Audit Report

OFFICE OF THE INSPECTOR GENERAL

USE OF TEST FACILITIES ASSOCIATED WITH THE 25MM M919 CARTRIDGE PRODUCTION CONTRACT

Report No. 96-132 May 29, 1996

This special version of the report has been revised to omit contractor proprietary data.

Department of Defense

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Acronyms

ATC	Aberdeen Test Center
LAT	Lot Acceptance Testing
YPG	Yuma Proving Ground

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

May 29, 1996

MEMORANDUM FOR AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit Report on the Use of Test Facilities Associated With the 25mm M919 Cartridge Production Contract (Report No. 96-132)

We are providing this audit report for information and use. We performed the audit in response to a DoD Hotline complaint. We considered comments on a draft of this report in preparing the final report.

Comments on the draft of this report conformed to the requirements of DoD Directive 7650.3 and left no unresolved issues. Therefore, no additional comments are required.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Raymond A. Spencer, Audit Program Director, at (703) 604-9071 (DSN 664-9071), or Mr. Roger H. Florence, Audit Project Manager, at (703) 604-9067 (DSN 664-9067). See Appendix G for the report distribution. The audit team members are listed inside the back cover.

David Steensma

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Deputy Assistant Inspector General
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Office of the Inspector General, DoD

Report No. 96-132 **May 29, 1996**
(Project No. 6AB-8002)

Use of Test Facilities Associated With the 25mm M919 Cartridge Production Contract

Executive Summary

Introduction. The DoD Hotline received a complaint concerning the use of contractor facilities for the performance of lot acceptance testing of 25mm M919 cartridges under production contract DAAE30-95-C-0095. Specifically, the complainant alleged that the U.S. Army Armament Research, Development, and Engineering Center violated the policy of making maximum use of Government test facilities as opposed to contractor testing facilities.

The complainant also questioned the U.S. Army Armament Research, Development, and Engineering Center authorization of the contractor to build a depleted uranium range at the contractor's facilities to test the 25mm M919 cartridges. The complainant alleged the establishment of a unique contractor test capability creates a sole-source contracting situation whereby a single contractor has an unfair competitive advantage. According to the complainant, authorizing the contractor to build a depleted uranium range results in funding another area to be contaminated.

Audit Objective. The audit objective was to evaluate the justification for the use of contractor test facilities as opposed to Government test facilities for production lot acceptance testing of the 25mm M919 cartridges. During the audit, we expanded the scope to include other types of medium caliber cartridges because other ammunition procurements require the contractor to perform production lot acceptance testing.

Audit Results. The audit partially substantiated the allegation that the U.S. Army Armament Research, Development, and Engineering Center authorized the contractor to perform production lot acceptance testing of 25mm M919 cartridges without considering the use of Government test facilities. The Army officials did not conduct a comparison of whether contractor or Government facilities would have been more cost or mission effective. The practice of using contractor test facilities for production tests also extended to other 25mm cartridges, as well as other medium caliber ammunition. Recommendations in this report, if implemented, will help the Army make sound business decisions when determining the location of lot acceptance testing. Appendix E summarizes the potential benefits of the audit.

We concluded that contract DAAE30-95-C-0095 did not fund the construction of the contractor test facility and that related allegations were unfounded (Appendix B).

Summary of Recommendations. We recommend that the Deputy Under Secretary of the Army (Operations and Research) revise Army policy to require Army officials to conduct a cost benefit analysis between Government and contractor test facilities for production testing and decide which facilities are more mission effective. We also

recommend that the Deputy Under Secretary of the Army (Operations and Research) issue an interim policy memorandum requiring Army officials to use Government test facilities for production testing when analysis shows it is cost and mission effective. We recommend that the Commander, U.S. Army Armament Research, Development, and Engineering Center, evaluate the use of major test ranges for production acceptance testing in future procurements of medium caliber ammunition.

