Value Engineering Program Needs To Be Improved And Reinstated B-118779

Maritime Administration
Department of Commerce

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-118779

Dear Mr. Winn:

This is our report, pursuant to your request of October 6, 1971, on our review of the reasons of the Maritime Administration, Department of Commerce, for discontinuing the requirement that a value-engineering provision be included in ship construction contracts.

As agreed with your office on November 19, 1971, we submitted a draft of this report to the Department of Commerce for review and comments.

Because this report contains recommendations to the Secretary of Commerce, we believe that copies should be made available to the Department of Commerce. We plan to contact your office regarding the submission of a copy of the report to the Department. We will make further distribution of this report only after your agreement has been obtained or public announcement has been made by you concerning its contents.

Sincerely yours,

Elmer B. Staats

Comptroller General
of the United States

cl HR
The Honorable Larry Winn, Jr.
House of Representatives

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COMPTROLLER GENERAL'S REPORT TO THE HONORABLE LARRY WINN, JR. HOUSE OF REPRESENTATIVES

VALUE ENGINEERING PROGRAM NEEDS TO BE IMPROVED AND REINSTATED

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D I G E S T

WHY THE REVIEW WAS MADE

Congressman Larry Winn, Jr., requested the General Accounting Office (GAO) to review the Maritime Administration's decision to delete value-engineering provisions from ship construction contracts.

Background

Value engineering is a technique used to reduce design and construction costs of a ship without sacrificing efficiency and reliability. It is based upon development and application of new engineering and production techniques, materials, and processes. Value-engineering items may be proposed by the shipyards, the ship operators, or Maritime. Since its inception in 1957, the value engineering program has saved the Government and industry about $32 million. (See p. 4.)

FINDINGS AND CONCLUSIONS

In June 1971 Maritime discontinued the requirement that value-engineering provisions be included in ship construction contracts. This requirement was discontinued for a number of reasons, including:

--The Merchant Marine Act of 1970 eliminated much of the Government's participation in shipbuilding contracts. (See p. 10.)

--The ship operators were opposed to the program because they were required to accept value-engineering proposals even though they may have felt that the changes were not in their best interests and because the monetary return was not sufficient. (See p. 10.)

--The shipyards were opposed to the requirement because they felt that they would lose money if they had to delay work to incorporate a value-engineering change. (See p. 10.)

GAO's views

Because of the substantial savings that have resulted from the program and the potential future savings, complete elimination of the value engineering program is not warranted. A need exists, however, for some revisions in the program to reflect changes in Maritime's ship construction activities and to correct inequities. (See p. 13.)

RECOMMENDATIONS OR SUGGESTIONS

The Secretary of Commerce should require Maritime to (1) include a voluntary value-engineering clause in all future ship construction contracts, (2) provide for an increase in the ship operators' share of savings resulting from value-engineering changes proposed by shipyards, (3) issue informational letters to interested Government and industry officials of accepted value-engineering changes, (4) provide for a review of all ship construction plans and specifications by its Value Engineering Branch, and (5) give due consideration to the Branch's comments when approving construction contracts. (See p. 20.)

After a change has been proven to be both technologically and economically sound, it should be included, whenever applicable, in future shipbuilding. (See p. 22.)

AGENCY ACTIONS AND UNRESOLVED ISSUES

The Department of Commerce agreed that Maritime would (1) require voluntary value-engineering clauses to be included in future ship construction contracts, (2) provide for savings from accepted value-engineering proposals to be shared equally by the owner and the shipyard, and (3) reestablish the practice of issuing value-engineering letters to industry for its information and use. (See p. 20.)

The Department stated that the Value Engineering Branch would continue to review plans and specifications prior to approval of the contracts, but only when time permitted. GAO continues to believe that the Value Engineering Branch should review the plans and specifications for all ships before approval of the construction contracts. (See p. 21.)

The Department disagreed with the GAO recommendation that approved value-engineering changes that have been found to be technologically and economically sound be included, whenever applicable, in future ship construction. The Department said that it would be an imposition on the ship operators.

GAO believes that, for the Government to recover the benefits of the value engineering program that it will be losing by allowing the ship operators and shipyards to share equally the savings resulting from proposals made by the shipyards, it is essential that Maritime require that value-engineering changes that have been found to be technologically and economically sound be incorporated, whenever applicable, in future approved ship plans and specifications or alternatively reduce the subsidy by the amount of the estimated reduction in the cost of the ship that would result from adoption of the change. (See p. 22.)

In future reviews GAO intends to evaluate the effectiveness of the value engineering program including the impact on ship construction costs of the increases in the operators' share of savings from value-engineering changes.

CHAPTER 1

INTRODUCTION

Our review of the Maritime Administration's value engineering program was directed toward ascertaining the reasons for the decision to discontinue the requirement that value-engineering provisions be included in ship construction contracts and the potential effect of this decision on ship construction costs. The review was made in response to a request dated October 6, 1971, of Congressman Winn. (See app. I.)

Our review, which was conducted in Washington, D.C., included an examination of pertinent Maritime records and discussions with officials of Maritime, the Shipbuilders Council of America, and the American Institute of Merchant Shipping.

