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U.S. GENERAL ACCOUNTING OFFICE

STAFF STUDY

POLAR CLASS ICEBREAKER SHIPS

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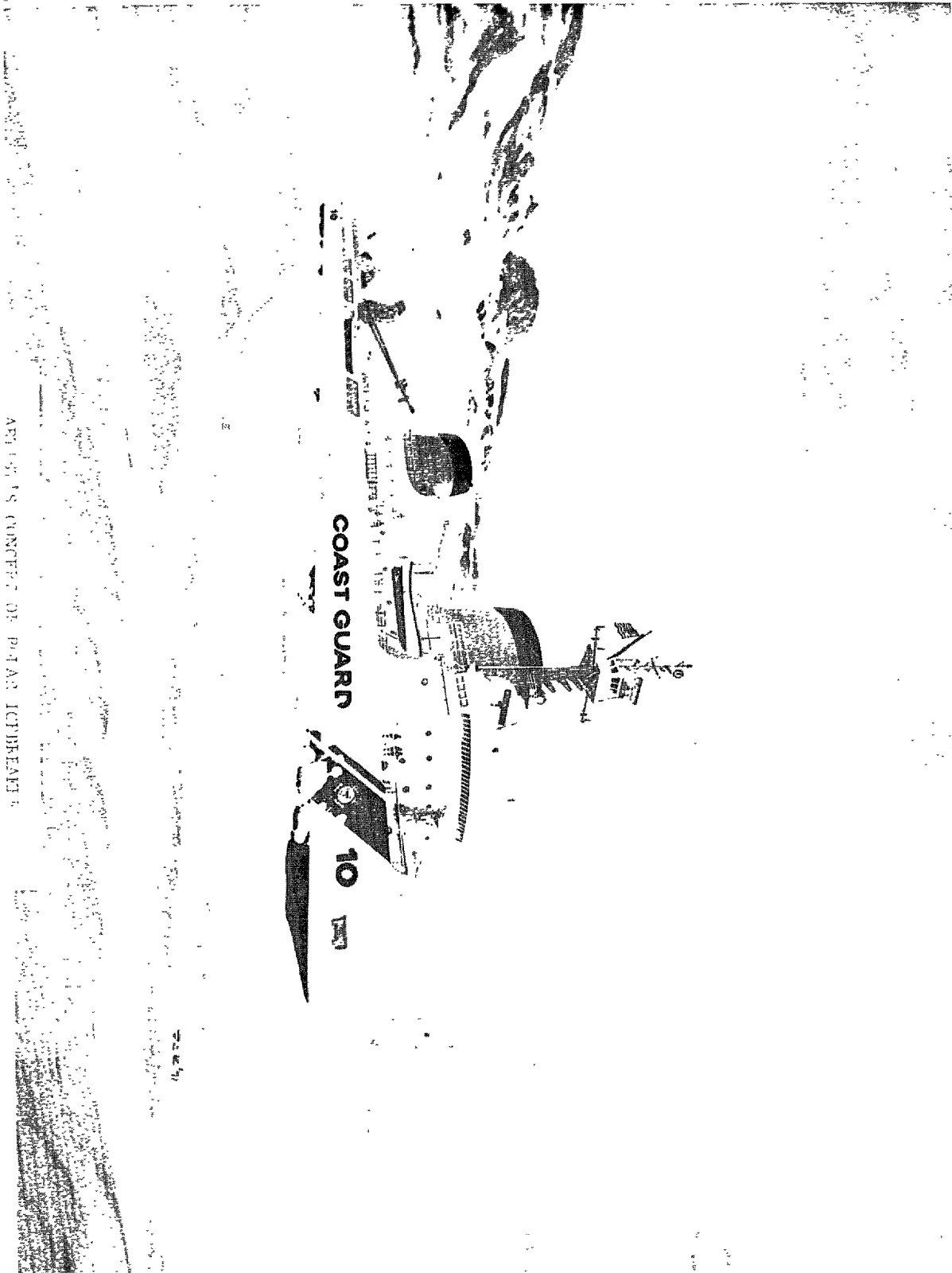
DEPARTMENT OF TRANSPORTATION

U.S. COAST GUARD

MARCH 1974

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## SUMMARY

### POLAR ICEBREAKER PROGRAM

#### DESCRIPTION

The two Polar Class icebreaker ships under construction are to replace aging ships assigned to the polar regions. These ships will be about 400 feet in length and capable of breaking ice up to 21 feet thick.

