NBC TRAINING REQUIREMENTS FOR THE INTEGRATED BATTLEFIELD

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ABSTRACT

The United States has paid little attention to nuclear warfare, biological warfare, and chemical warfare in the last decade. Meanwhile, the Soviet Union initiated an expansion of its chemical warfare program which has continued to grow at a greater rate than any aspect of their military force. Soviet policy closely follows the words of Marshal Zhukov who said in 1956, "Future wars will not be won with nuclear weapons and massed air power alone...biological and chemical weapons will be used to augment conventional and atomic warfare." The Soviets and their surrogates have used lethal agents in Afghanistan, Laos and Kampuchea. It is clear the Soviets have the capability and willingness to fight in a biological and chemical environment. Soviet training programs integrate chemical weapons systems with conventional and nuclear operations. Since conducting training in one or any combination of these three special environments is not possible, United States preparedness to fight on a chemically, biologically, or nuclear contaminated battlefield requires the development of special training equipment, devices, and procedures which simulate these conditions as realistically as possible. To accomplish its mission, the US Army must train in peacetime as it will fight in war. This paper summarizes the needs of the US Army's requirements for training equipment and simulation to train in an NBC environment.

INTRODUCTION

Over the past several years, the world has witnessed the introduction of and growth in the use of chemical and toxic weapons against unprotected military and civilian populations in several wartorn countries. Despite denials by Soviet officials, overwhelming evidence is being accumulated to prove their complicity in and support of these murderous campaigns. In fact, the evidence has accumulated to the degree that the United States can no longer ignore the threat.

THREAT

Despite its long though sporadic history, chemical warfare did not become a modern world problem until World War 1, when a total of 114,000 tons of chemical agents were employed producing 1,297,000 casualties. The Soviet Union alone suffered some 475,000 casualties, or 37% of the total. It has been suggested by some sources that it is these large losses which psychologically drive the Soviet leadership toward superiority in this form of warfare.

In 1975, Mr. Amos A. Jordon, then Assistant Secretary of Defense, stated to the House of Representatives that "The Chemical Weapons of the Soviet Union represent a serious potential threat." He went on to say, "We believe that the USSR is better prepared to operate offensively and defensively in a chemical environment than any other nation in the world." General David C. Jones, then Chairman of the Joint Chiefs of Staff, reiterated this position in 1981 when he concluded that "Warsaw Pact forces are better equipped, structured and trained than any other in the world for fighting in a chemical environment." There is a great deal of evidence to substantiate these observations.

There are many uncertainties inherent in any estimation of the current Soviet offensive capabilities. However, it is possible to get a feeling for the scope of these capabilities by examining some of the following data.

The Soviet Union has a large industrial base which could be mobilized to produce toxic chemical agents. Sources indicate that at one time some one hundred chemical plants were in operation, of which half were either producing or were capable of producing the latest agents. Best intelligence estimates indicate that the Soviets have between 350,000 and 700,000 tons of chemical agents ready for immediate use. It is further estimated that Tabun, a nerve agent, constitutes 50,000 tons of this stockpile. Atlhough US intelligence believes that approximately one-third of the Soviet shells, rocket warheads, and bombs stored in Eastern Europe contain lethal chemicals, other sources indicate as much as a 50 percent fill. It appears that the Soviet stockpile is 7 to 10 times larger than that of the United States, and is sufficient to support 3 to 4 major offensives on a wide front. The Threat agents include the nerve agents, blood agents, blister agents, and toxins.

Although the Soviets had difficulty producing toxins, Tricothecenes are now in the Threat inventory. The LD 50s range from 0.1mg per kg to 1000mg per kg, depending on the particular toxin species and method of exposure. In addition to producing casualties, these toxins have the advantage of being an effective terror weapon. Disseminated as an innocuous powder, they cause blisters and vomiting, as well as severe bleeding. Since they are persistent, they also pose a long-term hazard.