Management Comments. The Deputy Under Secretary of the Army (Operations and Research) provided the official comments. The Deputy Under Secretary concurred with the report recommendations and the planned actions were responsive to the recommendations. Part I contains a summary of management comments and Part III contains the complete text of the Deputy Under Secretary's response.

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Part I - Audit Results

Audit Background

Allegations. The DoD Hotline received a complaint regarding lot acceptance testing (LAT) of 25mm M919 cartridges (M919) under production contract DAAE30-95-C-0095. The complainant questioned the decision to fund the construction of a depleted uranium range at the contractor site. The complainant also alleged that the U.S. Army Research, Development, and Engineering Center (the Engineering Center) authorized the use of contractor testing facilities without considering the use of Government test facilities (major test ranges). Appendix B lists the specific complaints and the results of our review.

Contract DAAE30-95-C-0095. The Engineering Center awarded production contract DAAE30-95-C-0095 on July 13, 1995, to Olin Ordnance, Incorporated (Olin). The firm fixed-price performance-based contract required Olin to deliver 170,000 M919 cartridges for $22.1 million. The contract also required Olin to test a sample of M919 cartridges from each of the eight production lots.

Olin is still producing M919 cartridges under previous contracts and has not yet begun delivery under contract DAAE30-95-C-0095. Depending upon funding, the M919 development officials (M919 officials) plan to procure additional M919 cartridges by modifying contract DAAE30-95-C-0095. Although procurement dollars have not been identified for subsequent acquisitions, a valid need remains for M919 cartridges. As a result, future contracts can be anticipated.

Lot Acceptance Testing. LATs are production tests designed to determine whether an item is being produced in accordance with the terms of the contract. Test officials select and test (fire) a representative sample from an assumed homogenous grouping otherwise known as a lot. The tests result in a variety of measurements that are compared to parameters described in the ammunition specification to determine the acceptance of the lot.

M919 Cartridges. The M919 is part of the medium caliber ammunition family and was developed to replace the 25mm M791 ammunition used in the Bradley Fighting Vehicle System. The M919 is designed to defeat the current light armored vehicle threat and has demonstrated effectiveness against future light armored vehicle threats.

Depleted Uranium. The M919 contains depleted uranium, a hazardous material. Because special state and federal licenses are needed for testing depleted uranium, the number of test facilities available for testing the M919 is limited.

Audit Objective

The audit objective was to evaluate the validity of the Hotline complaint concerning the justification for the use of contractor test facilities as opposed to Government test facilities for production LAT of the M919 cartridges. During the audit, we expanded the scope to include other types of medium caliber cartridges because other ammunition procurements require the contractor to perform production LAT. See Appendix A for the audit scope and methodology and a summary of prior coverage related to the audit objective.

Use of Government Test Facilities

The Army officials did not consider using major test ranges before requiring the contractor under contract DAAE30-95-C-0095 to perform production acceptance tests. This condition occurred because Army procurement policy does not require Army officials to prepare a cost benefit analysis between Government and contractor facilities for production tests. As a result, Army M919 officials did not have the necessary information to make a good business decision and will unnecessarily expend about $ * to $ * more for the contractor to perform production acceptance tests. Also, the practice of using contractor test facilities extended to other medium caliber ammunition procurements.

Major Test Range Policy

DoD Directive 3200.11, "Major Range and Test Facility Base," September 29, 1980, establishes policies and responsibilities for operating the major test ranges. The directive requires that test capabilities will not be unnecessarily duplicated.

DoD 5000.2, Part 8, "Test and Evaluation," February 23, 1991, requires DoD organizations to plan and conduct testing to take full advantage of existing investments in the major test ranges.

Army Regulation 70-1, "Army Acquisition Policy," March 31, 1993, requires the Army to capitalize on Army or DoD test investments to avoid unnecessary duplication of facilities. This regulation applies to development and operational testing, not production testing.

Army Regulation 73-1, "Test and Evaluation Policy," February 27, 1995, provides that contractors can perform production tests. However, a Government quality assurance representative must witness these production tests.