#### PROGRAM MANAGEMENT

The Coast Guard established a Resident Inspector's operation at the Contractor's shipyard to monitor construction of the ships. For the first time, the Coast Guard also assigned a Contracting Officer at a contractor's facility.

#### COMING EVENTS

The first ship is scheduled to be completed in December 1974. The second ship is to be completed in January 1976.

#### COST

Procurement of the first ship was awarded by firm-fixed price contract for \$52.7 million in August 1971. As of December 31, 1973, contract changes had increased the price to \$52.9 million.

A ceiling price of \$53.75 million was established for the second ship in January 1973. The price has not yet been definitized, and the contractor's most recent proposal was for \$60.5 million. Since a mutually agreeable price could not be established, the Coast Guard in January 1974, established a unilateral price including adjustments of \$50.76 million, subject to the contractor's rights under the contract disputes clause.

As of December 31, 1973, the Coast Guard made progress payments of \$37.1 million for the first ship and \$5.2 million for the second ship.

#### CONTRACT DATA

The prime contractor for the icebreaker ships is Lockheed Shipbuilding and Construction Company, Seattle, Washington. For the first ship, selection of the contractor was made on the basis of price competition, and award was made under a firm-fixed price contract. The second ship was placed with the same contractor with a firm-fixed price to be negotiated.

#### PERFORMANCE

We noted a high frequency of rejections in weldments inspected by radiographic testing. Coast Guard officials estimated that only 3 percent of all welds are so tested.

Lockheed attributes the problem to steel specified for use by the Coast Guard. The Coast Guard attributes the problem to poor welder performance.

#### CLAIMS AGAINST THE GOVERNMENT

Lockheed has filed three claims against the Government resulting from work under the contract. Two of the three were denied by the Coast Guard and have been appealed to the Department of Transportation.

#### MATTERS FOR CONSIDERATION

The Congress has recently taken an active interest in the settlement of claims against the Navy by shipbuilders. Accordingly, it may wish to examine the way in which the Coast Guard limited the price effect of contract changes. The Congress may wish to consider whether the Navy could benefit from the Coast Guard's experiences in the icebreaker procurement.

AGENCY REVIEW

A draft of this study was furnished to Coast Guard officials for their review and their comments are included as appropriate. As far as we know, there are no residual differences in fact.

CHAPTER 1  
INTRODUCTION

The Coast Guard is responsible for assisting in the enforcement of Federal laws on the high seas and water subject to jurisdiction of the United States. It provides search and rescue facilities for marine and air commerce and the military services. In addition, it promotes merchant vessel safety, provides aids to navigation, and furnishes icebreaking services.

The Coast Guard operates a fleet that in September 1973 was comprised of 269 vessels, including five operational polar icebreakers. To maintain its fleet at a required level of effectiveness, the Coast Guard conducts a continuing program to replace old, obsolete, and deteriorating vessels.

In November 1959, the Coast Guard set forth its vessel replacement requirements. The requirements plan was revised in 1962, 1966, 1972, and 1973. Between 1964 and 1972, the Coast Guard received appropriations of \$334.8 million for new vessel construction.

HISTORY OF UNITED STATES  
ICEBREAKERS

The Coast Guard's objective in icebreaking is to provide access to ice-bound locations to further commercial, defense, economic, and scientific needs. To accomplish its objectives, the Coast Guard conducts domestic and polar icebreaking programs.

Domestic icebreaking

The domestic program is intended to promote economic efficiency in maritime commerce; to improve transportation systems by keeping waterways open;

and to relieve or prevent flooding danger caused by ice. In September 1973, the domestic icebreaking services was provided by a fleet of 47 vessels of various types, including buoy tenders, harbor tugs, and pusher ice-plow combinations.

#### Polar icebreaking

The Polar icebreaking program objective is to provide for the traverse of polar regions by United States shipping and to facilitate support of activities of national interest in polar areas. The Coast Guard is responsible for operating and maintaining the entire national Polar icebreaking fleet. Six of these are nearing 30 years of service and, according to the Coast Guard, the end of their useful lives.

Between December 1942 and May 1946, the United States launched seven "Wind Class" icebreakers four of which are in active service and two are undergoing engine rebuilding operations, and one ship, "Eastwind" was disposed of in 1972. In 1945, three of these ships were transferred to Russia and have since been returned.

