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

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Dear Mr. Wampler:

Enclosed is a summary of our inquiry into the Air Force decision to close its anhydrous hydrazine manufacturing plant at Saltville, Virginia. This report is in response to your request dated June 8, 1972. The summary of our inquiry is also being submitted today to Senator William B. Spong, Jr.

Even though we found that the Air Force estimate of expected savings from the plant's closure was excessive, we have developed no information showing that the decision was in error.

We have not obtained comments from the Department of the Air Force or Olin Corporation on the matters discussed in the summary.

We plan to make no further distribution of this report unless copies are specifically requested and then we shall make distribution only after your agreement has been obtained or public announcement has been made by you concerning the contents of the report.

Sincerely yours,

Elmer B. Staats

Comptroller General
of the United States

Enclosure

The Honorable William C. Wampler
House of Representatives

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ENCLOSURE

SUMMARY OF GAO INQUIRY INTO THE AIR FORCE DECISION TO CLOSE ITS ANHYDROUS HYDRAZINE MANUFACTURING PLANT AT SALTVILLE, VIRGINIA

This review was performed in response to congressional requests to inquire into the economics of the Air Force decision to close its anhydrous hydrazine manufacturing plant (Air Force Plant 80) at Saltville, Virginia, and to satisfy its future needs for hydrazine by purchases from the Olin Corporation.

Our review included an examination of available documentation and interviews with various military and civilian officials at Olin Corporation, Stamford, Connecticut; San Antonio Air Materiel Area, San Antonio, Texas; the Air Force Space and Missile Systems Organization, El Segundo, California; the State Air Pollution Control Board of Virginia; and the State Water Control Board of Virginia. We also visited Air Force Plant 80, Saltville, Virginia.

Our efforts were directed toward answering the questions stated in the congressional requests. The questions were related to an Air Force study, which led to conclusions that the Government (1) would save $6.9 million by closing the Saltville plant as of June 30, 1972, and (2) should thereafter procure hydrazine from Olin's plant at Lake Charles, Louisiana, under a 3-year contract at a price estimated by Olin to be between $1.40 and $1.60 per pound.

Following is a summary of the questions and the information we developed in response to each question.

How can Olin sell hydrazine to the Air Force from its Lake Charles plant at an estimated price of $1.40 to $1.60 a pound when its commercial prices range from $2.95 to $3.15 a pound?

Procurement officials at the San Antonio Air Materiel Area told us that they believed Olin's estimated price was lower than its commercial price because (1) the Air Force will buy in much larger quantities than Olin's commercial customers, (2) the hydrazine for the Air Force will be bulk loaded as opposed to drum loaded for commercial customers, and (3) the Air Force, unlike commercial customers, will have access to Olin's cost data.

Olin officials advised us that they had based their estimate of $1.40 to $1.60 a pound on the large quantity--800,000 pounds annually, for 3 years--to be purchased by the Air Force. By

comparison, during the first 6 months of 1972 Olin sold only about 9,000 pounds of anhydrous hydrazine to its commercial customers. The price of $3.15 a pound was for lots of one to four drums and the price of $2.95 a pound was for five or more drums. Each drum contains 440 pounds.

Olin emphasized that the price of $1.40 to $1.60 a pound was an estimate and not a proposal. As of July 1, 1972, the Air Force had not formally requested proposals from contractors to furnish the quantity required over the 3-year period.

Olin's major commercial hydrazine product is hydrate hydrazine. Olin advised us that although the Lake Charles plant has the designed capacity to produce 3.5 million pounds of anhydrous hydrazine annually from hydrate hydrazine, the commercial demands for hydrate are expected to exceed its capacity to produce it. Therefore, Olin is embarking on an expansion program for hydrate at Lake Charles. Olin advised the Air Force that a portion of the increased hydrate capacity could be reserved for the production of the anhydrous hydrazine for the Air Force and that the estimate of $1.40 to $1.60 a pound includes recovery of anticipated expansion costs.

What is the possible price picture beyond 1975 in light of Olin's position of exclusive source of hydrazine supply to the Air Force?

The Air Force and Olin stated they have no information on possible prices for hydrazine in the post-1975 period.

Since the 1950's, Olin has been the only source of supply for anhydrous hydrazine in quantities required by the Air Force. Olin has been supplying it from either its Lake Charles plant or the Air Force-owned Olin-operated plant at Saltville. It appears that no other potential producers are interested in providing anhydrous hydrazine to the Air Force.

