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Washington, DC 20548

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Logistics and
Communications
Division

B-200539

OCTOBER 15, 1980

The Honorable Harold Brown
The Secretary of Defense



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Dear Mr. Secretary:

Subject: [Small Arms Ranges at Reserve and Guard
Facilities] (LCD-81-8)

In recent years Reserve components have claimed they needed additional funds to enlarge their training centers and armories or to construct new ones. Because of the high cost of the needs reported and earlier work that identified unused indoor small arms range space in Reserve components' facilities, we reviewed the use of indoor and outdoor small arms ranges in the Sacramento, California, area. We attempted to determine (1) whether Reserve components were adequately considering existing indoor and outdoor ranges in the same geographical area when planning construction of facilities which will include indoor ranges and (2) whether existing indoor ranges could be used for other purposes if they are unused or are in an area where another range might be used instead. The details of our work are contained in the enclosure.

In summary we found:

- Small arms ranges are well suited for use on a regional basis by Reserve personnel who commute to and from their training locations.
- DOD Directive 4000.19 establishes the basic policies for sharing small arms ranges. The procedures require one DOD activity to support another whenever possible. If each activity has the capability to support its own requirements, action will be taken by all commanders to achieve the most economical operation.
- The Air National Guard and the Army, Air Force, and Marine Corps Reserves are required to consider ranges in the area before programming and constructing a new range. The Navy Reserve uses Marine Reserve ranges.



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--The Army National Guard builds an indoor range in most new armories without considering the availability of other ranges in the area. Although the Guard's criteria specify ranges be designed to accommodate military vehicle training, the criteria also provides for vehicle training space in the assembly hall and authorizes organizational maintenance shops at many armory locations. For fiscal years 1979 through 1981, the Army Guard has 69 armory projects planned; most include new small arms ranges.

--Where range capacity is sufficient, the Army Reserve is converting indoor range space to other needs.

--In Sacramento, during fiscal year 1983 the Army Guard plans to construct a 4,131 square foot organizational maintenance shop estimated to cost \$180,000 at an armory with a 1,974 square foot range. The range is not used for annual weapons firing or vehicle training, but can be used to meet a portion of the need for maintenance space.

We believe the criteria for constructing Army National Guard armories should be changed to require consideration of existing range capacity in the area before constructing small arms ranges. This could preclude the needless construction of indoor ranges where other ranges are available and where other vehicle training space is adequate. Further, in some areas, this could release indoor small arms range space for other needs.

We discussed this report at a joint meeting with representatives from the Office of the Assistant Secretary of Defense for Manpower, Reserve Affairs and Logistics; the Army, Navy, and Air Force Reserve components; and the Army National Guard. We were told that because DOD's criteria already require sharing of existing small arms ranges, there is no need to include this in the Army Guard's criteria. We were told that existing and planned indoor ranges were being evaluated for compliance with new and stricter health and safety criteria and that our report should be withheld to await the outcome of that evaluation. We were also told that the Army Guard is planning to drop the requirement for using indoor ranges for vehicle training.

We do not agree that there is no need for a change in the Army Guard criteria for planning small arms ranges. We believe that each of the Reserve components should have criteria that conforms to the DOD policy on sharing ranges.

Since a health and safety evaluation is underway which could make indoor ranges more costly, we believe the changes proposed in our report should be considered and made a part of any planning for indoor ranges. Further, we believe the planned change by the Army Guard to delete the requirement to also use indoor range space for vehicle training increases the need for a specific Army Guard criterion requiring consideration of existing ranges and the possibility of sharing ranges to help avoid the construction of unneeded indoor ranges at armories.

Accordingly, we are recommending that the Army Guard construction criterion for indoor small arms ranges be changed to require consideration of the use of other ranges in the area before constructing an indoor range. (See p. 11.) Further, we are recommending that existing indoor ranges, and indoor ranges planned for construction in Army Guard armories, be reviewed to see if other range capacity can be substituted and (to the extent contracts have not been awarded) construction and alteration costs avoided. (See p. 11.)

