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Examination of Army Plans for Constructing a 105-mm Projectile Metal Parts Facility at the Lone Star Army Ammunition Plant, Texarkana, Texas. LCD-77-433; B-175462. July 15, 1977. 6 pp. + appendix (1 pp.).

Report by Elmer B. Staats, Comptroller General.

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Contact: Logistics and Communications Div.

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Authority: Defense Appropriations Act of 1976 (P.L. 94-212).

Numerous congressional requests prompted a review of the key elements of the Army's decision to construct a new 105-mm projectile metal parts facility in Texas. Findings/Conclusions: A 1975 report by GAO concluded that this project should be deferred until future mobilization requirements justified additional 105-mm projectile production capacity. Army estimates of the requirements for 105-mm projectiles have been based on a combination of the M-1 round, which is the Army's current 105-mm artillery round, and the XM710 round, which is still in research and development. The mobilization requirement for the standard M-1 round can be met by the existing production facilities. The proposed Lone Star facility is an M-1 projectile facility. Because the mobilization requirement supported a need for an XM710 facility, and the cost information used was for an M-1 facility, no detailed review of the cost estimates for the proposed facility was prepared. Although the monthly mobilization requirement for the XM710 totals 2.2 million rounds, the Army does not know at what rate existing facilities can produce it. Current Army estimates indicate that the rate will be 25% to 50% slower than that of the standard M-1 round. The XM710 facility will be more costly than the standard M-1 facility. Currently, U.S. Forces need other munitions which, according to the Army, have higher procurement priorities than the 105-mm round and are in a relatively worse mobilization position. (SC)

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*REPORT OF THE
COMPTROLLER GENERAL
OF THE UNITED STATES*

**Examination Of Army Plans
For Constructing A 105-MM
Projectile Metal Parts Facility
At The Lone Star
Army Ammunition Plant,
Texarkana, Texas**

Departments of Defense and the Army

Numerous congressional requests prompted GAO to review key elements of the Army's decision to construct a new 105-mm projectile metal parts facility in Texas. This report contains factual information obtained and verified by GAO which should be considered before deciding whether to obligate the \$110.4 million which Congress appropriated for the project.



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

B-175462

This report is in response to various requests from Members of Congress (see app. I), concerning the Army's plans for constructing a 105-mm projectile metal parts facility at the Lone Star Army Ammunition Plant, Texarkana, Texas.

We primarily examined key elements of the Army's decision to construct the Lone Star facility. We obtained and verified various information to be considered in deciding whether to obligate funds for constructing the proposed Lone Star facility. Time constraints prohibited a detailed review of the Army's computation of the 105-mm requirement or of its estimates of construction costs for the proposed facility.

On June 7, 1977, various congressional offices were briefed on our review results. This report contains information presented during that briefing.

BACKGROUND

Within the last 5 years, the Chairman, House Committee on Appropriations, asked us to review the Army's annual appropriation requests for ammunition plant modernization and expansion. During the past 2 years, these reviews were expanded to include Army and other service appropriation requests for ammunition. We have recommended reductions for some production base projects and ammunition items and deferral of some production base projects.

On September 22, 1975, we issued a report on our review of the Army's fiscal year 1976 and transition quarter (July 1 to September 30, 1976) appropriation requests. ^{1/} The report included results of our review of the request for \$110.4 million for the proposed 105-mm projectile metal parts facility at the Lone Star Army Ammunition Plant.

^{1/}Army's Programs for Procuring Ammunition and Modernizing Ammunition Plants (LCD-75-441, Sept. 22, 1975).

In our September 1975 report we noted that the Army justified building the new Lone Star facility because the mobilization requirements of 2.4 million 105-mm projectiles a month exceeded existing production capacity. However, after the budget submission, developments in Southeast Asia reduced requirements by about 1 million projectiles a month. As a result the existing 105-mm projectile production capacity was more than enough to meet mobilization requirements. We concluded that this project should be deferred until future mobilization requirements justify additional production capacity.