In 1954, the United States launched another icebreaker. This ship, "Glacier," was larger than the "Wind Class" ships built previously. It was delivered to the Navy in 1955 and in 1966 was transferred to the Coast Guard. The Coast Guard considers, "Glacier," to be the most modern icebreaker in operation by the United States.

There are two Polar Class icebreakers presently under construction by Lockheed. These ships, the subject of this study, are intended to replace aging "Wind Class" vessels. As reported during hearings before the Merchant Marine Subcommittee, Senate Committee on Commerce in March 1972, the Coast Guard plans were to replace six "Wind Class" ships with four new



icebreakers, thus giving them five ships for polar work. Funding for the first new ship was provided in the fiscal year 1971 budget, and funding for the second ship was provided in the fiscal year 1973 budget.

The two ships being built by Lockheed will be 399 feet in length and 83.5 feet in width and will displace about 12,000 tons. They will be equipped with diesel electric and gas turbine power plants giving them the capability of continuously breaking ice six feet thick and ramming ice 21 feet thick.

#### SCOPE OF REVIEW

Information on Polar Class icebreaker acquisitions was obtained by reviewing reports, correspondence, and other records, and by interviewing Coast Guard and Lockheed officials. We evaluated management policies and procedures related to ship acquisition as applied to the icebreaker program, but we did not make detailed analysis or audits of the basic supporting program documents. We did not attempt to assess the technical capabilities or the need for the ships.

Our review was conducted at the Coast Guard's office at Lockheed shipyard and at Coast Guard Headquarters.

CHAPTER 2  
ACQUISITION PROCEDURE

The Coast Guard advised us that to define requirements for its icebreaker replacement program, it established an icebreaker study group. The Coast Guard's acquisition procedure for the icebreaker program was comprised of three phases: (1) design, (2) request for bid and evaluation, and (3) construction.

DESIGN PHASE

The Coast Guard obtained outside assistance in the form of 28 contracts totaling \$980,500 for icebreaker studies. These efforts included items such as model testing, weight analyzing, arrangement and layout of vessel, structural analysis for icebreaking, vibration study, and a polar region study. The Coast Guard prepared a listing of functional specifications available to prospective bidders and for use by the construction contractor in preparing detailed design and working drawings.

The Coast Guard advised us that its acquisition procedure involved constructing a ship within the existing state-of-the-art. It was to be a "performance envelope" specification possible of attainment, utilizing proven installed systems.

The Coast Guard decided to purchase its first replacement vessel (WAGB-10) using a firm fixed-price contract for award to a responsive bidder based upon price competition. In August 1970, the Coast Guard notified prospective bidders of future icebreaker construction. This notice included general characteristics of the icebreaker, including length, beam, draft, tons of

displacement, shaft horsepower, shaft number, and speed. General specifications were made available, and the Coast Guard held a prebid conference at which time prospective bidders were given an opportunity to ask questions and receive clarifications on specifications.

#### BID AND EVALUATION PHASE

The Coast Guard established a contract award board for evaluation of bids. On August 16, 1971, the board announced that Lockheed's bid was \$52.7 million including \$1.5 million for spare parts and \$5.2 million for ship design services. The Government estimate was \$50.4 million, within 5 percent of Lockheed's bid. The Coast Guard was concerned about Lockheed's bid because a bid of \$64.7 million was made by a Company in Seattle that would experience labor costs similar to those of Lockheed. The award was made to Lockheed on the basis of price under Contract DOT-CG-10243-A, dated August 24, 1971.

#### CONSTRUCTION PHASE

After inclusion by the Congress in the fiscal year 1973 budget, the Coast Guard began planning for acquisition of a second icebreaker (WAGB-11). In selecting a method for procurement of the second icebreaker, the Coast Guard determined that considerable savings were attainable by negotiating with Lockheed rather than seeking competitive bids. Accordingly, a decision was made to place the construction award with Lockheed.

In a letter to the Under Secretary of Transportation, the Coast Guard Commandant stated that there was a potential savings of about \$10 million if construction of the WAGB-11 was awarded to Lockheed. The Commandant stated that (1) the \$5.3 million design effort expended for WAGB-10 would

be reuseable only if the WAGB-11 was constructed by Lockheed, which would, therefore, preclude duplication; (2) savings of about \$1.3 million could be realized through standard design, production, and purchasing; (3) savings of \$2.2 million would result from not having to support dissimilar ships over their useful lives; and (4) savings of \$850,000 would result from utilizing the same Coast Guard inspection office at Lockheed on two ships rather than establishing a new office at facilities of some other contractor.