The Soviets have artillery, mortar, and minefield delivery systems for chemical agents, as well as bombs and sprays for air delivery. Chemical

rounds exist for the 122-, 130-, and 152-millimeter artillery. The BM 21 consists of a 40-tube multiple rocket launcher mounted on a URAL-375 truck. A battalion can deliver 720 rounds of the chemical-filled shells in a single ripple containing 3 tons of agent. The FROG and other surface-to-surface missiles allow the Soviets to extend the reach of their chemical weapons.

Superimposing the range of these weapons on a stylized US corps sector, shows that Soviet mortars and multiple rocket launchers can attack division targets from the FLOT well into the division rear. Targets include front-line troops and artillery units as well as some logistical targets. FROGs are capable of attacking targets up to the corps rear boundary, putting reserves and supporting units, as well as logistical complexes, at risk. SCUD and tactical air can reach transportation modes and major logistical support centers, well to the rear of the corps.

An estimated 80,000 to 100,000 Soviet chemical troops are available to provide support to combat troops operating in a chemically contaminated environment. In the ground forces, chemical units are organic down through regiments, and chemical personnel are assigned down through company-size units. Generally, a chemical defense brigade is assigned to a Soviet front, a battalion to each army and division, and a chemical company to each regiment. Chemical services provided include: rapid vehicle, clothing, terrain, and runway decontamination; warning of attacks; and chemical reconnaissance of contaminated areas.

To augment their capacity for fast, highly mobile warfare, and to protect themselves from CW agents, the Soviets have fielded the world's largest and most complete inventory of protective equipment. Their protective masks provide respiratory protection against all known chemical agents. Their combined arms protective suit can be worn as a coat, cape, or coverall. Although not airtight, the protective suit provides adequate protection against most chemical agents. To facilitate detection identification and delineation efforts, a variety of alarms and automatic contamination marking means are available. Decontamination assets include individual kits and truck-mounted equipment, including the TMS 65, a jet engine particularly effective in rapidly decontaminating large vehicles.

Soviet planners recognize that an effective chemical capability depends heavily on a comprehensive training program. Although precise figures are not available, it appears that 15 percent of the military training given to conscripts is devoted to NBC training, with extensive follow-on training being integrated throughout the remainder of their careers. Training is designed to physically and psychologically condition the troops to perform their combat assignments in full protective gear.

Many Soviet institutes and industries associated with chemical and medical research are also involved in chemical agent research and development (R&D). These programs are government controlled, and the open literature contains only carefully sanitized data. Some areas of interest appear to include efforts to synthesize additional G-type nerve agents, as well as extremely toxic organo-silitranes. The isolation, identification, and synthesis of toxins may well lead to a new era in chemical warfare.

It is clear that the Soviets can successfully conduct chemical warfare. The big question is whether they have the will to use these chemicals. In testimony before Congress in 1975, Lieutenant General Howard H. Cooksey answered this question when he stated, "The Soviets are so immersed in chemical weaponry, tactics, doctrine, equipment and personnel, and so much of their training centers around the use of lethal agents that it would be odd, from a military standpoint, if they did not employ them."

The threat is nothing new. At the end of World War 1, General Pershing came to the conclusion that "Whether or not gas will be employed in the future is conjecture, but the effect is so deadly to the unprepared that one can never afford to neglect the question." The United States has neglected the threat over the last decade while the Soviets have been and are continuing to prepare for large scale offensive and defensive NBC warfare. They have the agents and delivery means, and are continuing to invest in R&D efforts to enhance their capabilities. Their military forces are extensively equipped and well trained for operations in a contaminated environment. In a nutshell, there is a total Soviet commitment to NBC warfare.

THE CHALLENGE

The US Army recognizes this Soviet commitment and realizes that we must train to meet the threat. Since we do not conduct training in an actual NBC environment in peacetime (unlike the Soviets), US response to the NBC threat requires the development of a simulated-NBC environment to challenge our forces and allow them to train as they will have to fight. The US Army Chemical School has developed a Training Device Acquisition Strategy (TDAS) which summarizes the necessary concept to support training in a simulated-NBC environment. This document will serve as the principal instrument for directing the Army efforts to conceptualize, develop, and acquire training equipment, simulants, and support packages/procedures for this training. The TDAS supports the TRADOC goals of achieving substitution, simulation, and miniaturization where feasible/applicable. Thus far we have identified 22 proposed devices or systems for the TDAS.