Air Force Plant 80 was built on land purchased from Olin, and as we noted in a report to the Congress (B-157445 dated April 24, 1967) certain supporting facilities (steam-generation plant, waste disposal, railroad, and access roads) for the plant were integrated with those of the contractor in such a way that it would be impractical for any other contractor to operate the plant. As we stated in our 1967 report, this strengthened Olin's position as a sole source supplier.

In June 1970 the Air Force contacted 37 possible anhydrous hydrazine manufacturers in an attempt to locate sources in addition

to Olin. Of these firms, 16 responded with no bid, 20 did not respond, and one stated that it was not a producer of anhydrous hydrazine but would be willing to import it at $3.25 per pound. We were told that the Air Force plans, however, to continue its efforts to develop additional sources.

Although the planned expansion at Lake Charles will double Olin's current production capacity of hydrate hydrazine, Olin officials told us that they expect commercial requirements for hydrate hydrazine to continue to increase. Should this anticipated increase develop, Olin may not be able to meet Air Force requirements after 1975.

Would bulk loading facilities be needed to facilitate the transport of hydrazine from the Lake Charles plant?

The Air Force cost study stated that Olin's Lake Charles plant had no bulk loading facilities. An Air Force official told us that since Olin sold anhydrous hydrazine to its commercial customers in drums, it had been assumed that Olin could not bulk load.

Olin officials told us that bulk loading facilities are available and no additional facilities will be required. Upon reexamination of the point, the Air Force official agreed that there were bulk loading facilities at Lake Charles.

How do the transportation costs from Lake Charles and from Saltville to destination compare?

Most shipments of Air Force hydrazine are made in railroad tank cars to the Rocky Mountain Arsenal near Denver, Colorado. The commercial rail rate from Lake Charles, Louisiana, to the Rocky Mountain Arsenal, is $3.70 per hundred pounds as compared to the commercial rate of $4.39 per hundred pounds from Saltville, Virginia.

The Air Force currently has a special rate of $3.24 per hundred pounds for shipping hydrazine from Saltville to Rocky Mountain Arsenal. However, officials at the San Antonio Air Materiel Area told us the Air Force plans to apply for and expects to receive the same type of special rate for shipments from Lake Charles.

How appropriate is a 3-year contract?

The Armed Services Procurement Regulation provides for the use of multi-year contracts. They are primarily used to attract a larger number of bidders. A multi-year contract enables a new contractor to

amortize his start up costs over a longer period of time, thus possibly making the new contractor more competitive. Despite the apparent lack of potential competitors, a specific invitation for bids on a 3-year basis may stimulate greater interest. Also, this type of contract normally provides an incentive for sole source contractors to bid lower than they would on a 1-year basis.

This type of contract is commonly used by the Air Force in buying propellants and is usually funded from Air Force Stock Funds. We see nothing inappropriate about such a contract in the circumstances involved here.

What is the support for the Air Force estimate that it would cost $2 million to install needed anti-pollution equipment if the Saltville plant remained open?

The Air Force told us that it had no documentation to support the $2 million cost estimate and that the estimate was based on the personal knowledge of the Air Force official responsible for repairs and modifications made to Air Force Plant 80. The official provided the following breakdown of the estimate.

a.	Install air pollution abatement equipment	$ 750,000
b.	Install water pollution abatement equipment and resolve salt disposal and other problems	1,250,000
	Total	$2,000,000

Officials at Olin estimated that the cost to install equipment to abate pollution at Air Force Plant 80 would range between $600,000 and $750,000. These estimates were based on quotes from equipment manufacturers. The $750,000 estimate would, in the opinion of Olin officials, be sufficient to perform any modifications required to bring the plant into compliance with current air and water pollution control standards.

No data, such as air emissions and water samples, have been compiled to show that Plant 80 failed to meet current air or water pollution standards. We were advised by the State Water Control Board of Virginia that there was no known water quality problem related to the hydrazine plant operation. An official of the Air Pollution Control Board of Virginia told us that a system might be required at Plant 80 to control air emissions from the coal-fired steam generating equipment. His opinion was based on knowledge of

present pollution control standards and on visible emissions from the steam generating equipment presently installed. Control equipment needs, he said, would have to be determined from tests and, if needed, the equipment would have to be installed by June 30, 1975.

Would the contemplated plant expansion at Lake Charles involve expenditures for pollution control equipment?

According to Olin officials, the current hydrazine expansion program at the Lake Charles plant does not involve expenditures for pollution abatement equipment because natural gas is used for steam generation and chemical wastes will be treated in Olin's central chemical treatment facility. The salt generated by anhydrous hydrazine production will be used in other manufacturing processes at Lake Charles.

What will be the costs to the Government of shutting down the Saltville plant?