Citing these potential savings, the Commandant advised the Under Secretary of his intention to place award of WAGB-11 with Lockheed. In August of 1972, the Coast Guard requested a firm proposal for construction of WAGB-11 plus spare parts from Lockheed. Lockheed responded in November 1972 with a proposed price of \$54 million.

The Coast Guard decided to use a letter contract so that Lockheed could place long lead-time orders and initiate in-house work while the Coast Guard evaluated pricing data submitted by Lockheed. The Coast Guard believed that a letter contract, if awarded in early January 1973, would result in retention by Lockheed of skilled welders otherwise due to be released in April 1973, and that Lockheed's proposed price was dependent upon realizing these economies.

In January 1973, the Coast Guard and Lockheed agreed to a contract modification for construction of the second icebreaker and furnishing of certain spare parts. At the time of award, a ceiling price of \$53.75 million was established as well as a March 1973 target date for definitization of price.

Status of negotiations for  
the second icebreaker ship

In October 1973, Lockheed submitted a revised proposal for \$60.5 million, about \$6.7 million higher than the ceiling price agreed to in January 1973.

Since a mutually agreeable price could not be established, the Coast Guard on January 31, 1974, established a unilateral price including adjustments of \$50.76 million, subject to action by Lockheed under the disputes provision of the contract.

PROGRAM MANAGEMENT

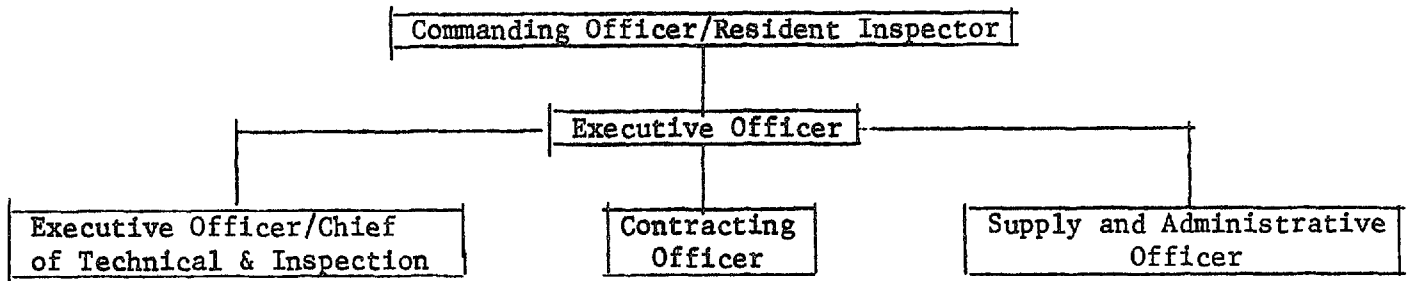
In September 1971, the Coast Guard established a Resident Inspector's Office at Lockheed with the Resident Inspector responsible to the Naval Engineering Division in Washington, D.C.

The Inspector's office was established to oversee the development of the detailed design and the construction of the icebreakers. The Inspector's office activities include:

- administration of the contract.
- review and approval of contractor-developed plans with respect to the contract requirements as contained in contract specifications.
- review and approval of plans applicable to equipment selected by the contractor with respect to the contract requirements set forth in the specifications.
- physical inspection of the ships throughout all phases of construction to insure compliance with approved plans and contract specifications.
- procurement of some Government-furnished outfit material.

Organization of the Resident  
Inspector's Office

To accomplish the responsibilities described above, the Inspection Office, staffed by 33 military personnel, is organized in the following manner.



The Coast Guard advised us that this is the first time it assigned a contracting officer at a ship construction site. Previously, resident inspectors held limited contract authority, and major contracting matters were referred to a contracting officer in Washington, D.C.,

The Contracting Officer on site has full contract authority. The Resident Inspector's staff also performs functions related to Coast Guard internal matters.

CHAPTER 3

COST, SCHEDULE, AND PERFORMANCE

PROGRAM COST EXPERIENCE

As of December 31, 1973, there had been 124 modifications to the contract involving a net increase in price of the first ship of \$200,687 to \$52,882,172, and a net decrease of \$32,785 to be subtracted from the second ship's price when it is definitized. The effect on price of these changes is shown below.

