

December 1989

ICBM  
MODERNIZATION

Rail Garrison  
Production Decision  
and Launch Car  
Acquisition Should  
Be Delayed



**National Security and  
International Affairs Division**

B-223636

December 7, 1989

The Honorable Richard B. Cheney  
The Secretary of Defense

Dear Mr. Secretary:

As part of our periodic reviews of the Air Force's intercontinental ballistic missile (ICBM) modernization efforts, we evaluated the current and planned land-based ICBM force structure. During our review you announced that the 50 Peacekeeper missile force will be rebased from the silos at F.E. Warren Air Force Base, Wyoming, to rail garrisons at various Air Force installations. This report discusses how your announcement provides an opportunity for the Air Force to revise its missile launch car acquisition schedule and more fully consider operational test and evaluation results before deciding to begin initial and full production of the system.

**Results in Brief**

Initial operational capability<sup>1</sup> for the rebased Peacekeeper missiles is planned for 1992, and full operational capability of all 50 missiles is expected to be achieved in 1994. To meet these milestones, an initial low-rate production decision for the missile launch cars is scheduled for April 1990, and a final full-rate production decision is scheduled for March 1992. The final production decision will be supported by the results of a completed operational test and evaluation program, but no operational test and evaluation of the complete weapon system (missiles and rail cars) will have been conducted prior to the initial production decision. Additionally, the Air Force plans to purchase about 73 percent of the missile launch cars in connection with the initial production decision. Such a large purchase would, in effect, amount to a full-rate production decision in the absence of any operational test and evaluation of the complete weapon system.

Since the missiles to be rebased on rail cars are already on alert in silos, your announcement provides an opportune time for the Air Force to reassess its Rail Garrison acquisition strategy and restructure the production program. The restructure should provide for (1) delaying the

<sup>1</sup>Initial operational capability for the Rail Garrison concept has been defined as one train on alert with two missiles plus one train for use in training.

initial production decision until after some operational test and evaluation of the complete weapon system has been conducted and (2) procuring most basing hardware after the operational test and evaluation program has been completed.

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## Background

The Rail Garrison concept involves placing a force of 50 missiles on 25 trains, each carrying two Peacekeeper missiles. The trains will be parked inside train alert shelters in secure garrisons at Air Force bases throughout the continental United States. The missiles will be kept on the trains in continuous strategic alert. In the event of national need, the missiles will move onto the nation's railroad network. If necessary, the missiles can be promptly launched from within the train alert shelters.

The Air Force's 1988 Selected Acquisition Report estimates Rail Garrison basing acquisition costs to be about \$6.8 billion in then-year dollars. This estimate includes costs to develop and procure trains and other basing hardware, facility construction, land acquisition, and five basing verification flight test missiles. It does not include the cost of the 50 missiles in silos that were purchased for the Peacekeeper program.

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## Rail Garrison Production Decisions Will Precede Operational Testing

According to the Air Force's current acquisition milestones, no operational test and evaluation of the complete Rail Garrison weapon system will have been conducted at the time the initial production decision is scheduled to be made. Also, current program office plans indicate that the majority of missile launch cars will be purchased in connection with the initial production decision rather than after the final full-rate production decision, as intended by Department of Defense directives.

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## Opportunity to Delay Production Decision

The Department of Defense's policy on major weapon system acquisition stresses the importance of minimizing the time to develop, produce, and deploy major systems for use by operational forces. However, we have maintained that even in expedited programs, as is the case with Rail Garrison, decisionmakers should have some information to assess a weapon system's operational performance before production begins. Therefore, we have stated that, at a minimum, some operational test and evaluation should be performed before proceeding into production.

Operational test and evaluation assesses a weapon system's effectiveness and suitability when operated and maintained by military personnel in an environment that is as operationally realistic as possible and

practical. Operational test and evaluation results are required to be available before major decisions regarding production are made, even though the necessary corrective actions identified through operational test and evaluation may be undertaken after production begins. In a prior report,<sup>2</sup> we recommended that the Director, Operational Test and Evaluation, ensure that sufficient operational test results are available to warrant production start-up. The Department of Defense concurred with the recommendation.

In the case of Rail Garrison, the initial production decision is scheduled for April 1990. At that time about 2 years of the scheduled 4-year test program will have been completed. Most of the testing that is scheduled to be completed and used to support the April 1990 decision will be developmental testing of preliminary designs of individual subsystems.

The April 1990 initial production decision is to be supported by an early operational assessment prepared by the Air Force Test and Evaluation Center. However, an Air Force Operational Test and Evaluation Center official advised us that, in the absence of systems level operational testing, the scope of the early operational assessment will be limited and that the primary thrust of that document will be an appraisal of the schedule for providing operationally representative systems for the operational testing required to support the March 1992 full-rate production decision.

The Air Force considers the Rail Garrison program as a low technical risk because it views the program as basically an engineering effort to integrate proven missile systems into the existing rail industry. However, the Rail Garrison Test and Evaluation Master Plan identifies unique characteristics of the Rail Garrison program that require testing. These include

- the capability of the train to withstand missile launch effects (e.g., impact of ejection from the missile canister and pressures, shock, and heat from first stage ignition),
- the launch effects on commercial railroad trackbeds and the ability of the train to resume mobile operations after launch,
- the capability of the guidance and control system to recover specified levels of accuracy following rail transit, and
- the effects of horizontal basing and rail movement on Peacekeeper missile performance and reliability.

