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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

74-0230

PROCUREMENT AND SYSTEMS
ACQUISITION DIVISION

B-178821

SEP 17 1973

The Honorable
The Secretary of Defense

Attention: Assistant Secretary of Defense
(Comptroller)



Dear Mr. Secretary:

The Deputy Chief of Naval Material requested us to examine the cost accounting system of the Ladish Company, Cudahy, Wisconsin, and consider its adequacy for developing cost or pricing data as required by Public Law 87-653. We also reviewed several completed subcontracts to determine costs and rate of return on Government work.

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Ladish has been awarded noncompetitive subcontracts under Navy and Air Force prime contracts. Where the prime contractor and the first-tier subcontractor had been required to furnish cost or pricing data and the Ladish subcontract price was expected to exceed \$100,000, Ladish had been requested, in most cases, to submit and certify cost or pricing data.

Ladish has consistently refused to furnish such data and said it was unable to present data in the form needed to satisfy the Government's requirements that we would accept. Ladish stated it would not risk certifying data because it lacked a refined cost accounting or pricing system and forging manufacture conflicts with rigid cost certification. Ladish would furnish certified data if the Government would risk a cost overrun under a cost-reimbursement contract. Under such contracts, the price adjustment for submitting defective data would be limited to a reduction of the fixed fee.

We found that Ladish job-cost records, with a few adjustments, would be adequate for developing cost or pricing data in support of fixed-price proposals. Had such data been furnished, it would have raised questions as to the reasonableness of proposed prices.

LADISH'S ACCOUNTING SYSTEM DOES NOT PRECLUDE
FURNISHING CERTIFIED COST OR PRICING DATA

Under Ladish's formal accounting system, the cost of goods manufactured and sold is determined at the end of the year. The formal accounting system does not provide for the cost incurred on each order or job. However, informal job-cost records are maintained for all custom-forging items. These records are not integrated or reconciled with the formal accounting system. The Ladish accounting department has been compiling job-cost records with the help of data processing equipment for about 15 years. Although the records

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are used for analysis purposes and, in some cases, for forward pricing, Ladish considers them only a rough estimate of past costs and unreliable indicators of future costs.

Ladish job-cost records are used in developing cost estimates for cost-plus-fixed-fee (CPFF) proposals.

For example:

On two orders for T-shell forgings, under the CVN-70 nuclear aircraft carrier program, Ladish submitted cost or pricing data to the first-tier subcontractor. Ladish certified that the data for the first CPFF proposal was current, complete, and accurate as of the date of certification. The Defense Contract Audit Agency (DCAA) evaluated Ladish's second CPFF proposal for these T-shells and concluded that the data submitted was acceptable as a basis for negotiation of prices. Much of the cost data, we noted, was generated by the job-cost records for three previous orders for the forging.

Ladish could similarly use historical cost data for firm fixed-price proposals. A few adjustments should be made to the job-cost records so that product handling, shipping, packaging, freight, and other expenses are included and credits, such as scrap revenue, are offset.

According to company financial officials, changes in Ladish's production methods and techniques are not systematically reported to cost estimators. Ladish needs a system for reporting changes so that the cost estimators will have and be able to furnish complete, accurate, and current cost or pricing data supporting proposals according to Public Law 87-653.

The lack of an integrated cost accounting system or a refined pricing system should not be a basis for refusing to furnish certified data supporting proposed prices. If the contractor explains how it arrives at its estimates and identifies the available facts pertinent to the estimates and how the data is or is not used, the law's requirements and procurement regulations are satisfied. In support of its estimates, Ladish could submit a mixture of prior cost experience, current facts relating to anticipated costs, and its application of engineering judgments. The certificate would cover only the facts.