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and 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 above-mentioned committees and the Secretaries of the Army, Navy, and Air Force.

Sincerely yours,



R. W. Gutmann
Director

Enclosure

SMALL ARMS RANGES AT
RESERVE AND GUARD FACILITIES

THE NATURE OF SMALL ARMS RANGES

Both the Active and Reserve military components use small arms ranges for weapons training. These facilities have the capacity to accommodate large numbers of individuals over a 1-year period. They are well suited for use on a regional basis.

There are indoor and outdoor small arms ranges. Indoor ranges are most prevalent in the Army's two Reserve components. Most ranges were designed for the .22 calibre weapon. The M16 rifle, when equipped with a rim-fire adaptor, can be fired on a .22 calibre range.

The number of firing positions on the range determines the number of individuals that can fire at any one time. Usually, less than 2 hours are needed to complete one order of firing. The Air Force, for example, allows 1-1/2 hours for initial live fire training and 1 hour for recurring training on a 25- or 27-yard range.

The military components generally require their Active and Reserve personnel to fire at least once each year. The Army, for example, requires all personnel to fire annually. The Air Force requires only some personnel, such as security police, to fire annually or more frequently.

We could not determine the total number of small arms ranges within DOD. The Army components appear to have the largest number of ranges--about 3,067. About 2,367 of these are indoor ranges in the Army's two Reserve components. The Army National Guard has about 2,000 and the Army Reserve about 367.

DOD PROCEDURES ENCOURAGE EFFECTIVE
UTILIZATION OF SMALL ARMS RANGES

DOD Directive 4000.19 establishes basic policies and procedures for interservice, interdepartmental, and inter-agency support. The policies authorize local commanders to obtain support from other military activities to achieve the greatest overall effectiveness and economy in their operations. One purpose of the procedures is to reduce cost by eliminating duplication, but without jeopardizing mission accomplishment.

The DOD procedures can apply to small arms ranges. The procedures fix responsibility for aggressive utilization of interservice support with all management and operating levels of DOD. If one DOD activity has a range that another can use, they should enter into a support agreement. If each activity has its own range, they should agree on range use to achieve the most economical operation.

CRITERIA FOR PROGRAMING
SMALL ARMS RANGES

The Army, Air Force, and Marine Corps Reserves, and the Air National Guard are required to consider the availability of other ranges before a new range is programed or constructed. The Navy Reserve uses Marine Reserve ranges, and therefore, does not program or build ranges.

The Army National Guard normally includes an indoor range in all armories without considering the availability of other ranges. The Army Guard's criteria specifies the range must be designed to also accommodate military vehicle training. The vehicle training capability is also a part of the space criteria for assembly halls which are also constructed in all armories. In addition, many armories also have space for vehicles in separate organization maintenance facilities.

SMALL ARMS RANGES PROGRAMED

The long-range construction programs of the Air Force Reserve and the Air National Guard show six facilities, with ranges planned, costing about \$1.5 million. The number of facilities programed by the Army and Marine Corps Reserves was not readily identifiable from their long-range construction programs.

The Army National Guard has 69 armory projects scheduled for fiscal years 1979 through 1981--including 58 new armories and 7 armory alterations or expansions. Of the 58 new armories, 54 will have indoor small arms ranges. The chart on page 6 lists the armories scheduled to have new ranges.