<sup>2</sup>Production of Some Major Weapon Systems Began With Only Limited Operational Test and Evaluation Results (GAO/NSIAD-85-68, June 19, 1985).

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According to the Test and Evaluation Master Plan, flight testing to demonstrate the capabilities is scheduled to begin during the third quarter of calendar year 1991.

Until now, the Air Force's Rail Garrison acquisition strategy has been based on a Peacekeeper force of 100 missiles: 50 based in silos and 50 based on rail cars. However, your recent announcement reflects a 50 missile force, all of which will be based on rail cars. Because there currently exists a 50 missile force based in silos, which was declared to be fully operational by the Strategic Air Command on December 31, 1988, there may not be a need to expedite the rebasing process. Therefore, we believe this is an opportune time for the Air Force to reassess its Rail Garrison acquisition strategy with a view toward restructuring the production program. This restructure should provide for (1) conducting some operational test and evaluation of the complete weapon system before the initial production decision is made and (2) procuring most of the Rail Garrison basing hardware after the operational test and evaluation program has been completed and the final production decision has been made.

Delaying the initial production decision until some operational test and evaluation of the weapon system has been completed would ensure that decisionmakers are more fully informed on the operational effectiveness of the system before starting production. A delay in the production decision from April 1990 to the third quarter of calendar year 1991, when the first flight test of the complete weapon system is currently scheduled, could result in a comparable delay in initial operational capability. However, the delay could help preclude potential cost growth, schedule slippages, and performance shortfalls that weapon systems have historically experienced during the later years of program development. Our concerns in this regard are increased by the fact that, as discussed in the next section, the Air Force currently plans to contract for the majority of missile launch cars in connection with the initial production decision.

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### Need to Reassess Missile Launch Car Acquisition Schedule

Department of Defense directives state that low-rate initial production is the production of a system in limited quantity to be used in operational test and evaluation for verification of production engineering and design maturity and to establish a production base.

According to the program office's current preliminary acquisition plans, 38 of the 52 operational missile launch cars to be procured (includes 2 spare cars), or 73 percent, will be contracted for in connection with the

initial production decision. Under this plan, the Air Force plans to request about \$2.6 billion of the \$3.5 billion budgeted for Rail Garrison hardware procurement before the March 1992 full-rate production decision. All of the launch cars acquired with procurement funds are for operational trains; launch cars for developmental and operational test and evaluation are being acquired through research and development contracts. We believe that buying 73 percent of the operational launch cars in connection with the initial production decision would exceed the "limited quantity" intended by Department of Defense directives. These directives clearly state that the commitment of the majority of a program's procurement funds should be predicated upon a full-rate production decision supported by the results of adequate operational test and evaluation.

The former Secretary of Defense stated in May 1988 that the number of trains to be acquired on the initial production contract would be an issue for the Defense Acquisition Board to discuss when it meets in April 1990 to authorize the initial production.

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## Recommendations

We recommend that you delay the April 1990 initial Rail Garrison production decision until the Air Force has conducted some operational test and evaluation of the complete weapon system. We recommend also that the Air Force's current acquisition schedules be revised so that the majority of the operational launch cars are not procured until after a final production decision, based on a completed operational test and evaluation program, has been made.

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## Scope and Methodology

This report is based on our continual monitoring of the Air Force's efforts to sustain and modernize the land-based ICBM force. We accumulated and analyzed information on the history of the Rail Garrison and Peacekeeper in silos acquisition programs, including applicable regulations, Air Force and Department of Defense documents issued during the planning and development of the systems, test plans and results, and the rationale behind management decisions.

We performed our work at the Ballistic Systems Division, Norton Air Force Base, California; the Office of the Secretary of Defense, Air Force Headquarters, and the Federal Railroad Administration, Washington, D.C.; and the Strategic Air Command, Offutt Air Force Base, Nebraska. We did not obtain written agency comments on this report. However, we discussed the details of the report with officials from your office, Air

Force Headquarters, and the Ballistic Systems Division and incorporated their comments as appropriate. We conducted our review from October 1988 to October 1989 in accordance with generally accepted government auditing standards.

As you know, 31 U.S.C. 720 requires the head of a federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report. A written statement must also be submitted to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Chairmen, House Committees on Government Operations and on Armed Services and Senate Committees on Governmental Affairs and on Armed Services; the Secretary of the Air Force; and the Director, Office of Management and Budget. We will also make copies available to others upon request.

Please contact me at (202) 275-4268 if you or your staff have any questions concerning this report. Other major contributors to this report are Steven F. Kuhta, Assistant Director, and John J. Klotz, Evaluator, National Security and International Affairs Division, Washington, D.C.; and James Dinwiddie, Evaluator-in-Charge, Los Angeles Regional Office.

Sincerely yours,



Nancy R. Kingsbury  
Director, Air Force Issues

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