LADISH'S PROPOSED PRICES FOR FORGINGS

We identified a number of subcontracts under Navy and Air Force programs for which Ladish should have furnished certified cost or pricing data. Either an Assistant Secretary of the Navy or of the Air Force waived Public Law 87-653 requirements for outstanding subcontracts totaling \$9.2 million as of April 30, 1973. About \$3.5 million covers Navy orders for such

forgings as T-shells, lug shells, and elliptical heads used in fabricating nuclear reactor components for the Trident submarine and the CVN-70 aircraft carrier. The remaining \$5.7 million covers orders for rocket-motor forgings and tungsten inserts under Air Force Titan III and Minuteman III missile programs.

According to higher tier contractors, Ladish refused to furnish certified data for several completed subcontracts. Two items in particular were (1) small T-shells for the high-speed nuclear attack submarine and (2) large T-shells for the nuclear aircraft carrier.

Small T-shell forgings

On 7 completed firm fixed-price subcontracts, Ladish produced and delivered 36 small T-shells to the Babcock and Wilcox Company and the Curtiss-Wright Corporation, as follows:

<u>First-tier subcontractor</u>	<u>Purchase number</u>	<u>Date of order</u>	<u>Quantity</u>	<u>Unit price</u>	<u>Total price</u>
Babcock and Wilcox	311697CS	3-18-69	6	\$43,139	\$ 258,837
			Lot	(a)	87,600
Curtiss-Wright	5G-812183	1-16-70	4	44,570	178,280
Curtiss-Wright	5G-812184	1-16-70	6	44,570	267,420
Curtiss-Wright	5G-820287	11-23-70	4	46,935	187,740
Babcock and Wilcox	313759CS	12- 7-70	2	48,084	96,169
Babcock and Wilcox	314789CH	4- 2-71	10	52,505	525,050
Curtiss-Wright	5G-900444	5- 6-71	4	52,075	208,300
			<u>36</u>		<u>\$1,809,396</u>

^aTools and dies.

The General Electric Company, Machinery Apparatus Operation, the prime contractor under a CPFF contract required for each purchase order certified cost or pricing data from the first-tier subcontractors.

Before issuing the first purchase order for six T-shells, Babcock and Wilcox solicited quotes from three other forging sources. Only Ladish responded with a price quotation; the other firms commented that the forging did not lend itself to economical manufacture on their equipment. Since adequate price competition did not exist, Ladish was requested to furnish cost or pricing data, but refused.

Moreover, Ladish received \$87,600 for forging tools and dies from Babcock and Wilcox, which was borne by the Government under the prime contract with General Electric. Although the presence of such tools and dies which have an indefinite service life gave Ladish a competitive advantage on

follow-on orders, the two buyers continued to solicit additional firms and, in some cases, received quotes. According to General Electric's Manager of Administrative Operations, secretarial waivers should have been obtained before issuing each order over \$100,000, and he believed such waivers had been granted. We found no record that such secretarial waivers had been issued.

Ladish's price quotations for small T-shells were between 24 percent and 34 percent higher than its estimates. Had this information been disclosed, it would have raised questions as to the reasonableness of proposed prices.

Large T-shell forgings

The Westinghouse Electric Corporation, Plant Apparatus Division, is the prime contractor under a CPFF contract for nuclear reactors for the Navy's new fleet of aircraft carriers. A Westinghouse subcontractor, Babcock and Wilcox, has issued four purchase orders for T-shell forgings. Beginning with the first order in 1966, Ladish was the successful offeror each time and it was the sole offeror on the last three purchases. Details of these four orders are shown below.

<u>Type of contract</u>	<u>Purchase number</u>	<u>Date of order</u>	<u>Quantity</u>	<u>Unit price</u>	<u>Total price</u>
Fixed price	72565E	6-20-66	8	\$ 89,975	\$ 719,800
Fixed price			Lot	(a)	279,000
Fixed price	59734E	1-30-68	8	90,055	720,440
CPFF	312263CE	4-16-70	8	^b 90,283	^b 722,264
Fixed price	316972CV	11-27-72	<u>8</u>	111,950	<u>895,600</u>
			<u>32</u>		<u>\$3,337,104</u>

^aTools and dies.