Army National Guard Armories
Scheduled To Have Indoor Small Arms Ranges (note a)

Location	Fiscal years (note b)			Location	Fiscal years (note b)			Location	Fiscal years (note b)		
	1979	1980	1981		1979	1980	1981		1979	1980	1981
ALABAMA:				MARYLAND:				OHIO:			
Ashland	x			Westminister	x			Hamilton	x		
Jasper	x							New Philadelphia		x	
Arab		x		MINNESOTA:				OKLAHOMA:			
Eufaula		x		Jackson	x			Chickasha		x	
Fort Payne		x		St. Peter		x		Haskell			x
Atmore			x	MISSISSIPPI:				PUERTO RICO:			
ARKANSAS:				Taylorville	x			Ceiba (note d)	x		
Hot Springs	x			Camp Shelby		x		Arecibo		x	
Rogers	x			(note d)				SOUTH CAROLINA:			
Conway			x	Picayune		x		Fort Mill			x
ARIZONA:				Yazoo City		x		Georgetown			x
Phoenix (note c)	x			Nettleton			x	Newbury			x
CONNECTICUT:				MONTANA:				West Columbia			x
New Britain		x		Culbertson	x			Camden			x
FLORIDA:				MICHIGAN:				Cheraw			x
West Palm Beach		x		Big Rapids		x		TENNESSEE:			
(note c)				NEW MEXICO:				Greenville	x		
KENTUCKY:				Carlsbad	x			Memphis (note c)			x
Springfield	x			Lordsburg			x	UTAH:			
Williamsburg		x		NORTH CAROLINA:				Mt. Pleasant		x	
Bowling Green			x	Reidsville	x			WISCONSIN:			
London			x	Edenton		x		Rhineland		x	
LOUISIANA:				Morganton		x		Milwaukee (note c)			x
Oak Grove		x		Albemarle			x	WYOMING:			
Vidalia		x		Raeford			x	Gillette			x
				NORTH DAKOTA:							
				Devils Lake			x				

a/Each range is 2,300 square feet, unless otherwise indicated.

b/Fifty-eight new armories were scheduled for the three fiscal years, but only 54 were to have indoor ranges.

c/2,800 square feet.

d/1,800 square feet.

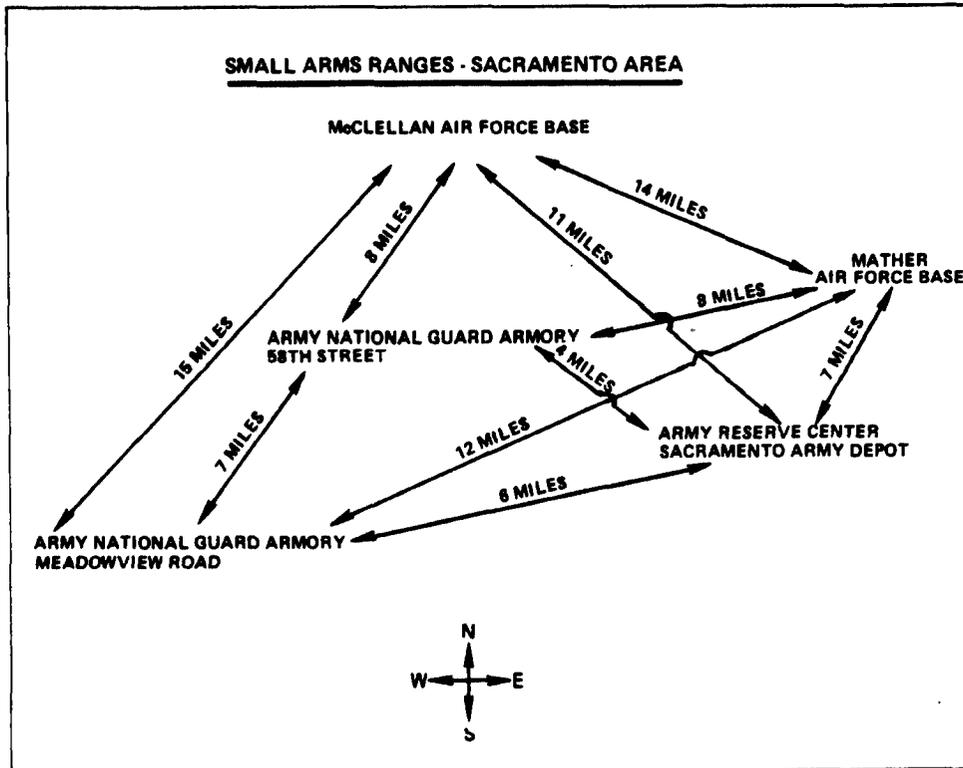
On the basis of fiscal year 1979 cost for armory construction (about \$30 a square foot), we estimate 54 ranges will cost \$3.7 million.

