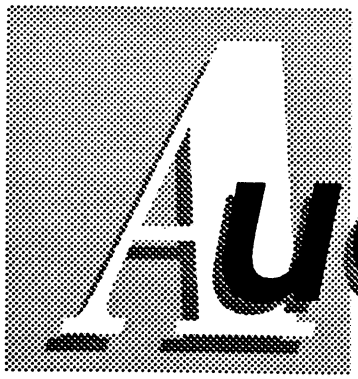

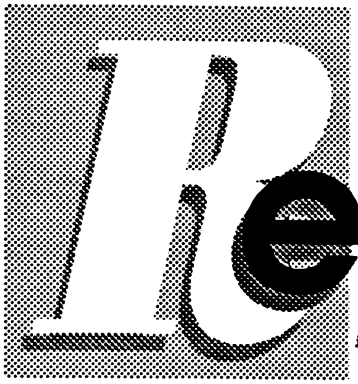

OFFICE OF THE INSPECTOR GENERAL

EXPANDED USES OF THE MAJOR RANGE AND TEST FACILITY BASES

Report No. 95-061 December 30, 1994

Department of Defense

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Acronyms

WSMR	White Sands Missile Range
UTTR	Utah Test and Training Range

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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ARLINGTON, VIRGINIA 22202-2884

Report No. 95-061 **December 30, 1994**

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND TECHNOLOGY

SUBJECT: Audit Report on the Expanded Uses of the Major Range and Test Facility Bases (Project No. 4AB-5019)

Introduction

We are providing this final memorandum report for your information and use. The audit was performed in response to a request from the Deputy Director, Test, Systems Engineering and Evaluation Test Facility and Resources (formerly the Deputy Director, Test and Evaluation for Test Facilities and Resources), Office of the Under Secretary of Defense for Acquisition and Technology. The audit objective was to evaluate the potential for conducting military training at the Major Range and Test Facility Bases (test ranges). The Deputy Director also requested that the audit include an examination of approved military construction projects to determine whether the proposed construction would be more appropriate at a test range that has a related mission.

Audit Results

We identified the training being conducted at the test ranges and determined that additional training could be conducted. Certain test ranges have the facilities and capacity to perform this training function. However, the potential for scheduling conflicts with the range testing programs and the assessment of fees for training at these ranges needs to be addressed. The scheduling and fees issues need to be addressed before a significant increase in the use of the major ranges for training is likely. We reviewed the FY 1995 military construction budgets for the Military Departments and Defense agencies and determined that no projects were associated with a test range's mission. In addition to construction projects, we reviewed two proposed projects: the DoD Vaccine Production Facility and the Air Force Idaho Training Range. Our review of the DoD Vaccine Production Facility determined that the recommended site, Pine Bluff, Arkansas, was a better location for the facility than a test range. We issued a separate report that addresses our concerns for the Air Force's justification for the Idaho Training Range, "Draft Audit Report on the Idaho Training Range Proposal," Project No. 4AB-5019.01, December 1, 1994. The Idaho Training Range report recommended that the Air Force terminate the training range effort because the range will unnecessarily duplicate DoD training resources and the Air Force cost justification for the establishment of the training range is invalid.

Objectives

The overall objective of the audit was to evaluate the potential for expanding the utilization of the test ranges. Specifically, we determined the appropriateness of military training that could be done at the major test ranges. Also, we reviewed non-test range military construction projects for application to a test range with a related mission. We made this military construction review to determine whether the proposed project would be better located at a test range. We further evaluated the effectiveness of internal controls related to those objectives.

Scope and Methodology

During the audit, we visited seven test ranges, the Military Department's Training Commands, the Army and Air National Guard, and the Air Force Reserve Training Command. We evaluated the test range capabilities for conducting training, evaluated the amount of training currently performed, reviewed the test range utilization to determine its availability for additional training, and discussed the test range officials' efforts to promote training at their organizations. We reviewed documentation from August 1991 through August 1994. We also met with training officials from the Military Departments. In addition, we reviewed the Military Departments' military construction budgets for FY 1995 and reviewed 75 construction projects that appeared to be applicable to the mission of the test ranges. We also reviewed a proposal for a DoD vaccine production facility at Pine Bluff Arsenal and the related Corp of Engineers Economic Analysis for siting the project. We analyzed data from the Range Utilization Measurement System and determined that some data at the test ranges was not reliable. The organizations visited are listed in Enclosure 2.