	<u>Contract modifications</u>		
	<u>Increases</u>	<u>Decreases</u>	<u>Net changes</u>
WAGB-10	\$264,209	(\$ 63,522)	\$200,687
+ spares			
WAGB-11			
+ spares	38,696	( 71,482)	( 32,786)
Total	<u>\$302,905</u>	<u>(\$135,004)</u>	<u>\$167,901</u>

The changes shown above do not include a \$269,911 reduction for WAGB-11 proposed by the Coast Guard for its waiver of certain "Buy American" requirements of the contract.

Work progress measurement  
and progress payments

The contract requires the contractor to report construction progress periodically and the Government to make progress payments based upon these reports. The contractor must also establish and maintain a schedule of key events showing fabrication start, keel laying, launching, builder's trials, preliminary acceptance trials, and ship completion. In addition, the contractor is required to furnish and maintain a plan schedule, a production schedule, and a material schedule. The contract allows Lockheed to revise

production schedule dates if the new schedule does not result in delivery of the ship later than the contractual delivery date.

As of December 31, 1973, the Coast Guard had approved 74 progress payment invoices submitted by Lockheed for work on WAGB-10 and 13 invoices for WAGB-11. Program payments for WAGB-11 are determined as a percent of the ceiling price. These payments are summarized below:

<u>Ship</u>	<u>Contract percent complete</u>	<u>Amount earned</u>	<u>Amount withheld</u>	<u>Net amount earned/paid</u>
WAGB-10	74.98	\$39,650,265	\$2,644,251	\$37,006,014
WAGB-11	16.29	\$ 8,755,875	\$3,563,088	\$ 5,192,787

#### PROGRAM SCHEDULE EXPERIENCE

The Contract initially provided that each ship would be completed within three years after award. Subsequently, the delivery date for the first ship was revised twice to extend delivery time by 120 days. The contract includes a provision for payment by the contractor of liquidated damages of \$3,000 for each day of contractor delay in delivery, limited to 330 days for a maximum penalty of \$990,000 for each ship. The first ship is to be completed in December 1974, and the second ship in January 1976.

#### First extension of performance time, WAGB-10

The first extension of delivery date occurred March 1972. This extension resulted primarily from the Coast Guard's failure to furnish Lockheed with adequate data for use in design of the ship's propellers. Coast Guard officials



determined it was beneficial to the Government to have Lockheed conduct tests using a Government-furnished ship model. Accordingly, an additional 60 days was granted for contract performance, and the contract price was increased by \$8,600. The 60 day extension changed delivery from August 1974 to October 1974.

Second extension of performance time, WAGB-10

A second extension of contract performance time occurred in January 1973. This extension was also for 60 days, moving scheduled delivery to December 1974. The extension was granted as full and final settlement of all claims that might arise from specific situations previously encountered by the contractor in interpreting certain contract specifications.

Scheduling of WAGB-11

The contract revision of January 1973 to include the second ship also provided for delivery three years after the date of this agreement. The agreement also provided that delivery of the second ship will not be dependent upon progress or delivery of the first ship.

The Coast Guard advised us that they are not aware of any circumstances that would cause them to authorize further extension of delivery dates. However, Lockheed included a provision in its proposal for the second ship for payment of \$200,000 in liquidated damages representing an expected 60 day late delivery of the first ship, and included \$200,000 for liquidated damages for the second ship representing an anticipated delay in delivery of 60 days.

## PROGRAM PERFORMANCE EXPERIENCE

### Quality assurance program

Contract specifications require Lockheed to develop and maintain a quality control system which will assure that all supplies and services conform to contract requirements. Lockheed has issued quality assurance procedures for use during icebreaker production, including a weld test program, welded fabrications control procedures, and weld inspection instructions.

The Coast Guard told us that weld methods have been developed by Lockheed and submitted to the Coast Guard for approval and that weld methods were approved by the Resident Inspector, based on the results of sample tests. Coast Guard approval of some weld methods has been withdrawn following repeated poor performance.

The Coast Guard specified that both destructive and non-destructive tests will be used to detect welding defects and metal discontinuities. Those tests include visual inspection, magnetic particle inspection, liquid penetrant inspection, radiographic inspection, bend and torque tests for studs, and toughness tests. The Coast Guard told us that it receives and reviews the documentation of some test results required by the contract specifications.

### Work by unqualified welders

The Coast Guard found that 14 welders were performing production work on January 11, 1973, prior to being qualified. This situation was discovered during random checks by Coast Guard inspectors. Lockheed advised the Coast Guard that some of the 14 welders had completed training and were

only awaiting test results prior to qualification. The Coast Guard stated that some of the work of these welders was subsequently accepted without modification and that unqualified welders had been performing production work on other occasions.