Under the provisions of title V of the Merchant Marine Act, 1936, as amended (46 U.S.C. 1151), Maritime subsidizes the construction of ships in American shipyards for use in the foreign commerce of the United States. The shipyards receive a construction differential subsidy which may equal, but not exceed, the difference between the cost of the construction of the proposed ship in an American shipyard and the fair and reasonable estimate of cost, as determined by Maritime, of the construction in a representative foreign shipbuilding center.

Since June 30, 1970, the legal limit of subsidy has been 50 percent of the domestic cost of the ship; however, the Merchant Marine Act of 1970 (84 Stat. 1018) established subsidy rate goals of 45 percent of the domestic cost of a ship for fiscal year 1971 for the program and decreasing 2 percent a year to a rate of 35 percent for fiscal year 1976 and thereafter.

Maritime's Office of Ship Construction is responsible for the technical aspects of the ship construction program, and the Office of Subsidy Administration is responsible for administering the subsidy aspects of the program.

The Maritime Subsidy Board, which is composed of the Assistant Secretary of Commerce for Maritime Affairs, the Deputy Assistant Secretary for Maritime Affairs, and Maritime's General Counsel, is responsible for approving all ship construction contracts and changes and for approving construction subsidy rates.

Maritime's value engineering program, which is administered by the Office of Ship Construction, is devised to reduce the design and construction costs of a ship, without sacrificing the efficiency and reliability of the ship, by the development and application of new engineering and production techniques, materials, devices, and processes in shipbuilding.

The value engineering program consists primarily of:

1. Proposals by shipyards for changes on ships currently under construction by them.

2. Proposals by a ship operator or by Maritime for changes which are incorporated into the ships under construction.

3. A critical precontract review by the Value Engineering Branch of the Office of Ship Construction of all plans and specifications submitted by applicants--either shipyards or ship operators--for construction subsidy to determine whether they include previously approved value-engineering items and to identify other possible value-engineering changes.

It also includes (1) a postcontract review by the Value Engineering Branch to further identify value-engineering changes, (2) a screening and analysis of value-engineering proposals developed by shipyards, and (3) clarification and/or changes to existing regulations that appear to add unnecessarily to costs.

Since the inception of the value engineering program in fiscal year 1957, items developed under the program have resulted in reported savings in ship construction costs of about $21.5 million on the construction of 190 ships having an original contract price of about $2.6 billion. The

value-engineering savings on these 190 ships represents an average reported savings of $113,000 a ship. Appendix III, page 28, shows the value engineering program savings which have been effected on various ship construction contracts entered into since 1965 by Maritime.

The reported value-engineering savings of $21.5 million represents only the initial application of a value-engineering item on a ship being constructed. Maritime officials estimate that savings resulting from the use of value-engineering items on ships subsequently constructed would add about 50 percent to the reported savings. Thus total savings resulting from the value engineering program would be about $32 million, of which the Government's share would be about $13 million, or about 40 percent.

CHAPTER 2

HISTORY OF VALUE ENGINEERING PROGRAM

Maritime's value engineering program was initiated in March 1957 and was based on the voluntary participation in such a program by the operator of a ship being constructed and by the shipyard. Maritime's program provided that the inclusion of a value-engineering provision in a ship construction contract was left entirely to the operator but that the shipyard did not have to participate in the program if it elected not to do so. Although this program was somewhat successful, Maritime did not consider it to be adequate.

On March 9, 1962, the Maritime Subsidy Board determined that (1) a value-engineering provision should be included in all ship construction contracts and (2) a provision which requires the operator of a ship being constructed to accept a contractor-proposed, Board-approved value-engineering item should be included in construction-differential subsidy contracts.

On November 21, 1962, after strenuous objections from ship operators, the Board modified its previous determination. On that date the Board determined:

> "*** that previously approved value engineering program and language should be continued, with the modification that the Agency would eliminate its authority to order value engineering changes over the objection of the owner, as previously authorized."

Thus, although all construction contracts were to contain provisions for value engineering, the mandatory enforcement by Maritime of a contractor proposal over an operator's objection was not to be a requirement of the construction-differential subsidy contracts.

PRIOR GAO REVIEW

On June 23, 1965, we issued a report to the Congress entitled "Unwarranted Construction-Differential Subsidy

Payments Resulting from Inadequate Implementation of Value Engineering Program" (B-118779) in which we stated that unwarranted costs were incurred by the Government because of the participation by Maritime in certain ship construction costs which could have been avoided if proven cost-saving proposals developed under the value engineering program had been incorporated into contracts for construction of the ships.

That report dealt with developed value-engineering items that had been issued in the form of value-engineering informational letters. We reported that Maritime had not required shipowners to adopt the cost-saving advice contained in these letters. We proposed that Maritime contractually require the mandatory application of the cost-saving advice contained in the value-engineering informational letters or, as an alternative, refuse to participate in the unnecessary costs occasioned by the failure of shipowners to adopt the cost-saving proposals.