This economy and efficiency audit was made from March through August 1994 in accordance with audit standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and, accordingly, included such tests of internal controls as were considered necessary.

Internal Controls

We evaluated the effectiveness of the internal controls applicable to this review as identified in DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987. We obtained and reviewed the Management Control Plans and the Annual Certifications for the test ranges. The internal controls were deemed to be effective in that no material deficiencies were disclosed that related to the audit objectives. Therefore, we did not review the implementation of the DoD Internal Management Control Program as it applied to the primary audit objective.

Prior Audits and Other Reviews

No prior audit reports or reviews discussed using the test ranges for training and no audits were planned by General Accounting Office; the Inspector General, DoD; or the Military Department audit agencies.

Background

The test ranges are operated and maintained primarily by the Military Departments for the DoD test and evaluation support mission. The six Army, six Navy, and seven Air Force test ranges are located in the United States and its territories. In addition to supporting DoD Military Departments, the test ranges support other U.S. Government Agencies, foreign governments, and private organizations.

The test ranges primarily support test and evaluation of DoD weapon systems. They are used, in part, to test aircraft, bombs, missiles, tanks, tracked vehicles, munitions, and submarines. Test range equipment vary among the ranges depending on the range mission, and some equipment can be used for training purposes. Range equipment includes electronic equipment, tracking and data acquisition systems, data compilation equipment, radar systems, microwave systems, communications, and a wide range of targets. This equipment can simulate threats or provide threat signals to training forces and gather training data for analysis.

DoD Directive 3200.11, "Major Range and Test Facility Base," September 29, 1980, establishes policies and responsibilities for operating the ranges. The Directive requires user fees and budget requests from the respective Military Department to support the test ranges.

The Deputy Secretary of Defense, through the Under Secretary of Defense for Acquisition and Technology, designated the Director for Test, Systems Engineering and Evaluation (formerly the Director, Test and Evaluation) as the official responsible for establishing policy for the test ranges. He is also responsible for monitoring and evaluating the test ranges to ensure that the test ranges can meet requirements in DoD Directive 3200.11. The Military Departments, under the policy guidance and oversight of the Director, are responsible for the management of the test ranges.

Discussion

The Military Departments were conducting training at the test ranges. Although additional training can be conducted at the test ranges, the Military Departments were reluctant to increase the use of the test ranges for training due to the potential for scheduling conflicts and the assessment of user fees. Test range officials were receptive to accommodating additional training and the test ranges have the facilities and capacity to conduct training; however, environmental impact was of concern at two test ranges.

Training at Test Ranges. The amount of training varied among the test ranges. Training for pilot air-to-air tactics, air-to-ground weapons delivery, ground-to-air weapons delivery, air defense missiles artillery, and antiballistic missiles deliveries was conducted at the test ranges. Test ranges were also accommodating unit exercises such as Air Force wings, Army companies and battalions, and larger scale training exercises.

Utah Test and Training Range. The Air Force, Air Combat Command, used the Utah Test and Training Range (UTTR) to conduct pilot training. Air Combat Command negotiated a $4.0 million funding agreement with UTTR for the Air Force and the Air Force Reserves to conduct training exercises during FY 1994. This agreement allowed the Air Force Commands and Reserves units to conduct an unlimited amount of pilot training without charges to the training command or unit. Also, the Air Force, Air Combat Command, has funded equipment for installation on UTTR property to enhance the quality of pilot training. Air-to-air and air-to-ground pilot training were being performed at UTTR for pilots from Hill, Mountain Home, Barksdale, and Ellsworth Air Force Bases.