SUMMARY

The systems and devices (see annex) discussed in this paper offer a challenge to all who are interested in establishing a realistic and viable NBC training environment. We've identified the threat, defined our requirements, and this convention has provided the forum to make our needs known to you, the innovators. Accept and meet this challenge and our fighting forces will immeasurably improve their capabilities in an NBC environment.

ANNEX

1. Nuclear Weapons Effects Simulator

a. Training/Simulation Requirement. Simulate flash, bang, neutron and gamma radiation, mushroom cloud, electromagnetic pulse (EMP), and transient

radiation electronics effect (TREE); exercise troop reaction to nuclear burst; exercise NBC Warning and Reporting System (NBCWRS); exercise C^2 procedures.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility.

(1) Flash must be distinctive, observable under combat conditions, with a range of 5 to 15 kilometers.

(2) Bang must be distinct, distinguishable from battle sounds, with a range of 5 kilometers.

(3) Time between flash and bang must parallel that of a nuclear weapon for use in the NBC reporting system.

(4) Simulate real time and realistic generation of prompt neutron and gamma radiation.

(5) Produce a mushroom cloud with measurements and duration effect comparable to the measurements of 1-KT, 5-KT, and 20-KT weapons.

(6) Simulate electromagnetic pulse (EMP) and transient radiation electronics effect (TREE).

d. Status.

(1) Fielded: The M142 Nuclear Burst Simulator is inadequate. Troops do not recognize it as a nuclear burst, particularly in vehicles. It is not distinctive under combat conditions and does not simulate radiation effects. Exercise of NBCWRS is marginal.

(2) In development: Preliminary study by Science Application, Inc.

(3) Proposed device/system: Nuclear weapons effects simulator (NWES).

2. Total Dose/Dose-Rate Simulator

a. Training/Simulation Requirement: Simulate dose rates and total dose from induced/fallout radiation, as well as initial dose-rate readings.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility.

(1) Simulate real time and realistic readings on radiacmeters and dosimeters.

(2) Total dose and dose rate must be measurable over time and location.

d. Status.

(1) Fielded: The AN/TDQ-T1(V) trainer only interfaces with the IM-174 radiacmeter and simulates dose rate only. Total dose is not measurable.

(2) In development: None.

(3) Proposed device/system: Total dose/dose-rate simulator (TDDRS).

3. Radiation Automatic Casualty Assessment System

a. Training/Simulation Requirement: Assessment and assignment of initial and delayed radiation casualties.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility:

(1) The system should be near real time and provide total simulated casualties and radiation doses.

(2) The system should be realistic and indicate to personnel that they are casualties.

(3) For delayed casualties, the system must be realistic and provide total simulated incapacitation and total dose for each individual.

(4) The system should provide assessment of degradation on performance as a result of radiation exposure and a time tag for incipient casualties to be incapacitated at a later time.

d. Status:

(1) Fielded: None.

(2) In development: None.

(3) Proposed Device/System: Radiation Automatic Casualty Assessment System (RACAS).

4. Biological Agent Simulant

a. Training/Simulation Requirement. Simulate the effects of biological agents to include toxins used by Threat forces; reaction to biological agent; and equipment and personnel decontamination training.

b. For Use At: Armywide, National Training Center, US Army Chemical school.

c. Characteristics of Desired Device/Facility.

(1) The simulant agent or family of simulate agents must realistically simulate the physical properties of Threat agents.

(2) It must be suitable for equipment and personnel decontamination training, using standard procedures with a decontamination simulant.

(3) The simulant must contain a tracer capable of easy removal for use in evaluation of decontamination training procedures.