Subsequently, the Maritime Subsidy Board in September 1965 revised its policy to provide that value-engineering provisions be included in all ship construction contracts and construction-differential subsidy contracts. This new policy further provided that value-engineering items considered mandatory by the Maritime Subsidy Board be incorporated into the ship or, if not acceptable to the owner, the difference in cost between the value-engineered item and the installed item be borne by the owner. Such value-engineering provisions were incorporated into the general provisions of ship construction contracts.

CHANGES IN SHIP CONSTRUCTION PROGRAM

The ship construction program was revised substantially by the Merchant Marine Act of 1970, and it indicated congressional intent that 300 ships be built during the next 10 years. Significant changes were:

1. Shipyards, as well as ship operators, could apply for construction subsidy.

2. Negotiation of contracts between shipyards and ship operators were authorized until June 30, 1973.

3. Guidelines for reducing construction subsidy to 35 percent of the domestic cost of a ship by 1976 were established.

Also it is the intent of the new program to have the shipyards design standard ship types for series production, compared with the previous program under which the ships generally were designed by design firms hired by ship operators. The ships designed by the design firms usually were of benefit only to the operators for which they were designed because of special configurations.

Another change in the program was the decision to discontinue the use of three-party contracts. Prior to the enactment of the Merchant Marine Act of 1970, the construction contract was a three-party contract involving Maritime, the shipyard, and the ship operator. According to Maritime officials the Government was involved in all contract claims and disputes under this type of contract.

To reduce the Government's involvement in these contracts, the new program provides for (1) a construction contract between the shipyard and the operator, (2) a contract between Maritime and the shipyard for the payment of the subsidy, and (3) a contract between Maritime and the operator setting forth the rights and obligations of Maritime and the operator for the construction and operation of the vessel.

Under the new contracts the general change-order provisions have been changed. Under the prior three-party contract, the ship operator could require the shipyard to accept change orders. Any disagreements regarding price were handled through arbitration. Under the new two-party contract, however, the shipyard is required to accept only essential change orders. "Essential" is defined as changes in the contract work due to an action of a regulatory body or changes in the law or due to a substantial design defect which would reduce materially the economic life or value of the unchanged vessels. All other changes in the contract work are considered nonessential and do not have to be accepted by the shipyard.

DELETION OF VALUE-ENGINEERING PROVISIONS

The first two-party construction contract between a shipyard and a ship operator was awarded on May 19, 1971. Although this contract did contain a value-engineering clause, the provision which required the operator to accept or pay for any shipyard value-engineering proposals accepted by Maritime was not included in the clause. Acceptance or rejection of the shipyard's value-engineering proposals was left entirely to the operator.

On June 4, 1971, following a strong objection to value-engineering provisions in ship construction contracts by a contractor in behalf of an operator, the Assistant Secretary of Commerce for Maritime Affairs in a memorandum concluded that the value-engineering clause should not be included in any future construction contracts. He stated that this was something that had been borrowed from Navy contracting procedures where it made sense but that it did not make sense in Maritime because the U.S. Government owned a ship built for the Navy but did not own a merchant ship merely because it subsidized a shipyard.

The Assistant Secretary stated also that the operator of a ship that was being constructed had every incentive to reduce the total cost of the ship and that the imposition of a value-engineering change on an operator merely on the basis of savings in construction costs could result in creation of additional vessel operating costs which eventually would exceed the construction cost savings to the operator. He added that Maritime was not in a position to judge the ultimate impact on operating costs of a value-engineering change and that, since the operator had no effective opportunity for judicial or administrative review of a Maritime decision to adopt a value-engineering proposal, it seemed appropriate to relieve the operator from these added restrictions.

Subsequently, a ship construction contract awarded on June 30, 1971, for the construction of two ore-bulk-oil carrier vessels did not contain any provision for value engineering.

CHAPTER 3

REASONS GIVEN FOR NOT REQUIRING A VALUE-ENGINEERING PROVISION TO BE INCLUDED IN SHIP CONSTRUCTION CONTRACTS

We discussed with Maritime officials the reasoning behind Maritime's decision to not require value-engineering provisions to be included in ship construction contracts, which, in effect, eliminated the value engineering program.

Maritime officials told us that the change in policy was a result of the Merchant Marine Act of 1970, which for the first time allowed the negotiation of ship construction contracts between the operator and the shipyard, provided that certain conditions as set forth in the act were met. These officials told us also that under the new program the shipyards were selling their products--ships--and that, during negotiations with prospective buyers (the ship operators), the negotiation processes in arriving at the final product represented a sort of value engineering program in itself.

Additionally, Maritime officials told us that neither the ship operators nor the shipyards were in favor of the value engineering program. The ship operators were opposed to the program primarily because the use of Maritime-accepted value-engineering changes was mandatory, even though they may have felt that the changes were not in their best interest and that the monetary return was not sufficient. The contractor received 50 percent of the savings, and the Government and the operator divided the remaining 50 percent on the basis of the subsidy rate.

With regard to the shipyards, we were told by Maritime officials that only one shipyard was interested in participating in the value engineering program. They said that other shipyards felt that the only way to make a profit was to construct a ship with a minimum of delay and that these shipyards were opposed to the program because they would lose money if they had to delay work to incorporate a value-engineering change in their shipbuilding.