Contract DAAE30-95-C-0095

Contract DAAE30-95-C-0095 required Olin to conduct LAT and to provide all production and test facilities and equipment in support of providing the M919 cartridges. The Engineering Center awarded contract DAAE30-95-C-0095 as a performance-based contract. A performance-based contract puts the

*Contractor proprietary data removed.

responsibility on the contractor to produce and deliver an item that satisfies the item's performance requirements. The contract requires the contractor to perform the LAT in the presence of a Government representative. A performance-based contract alleviates the need for the Government to conduct additional tests before accepting delivery of the item.

Contractor Test Facilities

The contractor needs test facilities to conduct component, in-process, and diagnostic testing during production to check production quality. To verify the ammunition satisfies performance requirements, the contractor also conducts its own LAT upon completion of a production lot. Olin had limited depleted uranium test capabilities and, as a result of the M919 contract, Olin expanded its testing capabilities with corporate funds. Contract DAAE30-95-C-0095 did not fund the establishment of a depleted uranium range. However, Olin was a major supplier of ammunition to DoD and would receive reimbursement for test range usage through proper charges to contracts.

Major Test Ranges

The major test ranges represent a national asset and have capabilities that are unique to DoD and are intended to be fully utilized in the best interest of DoD. The major test ranges are comprised of large land and sea areas. Generic test equipment and instrumentation are located throughout the test ranges, while individual test sites contain equipment and instrumentation required to perform specific types of tests. The major test ranges represent a DoD investment of approximately $30 billion and have an annual operating budget of approximately $5 billion.

Two major test ranges, Aberdeen Test Center (ATC) at Aberdeen Proving Ground, Maryland, and Yuma Proving Ground (YPG), Arizona, were generally capable of performing the M919 LAT. We determined that the ATC had the capability, availability of resources, and lower cost to conduct the M919 LAT. The YPG was less desirable due to test limitations and higher cost. During the M919 development, officials used both ATC and YPG testing resources as policy required. The M919 officials did not, however, consider using the major test ranges for production testing. M919 officials said capability, lack of availability, and cost prohibited them from utilizing the major test ranges for LAT.

Capability. Test facilities must be able to meet LAT requirements identified in the contract for the M919. LAT requirements include: Pressure (force/stress), velocity (speed), and action time (movement time); dispersion (scatter); waterproof; trace; and penetration tests. ATC has a more extensive testing capability than YPG.

Olin. Olin expanded its limited depleted uranium testing capabilities to accommodate the production test requirements of the M919. The only LAT requirement Olin was not able to perform was the trace test, which tracks the movement of the M919 cartridge. To accomplish the trace test, Olin needed a range of more than 1,000 meters. Olin subcontracts with Camp Pendleton for the trace test.

Aberdeen Test Center. ATC had an area with three ranges that was able to accommodate M919 LAT requirements. Although all three ranges can be used for testing depleted uranium cartridges, ATC officials said they would use two of the ranges for M919 LAT.

Yuma Proving Ground. YPG had an area that was able to accommodate M919 LAT requirements with the exception of the penetration test. YPG was not able to perform the penetration test because of the depleted uranium in the M919. The penetration test requires firing the M919 at a hard target. When the M919 hits the hard target, the depleted uranium disperses, causing extensive contamination of the area. YPG did not have the necessary state and federal licenses for cleaning up such extensive contamination.

Availability. Availability is an important factor in choosing test facilities because scheduling delays can increase contract costs. The M919 officials cited scheduling conflicts for not considering the use of ATC and YPG for LAT. However, the M919 officials were unable to provide documentation that identified scheduling difficulties.

Olin. Olin had the available resources because testing is part of producing the M919. For example, Olin conducts component, in-process, and diagnostic testing during production. Olin also conducts LAT of the M919 to verify that the ammunition satisfies performance requirements.

Aberdeen Test Center. ATC had three ranges that could accommodate the M919 LAT. The two ranges ATC officials said would be used to perform M919 LAT generally were not available the first quarter of FY 1995. For the remainder of the fiscal year, the ranges were used 60 percent of the time; therefore, additional testing could have been conducted during the 40 percent of the time when the ranges were not used. ATC officials stated that with proper scheduling, ATC could perform the M919 LAT.

