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CHEMICAL WARFARE
Soldiers Not Adequately Trained or Equipped to Conduct
Operations on a Chemical Battlefield

Statement of
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Subcommittee on Readiness
Committee on Armed Services
House of Representatives



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Mr. Chairman and Members of the Committee:

I appreciate the opportunity to be here today to discuss the Department of the Army's readiness to conduct operations on a chemical battlefield. Current doctrine requires that all active and reserve forces be trained and equipped to (1) survive a chemical attack and (2) continue to carry out assigned missions. My testimony today is based primarily on our recently issued report on this subject. In addition, I will discuss related information obtained during the course of other work.

The threat of a chemical attack by Iraq against U.S. and allied forces involved in the Persian Gulf crisis highlighted the importance of U.S. troops' being adequately prepared to face chemical weapons. In addition, the Army estimates that over 20 nations have or are suspected of having offensive chemical programs, with some, like Iraq, being located in the Middle East.

Today, I will discuss two central issues related to chemical defense readiness.

- Is the Army's training adequate to prepare soldiers to survive and sustain operations in a chemical environment?
- Are U.S. soldiers adequately equipped to carry out chemical training and wartime missions on a chemical battlefield?

Many of the soldiers in the 36 active and 4 reserve units that we examined during our study were either not adequately trained or equipped to conduct operations in a chemical environment. Many of the soldiers we interviewed in these units told us that they had not met the minimum time standards for training and that training they had received was not carried out under realistic conditions or

integrated into mission training exercises. Army evaluations of training showed that the units that did not stress chemical training practice throughout the year did not perform well and sustained heavy simulated casualties during training exercises.

Several reserve units we visited lacked essential chemical equipment. Also, there were major shortages of chemical equipment in reserve stocks and at prepositioned storage sites that we visited in Europe. Our study showed that the Army has produced some new equipment over the past few years. However, much of the existing equipment, like the chemical suit and mask, has limitations that have been known to the Army for many years.

I would emphasize that most of our work was done prior to the Persian Gulf crisis and, accordingly, does not necessarily reflect the state of readiness of Army forces at the start of Operation Desert Storm. Some of the active and reserve units included in our study were deployed to the Gulf region. While we have not verified the information, Army officials told us that during the buildup in the Persian Gulf, the troops were given sufficient additional chemical training to bring them to a high state of readiness and that all units were properly equipped. It should be remembered, however, that more than 5 months were available to conduct training and to obtain equipment before hostilities began.

CHEMICAL TRAINING IS NOT ADEQUATE

The objective of the Army's chemical training program is to provide soldiers with the skills they need to survive, to sustain operations, and to accomplish their missions in a chemical environment. Army training policy requires, among other things, that soldiers

-- train for a minimum of 4 continuous hours in full chemical protective gear during basic training and

-- train in a realistic environment that fully integrates chemical and mission training.

To be adequately prepared for a wartime role in a chemically contaminated environment, soldiers must become accustomed to chemical warfare conditions during peacetime through wearing their full protective gear for sustained periods and through realistic training.

Of the 93 soldiers we interviewed, 35 said they had not trained, as required, for 4 continuous hours in full chemical gear since joining the Army, and 32 said they had never performed their job specialties in full protective gear. Also, 43 of the soldiers we interviewed had never trained in full chemical gear at night, even though an Army field manual states that chemical agents are most effective at night.

We observed 34 home-station training exercises at the locations we visited and found that training was not being performed under realistic conditions. For example, we observed the following conditions:

-- During most of the home-station training exercises units rarely used riot control gases, simulants, or other devices to add realism to chemical training even though Army policy encourages the use of them. Instead, leaders verbally informed the soldiers that chemical strikes had been launched. Over two-thirds of the 71 chemical specialists we interviewed said that the training in their units was not realistic because gases or other simulants were rarely used. According to the specialists, installation regulations based on environmental and safety considerations, severely restricted the use of such simulants.

-- Although the role of the reserve decontamination units is to support active units in wartime, the reserve component units

we visited had few opportunities to practice decontamination activities with other units. Decontamination unit officials said that the lack of realistic training opportunities had adversely affected preparedness.

The 34 home-station training exercises we observed were neither integrated into unit mission training nor treated as a condition of the battlefield, as required by Army policy. Most often, units deployed to a site, conducted chemical training, and returned to the installation. In other instances, soldiers moved into mock battles already wearing most of their protective gear although no chemical threat was present. According to doctrine, soldiers would not be wearing any chemical gear under this condition. After being verbally informed that a chemical strike was in process, soldiers would put on their protective masks and gloves. They stayed in full protective gear from only about 10 minutes to less than 1 hour before they were told to unmask and resume their tasks.