Although the Congress appropriated funds for the project, the Department of Defense Appropriation Act of 1976 (Public Law 94-212, February 9, 1976) required a new study of the mobilization requirements and certification from the Secretary of the Army to the Congress that obligating the funds was essential to national defense.

FINDINGS

On January 15, 1977, the Secretary of the Army certified to the Congress that:

"Our current 105mm base capability is 2.6 million rounds per month versus a mobilization requirement of 3.9 million rounds per month. The new Lone Star 105mm facility with a capacity of one million projectiles per month is needed to meet a 105mm mobilization shortfall."

On February 14, 1977, an Army restudy of the 105-mm mobilization requirement resulted in a decrease of 1 million projectiles a month. This decrease was due largely to revised intelligence estimates on threat and rules of engagement.

The following tables show how the January and February estimates differ and that most of the 105-mm requirements are for the Korean forces. These requirements, computed by the Army, are a combination of two different 105-mm rounds and represent the projected monthly consumption rates by U.S. and Republic of Korea Forces at a point 6 months after the beginning of a war.

<u>Date</u>	<u>Type of round</u>	<u>Korea forces</u>	<u>U.S. forces</u>	<u>Total</u>
— (millions a month) —				
January 1977	High explosive, M-1	-	0.473	0.473
	Improved conven- tional muni- tion, XM710	<u>3.129</u>	<u>.372</u>	<u>3.501</u>
Total		<u><u>3.129</u></u>	<u><u>.845</u></u>	<u><u>3.974</u></u>
February 1977	High explosive, M-1	0.689	0.029	0.718
	Improved conven- tional muni- tion, XM710	<u>1.852</u>	<u>.372</u>	<u>2.224</u>
Total		<u><u>2.541</u></u>	<u><u>.401</u></u>	<u><u>2.942</u></u>

The M-1 round is the Army's current 105-mm artillery round, and the XM710 round is in research and development. Because the M-1 and XM710 projectiles are totally different in production and design, each should be reviewed separately when determining production base requirements.

M-1 round

As noted above, the revised mobilization requirement for the standard M-1 round is 0.718 million rounds a month. The U.S. capability to produce 105-mm projectiles is based entirely on its capacity to produce the M-1 projectile as follows:

<u>Location</u>	<u>Capacity</u>
(millions a month)	
St. Louis Army Ammunition Plant	0.80
National Presto Industries	1.30
Hays Army Ammunition Plant	.35
X Facility (plant equipment package)	<u>.15</u>
Total	<u><u>2.60</u></u>

The mobilization requirement for the standard M-1 round can be met by the existing facilities.

The proposed Lone Star facility is an M-1 projectile facility, and the design study by Lockwood Greene and economic analysis by Booz-Allen Applied Research were for production of the M-1 projectile.

Because the mobilization requirement supported a need for an XM710 facility and the cost information was for an M-1 facility, we did not evaluate in detail the cost estimates for the proposed facility.

XM710 round

The XM710 is a second-generation 105-mm improved conventional munition in research and development and scheduled for type classification in the third quarter of fiscal year 1979. The round is designed strictly for anti-personnel use.

Because the round is still in development, some unproven aspects remain concerning producibility and effectiveness which affect sizing of the production base required to produce it and using it in combat consumption rate studies.

In the past we noted that modernization and expansion programs should not be funded until completion of the necessary engineering and design. In commenting on our reports the Army has said that increased emphasis would be placed on preparing design criteria and concept plus final design before facilities are funded.

We have also suggested that the Army defer funding facilities for other improved conventional munition projects until a decision has been made on the items. For example, in our April 9, 1973, report, "Army's Program To Modernize Ammunition Plants" (B-172707), we suggested the Army defer funding metal parts facilities for the 8-inch improved conventional munition until a decision had been made on the new round. The round was scheduled to be classified as standard in July 1973. The Army currently estimates that the XM710 round will be classified as standard in mid-fiscal year 1979.

Producibility of XM710

Although the monthly mobilization requirement for the XM710 totals 2.2 million, the Army does not know at what rate existing facilities can produce it. The projectile requires additional production steps and physical space for

heat treatment. Current Army estimates indicate the rate will be 25 to 50 percent slower than that of the standard M-1 round. The Army will not know the attainable production rate until February 1978.