Yuma Proving Ground. Yuma officials indicated that, with proper scheduling, they could accommodate the LAT requirements within their capabilities.

Cost. The cost estimates for M919 LAT under contract DAAE30-95-C-0095 ranged from $697,784 to $1,033,416 with ATC providing the lowest and YPG providing the highest estimates. Using the cost proposal Olin submitted and negotiated under contract DAAE30-95-C-0095, we identified elements of the M919 LAT including test requirements, number of cartridges to be tested, and equipment and necessary supplies. To obtain cost estimates with comparable attributes from the major test ranges, we provided these elements to ATC and

YPG. ATC officials estimated that they could perform the LAT for $ * ($ * x 8 lots) less than Olin (Appendix C). The YPG estimate is $ * ($ * x 8 lots) more than Olin.

Olin. Olin's total cost to perform LAT is $ * . We evaluated Olin's cost proposal and determined it would cost $ * per production lot for Olin to perform LAT. Because Olin must test eight production lots, Olin's total cost to perform LAT under contract DAAE30-95-C-0095 is $ * ($ * x 8).

Aberdeen Test Center. The ATC total estimated cost to perform LAT is $697,784. Based on the elements in the contractor's proposal, ATC officials estimated the cost of performing LAT at $77,505 per production lot. We added the cost Olin would incur to pack and ship the M919 cartridges to ATC. These changes increased the estimate to $87,223 per production lot, which is $ * less than Olin's cost per production lot to perform the LAT. The ATC total cost to perform LAT under contract DAAE30-95-C-0095 would be $697,784 ($87,223 x 8), which is $ * less than Olin's total cost.

ATC officials emphasized that they can satisfy the LAT requirements for $45,000 per LAT by reducing the number of cartridges tested. The $45,000 includes some retesting if necessary. ATC officials believe certain elements in the contractor's proposal are excessive. Using this estimate and adding the cost Olin would incur to pack and ship the M919 cartridges to ATC, the ATC cost to perform LAT would be $54,718 ($45,000 + $7,667 + $2,051) per production lot. This cost is $ * ($ * - *) less than Olin's cost per production lot to perform the LAT. The ATC total cost to perform LAT under contract DAAE30-95-C-0095 would be $437,744 ($54,718 x 8) or $ * ($ * - $437,744) less than Olin's total cost.

Yuma Proving Ground. Based on the elements taken from the contractor's proposal, YPG officials estimated the cost of performing LAT (with the exception of the penetration test) at $87,300 per production lot. We added the cost YPG would incur to subcontract with ATC for the penetration test, as well as the cost Olin would incur to pack and ship the M919 cartridges to YPG. These changes increased the YPG estimate to $129,177, which is $ * more than Olin's cost to perform the LAT. The YPG total cost to perform LAT under contract DAAE30-C-95-0095 would be $1,033,416 ($129,177 x 8), which is $ * ($1,033,416 - *) more than Olin's total cost.

*Contractor proprietary data removed.

Other Medium Caliber Ammunition Procurements

The practice of using contractor facilities for LAT extends to other medium caliber ammunition as a result of performance-based contracting. For the 25mm M791, M792, M793, M794, and M910 cartridges and the 30mm M788 and M789 cartridges, the Engineering Center requires the contractor to perform LAT. However, for these medium caliber procurements, the Engineering Center allows the contractor to use its test facility or any other test facility acceptable for testing unless disapproved by the Government. Appendix D lists the FY 1995 contracts for the cartridges discussed above.

Conclusion

Army policy requires Army activities to use major test ranges during systems development for developmental and operational tests. The policy is unclear as to whether these ranges should be used for subsequent production tests such as LAT. Although Army policy allows contractors to perform LAT during production, the policy does not specify where the production testing should be conducted.