Nonperformance of  
required tests

We identified two instances in which Lockheed has not performed required tests. A February 1973 contract modification permitted Lockheed to perform magnetic particle inspections on a spot test basis rather than on 100 percent of all hull welds as was originally required in contract specifications. This modification reduced the contract price. The Coast Guard told us that from the time of that modification until our inquiry in October 1973, no spot testing had been performed. Following our inquiry, the Coast Guard advised Lockheed that spot testing was required, and that Lockheed should submit a spot test schedule and Lockheed complied. The Coast Guard said that no definition of what constituted a spot check was agreed upon at the time the modification was negotiated. Thus, a reduction in contract price was agreed upon even though the degree of reduction in scope of work was not definitized.

The Coast Guard advised us that about 2,000 non-critical piping welds were fabricated without being inspected. We were also advised that Lockheed began performing piping work without notification to the Coast Guard and that Lockheed officials were not aware of the inspection requirements. Some of these welded pipes had been installed in the icebreaker. A subsequent contract modification allowed Lockheed to inspect piping welds on a sample basis,

including a portion of the piping already installed in the ship.

Lockheed's quality  
assurance performance

The Coast Guard told us that Lockheed does not have a good quality assurance program and that while the written quality assurance procedures appear to be satisfactory, actual performance has been weak. We were also advised by the Coast Guard that:

- Lockheed inspectors told them that they were instructed not to fill out proper deficiency forms when defects were noted, but were to fill out informal, internal reports;
- Lockheed has submitted work for Coast Guard acceptance prior to adequate inspection and approval by their own quality assurance division in an effort to determine what the Coast Guard will accept; and
- Lockheed has performed only that quality assurance work which is required. The Coast Guard has advised Lockheed in writing that work quality in certain areas did not meet specification requirements.

The Coast Guard advised us that Lockheed has certified its inspectors to be qualified and the Coast Guard has accepted that certification. The Coast Guard said that it has not reviewed the qualifications of Lockheed's inspectors to determine the appropriateness of training or experience. The Coast Guard also told us that, except for a few tests, there are no industry-wide criteria for inspector qualifications. The Coast Guard stated that Lockheed has few good inspectors.

### Rejections of welds

Lockheed officials told us that one of the tests used by Lockheed to determine weld quality is the radiographic test, in which a radioactive material is used to x-ray a weld to form an impression on a negative. Lockheed told us this test is used as required by the Coast Guard, on all intersections, and on a sample of other welds. The Coast Guard told us that about 3 percent of the welding on the ship would be subjected to the radiographic test. Lockheed told us that Navy and commercial surface ship designs require less radiography than the icebreakers. Lockheed's welding engineer stated that the radiographic test is one of the most accepted ways to identify a good weld. Through regular meetings, Lockheed and Coast Guard officials reach agreement as to the acceptance or rejection of each test result.

We examined the results of 971 radiographic tests performed between September 1, 1972, and December 7, 1973. Our analysis included virtually all such tests performed on WAGB-10 for which records were available. In some of these cases, data were not usable because they were incomplete or because records were inconsistent. Based on usable data, we found that:

--about half (51 percent) of all welds were rejected when initially inspected.

--about 17 percent of all inches of weld inspected were rejected.

--there was no trend toward improvement during this period.

--some welds had been tested and repaired as many as six times before being accepted.

The amount of weld included in each inspection report varied from a few inches to several feet. On the average, each inspection report included about 17 inches of weld. We found that about half of all reports showed the weld to be defective when initially inspected. The following tables illustrate the test results discussed above.

	<u>Total</u>	Sept.- Oct. 1972	Nov.- Dec. 1972	Jan. - Feb. 1973	March- April 1973	May- June 1973	July- Aug. 1973	Sept.- Oct. 1973	Nov.- Dec. 1973
Number of welds inspected	971	36	80	83	53	255	196	190	78
Number of welds rejected	491	18	34	36	29	129	113	89	43
Percent of welds rejected	51%	50%	43%	43%	55%	51%	58%	47%	55%

	<u>Total</u>	Sept.- Nov. 1972	Dec.1972 -Feb. 1973	March- May 1973	June - Aug. 1973	September- Dec. 7 1973
Inches of weld inspected	13,822	1,210	2,180	2,147	4,911	3,374
Inches of weld rejected	2,324	163	329	300	1,047	485
Percent rejected	16.8%	13.5%	15.1%	14.0%	21.3%	14.4%

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The Coast Guard stated that a weld rejection in inches of up to 8 percent was considered to be acceptable. Lockheed told us that an acceptable rejection rate had not been established for the type of steel required for the icebreakers. The steel referred to is identified as CGA-537M, a low-carbon heat-treated steel, used for a portion of the hull and principal framing of the ship. Our review revealed that neither the rate at which radiographic tests resulted in rejection nor the portion of inches of inspected weld found to be rejectable, has shown a trend toward improvement since the inspection began.