(4) The simulant must be capable of quenching itself and become nonactive 4 to 24 hours after application, so the training area may be used again without interference.

d. Status.

(1) Fielded: None.

(2) In development: None.

(3) Proposed device/system: Biological agent simulant (BAS).

5. Biological Agent Casualty Assessment System

a. Training/Simulation Requirement. Simulate the assessment of biological agent casualties.

b. For Use At: National Training Center.

c. Essential Characteristics.

(1) The system should work in conjunction with existing and future biological agent alarms.

(2) The system should work in conjunction with individual masks and collective protection systems.

(3) The system should assess and assign biological casualties.

(4) The system should indicate to personnel that they are casualties.

(5) The system should assign and assess incapacitated personnel.

d. Status.

(1) Fielded: None.

(2) In development: The simulated area weapons effects (SAWE) project currently being performed by Jet Propulsion Laboratory under contract to PM Trade to determine the best technical approach (BTA) to simulate the effects of area weapons during force-on-force training exercises.

(3) Proposed device/facility: Biological agent casualty assessment system(BACAS).

6. Biological Detection and Alarm Training Simulator

a. Training/Simulation Requirement. Activate biological detection and alarm systems in a training environment; properly employ biological alarm; react to biological attack.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility

(1) Must have a built-in training mode in addition to the operational mode.

(2) The training mode must not defeat the operational mode.

(3) The training mode must be built in or allowances must be made for it in all operational systems under development.

(4) Must be capable of being activated remotely.

d. Status:

(1) Fielded: None.

(2) In development: None.

(3) Proposed device/system: Biological detection and alarm training simulator (BDATS).

7. Biological Agent Decontamination Simulant

a. Training/Simulation Requirement. Decontaminate biological agent simulators.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility:

(1) The decontamination simulant must decontaminate the biological agent simulant.

(2) The simulant must be able to be used in all approved and developing decontamination systems and/or their associated training devices.

(3) The procedures used to docontaminate must duplicate the procedures used to decontaminate Threat agent.

d. Status:

(1) Fielded: None.

(2) In development: None.

(3) Proposed device/system: Biological agent decontamination simulant (BADS).

8. Chemical and Biological Agent Delivery System

a. Training/Simulation Requirement: Simulate delivery systems for Threat chemical and biological agents.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility:

(1) The system must provide the same cues the Threat system provides.

(2) The system must duplicate the dispersion patterns and area coverage of the Threat system.

(3) The system should be reusable and easily filled.

(4) The system should make use of a persistent chemical agent simulant and a biological agent simulant.

d. Status:

(1) Fielded:

(a) M9 SPAL has a limited ability to simulate artillery-delivered chemical agents. Area coverage is insufficient.

(b) Aero 14B aerial spray tank is in the inventory. It can be used to disseminate liquid chemical agents. It is not compatible with multiservice tactical aircraft.

(c) The M5 riot control agent dispenser is limited in its ability to deliver chemical agent simulants.

(2) In development: A training system for chemical defense (Phase II), using the XM267

launcher and XM11 SPAL simulates artillery-delivered chemical agents.

Restrictions on emplacement and use for safety reasons limit the effectiveness and realism of the system, making the training effects questionable.

(3) Proposed device/system: Chemical and biological agent delivery system (CBADS).

9. Nonpersistent Chemical Agent Simulant

a. Training/Simulation Requirement: Simulate nonpersistent chemical agent/agents used by Threat forces; react to chemical attack.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility:

(1) The simulant agent or family of simulant agents must realistically simulate the physical properties of Threat agents.

(2) The simulant must be capable of quenching itself and becoming nonactive 4 to 24 hours after application, so that the training area may be used again without interference.

d. Status:

(1) Fielded: N-butyl-mercaptan (BUSH) does not simulate the physical properties of Threat agent/agents. CS gives a misleading cue.

(2) In development: None.

(3) Proposed device/system: Nonpersistent chemical agent simulant (NCAS).