Some reasons given for inadequate chemical training were as follows: (1) unit commander's rating depends on how well his unit performs its mission tasks, and these tasks take longer when performed in chemical gear; (2) chemical proficiency testing is not a critical part of unit evaluations; and (3) one brigade commander believed that firing missiles in chemical protective gear would reduce a soldier's confidence in the missile's accuracy because of the difficulties presented by the gear.

The premier training event for units occurs during a unit's rotation to the Army's combat training centers. During three of the four exercises we observed at these centers, the units being evaluated suffered high simulated casualties during the chemical scenarios. Center evaluators stated that high simulated casualties were not uncommon for units that had not practiced chemical warfare routinely during home-station training. We observed one unit, which had routinely practiced chemical warfare at its home-station,

It successfully accomplished its mission exercises, appeared to have a good plan, and the troops knew what to do to perform their tasks.

We were informed that a unit could receive an acceptable evaluation without passing the chemical scenarios. The unit commander selects the tasks he considers critical to the accomplishment of the unit's mission. If the chemical tasks are not selected as critical and the unit fails the chemical tasks but passes 80 percent of all tasks, including those designated as critical, the unit will receive an acceptable evaluation for the exercise.

Now let me turn to the subject of chemical protective equipment.

ARMY RESERVES AND EUROPEAN INVENTORIES MAINTAINED FOR RESUPPLY HAVE SHORTAGES OF CHEMICAL EQUIPMENT

A wide range of equipment is needed to permit soldiers to survive and carry out assigned missions on a chemically contaminated battlefield. This equipment includes the protective suits and masks worn by the individual soldiers, the alarms and sensors used to detect the presence of a chemical, and the decontamination equipment needed to clean equipment contaminated by chemicals so it can again be used.

Reserve Units Short of Equipment

Three of the four reserve component chemical units we visited lacked essential equipment. For example, three units did not have the vehicles they needed to transport their decontamination and water systems. One unit had none of its 26 authorized 5-ton trucks. Another unit had substituted 2.5-ton trucks, which while capable of carrying the M12A1 decontamination apparatus and its water heater, were not designed to carry the 500 gallons of water needed for decontamination operations. Army officials said that

there was an Army-wide shortage of 5-ton trucks that was not expected to be relieved in the near future.

Additional equipment shortages reported by reserve officials were as follows:

- Three units did not have enough decontamination systems. Chemical units use these systems to draw water from a source; mix it with decontaminating chemicals; heat the mixture; and spray it, under pressure, on contaminated areas, vehicles, and equipment. The systems can also be used to rinse the decontaminant off when it has neutralized the contaminant.
- One unit did not have enough protective overgarments to issue one per soldier. Because soldiers in chemical units are expected to be exposed to chemicals for extended periods of time, they are authorized two sets of protective overgarments.
- One unit had no chemical detection alarms.

These equipment shortages severely restrict unit training and readiness. For example, units lacking 5-ton trucks cannot carry the water they need to conduct decontamination training.

European Storage Sites Have Shortages

Units stationed in Europe depend on theater reserves of chemical defense equipment for resupply. Also, while reinforcing units from the continental United States are required to bring individual chemical defense equipment with them, they depend on chemical equipment stored in prepositioned sites to sustain operations. However, both reserve stocks are short of the levels needed for the timely resupply of units.

Our examination of inventory levels in the theater reserve storage sites we visited showed that many chemical defense items were significantly below authorized levels.

According to an official at the 200th Theater Army Material Management Center, which is responsible for maintaining theater reserves, shortages are caused by procurement, production, and funding problems. The more expensive equipment, such as decontamination apparatuses and chemical alarms, is funded by the Department of the Army, and shortages are due to stateside procurement and production problems. Other items, such as chemical suits, boots, and personal decontamination kits, are funded by the U.S. Army, Europe, and shortages of these items are related to both stateside procurement problems and a lack of funds provided by U.S. Army, Europe. This official added that since these items were only partially funded, the Center could not requisition equipment up to authorized amounts.

Reinforcing units arriving from the United States may not be able to obtain the chemical equipment they need to sustain operations or to support combat units in a chemical environment due to shortages in prepositioned stocks.

We were told by commanders and chemical specialists of rear combat units we visited in Europe that, in addition to shortages in theater reserves and prepositioned stocks, some critical equipment has not been authorized for use. Some officials believe that this lack of critical equipment may be the biggest problem that rear combat units face. For example, such units have not been authorized to procure and stock collective protection shelters. Officials said that they needed collective shelters to provide soldiers safe places to periodically remove and exchange individual protective gear and to do mission tasks that could not be done in protective gear. After a chemical attack, a unit without collective protection would have to move to a "clean" area to continue operations. However, some units do not have the transportation or the material-handling resources to relocate, and units at fixed locations, such as ammunition and supply depots, cannot be readily moved.