^bOriginal estimated price. Final price of \$75,830 per unit determined after DCAA's audit of total costs incurred on this CPFF subcontract.

Although two other firms submitted proposals in response to the solicitation for order 72565E in 1966, Ladish was selected because it was the only firm proposing on the basis of a closed die forging, which was what Babcock and Wilcox engineers preferred. One of the other offerors proposed a lower price but its T-shell required more machining by Babcock and Wilcox. The negotiated unit price represented a 77-percent markup over Ladish's prepared estimate of \$50,845. Since Ladish was the only firm whose proposal was acceptable, adequate price competition did not exist and Babcock and Wilcox should have requested Ladish to furnish certified cost or pricing data.

According to a Babcock and Wilcox official, Ladish should have submitted certified data for order 59734E. Ladish, the only source solicited, previously received \$279,000 for forging tools and dies. Babcock and Wilcox did not

request Ladish to submit cost or pricing data until 4 months after the order was placed. Ladish refused on the basis that it did not have a refined accounting system. Had Ladish complied with the request, Babcock and Wilcox might have learned that the negotiated price was 47 percent higher than Ladish's estimate.

From 1966 through 1968, Babcock and Wilcox officials said they did not request cost or pricing data before placing the first two orders because they were not familiar with Public Law 87-653 requirements. The other contractor we visited, Curtiss-Wright, was reluctant to request cost or pricing data because it expected Ladish to refuse.

For the CPFF order 312263CE, Ladish submitted cost or pricing data. For order 316972CV, Ladish submitted cost or pricing data for a proposed CPFF subcontract and DCAA performed a preaward audit of the data and concluded that it was acceptable for price negotiation. Although cost savings were achieved on the preceding CPFF order, the Navy decided in favor of a fixed-price order because it was the considered opinion of the prime contractor and Navy personnel that the issuance of a cost contract instead of a fixed-price contract would not be appropriate for the work to be performed and would be too cumbersome to administer. The Assistant Secretary of the Navy (Installations and Logistics) waived the requirement for Ladish to submit certified cost or pricing data for the fixed-price order.

COSTS INCURRED AND RATES OF RETURN

We computed the costs and rates of return experienced by Ladish for Navy orders for small T-shells completed from 1970 to 1973, and for large T-shells completed from 1967 to 1970. We also computed the costs and rates of return for Air Force orders for Titan III missile rocket motor casing parts completed in 1972.

<u>Forging item</u>	<u>Quan- tity</u>	<u>Sales revenue</u>	<u>Costs incurred</u>	<u>Profit or loss(-)</u>	<u>Percent return on costs</u>
Navy (nuclear reactors):					
Small T-shells	36	\$1,721,796	\$1,423,581	\$ 298,215	^a 20.9
Large T-shells	16	<u>1,440,240</u>	<u>864,103</u>	<u>576,137</u>	66.7
		<u>3,162,036</u>	<u>2,287,684</u>	<u>874,352</u>	38.2
Air Force (Titan III):					
Aft closure domes	21	870,975	731,735	139,240	19.0
Forward closure domes	20	827,400	938,736	-111,336	-11.9
Center case segments	102	<u>2,005,116</u>	<u>1,585,748</u>	<u>419,368</u>	26.4
		<u>3,703,491</u>	<u>3,256,219</u>	<u>447,272</u>	13.7
Total		<u>\$6,865,527</u>	<u>\$5,543,903</u>	<u>\$1,321,624</u>	23.8

^aIndividual order rates of return ranged between 8 percent and 35 percent.

Because Ladish considers its records not wholly accurate, we raised the total costs 5 percent. This rate is based on DCAA's information from its review of incurred costs, which is primarily for general and administrative expenses and product-handling costs. This is a reasonable estimate of the value of unrecorded charges and credits to the informal job-cost records. The results of our computations were discussed with Ladish officials who did not disagree but emphasized the provisional nature of the reported costs.