These officials also commented that, even though a value-engineering provision was contained in a ship construction contract, use of the provision was entirely up to the shipyard. As stated above only one shipyard had participated in the program to any great extent.

Maritime informed us that, under the Merchant Marine Act of 1970, the amount of ship construction subsidy to be paid by Maritime would decrease, and thus the operator would be required to pay more of the construction cost of a ship.

Because an operator's investment in a ship gradually will become larger, its best efforts would be put forth during the negotiation of the construction contract to reduce the cost of the ship; and, because its investment will be greater, it should have a greater say in what changes are made to the ship. Maritime also felt that, during the negotiation of a construction contract, the operator should have the chance to make any changes it desired and that, because it would have to live with the vessel, any changes made during the negotiation should result in the best possible ship at the lowest cost. They added that they believed that, in view of the above reasons, they should not burden the operator with a Government-enforced value engineering program.

These Maritime officials informed us also that the non-inclusion of a value-engineering clause in ship construction contracts was consistent with their efforts to remove Government interference. They stated that any value-engineering changes could be provided for by contract change orders. They added that, although theoretically there would be no savings to the shipyards under this system, there would be indirect benefits.

We were told by Maritime officials that current plans called for the retention of the employees currently assigned to the Value Engineering Branch. Its functions will be to undertake projects to develop ways to reduce ship construction costs; when time is available, to review ship plans and specifications and present comments on their reviews to the operators for approval; and to continue the value engineering program functions for those construction contracts currently in effect which contain value-engineering provisions.

We discussed the noninclusion of value-engineering provisions in ship construction contracts with representatives of the Shipbuilders Council of America and the American Institute of Merchant Shipping.

The Shipbuilders Council officials told us that, although the council was very interested in value engineering, they believed that the value-engineering provisions as presently constituted should not be included in ship construction contracts authorized by the Merchant Marine Act of 1970. These officials explained that, with the changes brought about by the Merchant Marine Act of 1970, particularly directing the shipyards to construct new modern vessels at the lowest possible cost during a period in which the program goal was for reduced Government subsidy, the construction of low-cost, high-quality vessels could not be accomplished by the shipbuilding industry unless the Government's involvement in the construction was held to a minimum.

The Shipbuilders Council officials added that value-engineering changes resulted in disruptions of a shipyard's production flow in the construction of a ship, caused delays in the construction, and lost time and money to the shipyard. To avoid these problems, it was their opinion that the value-engineering provisions should not be included in commercial ship construction contracts.

An official of the American Institute of Merchant Shipping advised us that the ship operators were concerned about the mandatory provisions of the value-engineering clause and that, when value-engineering proposals were approved, sufficient consideration was not being given to the operators' future operating costs. For example, one type of material may be less expensive to install but may result in higher maintenance costs over the life of the ship, which may more than offset the reduced costs.

CHAPTER 4

GAO VIEWS REGARDING THE VALUE ENGINEERING PROGRAM

Although there is a need for some revisions in the value engineering program to reflect changes in Maritime's ship construction program and to eliminate inequities, the complete elimination of the value engineering program is not warranted.

The advantages of eliminating Government interference with the contracts between shipbuilders and operators have to be weighed against the need to protect the Government's investment in the vessels being constructed. We believe that, to be fully effective, the value engineering program needs the support of the shipyards and the ship operators.

With these considerations in mind, we believe that the following changes should be made in the value engineering program.

--A provision which would allow the shipyards to propose value-engineering changes but which would not require the operators to accept any such proposals should be included in every ship construction contract.

--The operators' share of the savings from a value-engineering proposal by the shipyard should be increased. If necessary, the savings could be shared equally by the shipyard and the operator. The Government would get the full benefit of a value-engineering change under all future construction contracts in which the value-engineering change was incorporated as a result of the reduced cost of the ships and, accordingly, a reduction in the amount of subsidy required.

--The Value Engineering Branch should review all plans and specifications prior to Maritime's approval of applications for subsidy, and Maritime should give due consideration to the comments of this Branch.

--Maritime should issue informational letters to interested industry and Government officials whenever a value engineering proposal is adopted.

INCLUSION OF VOLUNTARY VALUE-ENGINEERING CLAUSE

As discussed previously, the value-engineering clauses in ship construction contracts have been a source of controversy. Prior to 1962 the contracts contained, when requested by the operators, voluntary value-engineering clauses. From March through November 1962, the contracts contained provisions requiring ship operators to accept any shipyard-proposed value-engineering change that was approved by Maritime. As a result of protests from the operators, the mandatory provisions of the clause were eliminated. In 1965, as a result of our review of Maritime's value-engineering informational letters, Maritime went beyond our proposals and required that all contractor-proposed, Maritime-approved value-engineering changes be accepted by the operator or the construction subsidy would be reduced.