The DoD has invested significant resources in establishing and maintaining major test ranges as national assets. The DoD intention is to utilize the major ranges as much as possible because of the unique capability they possess, the significant investment, and the threat of losing the major ranges as a result of underutilization and efforts directed toward realignment and closure. During the recent deliberations on base realignment and closure, range utilization was an important element in the decision process. The closure of a major test range would result in the permanent loss to the DoD. Army officials must be sensitive to the DoD need for the major ranges and consider the effects of their business decision in continuing to rely on contractor test resources. In addition, an intangible cost benefit may be derived if contractors and test ranges have to compete for the performance of production tests.

Renegotiating contract DAAE30-95-C-0095 would not be effective because the cost associated with changing the contract would offset the potential savings. Instead, M919 officials should fully evaluate the use of major test ranges for LAT in future medium caliber ammunition procurements, including any modification to contract DAAE30-95-C-0095. This evaluation should not only include a documented cost benefit analysis between Government and contractor testing, but also the value the major test ranges provide to DoD. The cost benefit analysis would analyze the cost and benefits associated with using contractor or Government facilities for testing. Nonquantifiable benefits should be considered and documented. M919 officials should also reexamine the LAT

requirements. Government testing officials believe that they can satisfy the LAT requirements with fewer resources; therefore, the contractor testing may be excessive. If recommendations to clarify test and evaluation policy are adopted, the Army will be better able to make sound business decisions when determining where to perform lot acceptance testing.

Recommendations, Management Comments, and Audit Response

1. We recommend that the Deputy Under Secretary of the Army (Operations and Research):

a. Revise Army Regulation 73-1 to require a decision to use Government or contractor test facilities be based upon a documented analysis that includes range capability, availability, cost, and the value the major ranges provide to the Department.

b. Issue an interim memorandum that initiates the policy change in Recommendation 1.a.

Management Comments. The Deputy Under Secretary concurred with Recommendations 1.a. and 1.b. He stated that the Army Regulation 73-1 will be revised to require the documented analysis and an interim memorandum would be issued by May 24, 1996.

2. We recommend that the Commander, U.S. Army Armament Research, Development, and Engineering Center:

a. Evaluate the use of major test ranges for lot acceptance testing in future medium caliber ammunition procurements, including modifications to contract DAAE30-95-C-0095.

b. Evaluate the lot acceptance test requirements for the 25mm M919 cartridge to verify that testing requirements are not excessive.

Management Comments. The Deputy Under Secretary provided the Army response to the recommendations addressed to the Commander, U.S. Army Armament Research, Development, and Engineering Center. The Deputy Under Secretary partially concurred with Recommendation 2.a. and concurred with Recommendation 2.b. In reference to Recommendation 2.a., the Deputy Under Secretary agreed to evaluate the use of major test ranges for future procurements but disagreed with reevaluating the DAAE30-95-C-0095 contract because renegotiating the contract was not in the Government's best interest. In reference to Recommendation 2.b. the Deputy Under Secretary agreed to advise the Engineering Center to continue to evaluate LAT requirements as the system mautures and reduce test requirements as appropriate.

Audit Response. The Deputy Under Secretary comments to Recommendations 2.a and 2.b. were responsive. Recommendation 2.a. was made because, at the time of the audit, a contract modification for additional procurements was in-process. We agree with the Deputy Under Secretary comments that renegotiating the contract modification for the additional procurements at this time would not be cost-effective.

Recommendation 2.b. was made because testing officials at ATC questioned the number of rounds Olin proposed to fire to meet the LAT requirements. As a result, ATC believed Olin firing requirements were excessive. ATC officials believed that they could fire fewer rounds and still meet the LAT requirements and provided a revised LAT estimate of $45,000. Army comments indicate that LAT requirements will be examined as the system matures. We believe that this continued examination should result in a validation of the firing requirements and ensure that the contractor does not propose excessive rounds for the LAT. Additional management comments are not required.

