the building site were tasked with providing the expertise to assist the reduced nucleus crew. The balance crew is ordered to the Fleet Training Center, San Diego for familiarization and indoctrination of new systems and equipment both at the fleet training center and aboard LST-1179 class ships already in commission. Feed back reports evaluating the reduced nucleus crew programs will be available in March 1971 or approximately thirty days after commissioning of the SAGINAW (LST-1188) and BOULDER (LST-1190).

B FINDING - The Navy's system for obtaining information on the utilization of nucleus crews is inadequate.

COMMENT - Navy Directive OPNAVINST 4700.8 (series) will be updated to include comments from the Prospective Commanding Officer (PCO) on the utilization of a nucleus crew. Comments will be submitted as part of the progress and Readiness Reports required by Navy Directive, OPNAVINST

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9030 2 (series).

C FINDING - The period of assignment is based on the 6 month time limitation that per diem can ordinarily be paid.

COMMENT - The nucleus crew consists of those personnel ordered directly to the building shipyard or conversion site prior to the commissioning of the ship. This detail consists of experienced personnel and does not normally receive pre-commissioning training. They assist in assembling the pre-commissioning outfit, in witnessing tests of machinery and equipment and they serve as on the job instructors for the balance of the crew when it reports. The phasing of the nucleus crew (approximately 25% of the authorized manpower) is structured so as to minimize personnel hardships, family separation, and any unnecessary expenditure of per diem funds.

For authorized crew sizes of less than 350 billets, a nucleus crew (25% of authorized billets) is ordered to report four months prior to commissioning.

For authorized crew sizes of greater than 350 billets, a nucleus crew of 5 officers and 30 enlisted personnel are ordered to report 6 months prior to commissioning.

The staffing plan currently utilized evolved from past experience, the need to properly manage manpower assets, and the monitoring of nucleus crew assets authorized by OSD.

For FY 71, 75 percent of the new construction/conversion non-nuclear powered ships were manned 4 months or less prior to commissioning. The total nucleus crew manpower authorized and assigned for these hulls was 129 officer and 1693 enlisted billets. The manpower associated with the remaining 25 percent of the hulls was 60 officer and 360 enlisted billets.

It is therefore the Navy's position that the structuring of the staffing plan was not oriented to the 6 month time limitation for per diem funds.

The Navy Staffing Plan for new construction and major conversion has not been promulgated in its entirety. A Navy directive, OPNAVINST 3500.23A, currently in a second draft form and scheduled to be issued during the fourth quarter of FY 71, will promulgate the staffing plan (TAB B).

D FINDING - The number of personnel assigned to a nucleus crew is based on judgement and historical practice.

COMMENT - The Navy does not consider this finding to be critical of the manning procedures. The recently ordered manpower survey will document

through applied work measuring techniques the required manpower to man a nucleus crew. The current practice originated with the first post WWII major construction effort, the DD-931 class destroyer. Since that time the nucleus crew structure has been modified by the expressed needs of Prospective Commanding Officers, the historical results of various new construction programs, and the judgement of Navy Department experienced officers who have first hand knowledge of the complexities of modern naval new construction.

The results of the manpower survey are anticipated by end of the fourth quarter FY 71, and at that time manning adjustments will be implemented.

E FINDINGS - - The present method of assigning nucleus crews is not based on actual need.

- The Navy has an opportunity to transfer to other use, significant manpower and funds presently allocated to nucleus crews

- In general, nucleus crews are sent to construction sites before they are needed and to perform certain tasks that are already the responsibility of other Navy organizations.

COMMENTS - These findings are considered logical end-results in view of the time span of the review, the orientation of the representatives and the methodology employed. The Navy recognizes the need to refine current practices with the goal of effectively utilizing available manpower assets and reducing the expenditure of austere per diem funds. The Navy considers that the vehicles to accomplish these goals are presently available in the form of the previously mentioned AD HOC panel, F11 concept pilot program and the recently initiated manpower survey request. The Navy defers comment on the resolution of above findings until the evaluation is complete and results of the current Navy studies and programs have been reviewed.

[1]

F. ADDITIONAL COMMENTS - Under Navy Review Procedures¹ on page 25 of the report it is stated that the Naval Inspector General is responsible for performing evaluations of the utilization of nucleus crews, citing the provisions of a Navy Directive, OPNAV Instruction 5300.3, which is outdated and does not reflect the OPNAV organizational changes directed by OPNAVINST 5430 serial 3065P09B3 of 30 April 1968. This latter instruction transferred the responsibilities for manpower validation from the NAVINSGEN to the Deputy Chief of Naval Operations (Manpower and Naval Reserve).

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¹GAO note. Page number refers to draft report.

PRINCIPAL OFFICIALS OF
THE DEPARTMENT OF DEFENSE AND
THE DEPARTMENT OF THE NAVY
RESPONSIBLE FOR ACTIVITIES
DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>DEPARTMENT OF DEFENSE</u>		
SECRETARY OF DEFENSE		
Melvin R. Laird	Jan. 1969	Present
Clark M. Clifford	Mar. 1968	Jan. 1969
Robert S. McNamara	Jan. 1961	Feb. 1968
DEPUTY SECRETARY OF DEFENSE		
David M. Packard	Jan. 1969	Present
Paul H. Nitze	July 1967	Jan. 1969
Cyrus R. Vance	Jan. 1964	June 1967
ASSISTANT SECRETARY OF DEFENSE (MANPOWER AND RESERVE AFFAIRS)		
Roger T. Kelley	Mar. 1969	Present
Vice Adm. W. R. Mack (acting)	Feb. 1969	Mar. 1969
Alfred B. Fitt	Oct. 1967	Jan. 1969
Thomas D. Morris	Oct. 1965	Sept. 1967
<u>DEPARTMENT OF THE NAVY</u>		
SECRETARY OF THE NAVY		
John H. Chafee	Jan. 1969	Present
Paul R. Ignatius	Aug. 1967	Jan. 1969
John T. McNaughton	July 1967	July 1967
Paul H. Nitze	Nov. 1963	June 1967
UNDER SECRETARY OF THE NAVY		
John W. Warner	Feb. 1969	Present
Charles F. Baird	July 1967	Jan. 1969
Robert H. Baldwin	July 1965	June 1967
Kenneth E. Belieu	Feb. 1965	July 1965

<u>Tenure of office</u>	
<u>From</u>	<u>To</u>

DEPARTMENT OF THE NAVY (continued)

ASSISTANT SECRETARY OF THE NAVY
(MANPOWER AND RESERVE):

James E. Johnson	Apr. 1971	Present
James D Hittle	Mar. 1969	Mar. 1971
Randolph S. Driver	Aug. 1967	Jan. 1969