The Air Force official responsible for monitoring the facility contract provided us with the following estimates, which we did not verify, of costs to be incurred in shutting down Plant 80.

Decontamination	$ 80,000
Preservation costs awaiting disposal	100,000
Guard service while awaiting disposal	60,000
Total	$240,000

According to the contract, the Government will also incur "final processing costs" for about 100 Olin employees at Saltville and for relocation of salaried Olin employees who had been transferred from other contractor locations to Saltville. The total amount and nature of these costs were still being negotiated at the time we completed our review. As a result we have no estimate of such costs.

Although the total Government investment in Air Force Plant 80 is $15.6 million, the Air Force official responsible for monitoring the facility contract estimated the plant salvage value to be only $150,000. This estimate was based on the official's past experience in disposing of a similar type plant.

We noted in our report to the Congress in 1967:

> Because certain supporting facilities for the plant were integrated with those of the contractor, the Air Force recognized that it would be impractical for any contractor other than Olin to operate the plant. Moreover, should

it become appropriate for the Government to dispose of this plant, under the terms of the deed, all easement rights and privileges except the easement covering the access road to a public highway would then terminate. This would adversely affect the value of the property to anyone other than Olin; and, under the terms of the agreement, in the event of disposition of the property, Olin has the option to purchase the property at the highest price offered by any other prospective buyer.

Olin ceased commercial operations at Saltville in July 1971. Since then it has been unsuccessful in attempts to interest other companies to use the plant. As of July 1972, Olin was going ahead with its plans for scrapping the production facilities. Because the Air Force has not decided what it is going to do with the hydrazine plant, Olin has not decided what will be done with the steam plant and other facilities jointly used by Olin and the Air Force.

Does the closure of Plant 80 result in savings?

The Air Force decision to close Plant 80 was based on a cost study which reported a savings of $6.9 million by closing the plant.

The reported savings was the difference between the costs of producing 1.6 million pounds of hydrazine over two time periods--a 4-month period (March-June 1972) and a 34-month period (March 1972 through December 1974). The quantity of 1.6 million pounds was selected because it would have filled the available storage.

The study concluded that producing 1.6 million pounds of hydrazine over the 4-month period, utilizing the most efficient production rate available under the contract, would cost $6.9 million less than producing an identical quantity over a 34-month period utilizing the least efficient rate of production under the contract. Included in the $6.9 million difference was $2 million for installing pollution abatement equipment during the 34-month period.

The Air Force study showed, however, that the 1.6 million pounds was only a portion of the Air Force's projected requirements and that the Air Force needed an additional 2.9 million pounds to satisfy the projected requirements through August 1977. The Air Force study listed three alternatives for acquiring the 2.9 million pounds: (1) mothball Plant 80 and reopen it when the inventory is depleted at an additional cost of $3 million; (2) construct a new smaller Government-owned facility at an estimated cost of $10-12 million; and (3) award a multi-year contract to a commercial firm.

Subsequent to the study Olin informed the Air Force that it expected to be able to provide 800,000 pounds annually for 3 years with deliveries to start between April and July 1973.

The Air Force selected the third alternative. However, another alternative available to the Air Force would have been to keep Plant 80 open and produce the 4.5 million pounds over the 34-month period ending December 31, 1974. At that date, the remaining requirements through August 1977 would be equal to storage capacity. Had the Air Force chosen this alternative, it would have incurred additional costs of $2.1 million as compared to the alternative it selected. The following table compares these alternatives.

Source of anhydrous hydrazine	Alternative No. 3 Multi-year contract after closing Plant 80 on June 30, 1972			Alternative No. 4 Operating Plant 80 through December 31, 1974		
	Pounds (millions)	Unit Cost	Total Cost (millions)	Pounds (millions)	Unit Cost	Total Cost (millions)
Produce at Plant 80	1.6	$1.00	$1.6	4.5	$1.85	$8.3
Buy on multi-year contract	2.9	1.60	4.6	-	-	-
Total	4.5	$1.38	$6.2	4.5	$1.85	$8.3
Additional cost of alternative No. 4					$0.47	$2.1

The computations are based on: (1) a contract price of $1.60 per pound; (2) current cost of operating Air Force Plant 80; (3) a continuous production rate at Air Force Plant 80 without exceeding existing storage capacity and projected needs; and (4) the projected hydrazine requirements to August 1977. Each of these factors could be subject to change.

Because the Air Force has already filled storage capacity, and closed the plant, the fourth alternative is no longer available. The above computations indicate, however, that the Air Force saved $2.1 million by closing the plant.