EXISTING EQUIPMENT HAS LIMITATIONS;

NEW EQUIPMENT IS BEING DEVELOPED AND PRODUCED

Most individual chemical protective equipment deployed with U.S. forces in the Persian Gulf was first issued in the 1960s and 1970s and had limitations that the Army has known about for several years.

An example of the type of individual protective equipment sent with U.S. forces is the M17 chemical protective mask. This mask, which was first issued in the 1960s, is the main chemical mask used by U.S. ground forces. The mask has two filters, called "porkchop" filters, that fit on the inside of the mask. In a contaminated environment, the filters must be changed periodically. Before the filters can be changed, the soldier must be taken to a clean area and decontaminated, and the mask must be removed. In addition, the M17 is less capable than the M40 mask, which is currently in production, in the areas of respiration, fit, and communications. As part of an ongoing assignment, we were told that had the Gulf war been a protracted one, there could have been a shortage of these filters. Because the filters are not NATO-compatible, they could not have been obtained from allied inventories.

Another type of personal protection equipment sent with U.S. forces, the Battle Dress Overgarment (BDO), was first issued in 1982. The BDO is the most advanced protective overgarment in the Army's inventory. The BDO, which protects the arms, legs, and torso, provides 24 hours of protection in a contaminated area or will last up to 30 days before degradation of protection begins. The limitations of the BDO are that it is heavy and could cause heat stress.

Because of a potential shortage of the BDO, the Chemical Protective Overgarment (CPO), which was first issued in 1976, was also taken

to the Gulf. The CPO is like the BDO in construction. However, it only provides 6 hours of protection in a chemical environment and lasts only 14 days after the seal on its package is broken.

Improved Capabilities Are Being
Developed and Produced

Since 1985, the Army has developed six new pieces of equipment to enhance defense capabilities in the areas of individual and collective protection, detection, and decontamination. However, some of this equipment is far behind production schedules. Only three of the approved pieces of equipment have been delivered to tactical units--the M43 protective mask, the chemical agent monitor, and the M17 lightweight decontamination system. The Army has failed to meet the initial delivery dates planned for the remaining equipment.

- The M40 and M42 masks, initially scheduled for delivery in June 1988, have experienced delays due to various contracting problems. Initial deliveries are now expected to start in May 1991.
- The M20 simplified collective protection shelter, scheduled for initial delivery in September 1988, also has experienced contractor problems. Initial delivery of the new shelters is now scheduled for August 1993.

Future Chemical Equipment Being Developed

The Army's Chemical Research, Development, and Engineering Center is developing several new pieces of chemical defense equipment that will increase the defense capabilities of U.S. forces. These include the following:

- The XM-21, remote-sensing chemical agent alarm, which, according to the Army, will detect vapor clouds of nerve and

blister agents from as far away as 5 kilometers. Initial delivery of this alarm is expected to take place in February 1996.

- The XM-19, non-aqueous equipment decontamination system, is being developed to decontaminate avionic devices, electronic components, communication devices, and optical sight devices without using water or causing damage or performance degradation. According to the Army this system will represent the first capability to decontaminate such equipment. Initial delivery is expected in May 1995.
- The chemical agent detector network (CADNET) is expected to automatically transmit within 1 to 2 minutes a warning of a chemical attack to the unit using the network, to higher headquarters, and to adjacent units. The initial delivery date is planned for June 1995.
- The microclimate conditioning air vest and connector for tank crews and the microclimate cooling system for individual soldiers are being designed to regulate air supply to parts of the body and to allow the soldier to hook into a combat vehicle's ventilation system. The microclimate cooling system is being designed to provide the soldier with independently powered air circulation to the body without vehicular power or other cooling sources. Both pieces of equipment are expected to allow the soldiers to perform mission tasks in a chemically contaminated environment without suffering heat stroke. Delivery of these pieces of equipment is planned for November 1994.

RECOMMENDATIONS

In summary, Mr. Chairman, there are several things that can be done to improve the training and equipping of the U.S. soldier. In our January 1991 report we specifically recommended that the Secretary of the Army ensure that

- commanding officers responsible for conducting training fully comply with the minimum training standards set forth in Army regulations and
- the commanding officers of the Training and Doctrine Command and the Chemical School jointly evaluate the integration of chemical doctrine into training guidance and take the necessary action to see that the integration takes place.

We also recommended that the Secretary of the Army

- require that commanding officers annually report to their rating officials the extent to which all combat and support personnel have undergone the required chemical training and demonstrated the ability to perform assigned tasks at a minimally acceptable level while in full protective gear and
- require commanding officers' rating officials to consider the officers' reports on chemical training in evaluating their performance.

Concerning chemical equipment we recommended that the Secretary of the Army ascertain whether (1) the funding level and priorities for developing, procuring, and delivering chemical equipment should be changed; (2) authorized chemical equipment levels should be modified and equipment availability increased; and (3) production problems being encountered with new chemical protective equipment are being resolved.

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions that you or Members of the Committee might have.

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