10. Persistent Chemical Agent Simulant

a. Training/Simulation Requirement: Simulate persistent chemical agent/agents used by Threat forces; react to chemical agent; suitable for equipment and personnel decontamination training.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility:

(1) The simulant agent or family of simulant agents must realistically simulate the physical properties of Threat agents.

(2) It must be suitable for equipment and personnel decontamination training using standard procedures with a decontamination simulant.

(3) The simulant must contain a tracer capable of easy removal for use in evaluation of decontamination training procedures.

(4) The simulant must be capable of quenching itself and becoming nonactive 4 to 24 hours after application so that the training area may be used again without interference.

(5) The simulant used to simulate mustard gas should contain in addition to the qualities listed previously, a time lapse development capability to simulate the delayed-casualty effects of mustard agents.

d. Status:

(1) Fielded: Polyethylene glycol (PEG) 200 does not simulate the physical properties of Threat agents. It is not suitable for evaluation of decontamination training procedures and is not capable of time lapse development.

(2) In development: Training system for chemical defense (Phase II) delivers PEG 200 using the XM267 launcher and the XM11 simulator projectile airburst liquid (SPAL). Restrictions on emplacement and use for safety reasons limit the effectiveness and realism of the system, making the training effects questionable.

(3) Proposed device/system: Persistent chemical agent simulant (PCAS).

11. IR Smoke Simulator

a. Training/Simulation Requirement: Provide a training device that will demonstrate the effects of infrared (IR)-defeating smoke.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility:

(1) IR sighting devices that simulate viewing into IR-defeating smoke.

(2) When used in conjunction with visual range smoke, it will simulate the full range of (IR-visual) smoke capability.

d. Status:

(1) Fielded: None.

(2) In development: None.

(3) Proposed device/system: IR smoke simulator (IRSS).

12. Chemical Agent Casualty Assessment System

a. Training/Simulation Requirement. Simulate the assessment of chemical agent casualties.

b. For Use At: National Training Center

c. Essential Characteristics.

(1) The system should work in conjunction with existing and future chemical agent alarms.

(2) The system should work in conjunction with individual masks and collective protection systems.

(3) The system should assess and assign chemical casualties.

(4) The system should indicate to personnel that they are casualties.

(5) The system should assign and assess incapacitated personnel.

d. Status.

(1) Fielded: None.

(2) In development: The simulated area weapons effects (SAWE) project currently being performed by Jet Propulsion Laboratory under contract to PM Trade to determine the best technical approach (BTA) to simulate the effects of area weapons during force-on-force training exercises.

(3) Proposed device/facility: Chemical agent casualty assessment system (CACAS).

13. Chemical Detection and Alarm Training Simulator

a. Training/Simulation Requirement. Activation of chemical detection and alarm systems in a training environment; proper employment of chemical alarm; and reaction to chemical attack.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility:

(1) Must have a built-in training mode in addition to the operational mode.

(2) The training mode must not defeat the operational mode.

(3) The training mode must be built in or allowances must be made for it in all operational systems under development.

(4) Must be capable of remote activation.

d. Status:

(1) Fielded: None.

(2) In development: The XM81 simulator is effective with certain limitations. The system with the training device on it does not replicate the actual system.

(3) Proposed device/system: Chemical detection and alarm training simulator (CDATS).

14. Chemical Agent Decontamination Simulant

a. Training/Simulation Requirement. Decontaminate persistent chemical agent simulants.

b. For Use At: Armywide, National Training Center, US Army Chemical School.

c. Characteristics of Desired Device/Facility:

(1) The decontamination simulant must decontaminate the chemical agent simulant.

(2) The simulant must be able to be used in all approved and developing decontamination systems and/or their associated training devices.

(3) The proposed simulation procedures must duplicate the actual procedures used to decontaminate the Threat agent.

d. Status:

(1) Fielded: None.

(2) In development: None.

(3) Proposed device/system: Chemical agent decontamination simulant (CADS).