In 1971, as a result of protests and the enactment of the Merchant Marine Act of 1970, the value-engineering provisions were not included in ship construction contracts. We were informed by a Maritime official, however, that, at the insistence of Avondale Shipyards, value-engineering clauses were included in Avondale's May and June 1971 contracts for the construction of seven vessels but that the mandatory provisions were not included.

We believe that a voluntary value-engineering clause should be included in all ship construction contracts. Such a clause would not require the shipyards to employ a value-engineering staff, would not require shipyards to submit value-engineering proposals to the ship operators if they did not want to, and would not require ship operators to accept any value-engineering proposals that they did not believe to be in their best interest.

Such a clause, however, would provide the mechanism and incentive for the shipyards to identify possible areas of cost savings. In the absence of a value-engineering clause in a construction contract, any potential cost-saving item

which came to the attention of a shipyard would have to be proposed to an operator through the use of a contract change order. The shipyard may find that it would receive no benefit by proposing the change. If, however, the construction contract contained a value-engineering provision under which the shipyard would receive 50 percent of any savings resulting from the adoption of a value-engineering proposal, the shipyard might find it beneficial to propose the change.

INCREASED INCENTIVE TO OPERATORS TO ACCEPT VALUE-ENGINEERING PROPOSALS

The value-engineering clause in existing ship construction contracts provides for the shipyards to receive 50 percent of the savings resulting from any accepted value-engineering change it has proposed. The ship operator and Maritime divide the remaining 50 percent on the basis of the subsidy rate. For example, if a shipyard proposed a value-engineering change in a contract with a 45-percent subsidy rate that would result in savings of $20,000, the construction contract price would be reduced by $10,000, Maritime's construction subsidy would be reduced $4,500, and the operator's payment to the shipyard would be reduced by $5,500.

Under the current Maritime shipbuilding program, the construction-differential subsidy rate is to be reduced from the 55 percent which was in effect until June 30, 1970, to a target of 35 percent by 1976. Thus, if a ship construction contract having a value-engineering clause is entered into providing for a 45-percent subsidy rate, the operator would be paying 55 percent of the cost of the ship but would receive only 27.5 percent of the savings from any shipyard-proposed value-engineering change that was accepted and incorporated into the ship.

Under the preceding example the operator would be paying $11,000 for the item that was included in the plans and specifications, but, if it were to accept the shipyard-proposed change, its cost would be reduced by only $5,500. We therefore believe that this distribution of value-engineering savings is not equitable to an operator and that it does not provide any incentive to the operator to accept such a proposal.

Because a reduction in the percentage of the value-engineering savings accruing to the shipyards would undoubtedly result in the shipyards' discontinuing their participation in the value engineering program, we believe that the only alternative would be to increase the ship operators' share of the savings by decreasing Maritime's share, even to the extent of completely eliminating its participation in the savings. Maritime's loss from not participating in savings under a contract from the adoption of a value-engineering change could be more than offset by incorporating the change in the plans and specifications for future construction contracts where applicable.

For example, a value-engineering proposal by Avondale Shipyards, under its May 19, 1971, construction contract, that one shore power connection box be eliminated resulted in savings of $27,244, or $3,892 for each of seven ships. Assuming that this change were incorporated into the plans and specifications of 50 additional ships, total estimated savings of $194,600 would be realized, of which about $77,840 would accrue to the Government on the basis of an assumed average subsidy rate of 40 percent.

REVIEW OF PLANS AND SPECIFICATIONS BY VALUE ENGINEERING BRANCH PRIOR TO CONTRACT AWARD

As shown by appendix III, page 28, the largest savings under the value engineering program resulted from the precontract review of plans and specifications by the Value Engineering Branch of the Office of Ship Construction. For example, the contract price for eight ships being built by Litton System, Inc., for American President Lines, Ltd., and Farrell Lines, Incorporated, was reduced by about $1.5 million as a result of the precontract review by the Value Engineering Branch. About $750,000 of these savings accrued to the Government.

At the time of our review, the most recent contract awarded was for the construction of two ore-bulk-oil carrier vessels by the National Steel and Shipbuilding Company for Aries Marine Shipping Company. The Value Engineering Branch reviewed the plans and specifications for these vessels prior to the awarding of the construction contract and suggested certain changes, of which changes valued at about $360,000 were finally adopted for the two ships. The contract price was subsequently reduced by $400,000. Maritime officials advised us that, although they could not support the fact that the $400,000 reduction resulted from the value-engineering proposals, they were of the opinion that the proposals made the reduction more palatable to the shipyard.

During our review we were informed that, if time allowed the Value Engineering Branch would continue to review the ship plans and specifications prior to the award of a construction contract. We received the impression during our discussions, however, that the Value Engineering Branch rarely would have the opportunity to review the plans and specifications before a contract was approved by Maritime because of the desire to expedite approval of the contracts.

For example, Maritime has been reviewing the plans and specifications for liquefied natural gas carriers. According to Maritime a natural gas supplier has plans for constructing six such ships at an estimated cost of about $70 million each. We were told by Maritime officials that, because Maritime had a very limited time in which to review

the plans and specifications, they did not have an opportunity to submit the plans and specifications to the Value Engineering Branch for review.