We noted that some types of welds were found to be rejectable more often than other types. A larger percentage of inches of butt welds, for example, were rejected than were any other type of weld. The Coast Guard told us that when a defect is found, weld is removed until the entire defect is corrected. This may involve several feet of repair work--defective weld which is not included in records.

In general, Coast Guard and Lockheed officials were aware of the level of weld rejection from radiographic inspections, but both Lockheed and Coast Guard officials stated that the ships would be serviceable. The Coast Guard advised us that in general the defects are not categorically gross and considering both the scope of initial and repair weld requirements there is no question as to serviceability of the product.

Lockheed told us that, from a cost standpoint, the reject ratio was not acceptable. To place emphasis on correcting this problem, Lockheed began, in December 1973, to hold daily reviews of radiographic results with management and welding personnel.

### Reasons for rejections

We found that Lockheed experienced high welder turnover rates during the construction of the icebreaker WAGB-10. During 1973, Lockheed had an average welder employment level of about 388, hired 746 welders and lost 635 welders. The Coast Guard believes that this is typical for the Northwest section of the United States. Lockheed's welding engineer told us that sufficient numbers of qualified welders could not be employed early in 1973, necessitating the training of welders in-house. He stated that, the result of this program was that insufficient training was provided and welders were qualified through testing to perform work beyond their capabilities. He said this resulted in a high level of rework. Lockheed's shops superintendent told us that, until December 1973, no welders were retrained at Lockheed regardless of the frequency of the rejection of their work.

Lockheed's welding engineer told us that, in January 1974, Lockheed initiated a program to refresh the training of all welders. He also told us that some of the first welders sent through the course failed to requalify for the levels of work for which they were previously qualified.

The Coast Guard told us that it spot-checked Lockheed's welder training program, but had not reviewed most welder qualification records or test results. The Coast Guard said that welders identified by Lockheed as qualified were accepted as required under the contract.

We were unable to determine if the work of all Lockheed welders who had performed production work on WAGB-10 had been subjected to radiographic



inspection. Lockheed's Director of Quality Assurance told us that records were not maintained which would facilitate such an analysis. Lockheed's welding engineer told us that welders were assigned to work areas on the basis of their "known" ability. Better welders, he said, were assigned to areas known to be scheduled for radiographic tests, while poorer welders were assigned to areas not subject to radiographic inspection.

Lockheed's Vice President, Manufacturing, told us that the "unusual" steel required by the Coast Guard for icebreaker construction had contributed to the high rate of weld rejects. He said this type of steel was of a developmental nature, and that the rate of weld rejections confirmed his view. The Coast Guard advised us that the steel was not of a developmental nature but is a commercially available low-carbon steel.

We compared our estimates of Lockheed's weld rejection rates for the low-carbon heat-treated steels with the rejection rates for mild steels used elsewhere in the icebreaker. The following table compares the weld rejection rates for mild and heat-treated steels. As shown, Lockheed had a higher portion of welds rejected for mild steel than heat-treated steel.

	<u>Portion of welds rejected</u>	<u>Portion of inches of weld rejected</u>
Heat-treated steels	46.2%	20.5%
Mild steels	83.6%	10.3%

Nature of defect of  
rejected welds

We examined the nature of the defects for the 491 rejected welds and found that slag and porosity were the most common causes for rejection. The Coast Guard advised us that slag and porosity defects were primarily

caused by welder error and joint design. Based on this information, it would appear that poor welder performance contributed significantly to a high rate of weld rejection. The President of Lockheed told us, however, that the "unusual" steel necessitated the use of welding techniques which result in a higher level of slag and porosity defects.