15. Trainer Jet Exhaust Decontamination System

a. Training/Simulation Requirement. Simulate the operational and maintenance characteristics of the jet exhaust decontamination system (JEDS).

b. For Use At: US Army Chemical School.

c. Characteristics:

(1) The training device must provide the operator the opportunity to become proficient in the operation of the JEDS.

(2) The device must be able to duplicate the preoperational, operational, and postoperational checks and procedures.

(3) The device must be a reasonable facsimile of the decontamination operator's cab of the JEDS.

(4) When operating, the device must operate and sound like an actual JEDS. Additionally, the operator must be able to see a reasonable facsimile of the equipment being decontaminated.

(5) The training device must provide maintenance personnel the capability to troubleshoot and repair the JEDS.

d. Status:

(1) Fielded: None.

(2) In development: None.

(3) Proposed device/system: Trainer jet exhaust decontamination system (TJEDS).

16. Chemical Munition Training Devices

a. Training/Simulation Requirement. Develop training devices for US Army munitions.

b. For Use At: Armywide.

c. Characteristics of Desired Device/Facility:

(1) The training/simulation device must be identical in physical appearance to the actual system it is intended to simulate.

(2) The training device must be similar in operation to the actual system.

(3) The device must provide realistic training for artillery, EOD, and ammunition-handling personnel.

d. Status.

(1) Fielded: None.

(2) In development: None.

(3) Proposed device/system:

(a) Training binary chemical warhead: Multiple launcher rocket system (MLRS).

(b) Training projectile 155-mm GB-2.

(c) Training chemical warhead: Corps support weapon system (CSWS).

(d) Training projectile 155-mm binary intermediate volitility agents (IVA).

(e) Training projectile 8-inch VX-2 (IVA).

17. NBC War Games and Simulation Center

a. Training/Simulation Requirement. To provide students with realistic simulation (physical and mental sensations) of NBC effects and combat in an NBC environment.

b. For Use At: US Army Chemical School

c. Characteristics of Desired Device/Facility.

(1) Floor space measuring 33,000 square feet.

(a) Three large, 5,000-square-foot battle simulation rooms.

(b) Four smaller, 2,000-square-foot battle simulation rooms.

(c) Storage space measuring 10,000 square feet for props, mock-ups, chemicals, paper goods, electronic hardware, and computer and audio-visual software.

(d) Up-to-date military communication equipment.

(2) Access doors into larger studios and storage areas adequate for entry of large vehicles.

(3) In-house communication, closed-circuit TV (large screen), computers with display terminals and printers, and sound system.

(4) Maneuver and parking space for display/mock vehicles.

(5) Soundproofing throughout building.

(6) Computer link with other stations.

(7) High output sound systems.

(8) Sensor-round battle theater.

(9) Recirculating, activated-charcoal-filtered air-conditioning system for at least one battle simulation room. Allows use of chemical simulants.

(10) Holographic hardware for 3-D simulation.

d. Status:

(1) Fielded. None. (Similar type facilities exist at Forts Benning, Rucker, and Knox.)

(2) Proposed Facility: A gaming/simulation facility supported by a core of in-house game players, instructors, and production and technical personnel. This section must be composed of individuals with a well-rounded knowledge of NBC doctrine, tactics, and methods of instruction. Eventually, this section will have to be able to export games/simulation to other NBC schools.

18. NBC Evaluation Training Facility

a. Training/Simulation Requirement: Exercise/evaluate NBC units in accomplishing NBC-related missions.

b. For Use At: US Army Chemical School.

c. Characteristics of Desired Device/Facility.

(1) An exercise/evaluation section to plan for and exercise/evaluate designated corps and divisional NBC units in NBC support-related missions.

(2) Equipment and personnel decontamination training to be conducted in the field.

(3) Live-agent decontamination training to be conducted at the chemical decontamination training facility.

(4) Nuclear reconnaissance to be conducted in a simulated nuclear-burst training area.

(5) A chemical reconnaissance training area to be established, using chemical simulants to detect/identify chemical agents.

d. Status.