White Sands Missile Range. The Army and Air Force train at White Sands Missile Range (WSMR), New Mexico. The Army used WSMR to conduct the 2-week Roving Sands annual exercise since 1991. The Roving Sands exercise is a major joint Service exercise that consists of war games and uses most of the range. Also, Holloman Air Force Base uses WSMR to conduct tactical training of its pilots and air crews. Holloman Air Force Base, which is adjacent to WSMR, has also established threat emitter sites at WSMR to simulate potential threats.

Dugway Proving Ground. The National Guard units from Utah, Arizona, and Colorado use Dugway Proving Ground for training. The Dugway Proving Ground was used for field training exercises including live fire with explosives, smoke, and other training munitions and refueling operations. The National Guard planned to expand the training to include National Guard multi-battalion training activities of field artillery, engineering, and aviation units. Dugway Proving Ground has a wide variety of terrain conditions: salt flats, basins, foothills, and mountain ranges with a four-season climate.

Potential for Additional Training. Additional training exercises can be conducted at test ranges. During the audit, we reviewed the test range utilization rates and discussed with range officials the potential for conducting more training. We determined the test ranges have available time to conduct training exercises. For example, UTTR could accommodate more than 30,000 training sorties annually for air-to-ground, air-to-air, ground-to-air, and ground exercises. The six complexes offer an extensive variety of realistic targets to meet most training needs from scorable target pads to remotely controlled realistic threats. Officials from UTTR requested an increase to its airspace in the Northern Range and an expanded land area so aircrews can perform low- and medium-level navigation and air combat training.

During our audit, we visited seven selected test ranges and noted all ranges have excess capacity, that is instrumentation and range availability that could be used

for training. These potential training areas include pilot air-to-air tactics training, air-to-ground techniques training, and ground-to-air weapons firing training. We believe that the test ranges could accommodate additional training with minimal impact on the test ranges' mission of providing test capabilities.

Reluctance to Increase Training at Test Ranges. We observed that the training commands for the Military Departments, the Army and Air National Guard, and the Air Force Reserves were reluctant to use the test ranges for additional training due to the potential for schedule conflicts and the assessment of user fees. The training commands recognized that the test and evaluation mission takes precedence over training exercises at the test ranges. Potential training customers depend on their scheduled times; cancellation of the training imposes financial and coordination problems for the training units. However, we did not find instances when training was cancelled due to testing.

The assessment of a user fee to the training customers affects the use of the test ranges. Test ranges operate on a cost reimbursement basis. With the exception of the Air Force Air Combat Command agreement with UTTR, as previously described, each training customer must reimburse the test range for direct cost related to the training exercise. Direct costs include labor, material, minor construction, utilities, and equipment needed for the training exercise. Training costs varied from $100 to $40,000 depending on test range resources used. Military units that require training can conduct some training at local ranges. The operations and maintenance budget of the military installation support these local ranges and users are not assessed direct charges for their use. Therefore, the assessment of a user fee is a disincentive to the training units' use of the major test ranges. Our discussion with training command officials indicated that they did not have funds available for the major test range user fees. However, it is generally recognized that the quality and realism of the training on the major test ranges is better than the training received on local ranges.

Environmental Impacts. Two of the seven test ranges visited had environmental concerns that may limit some training exercises. WSMR officials stated that environmental concerns are a major consideration in any evaluation to conduct additional training at the range. The officials' concerns were for potential damage to archaeological and historical sites and endangered plants and animals at WSMR. The officials believed that they had a fragile environment that would effect certain types of air or land training. Officials at WSMR stated that they had not completed an Environment Impact Study of the range to identify potential environmental damage that additional training could cause.

Naval Air Warfare Center - Aircraft Division, Maryland, officials also stated that environmental considerations will impact training at their range. For example, because the Naval Air Warfare Center is in a densely populated area, additional noise would increase complaints from the nearby residents. In addition, some range areas can have no activity during bird mating seasons.