We believe that the Value Engineering Branch should review the plans and specifications before any ship construction contract is approved. Such a review, in our opinion, would require less than 30 calendar days and could be accomplished simultaneously with reviews by other Maritime offices.

Maritime's cost of maintaining the Value Engineering Branch--the number of employees on the staff ranged from two to four since the inception of the value engineering program--would be small in relation to the potential benefits to both Maritime and the industry of having the Branch review ship construction plans and specifications prior to the awarding of a construction contract. We believe also that, before approving a ship construction subsidy contract, Maritime should give consideration to the Value Engineering Branch's comments on its review of the plans and specifications for the construction of the ship.

USE OF INFORMATIONAL LETTERS WHENEVER VALUE-ENGINEERING PROPOSALS ARE ACCEPTED

Maritime procedures provide that, if an approved value-engineering change is deemed generally applicable to commercial ships and is determined by the Office of Ship Construction to be technologically and economically sound, advice of the change is issued to interested parties in the shipping industry in a value-engineering informational letter. We were informed by Maritime officials that, because of the difficulties of getting these informational letters processed, only 22 had been issued after 1965; none were issued after July 1968. Instead, Maritime has been informally advising those in the industry who have ships under construction and have an immediate interest in the change.

We believe that, whenever a proposed value-engineering change has been accepted and incorporated into a contract, Maritime should advise all Government and industry officials interested in ship construction through the use of an informational letter. Such an informational letter could

explain the nature of the change and could state the type of ship involved, the amount of savings, and who to contact for additional information. We believe that such a letter would be useful not only for those having ships under construction and able to determine whether the change would be desirable for inclusion in their ships but also for those having ships in the planning stage.

Although we believe that these informational letters should be advisory only, we believe also that, after an approved value-engineering change has been proven to be both technologically and economically sound, it should be included whenever applicable in the plans and specifications approved thereafter.

CHAPTER 5

AGENCY COMMENTS AND GAO RECOMMENDATIONS

In January 1972 we brought our findings to the attention of the Secretary of Commerce and proposed that the Maritime Administration:

1. Require a voluntary value-engineering clause to be included in all future ship construction contracts.

2. Provide for an increase in the ship operators' share of savings resulting from shipyard-proposed value-engineering changes.

3. Issue informational letters to interested Government and industry officials of accepted value-engineering changes.

4. Provide for a review of all ship construction plans and specifications by its Value Engineering Branch.

5. Give due consideration to the Branch's review comments when approving construction contracts.

We proposed also that, after an approved value-engineering change has been proven to be both technologically and economically sound, it be included whenever applicable in approved future ship construction plans and specifications.

In commenting on these proposals, Commerce advised us by letter dated January 28, 1972 (see app. II), that Maritime would (1) require voluntary value-engineering clauses to be included in future ship construction contracts, (2) provide for savings from accepted value-engineering proposals to be shared equally by the owner and the shipyard, and (3) reestablish its temporarily discontinued practice of issuing value-engineering letters to the maritime industry for its information and use.

Commerce stated that Maritime would continue to review ship construction plans and specifications from normal engineering and value-engineering viewpoints and would make the

review comments available to shipowners and shipyards and that the value-engineering staff would continue to develop new materials, equipment, and ship systems that would either improve the operation of ships or reduce construction costs without an adverse effect on performance.

Commerce did not state, however, whether the value-engineering review would be made prior to the awarding of a construction contract or whether the comments resulting from such a review would be considered in approving the contract. Also Commerce did not comment on our proposal that, after an approved value-engineering change has been proven to be both technologically and economically sound, it be included whenever applicable in future approved ship construction plans and specifications. Therefore we subsequently met with Maritime officials to obtain their views on these two points.

Regarding our proposal that the Value Engineering Branch review all ship construction plans and specifications prior to the approval of ship construction contracts, the officials stated that the Branch would continue to review plans and specifications, but only when time permitted the making of such reviews.

As pointed out on page 17, the Value Engineering Branch's precontract review of ship construction plans and specifications has resulted in significant savings to both the Government and industry. Additionally, as pointed out on page 18, a review of plans and specifications prior to the awarding of a construction contract would not, in our opinion, result in a delay in awarding the contract. We continue to believe that the Value Engineering Branch should review the construction plans and specifications for all ships to be constructed. We further believe that this review should be made prior to the awarding of the construction contract and that Maritime should give due consideration to the Branch's comments in approving the construction contract.

With regard to our proposal that an approved value-engineering change be included, whenever applicable, in future approved ship construction plans and specifications after it has been proven to be technologically and

economically sound, Maritime officials stated that Maritime opposed the proposal because it would be an imposition on the ship operators.

We believe that, for the Government to recover the benefits of the value engineering program that it will be losing by allowing the ship operators and shipyards to share equally the savings resulting from proposals made by the shipyards, it is essential that Maritime require that value-engineering changes that have been found to be technologically and economically sound be incorporated, whenever applicable, in future approved ship plans and specifications or alternatively reduce the subsidy by the amount of the estimated reduction in the cost of the ship that would result from the adoption of the change.