(1) Operational: One decontamination training site exists for instruction at the US Army Chemical School. This is insufficient for unit needs.

(2) Under development: A live-agent training facility has been designed and budgeted for.

(3) Proposed facility/range: A nuclear and reconnaissance training area is proposed. This range is to be integrated with requirements associated with the present team facility and live-agent training facility.

19. Nuclear Accident/Incident Control Chemical Accident/Incident Control Training Site

a. Training Requirement: Provide a training area for nuclear and chemical accident/incident control training. (When the US Army Chemical School becomes the DOD Chemical School.)

b. For Use At: US Army Chemical School by students and area/DARCOM NAIC/CAIC teams.

c. Characteristics of Desired Device/Facility:

(1) Accident sites approximately 4 to 6 square kilometers each.

(2) NAIC site: Several different nuclear weapons training devices available to be placed on the site. "Seeding" with Alpha emitters to be considered.

(3) CAIC site: Accident scene reflects environmental release of toxic chemicals. Effects of chemicals to be simulated.

(4) Several scenarios developed to test the NAIC/CAIC team procedures for rendering safe, securing, cleaning up, and controlling an accident site.

d. Status:

(1) Fielded: Kirtland AFB, New Mexico, has a good NAIC site. Should the DOD Chemical School concept be approved, transfer of this mission from Kirtland AFB to Fort McClellan would be considered.

(2) Under development: None.

(3) Proposed Device/System: NAIC/CAIC training site.

20. NBC Computer-Assisted Training Module

a. Training/Simulation Requirement. To develop an NBC computer-assisted training (NBC CAT) module, similar in concept to the brigade/battalion level administrative or logistics module for battle simulation and war games or to First Battle. Purpose is to better train all individuals required to know NBC command and control techniques.

b. Characteristics of Desired Device/Facility.

(1) Flexible in design so that different levels of command--corps, divisions, brigade, battalion, and company--can practice NBC skills.

(2) Flexible in design so that different branches can relate to chemical module in terms of manpower and types of equipment.

c. Current Field System. Numerous war games are available now. Three are noted above, but there are others that could be used.

d. Concept of Development. NBC CAT module content and concept should be developed and coordinated so expert consultation and agreement is realized between the USACMLS game maker and branch users.

21. Multimedia NBC Threat Module

a. Training/Simulation/Support Requirement: Provide a classified NBC threat brief and an unclassified threat brief to Chemical School students, visiting VIPs, mobile training teams, and for exportable use.

b. For Use At: US Army Chemical School, area NBC schools, NBC sections, service schools.

c. Characteristics of Desired Device/Facility:

(1) Both the unclassified and classified briefing would consist of a 50-minute multimedia, audiovisual presentation that discusses the enemy's offensive and defensive capabilities and presents Threat doctrine on the air-land battlefield.

(2) Both briefings should exploit the entire spectrum of audiovisual effects to produce a quality product (e.g., air-land 2000 briefing).

d. Status:

(1) Fielded:

(a) The US Army Chemical School has a relatively primitive classified and unclassified threat briefing.

(b) Intelligence and Threat Analysis Center, INSCOM, provides a classified briefing to COAC personnel.

(2) In development: None.

(3) Proposed Device/System:

(a) NBC threat briefing (classified).

(b) NBC threat briefing (unclassified).

22. Scale Model NBC Equipment

a. Training/Simulation Requirement: Compatible scale models of power-driven decontaminating apparatus and smoke generators are required to depict NBC units during terrain-board and sand-table exercises.

b. For Use At: US Army Chemical School, service schools, units (managed by TASC).

c. Characteristics of Desired Device/Facility.

(1) Models should be made of high-impact plastic and in compatible scales of available tactical vehicles.

(2) Moving parts are not required.

d. Status:

(1) Fielded: None.

(2) Under Development: None.

(3) Proposed Device/System: Scale model NBC equipment.

ABOUT THE AUTHOR

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