Military Construction. We were requested to examine proposed military construction projects for facilities that had potential for construction at a test range. Our examination of the FY 1995 military construction budget for the

Military Departments and Defense agencies identified 75 projects that appeared to be applicable to the mission of the test ranges. We reviewed project-supporting documentation and conducted discussions with officials responsible for the military construction projects and determined that the projects were for local activity requirements. For example, two projects reviewed were the Test Cell (Project P-067) at Naval Air Station, Lemoore, California, and the Engine Test Cell (Project P-070) at Marine Corps Air Station, Cherry Point, North Carolina. Both projects were to be constructed to support out-of-frame maintenance and testing of jet engines for tactical aircraft assigned to each base. Similarly, the Magnetic Silencing Facility (Project P-058) was to be constructed at Naval Station, Ingleside, Texas, since Ingleside was selected as the primary location for performing magnetic silencing functions for mine warfare ships. Mine warfare ships were required to check their hulls quarterly for magnetic variations. However, Ingleside did not have the facilities for the magnetic silencing function.

DoD Vaccine Production Facility. We also reviewed a proposal for a DoD Vaccine Production Facility. As a result of Operation Desert Storm, the Department of Defense identified the need for a facility that can produce vaccines to counter the use of biological warfare. Five locations were considered for a Government-owned, contractor-operated Vaccine Production Facility: Aberdeen Proving Grounds, Maryland; Dugway Proving Ground, Utah; Fort Detrick, Maryland; Jefferson Proving Ground, Indiana; and Pine Bluff Arsenal, Arkansas. Later, the Corps of Engineers prepared an economic analysis of the construction cost of a vaccine facility at those five locations. The economic analysis, dated January 1994, determined that Pine Bluff Arsenal was the most cost-effective of the five locations. Non-cost factors used in the analysis included: housing, schools, hospitals, labor pools, airport, environmental vulnerability, community acceptance, long-term facility support, and security. The economic analysis ranked the remaining sites, in terms of construction cost, from least to most expensive. The ranking order was Pine Bluff, Aberdeen, Fort Detrick, Jefferson, and Dugway. We conducted a detailed review of the Corps of Engineers' economic analysis. Although we identified errors in the cost calculations, Pine Bluff remained the most cost-effective site.

In addition, a market search by Office of the Secretary of Defense officials determined that sufficient interest existed to warrant further pursuit for the production of vaccines by the private sector rather than a DoD organization. Under this concept, the vaccine facility would be contractor-owned and operated rather than Government-owned and contractor-operated. On August 18, 1994, the Under Secretary of Defense for Acquisition and Technology forwarded a recommendation to the Deputy Secretary of Defense for approval to further pursue the contractor-owned and operated option. As of December 8, 1994, no decision has been made due to additional questions from the Deputy Secretary of Defense. If a contractor-owned and operated option is disapproved, Pine Bluff will be the recommended site for a Government-owned and contractor-operated facility.

Conclusion

We discussed the audit results with officials from the Office of the Deputy Director, Test, Systems Engineering and Evaluation Test Facility and Resources. We concluded that no further audit work was necessary in this area. However, the requestor will address the two concerns of the training customers: scheduling priorities and user charges with the test ranges. Changes in these two areas could result in greater use of the major test range for training exercises.

Management Comments

We provided a draft of this report to the addressee on October 17, 1994. No official comments were required; however, we received a response on November 22, 1994, from the Deputy Director, Test, Systems Engineering and Evaluation Test Facility and Resources concurring with the report (enclosure 1). We made appropriate changes to the final report based upon those comments.

We appreciate the courtesies extended to our audit staff. If you have questions on this audit, please contact Mr. Raymond A. Spencer, Program Director, at (703) 604-9071 (DSN 664-9071) or Mr. Roger H. Florence, Project Manager, at (703) 604-9067 (DSN 664-9067). The distribution of this report is listed in Enclosure 3.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Enclosures

OFFICE OF THE UNDER SECRETARY OF DEFENSE

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ACQUISITION AND
TECHNOLOGY

22 NOV 1994

MEMORANDUM FOR DIRECTOR, ACQUISITION MANAGEMENT DIRECTORATE,
DEPARTMENT OF DEFENSE OFFICE OF THE INSPECTOR
GENERAL

SUBJECT: Comments Concerning Draft Audit Report Project No. 4AB-5019.00, Dated 17 October 1994, Expanded Uses of the Major Range and Test Facility Bases (MRTFB)

ENCLOSURE: (1) Specific Comments On Draft Audit Report

The audit report was requested in order to assist the Office of the Secretary of Defense's efforts to more effectively utilize existing Test and Evaluation (T&E) facilities, many of which have excess capacity which could host additional users. The audit report confirms the existence of additional capacity and impediments to the expanded use of the facilities.