Part II - Additional Information

Appendix A. Scope and Methodology

Scope

We conducted the audit from November 1995 through February 1996. To accomplish the audit objective, we:

o reviewed DoD and Army policy dated September 29, 1980, through February 27, 1995, pertaining to test and evaluation requirements;

o examined contract DAAE30-95-C-0095 files dated December 22, 1994, through July 13, 1995;

o reviewed test range schedules for FY 1995 at the ATC;

o reviewed M919 program documentation dated May 1993 and discussed test and evaluation requirements with policy, program, and contract personnel; and

o reviewed program documentation dated October 24, 1983, through August 24, 1995, and discussed test and evaluation requirements with personnel from other medium caliber ammunition programs (20, 25, 30, and 40mm).

Methodology

The audit focused on allegations concerning LAT of 25mm M919 cartridges. To answer the allegations, we determined whether the decision to use the contractor's test facilities, as opposed to the Government's test facilities, was cost-effective. Specifically, we:

o evaluated the cost of performing M919 cartridge LAT at the contractor's test facilities,

o obtained estimates for performing M919 cartridge LAT at ATC and YPG, and

o compared the ATC and YPG estimates to the contractor's cost.

We performed this economy and efficiency audit in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. Our methodology was limited in

that we did not include tests of management controls. The audit did not rely on computer-processed data or statistical sampling procedures. Appendix F lists the organizations we visited or contacted.

Prior Audits and Other Reviews

The Inspector General, DoD, issued Report No. 95-281, "Management and Capability of the Major Range and Test Facility Bases," July 27, 1995. The audit concluded that DoD weapon system program managers utilized test ranges for weapon systems in development and, for the systems reviewed, did not acquire test resources that already existed at the test ranges.

Appendix B. Audit Response to Specific Test Facility Allegations

Allegation No. 1. Contract DAAE30-95-C-0095 awarded to the Olin Corporation to manufacture 25mm M919 cartridges authorized Olin to build a separate depleted uranium-approved range at Marion, Illinois, to test the cartridges.

Audit Response. Not substantiated. Contract DAAE30-95-C-0095 did not authorize Olin to build a depleted uranium-approved range at Marion, Illinois, to test the cartridges. Olin had limited depleted uranium testing capabilities at the Marion, Illinois, plant but had to expand capability to accommodate the production test requirements of the M919. Contract DAAE30-95-C-0095 did not permit the establishment of a depleted uranium range as an allowable cost and Olin funded the improvements with corporate funds. However, Olin was a major supplier of ammunition to DoD and received reimbursement from proper contract charges for usage of the test facilities.

Allegation No. 2. The Engineering Center violated the policy of making maximum use of U.S. Army Test and Evaluation Command test facilities to conduct system-level technical testing since contracts authorize the use of commercial testing facilities without consideration of using Government test facilities.

Audit Response. Partially substantiated. Engineering Center officials authorized the use of commercial testing facilities for LAT without consideration of using major test ranges. However, this action does not violate Army policy. See Finding for details.

Allegation No. 3. Establishment by the Government of a unique contractor test capability leads to future cost inefficiencies. The Government, in essence, creates a sole-source contracting situation whereby a single contractor has an unfair advantage and can eliminate competition.

Audit Response. Not substantiated. The Engineering Center did not establish a unique contractor test capability. Olin had test facilities because the company conducts component, in-process, and diagnostic testing during production of ammunition. To ensure the ammunition satisfies contractual requirements, Olin would also conduct its own LAT before shipping the ammunition to the major test ranges for LAT. In addition, the production tests conducted at Olin's test facilities are not unique as ATC can perform the same tests.

The location of testing does not create a sole-source contracting situation. Even if contract DAAE30-95-C-0095 required LAT to be performed at a major test range, Olin is the only contractor currently qualified to produce M919 cartridges. Further, contracts for 30mm ammunition and 25mm cartridges other than the M919, which required the contractor to perform LAT, were not sole-source procurements.

Allegation No. 4. By allowing Olin to build a depleted uranium-approved range, the taxpayers are funding yet another area to be contaminated.