The cited Air Force items are part of the Titan III missile rocket motor casing. Ladish produced the items as a second-tier subcontractor to the United Technology Center which held the prime contract for solid rocket motors.

Although Ladish officials said the threat of competition was always a factor in pricing of subcontracts, they maintained the profits realized on noncompetitive orders were not representative of all Government orders. These officials furnished us information from their records for subcontracts which they considered competitive and which they completed from 1970 through 1973. We also added 5 percent to costs incurred on these orders for estimated unrecorded costs.

<u>Forging item</u>	<u>Quantity</u>	<u>Sales revenue</u>	<u>Costs incurred</u>	<u>Profit or loss(-)</u>	<u>Percent return on costs</u>
Navy:					
Primary heads	11	\$ 216,788	\$ 225,125	\$ -8,337	-3.7
Hemiheads	9	234,300	283,959	-49,659	-17.5
Thermal rings	5	222,200	366,156	-143,956	-39.3
Aircraft frames (note a)	96	212,080	352,715	-140,635	-39.9
Wing beams (note a)	192	<u>205,632</u>	<u>334,015</u>	<u>-128,383</u>	-38.4
		<u>1,091,000</u>	<u>1,561,970</u>	<u>-470,970</u>	-30.2
Air Force (Titan III):					
Forward closure domes	27	1,046,223	1,169,861	-123,638	-10.6
Aft closure domes	29	1,118,327	1,285,897	-167,570	-13.0
Center case segments	155	<u>3,235,022</u>	<u>1,972,296</u>	<u>1,262,726</u>	64.0
		<u>5,399,572</u>	<u>4,428,054</u>	<u>971,518</u>	21.9
Total		<u>\$6,490,572</u>	<u>\$5,990,024</u>	<u>\$ 500,548</u>	8.4

^aF-14 aircraft program orders. Other Navy items part of nuclear reactor program.

Ladish officials believe that the Titan III job costs are understated because

- about \$2 million in production startup expenses were not charged directly and
- about \$239,000 of new plant equipment became surplus when Titan III orders were cut back.

These costs were charged to Ladish manufacturing burden, according to Ladish accounting procedures, and allocated to the various custom-forging products, including the Titan III items. Conversely, the costs incurred, as presented in the above tables, include a portion of other products' startup costs. Also, most of the surplus plant equipment was later used. Therefore it is impractical to refine reported job costs further, and we see no justification for not using Ladish accounting procedures.

The cost of tooling and dies is usually charged to the first order for an item. A portion of this tooling and die cost is sometimes recovered from Ladish customers in consideration for continued use of the tools. Consistent with approved Ladish accounting practice, we treated the recoveries as a reduction in total costs incurred. A lower rate of return on costs would result, if the recoveries were treated as additions to revenue.

CONCLUSIONS

Ladish could furnish certified cost or pricing data in support of non-competitive firm fixed-price proposals that would consist of a mixture of prior cost experience from job-cost records, current facts relating to anticipated costs, and engineering judgments. The certificate would apply only to the facts. Ladish has used its job-cost records in developing estimates for CPFF proposals.

RECOMMENDATION

In the absence of adequate price competition, certified cost or pricing data is needed to evaluate the reasonableness of proposed prices. Our examination showed that Ladish can furnish cost or pricing data in support of its proposed prices for noncompetitive contracts and subcontracts, but the Navy was unsuccessful in obtaining such data. We therefore recommend that your department make every effort to require Ladish to submit and certify such data.

We will be glad to discuss matters in this report with you or your representatives.

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We are sending a copy of this letter to the Ladish Company. We are also sending copies to the Director, Office of Management and Budget; the Secretaries of the Navy and the Air Force; the Deputy Chief of Naval Material; and the Chairmen of the Senate and House Committees on Government Operations, Appropriations, and Armed Services.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "R. W. Gutmann".

R. W. Gutmann
Director