Enclosure (1) includes our comments on the draft report. They are presented for your consideration prior to final publication.

One additional comment is a request for a more thorough discussion of the analysis of the Vaccine Production Facility location selection. If economic analysis was the only basis for selection of the Pine Bluff AR facility, was the use/modification of existing and available MRTFB facilities considered as well? Also, was an analysis conducted on the decision between a Government Owned, Contractor Operated facility and a Contractor Owned, Contractor Operated facility?

While this audit addresses the training community's use of the MRTFB's, additional functions (e.g. Research and Development activities, software support activities, etc.) should be considered in future reviews.

I concur with your findings. I fully support all initiatives to maximize utilization of our MRTFB infrastructure.

J. V. Bolino

JOHN V. BOLINO
DEPUTY DIRECTOR
TEST, SYSTEMS ENGINEERING AND EVALUATION
TEST FACILITY AND RESOURCES

Enclosure (1) to Memorandum For Director, Acquisition Management Directorate, Office of the Inspector General, Department of Defense

1. Page 1, Introduction. The originator of the request was not the Director, DT&E; the originator was the Deputy Director, DT&E, Test Facilities and Resources.

2. Page 1, Introduction, last line. The sentence states "test range", it should read MRTFB.

3. Page 1, Audit Results, Line 14. The IG states that Pine Bluff was a better location than a test range. IG should state the basis of that decision, probably cost. Intangibles such as environmental acceptance, supporting infrastructure, supporting personnel expertise, and protection of vital test ranges may not have been included in their analysis.

4. Page 3, Background, 2nd paragraph, line 4. Should the sentence state "some" equipment or a "significant amount"? MRTFBs contain significant amounts of equipment that can be used in training, such as threat simulators and data acquisition systems.

5. Page 3, Discussion, line 4. The paragraph discusses potential scheduling conflicts and assessment of users fees. Are these the perception of the training communities or information based on facts from the MRTFBs? Does the training communities have examples of scheduling conflicts that have occurred?

6. Page 4, Training at Test Ranges. What were the findings at the other test ranges visited, such as APG (CSTA), YPG, PAX, or Eglin?

7. Page 5, Potential for Additional Training, 1st paragraph. The paragraph discusses excess capacity at the test ranges. Need to clarify what "excess capacity" refers to - such as instrumentation, air space, range availability.

8. Page 5, Reluctance to Increase Training at Test Ranges. Paragraph states that the training ranges recognize T&E precedence over training - implies that test ranges are not willing to work out potential conflicts - what have the test ranges stated concerning this perceived "precedence"?

9. Page 6, Military Construction, last sentence. States projects were for "local activity requirements" - request elaboration on this - what are local activity requirements?

10. Page 6, DoD Vaccine Production Facility. Similar to comment 3 - analysis only considers construction costs.

11. Page 7, Conclusion. See comment 1. The IG discussed audit results with the Deputy Director, DT&E, Test Facilities and Resources.

Organizations Visited or Contacted

Office of the Secretary of Defense

Assistant to the Secretary of Defense (Atomic Energy), Washington, DC
Office of the Deputy Director, Test and Evaluation for Test Facilities and Resources, Washington, DC
Joint Program Office for Biological Defense, Falls Church, VA

Department of the Army

Headquarters, U.S. Army Test and Evaluation Command, Aberdeen, MD
U.S. Army Forces Command, Fort McPherson, GA
U.S. Army Training Doctrine Command, Fort Monroe, VA
Dugway Proving Ground, Dugway, UT
White Sands Missile Range, Las Cruces, NM
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U.S. Army Corps of Engineers, Washington, DC
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Naval Air Warfare Center, Aircraft Division, Patuxent River, MD

Department of the Air Force

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Headquarters, Air Force National Guard, Andrews Air Force Base, MD
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