In areas where an outdoor range can be used or where excess indoor range capacity exists, the planned construction of indoor ranges could be canceled or existing indoor ranges could be converted to meet storage, classroom, and other needs.

RANGE CAPACITY IN THE SACRAMENTO AREA

The total range capacity in the Sacramento area is more than enough to support the Reserve's firing requirement. Thus, it may not be necessary for each Reserve facility to have its own indoor small arms range. Existing indoor ranges might be used for other purposes and, in the future, indoor ranges may not have to be constructed.

Presently, there are five small arms ranges in the Sacramento area (three indoor and two outdoor) with the greatest distance between any two about 15 miles. The following sketch shows the geographical relationship of the ranges.



There are 71 firing positions on the five ranges. There are four .22 calibre positions at each of the three indoor ranges in the two armories and one Reserve center. There are 14 pistol and 14 rifle positions on the outdoor range at Mather Air Force Base and 10 pistol and 21 rifle positions at the outdoor range at McClellan Air Force Base.

With two orders of fire a day, on 50 weekends a year (Reserve personnel normally train on weekends), these 71 positions could accommodate over 14,000 personnel. The two outdoor ranges alone could handle over 11,000 personnel. Out of 67 available weekend days between September 1979 and April 1980, one of the outdoor ranges was unused 42 days and the other was unused 52 days.

The authorized Reserve strength in the Sacramento area as of March 31, 1980, was under 4,000. Some of these personnel accomplish annual weapons training at other locations outside of the Sacramento area, such as at Beale Air Force Base and at their 2-week annual training location. Also, not all Air Force and Navy Reserve and Air National Guard personnel in the Sacramento area are required to fire annually.

At the time of our visit, the Mather range had some maintenance and structural deficiencies. The base plans to correct the range deficiency by using Air Force Reserve engineering units during their 2-week annual training period. This productive use of Reserve resources is an excellent example of total force cooperation. It provides hands-on training for the Reserves and helps to provide a facility for the ongoing training of both Reserve and Active duty personnel.

Outdoor ranges are generally preferred by commanders and training officials since they provide a more realistic training environment. We found, for example, the Guard and Reserve units with indoor ranges, that we visited, conducted their annual small arms training at outdoor ranges in the vicinity, or at their annual training locations. However, an Army Reserve representative told us that in some areas it might be too costly and time consuming to commute to ranges away from the Reserve Center. That, of course, would have to be decided in each circumstance. In the Sacramento area, no range was more than 15 miles away. This representative also said that the Army Reserve tries to discourage individual weapons firing during annual training because it interferes with other, more important unit training. In the Sacramento area, we found there was ample range capacity, and on many weekends, ranges were not used.

The indoor ranges at the two armories we visited were used occasionally for .22 calibre target shooting. While some officials believed these indoor ranges might be used more when the .22 calibre adaptors for the M-16 become available, they still preferred outdoor ranges where available.

THE ARMY RESERVE IS CONVERTING
INDOOR RANGE SPACE TO OTHER NEEDS

The Army Reserve center in Sacramento is converting its indoor range to other needs because other range capacity is available. The 1,894 square foot indoor range is being converted to other uses as part of a planned fiscal year 1982 \$1.2 million expansion project. This is possible because some of the units at the center use nearby outdoor ranges at Mather and McClellan Air Force Bases for their annual small arms training and other units accomplish the training at their 2-week annual training locations.