Contract requires no  
additional testing

The Coast Guard told us that contract specifications do not provide for the escalation of testing or repair work even if radiographic weld quality tests show a high proportion of rejectable welds. The Coast Guard stated that additional testing requirements could be negotiated through contract modification. However, the Coast Guard said that the present rate of rejection of welds did not necessitate such action. The Coast Guard said that a contract modification to require additional testing on WAGB-10 would be too costly, as the most critical welds were being inspected and repaired.

CHAPTER 4  
CONTRACTOR CLAIMS AGAINST  
THE GOVERNMENT

As of the end of December 1973, Lockheed had submitted three claims to the Coast Guard requesting increases to the contract price. These claims involved (1) additional costs for increased social security taxes resulting from Public Law 92-603; (2) additional costs resulting from extension of benefits under the Longshoremen's and Harbor Worker's Compensation Act Amendments of 1972 (PL 92-576); and (3) additional costs resulting from material welding and production difficulties associated with the CGA-537M steel. The Coast Guard admitted liability for additional social security tax costs resulting from PL 92-603, but denied the contractor's claims for the two other items. Both denials have been appealed by Lockheed to the Department of Transportation Contract Appeals Board.

SOCIAL SECURITY TAX CLAIM

During February 1973, Lockheed submitted its claim for a \$134,000 increase in contract price because of additional costs resulting from 1972 amendments to Public Law 92-603. The amendments increased the Social Security taxes payable by an employer on wages paid during 1973 and in subsequent years.

The Coast Guard determined that Lockheed is entitled to recover from the Government the amount Lockheed is required to pay because of higher Social Security rates and bases effective January 1, 1973. The Coast Guard advised Lockheed in June 1973 of Government liability for the additional taxes, but stated disagreement with the way in which Lockheed computed the

amount of additional taxes. The Coast Guard and Lockheed have not yet agreed upon the amount due from the Government because of the additional taxes.

LONGSHOREMEN'S AND HARBOR WORKERS'  
COMPENSATION ACT CLAIM

During February 1973, Lockheed submitted its claim for a \$386,000 increase in the contract price because of additional costs resulting from amendments to Public Law 92-576. Lockheed stated in its claim that the amendments resulted in significantly increased costs of statutory workmen's compensation applicable to those employees engaged in construction of WAGB-10. Lockheed stated its belief that increased costs for workmen's compensation fall within the provisions of the "Federal, State, and Local Taxes" clause and insurance clauses of the contract, thereby entitling the contractor to a price increase in the amount of such costs.

Lockheed stated that although Public Law 92-576 does not specifically characterize the increased insurance premium costs as an excise tax or duty, the effect is precisely the same as an excise tax or duty upon the property being constructed. Lockheed maintains that the purpose of the "Federal, State, and Local Taxes" clause is to induce contractors to eliminate from their bids contingencies for later imposition of such additional costs resulting from action by the Government.

The Coast Guard advised us that the contractor's reliance upon the insurance clauses is founded upon its interpretation of the clauses. The Coast Guard's defenses to the claim are that premium payments made to insurance carriers are not taxes within the meaning of the taxes clause of the contract, and that the insurance clauses relied upon relate to property and not employees.

### STEEL CLAIM

During January 1973, Lockheed advised the Coast Guard of its claim for a contract price increase from alleged difficulties in welding certain steel (CGA-537M). In February 1973, Lockheed filed its claim for \$2.1 million. In April 1973, Lockheed submitted a detailed statement of its claim to the Coast Guard. Lockheed asserted that the steel is a product whose chemistry was devised by the Government, and which had never been industrially produced or tested prior to the award of the icebreaker contract.

In its claim, Lockheed depicted the steel as a "novel" material for which welding procedures had to be devised. Lockheed stated that its experience with the steel, together with stringent test requirements of the Coast Guard caused Lockheed to use a welding procedure resulting in welder productivity lower than contemplated in its bid price.

Lockheed also stated that welding processes being utilized for the steel involve higher material costs, equipment maintenance costs, and welder training costs than would have been incurred under the welding methods it reasonably anticipated could be used in fabrication.

In November 1973, the Coast Guard denied Lockheed's claim on the basis that it did not present any information supporting a finding that specifications were defective. The Coast Guard cited Lockheed's contractual obligation to develop welding procedures for the subject steel, and stated that the Government cannot accept responsibility for Lockheed's alleged failure to recognize in its bid the factors essential to produce acceptable and reliable welds.

It is the Coast Guard's basic position that the steel in question is not unique. It is from the family of commercially available low-carbon heat-treated steels. Such steels have been used for some years in ship construction, tall tower, and pressure vessel fabrication.