In future reviews GAO intends to evaluate the effectiveness of the value engineering program including the impact on ship construction costs of the increases in the operators' share of savings from value engineering changes.

RECOMMENDATIONS TO THE SECRETARY OF COMMERCE

We therefore recommend that the Secretary of Commerce require the Maritime Administration, in addition to carrying out the agreed-upon proposals, to (1) provide for a review of all ship construction plans and specifications by its Value Engineering Branch, (2) give due consideration to the Branch's review comments when approving construction contracts, and (3) require that approved ship plans and specifications include, whenever applicable, value-engineering changes that have been proven to be both technologically and economically sound.

LARRY WINN, JR.
KANSAS

COMMITTEES:
SCIENCE AND ASTRONAUTICS
SUBCOMMITTEES
MANNED SPACE FLIGHT
SCIENCE, RESEARCH AND DEVELOPMENT

VETERANS' AFFAIRS

SELECT COMMITTEE ON CRIME

TASK FORCE ON LABOR LAW REFORM

Congress of the United States
House of Representatives
Washington, D.C. 20515

WASHINGTON OFFICE:
ROOM 428
CANNON HOUSE OFFICE BUILDING
CODE 202-225-2865

DISTRICT OFFICE.
RICHARD L. BOND
ADMINISTRATIVE ASSISTANT
204 FEDERAL BUILDING
KANSAS CITY, KANSAS 66101
TELEPHONE: MAYFAIR 1-0832

October 6, 1971

The Honorable Elmer B. Staats
Comptroller General of the United States
General Accounting Office
441 G Street, N. W.
Washington, D. C.

Dear Mr. Comptroller General:

Enclosed is a copy of a speech which I am presenting tonight in Washington. Also enclosed is a copy of a press release highlighting the major area of concern contained in my remarks.

As you will note, I am charging the Maritime Administration with mismanagement of public funds. I base this charge on the arbitrary deletion of value engineering provisions from their shipbuilding contracts.

I further stated my belief that this deletion was made as a result of the request of a contractor, who it seems, doesn't want to be bothered with saving the taxpayers money.

The General Accounting Office, I feel, should investigate this arbitrary decision and its full ramifications. My staff and I remain ready and willing to assist with your investigation in any way possible.

This program has saved too much money for the American citizen to date to be put in jeopardy through such an arbitrary, and, I believe, unwarranted action. T. T

Most sincerely,

Larry

Larry Winn, Jr.
Member of Congress

Enclosures - 2
LW:gmn

THE ASSISTANT SECRETARY OF COMMERCE
Washington, D.C. 20230

February 14, 1972

Mr. Max A. Neuwirth
Associate Director
Civil Division
General Accounting Office
Washington, D. C. 20548

Dear Mr. Neuwirth:

This is in reply to your letter of January 6, 1972 requesting comments on a draft report entitled "Review of Deletion of Value Engineering Provisions from Ship Construction Contracts" B-118779.

We have reviewed the comments of the Maritime Administration and believe that they are appropriately responsive to the matter discussed in the report.

Sincerely yours,

Larry A. Jobe

Attachment

THE ASSISTANT SECRETARY OF COMMERCE
Washington, D.C. 20230

28 JAN 1972

Mr. Max A. Neuwirth
Associate Director
Civil Division
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Neuwirth:

Your letter of January 6, 1972, submits a draft report to Congressman Larry Winn, Jr., which summarizes your findings, conclusions and recommendations on the deletion of Value Engineering (V.E.) provisions from current ship construction contracts by the Maritime Administration. The recommendations have been noted which, in effect, would reinstate V.E. clauses in the construction contracts but would make their use discretionary to both the contractor and the prospective ship owner. They would further give the owner a larger share of the savings as an incentive.

The draft report outlines the pertinent features of the V. E. program indicating, among other things, that the program has resulted in an overall savings to the owners and government of about $32 Million since FY 1957. The ship construction program as presently being contracted for under the revised Merchant Marine Act of 1970 does. in fact, include a predominant number of V.E. items adopted in our past programs. Since the industry has generally accepted and used the basic Maritime Administration Standard Specification, which includes the V.E. items, there is every reason to believe that these savings will continue to accrue in our current and future programs.

As the report indicates, we feel strongly that the reduced subsidy rates, which have decreased from the previous 50-55% range down to not more than 43% for FY 1972, provide every incentive for the owner to incorporate possible savings since at a 43% rate 57¢ of every dollar comes from his own funds. In FY 1973, the subsidy goal is 41% with an ultimate goal of 35% by 1976. We feel that these goals will be reached which. in turn. gives further incentive for the owner to cut costs.

In the meantime, we continue to review plans and specifications both from a normal engineering and value engineering point of view and make our comments available to both the owner and shipyard. In fact, our records show that the shipyards, even though they are developing their own designs, are appreciative of the many engineering and V.E. suggestions made by the Maritime Administration's staff. We also will continue our value engineering staff work in the development of new materials, equipment and ship systems that will either improve the operation of ships or reduce costs without adverse effect on the performance. Of additional importance is our Research and Development program where a contract has been awarded to Newport News Shipbuilding and Dry Dock Company to completely review United States shipbuilding design and specification practices. Newport News and the Maritime Administration conducted a seminar on January 17 and 18, 1972, which obtained critiques and valuable inputs from representatives of the shipbuilding and ship operating industries. A report which will cover over a hundred recommendations will ultimately be made available to the entire marine industry. This is a meaningful supplement to our V.E. program and will also be reflected in future U.S. prices.