Audit Response. Not substantiated. Even if the Army required all LAT to be performed at U.S. Army Test and Evaluation Command facilities, Olin would still need test facilities for conducting component, in-process, and diagnostic testing during production.

Appendix C. Cost Comparison of Lot Acceptance Testing

Olin's cost to perform LAT for one lot of M919 cartridges under contract DAAE30-95-C-0095 is $ * . The ATC estimate is $ * less and the YPG estimate is $ * more than Olin's cost per production lot. The table below compares the costs of Olin, ATC, and YPG to perform LAT for one lot of M919 cartridges.

Contractor Versus ATC Costs per LAT

Lot Acceptance Test	Contractor	ATC	YPG
Inspection	$ *[1]	$10,370	$ 0[1]
PVAT[2]	*	11,983	34,700
Dispersion	*	4,686	3,300
Waterproof	*	3,611	11,000
Function Casualty	*	3,690	3,400
Trace	*	6,857	6,600
Salt Fog	*	4,494	9,100
Penetration	*	30,848	30,848[3]
Reporting	*[4]	966	2,200
Material	*	0[5]	5,000
Range Cleanup	*[6]	0[7]	12,000
Packaging	*[8]	7,667[9]	7,667[9]
Shipping	*[9]	2,051[9]	3,362[9]
Total Cost per LAT	**$ ***	**$87,223[10]**	**$129,177[11]**

[1]The cost of performing inspections was included in other test areas.

[2]Pressure, Velocity, and Action Time.

[3]YPG subcontracts with ATC for penetration LAT. YPG officials did not include the cost of penetration LAT in their estimate. Therefore, we added the ATC cost of performing penetration LAT to the YPG cost estimate.

[4]Reporting is in Olin's cost as part of the cost of materials.

[5]ATC officials did not list the cost of materials needed to perform LAT as a separate line item. The cost is in the $87,223 cost estimate.

*Contractor proprietary data removed.

[6]Olin's range cleanup costs are included as part of the cost of materials.

[7]ATC officials did not list the cost of range clean up as a separate line item. The cost is in the $87,223 cost estimate.

[8]Olin incurs packing and shipping costs for only the trace test because, with the exception of the trace test, officials perform the LAT at the company's test facility. The packing and shipping costs are part of the trace LAT cost of $ * .

[9]We added the cost of packing and shipping cartridges from the contractor's facility to the test centers.

[10]The actual ATC cost estimate was $77,505 excluding packaging and shipping ($77,505 + $7,667 + $2,051 = $87,223).

[11]The actual YPG cost estimate was $87,300 excluding penetration LAT, packaging, and shipping ($87,300 + $30,848 + $7,667 + $3,362 = $129,177).

*Contractor proprietary data removed.

Appendix D. Medium Caliber Ammunition Contracts Requiring Contractor Performance of Lot Acceptance Testing

Industrial Operations Command, Rock Island, awarded the following medium caliber ammunition contracts during FY 1995 that require the contractor to perform LAT.

Medium Caliber Ammunition Contracts

Contract	Contractor	Type of Ammunition	Number of Rounds	Contract Dollars
DAAA09-95-C-0061	Alliant	25mm	1,741,016	$27,418,094
DAAA09-95-C-0062	Olin	25mm	1,424,492	25,298,772
DAAA09-95-C-0069	Alliant	30mm	1,631,850	10,215,381
DAAA09-95-C-0070	Alliant	30mm	970,420	9,888,580
DAAA09-95-C-0081	Olin	30mm	646,800	7,000,316

Appendix E. Summary of Potential Benefits Resulting From Audit

Recommendation Reference	Description of Benefit	Amount and Type of Benefit
1.a.	Economy and Efficiency. Requires using a cost benefits analysis to determine where production lot testing is to be conducted.	Nonmonetary.
1.b.	Economy and Efficiency. Requires the immediate implementation of Recommendation 1.a.	Nonmonetary.
2.a.	Economy and Efficiency. Requires that a good business decision be made on where production lot tests should be performed.	Undeterminable funds put to better use. Benefits would not be identified until the analysis is performed.
2.b.	Economy and Efficiency. Requires the evaluation of testing requirements.	Undeterminable funds put to better use. Benefits would not be identified until the evaluation is completed.