THE ARMY NATIONAL GUARD HAS TWO INDOOR RANGES
THAT COULD BE CONVERTED TO OTHER NEEDS

Two Army National Guard armories in the Sacramento area have indoor ranges that are not used for annual weapons firing or vehicle training. The units at these armories accomplish their annual small arms training at Beale, Mather, and McClellan Air Force Bases or at their 2-week annual training locations. One unit accomplishes its training at the range of a local law enforcement agency.

One range is 2,140 square feet and is located on the second floor of the armory. The other is 1,974 square feet and is located on the ground floor of the armory. The armory with the 1,974 square foot range has a 4,131 square foot organizational maintenance shop planned for fiscal year 1983. The shop is estimated to cost \$180,000. The existing range space could meet a portion of this need.

CONCLUSIONS

In some locations both Active and Reserve component facilities have small arms ranges. These ranges are well suited for shared use by personnel of Reserve components in the same area. All the Reserve components, except the Army National Guard, have established construction criteria that require consideration of shared use of small arms ranges when planning construction of new ranges.

Although the Army National Guard criteria require that an armory indoor range also accommodate vehicle training, this report illustrates the existence of excess range capacity and sufficient vehicle training space. Where a similar situation exists in other areas, the Army National Guard, like other Reserve components, could convert existing indoor range space to other needs in lieu of new construction and forgo construction of ranges in new armories.

AGENCY COMMENTS AND OUR EVALUATION

We discussed this report at a joint meeting with representatives from the Office of the Assistant Secretary of Defense for Manpower, Reserve Affairs and Logistics; the Army, Navy, and Air Force Reserve components; and the Army National Guard. We were told that since DOD's criteria require sharing of existing small arms ranges, there is no need to include this in the Army Guard's criteria. We were told that existing and planned indoor ranges were being evaluated for compliance with new and stricter health and safety criteria and that our report should be withheld to await the outcome of that evaluation. We were also told that the Army Guard is planning to drop the requirement for also using indoor ranges for vehicle training.

We do not agree that there is no need for change in the Army Guard criteria for planning small arms ranges. We believe that each of the Reserve components should have a construction criteria that conforms to the DOD policy on sharing ranges. Also, we see no value to delaying our report. Since a health and safety evaluation is underway which could make indoor ranges more costly, we believe the changes proposed in our report should be considered and made a part of any planning for indoor ranges. Further, we believe the planned change by the Army Guard to delete the requirement to also use indoor range space for vehicle training could increase the total space at armories. We believe this proposed change increases the need for a specific Army Guard criterion requiring consideration of existing ranges and the possibility of sharing ranges. This could help to avoid the construction of unneeded indoor ranges at armories.

RECOMMENDATIONS

To preclude the construction of indoor ranges where existing range capacity and vehicle training space is adequate, we recommend that the Secretary of Defense direct the Secretary of the Army to establish criteria for the Army National Guard that will require consideration of existing range capacity when planning the construction of ranges at armories. Further, we recommend that the 54 indoor ranges planned for construction in new armories for fiscal years 1979 through 1981, as well as existing ranges in any of the 7 armories with alteration or expansion projects, be evaluated against this criteria. To the extent contracts have not been awarded, planned ranges could be canceled or existing ranges could be considered for satisfying other space requirements.

SCOPE

The Reserve components have over the years continued to report substantial needs to alter and construct facilities. As a result of this and earlier work that identified unused indoor small arms range space, we evaluated small arms ranges to determine whether the planned construction of indoor small arms ranges could be avoided and whether existing indoor range space could be used to meet other needs if small arms range capacity was considered on an areawide basis.

We reviewed policies, procedures, practices, and criteria governing small arms range facilities. We held discussions with service component officials at both the headquarters and unit level and with DOD officials. We visited and reviewed the operations of small arms ranges of the Air Force, Army, Army Reserve, and Army National Guard in the Sacramento area.

We limited our work to Reserve and Guard units in one geographical area in terms of identifying range capacity, use, and user population. In our opinion, this was sufficient to illustrate the viability of the concept. We did not evaluate the feasibility of range sharing on a regional basis by closely located units of the Active service components.