Regarding the statement on page 24 of the report:

> "Although the Value Engineering Branch did review the plans and specifications for these vessels prior to the award of the construction contract and suggested certain changes, of which changes valued at about $360,000 were finally adopted for the two ships, we were informed that no change had been made in the construction contract price and that the amount of subsidy had not been reduced."

it appears that this statement may have been founded on incomplete information. Actually, the shipyard did lower its price $400,000 shortly before final agreement was reached on the contract price and about two months after receipt of the V.E. comments. It is a fair inference that the cost saving V.E. suggestions facilitated the yard's final price offer which made the project possible.

Our reasons for not insisting upon the inclusion of V.E. clauses in our contracts are stated in the report. It must again be noted, however, that only one shipyard in the country has seen fit to consistently implement the V.E. clauses, and that yard has a V.E. clause in a contract awarded on May 19, 1971. Notwithstanding this, we will follow the report's recommendations to reinsert V.E. clauses in the manner the report indicates, since these clauses may be exercised at the discretion of both the shipyard and the owner. In addition, we also agree with your suggestion that where V.E. recommendations are accepted, that the owner and the shipyard share equally in the savings which is an added incentive for the owner. We will also reestablish our temporarily discontinued practice of issuing V.E. letters to the maritime industry for its information and use.

Sincerely,

Robert J. Blackwell

ROBERT J. BLACKWELL
Acting Asst. Secretar
for Maritime Affairs

VALUE ENGINEERING PROGRAM SAVINGS

ON VARIOUS MARITIME ADMINISTRATION

SHIP CONSTRUCTION CONTRACTS

Contract number	Date of contract	Shipyard	Ship operator	Ship design	Number of ships	Saving from precontract review by Value Engineering Branch
48	6-28-65	Ingalls	Delta	C3-S-76a	5	$ 504,400
54	11-30-65	Bath	AEIL	C3-S-73b	3	352,350
64/66	11-14-67	Avondale	Prudential PFEL	C8-S-81b (LASH)	11	898,380
72	10-31-68	General Dynamics	Lykes	C8-S-82a (Seabarge)	3	770,000
75/77	10- 3-68	Litton	Farrell APL	C8-S-85a	8	1,520,868
89/91	2-20-70	Bethlehem	Oceanic	C7-S-88a	2	102,000
99	10-20-70	Bath	AEIL	C5-S-73b	3	248,592
97/101	7-27-70 10- 1-70	Bethlehem	American Mail	Conversion	3	532,800
103	3-15-71	Todd	APL	Conversion	5	175,000
105/109 /112	5-19-71 6- 4-71 6-29-71	Avondale	Delta Waterman Central Gulf	C9-S-81d (LASH)	7	327,710
116	6-29-71	Todd	APL	Conversion	3	24,000
120	6-30-71	National Steel	Aries Marine	OB8-S-90a	2	359,920
				Total	55	$5,816,020

Savings from postcontract proposals made by Value Engineering Branch	Savings from shipyard proposals	Contract savings		
		Total	Government	Industry
$ 61,105	$ 274,952	$ 840,457	$ 370,142	$ 470,315
33,117	260,493	645,960	274,149	371,811
76,863	2,202,941	3,178,184	1,038,639	2,139,545
179,828	329,751	1,279,579	608,853	670,726
148,572	None	1,669,440	834,720	834,720
None	None	102,000	47,430	54,570
None	60,800	309,392	118,814	190,578
None	None	532,800	239,270	293,520
None	None	175,000	72,625	102,375
None	27,244	354,954	151,668	203,296
None	None	24,000	9,960	14,040
None	None	359,920	None	359,920
$449,485	$3,156,181	$9,471,686	$3,766,270	$5,705,416

APPENDIX IV

PRINCIPAL OFFICIALS

OF THE DEPARTMENT OF COMMERCE

RESPONSIBLE FOR THE ADMINISTRATION

OF ACTIVITIES

DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
SECRETARY OF COMMERCE:		
Peter G. Peterson	Feb. 1972	Present
Maurice H. Stans	Jan. 1969	Feb. 1972
ASSISTANT SECRETARY FOR MARITIME AFFAIRS--MARITIME ADMINISTRATOR:		
Andrew E. Gibson	Mar. 1969	Present
DEPUTY ASSISTANT SECRETARY FOR MARITIME AFFAIRS--DEPUTY ADMINISTRATOR:		
Robert J. Blackwell	May 1969	Present
ASSISTANT ADMINISTRATOR FOR OPERATIONS:		
Ludwig C. Hoffmann	Aug. 1969	Present
CHIEF, OFFICE OF SHIP CONSTRUCTION:		
E. Scott Dillon	Oct. 1970	Present