Appendix F. Organizations Visited or Contacted

Department of the Army

Army Materiel Command, Office of the Deputy Chief of Staff for Ammunition, Alexandria, VA
U.S. Army Test and Evaluation Command, Aberdeen Proving Ground, MD
U.S. Army Armament Research, Development, and Engineering Center, Light Armament Division, Picatinny Arsenal, NJ
Industrial Operations Command, Acquisition Division, Rock Island Arsenal, IL
U.S. Army Aberdeen Test Center, Aberdeen Proving Ground, MD
Combat Systems Division, U.S. Army Yuma Proving Ground, AZ

Appendix G. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
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Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Assistant to the Secretary of Defense (Public Affairs)
Director for Test, Systems Engineering and Evaluation

Department of the Army

Assistant Secretary of the Army (Research, Development and Acquisition)
Deputy Under Secretary of the Army (Operations and Research)
Commanding General, Army Materiel Command
Commander, U.S. Army Test and Evaluation Command
Auditor General, Department of the Army
Commander, U.S. Army Armament Research, Development, and Engineering Center
Director, U.S. Army Test and Evaluation Management Agency

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Department of the Air Force

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
Technical Information Center, National Security and International Affairs Division, General Accounting Office

Chairman and ranking minority member of each of the following congressional committees and subcommittees:

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
House Committee on National Security

Part III - Management Comments

Department of the Army Comments

DEPARTMENT OF THE ARMY
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D.C. 20310-0102

7 May 1996

SAUS-OR

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

SUBJECT: Audit Report on the Use of Test Facilities Associated With the 25mm M919 Cartridge Production Contract (Project No. 6AB-8002)

Reference memorandum, 13 March 1996, subject as above.

This office has reviewed the draft subject report. Our response is attached at the enclosure.

Please direct any questions to Dr. John Foulkes, (703) 695-8995.

Walter W. Hollis
Deputy Under Secretary of the Army
(Operations Research)

Encl

RECOMMENDATION 1. We recommend that the Deputy Under Secretary of the Army (Operations Research):

a. Revise Army Regulation 73-1 to require a decision to use Government or contractor test facilities be based upon a documented analysis that includes range capability, availability, cost, and the value the major ranges provide to the Department.

CONCUR

CORRECTIVE ACTION: Army Regulation 73-1 will be revised to include the recommended wording as the policy for all testing.

b. Issue an interim memorandum that initiates the policy change in Recommendation 1.a.

CONCUR

CORRECTIVE ACTION: The Deputy Under Secretary of the Army (Operations Research) will issue a memorandum through the Test and Evaluation Managers informing the Acquisition Community of the change in policy by 24 May 1996.

RECOMMENDATION 2. We recommend that the Commander, U.S. Army Armament Research, Development, and Engineering Center:

a. Evaluate the use of major test ranges for lot acceptance testing in future medium caliber ammunition procurements, including modifications to contract DAAE30-95-C-095.

PARTIALLY CONCUR Concur with the statement through ...ammunition procurements. Nonconcur with, ...including ... DAAE30-95-C-095. It is not in the Government's best interest, as stated in the IG report, to renegotiate this contract.

b. Evaluate the lot acceptance test requirements for the 25mm M919 cartridge to verify that testing requirements are not excessive.

CONCUR

CORRECTIVE ACTION: Although the lot acceptance testing was thoroughly evaluated prior to letting contract DAAE30-95-C-095, the Deputy Under Secretary of the Army (Operations Research) will advise the Commander U.S. Army Armament Research, Development, and Engineering Center through AMC and TACOM to continue to evaluate Lot Acceptance Testing requirements as the system matures and lower the number of rounds fired as appropriate.

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Audit Team Members

This report was prepared by the Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD.

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