Furthermore, the XM710 facility will be more costly than the standard M-1 facility. Current Army estimates indicate that the cost to convert a modernized M-1 facility to XM710 production would be roughly \$10 to \$15 million per 350,000-round increments. This estimate does not include costs for additional floor space which may be needed.

Inconsistent priorities

In planning for and funding production base modernization and expansion programs, the Army's priorities as of March 1977, based on Department of Defense guidance, call for modernizing and expanding production facilities to manufacture ammunition for U.S. Forces before programs are funded to satisfy allies' requirements.

Currently, U.S. Forces need other munitions which, according to the Army, have higher procurement priorities than the 105-mm round and are in a relatively worse mobilization position.

Army Audit Agency report

On April 14, 1977, the Army Audit Agency issued a report on its review of the Lone Star project. We furnished a copy to various congressional offices on May 9, 1977.

The Agency concluded that because of the revised shortfall in production base capability, unless the Army could justify its decision based on other subjective or economic considerations, the Army should reevaluate its decision on the Lone Star facility before any contractual actions for obligating the \$110.4 million were taken.

Department of Defense position

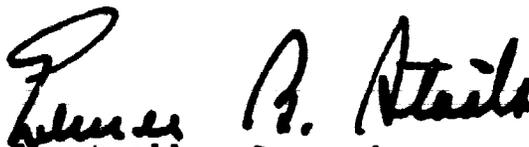
Department of Defense officials told us that the Department has not released the funds for the Lone Star project. The officials said that there is an ongoing study on war strategies (Presidential Review Memorandum #10) and that the earliest that the Department would release the funds would

be after completing this study in July 1977. The study should result in new guidance on war scenarios, stockpile objectives, and production base alternatives.

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We have not presented this report to the Department of Defense for official comment. However, we have discussed the results with Department officials.

Copies of this report are being sent to the Secretaries of Defense and the Army.


Comptroller General
of the United States

ALPHABETICAL LISTING OF REQUESTERS

The Honorable Bill Archer, House of Representatives
The Honorable Alvin Baldus, House of Representatives
The Honorable Lloyd M. Bentsen, United States Senate
The Honorable Jack Brooks, House of Representatives
The Honorable Omar Burleson, House of Representatives
The Honorable Bill D. Burlison, House of Representatives
The Honorable William L. Clay, House of Representatives
The Honorable James M. Collins, House of Representatives
The Honorable John C. Danforth, United States Senate
The Honorable E. de la Garza, House of Representatives
The Honorable Thomas F. Eagleton, United States Senate
The Honorable Bob Eckhardt, House of Representatives
The Honorable Robert A. Gammage, House of Representatives
The Honorable Richard A. Gephardt, House of Representatives
The Honorable Henry B. Gonzalez, House of Representatives
The Honorable Sam B. Hall, House of Representatives
The Honorable Jack Hightower, House of Representatives
The Honorable Richard H. Ichord, House of Representatives
The Honorable Barbara Jordan, House of Representatives
The Honorable Abraham Kazen, Jr., House of Representatives
The Honorable Robert Krueger, House of Representatives
The Honorable George H. Mahon, House of Representatives
The Honorable James A. Mattox, House of Representatives
The Honorable John L. McClellan, Chairman, Committee on
Appropriations, United States Senate
The Honorable Dale Milford, House of Representatives
The Honorable Gaylord Nelson, United States Senate
The Honorable J. J. Pickle, House of Representatives
The Honorable W. R. Poage, House of Representatives
The Honorable Melvin Price, House of Representatives
The Honorable Ray Roberts, House of Representatives
The Honorable Ike Skelton, House of Representatives
The Honorable Olin E. Teague, House of Representatives
The Honorable John G. Tower, United States Senate
The Honorable Harold L. Volkmer, House of Representatives
The Honorable Richard C. White, House of Representatives
The Honorable Charles Wilson, House of Representatives
The Honorable James C. Wright, Jr., House of Representatives
The Honorable John Young, House of Representatives
The Honorable Robert A. Young, House of Representatives