

## APPENDIX E

# Controllers, Umpires, and Evaluators

## BASIC FUNCTIONS

Through the controllers, exercise directors monitor the play to ensure that the training objectives are accomplished. Controllers keep the play within the limits prescribed by the scenario. By arbitrating engagements and assessing losses, umpires help player

units get the maximum training benefits. Evaluating is separate and distinct from both controlling and umpiring. Evaluators determine proficiency, based on the training objectives in soldiers manuals and ARTEPs, by observing player activities.

## PREPARATION

At all echelons of command the controllers, umpires, and evaluators who monitor exercise play must be knowledgeable in the performance of assigned duties. They must know the schedule of events that support the training objectives. Controllers, umpires, and evaluators receive formal training after the LOI is published and prior to STARTEX. The chief umpire, chief controller, chief evaluator, and their respective staffs conduct training sessions together or separately.

Generally, preparation begins with team leaders' conferences. The chief controllers, umpires, and evaluators conduct conferences with their player counterparts at each echelon to acquaint them with the exercise scenario and background information; the missions, concepts, policies, and procedures for controllers, umpires, and evaluators; the organization, duties, and responsibilities for controllers, umpires, and evaluators; and the schedules for controllers and umpires. Preparation includes further schooling for controllers, umpires, and evaluators. Conducted either concurrently or separately, these schools familiarize personnel with—

- Duties, responsibilities, and procedures.
- The exercise scenario and background information.
- Administrative and logistics procedures.
- The exercise area, rules, and safety requirements.

- Medical procedures.
- Environmental protection.
- Procedures during player tactical movement.
- Procedures for umpiring obstacle encounters.
- Direct and indirect fire assessment.
- Procedures for controlling ADA, tactical air, and Army aviation.
- NBC operations.
- Preparation of reports.
- Procedures for multiechelon AARs.

Preparation also includes reconnaissance, coordination, and communications. Prior to STARTEX, controller, umpire, and evaluator teams and supporting personnel should reconnoiter the exercise area and test the communications equipment.

Evaluators should be selected with care and must be thoroughly knowledgeable in the specific tasks to be evaluated. The senior evaluator will instruct evaluator personnel on evaluation objectives and be responsible for their training. The senior evaluator will also develop the evaluator manning table in conjunction with the chief controller, taking care to ensure that evaluators are properly selected and assigned to positions they are qualified to evaluate. Evaluators must also be knowledgeable concerning—

- Player units' TOE and TDAs.
- The personnel status of the player units.
- The training of the player units to date.
- The equipment status of the player units.
- Player units' SOPs.

Evaluators are responsible for positioning themselves where they can observe as many activities as possible. However, because it is physically impossible to observe all activities during an exercise, they must make sound judgments to determine which ones are more important. This does not relieve the evaluator of the responsibility to evaluate the other activities. To do that, evaluators must rely on the reports received from other means, including—

- Radio traffic.
- Pointed questions of other evaluators.
- Message traffic.
- Directed discussions with commanders and staff.

Evaluators may also assist unit commanders who desire help in meeting training objectives. Acting as trainers during the exercise, they can show soldiers and leaders better ways to perform tasks or correct poor performance, if required.

## PARTICULAR FUNCTIONS

Control personnel must be able to monitor and assess various kinds of exercise play: direct fire, indirect fire, ADA, Army aviation, tactical air support, and engineer.

### DIRECT FIRE PLAY

If the exercises use MILES, umpires must be familiar with assessment procedures from TC 25-6. If simulation is used, umpires will assess casualties using the tables in

Appendix F for evaluating small arms engagements.

## INDIRECT FIRE PLAY

### Control

Indirect fire control procedures require effective radio communications among opposing unit umpires and fire direction centers. Fire support controllers must be aggressive in establishing and maintaining communications. They must be accurate and prompt in informing each other of changes in locations, maneuver control measures, fire support coordination measures, and front-line traces.

Dedicated fire support umpires are assigned to each echelon from maneuver company headquarters to brigade headquarters, including FA units. The composition of umpire teams for FA units depends upon unit missions and exercise objectives. Terrain and local situations may dictate modifications to any manning table. Only the planners at local levels can determine modifications. Appendix D of this manual provides guidance and sample manning tables for control organizations. Umpires accompanying other forces must mark and assess indirect fires on their units' installations, as required.

Because no OPFOR live fire occurs during field exercises, targets that would normally be located by counterfire radar, sound and flash ranging, and crater analysis cannot be developed. The targeting assistance provided by CEWI units is also difficult to portray in exercises. Controllers or umpires can provide necessary information for exercising target intelligence systems to provide battle staff, survivability, and systems training. For example, the umpire of the targeted unit can receive the gun-target (GT) direction in each indirect fire mission report from the FDC umpire. If the targeted unit players can, in a

practical manner, demonstrate to the controller that they know how to perform crater analysis correctly and have the equipment to do it, the controller will provide the hostile GT direction to the player unit. The player unit must then get this information through correct channels to the counterfire center at player division artillery. The fire support section of each ACC where indirect fire systems are positioned will notify the ECC fire support section of the identity and grid locations of OPFOR targets according to the schedule in Table 24.

Another way to create target intelligence is to have the ECC for the support section consolidate opposing force locations and, according to percentages specified in Table 34, relay a portion of them via telephone to division G2/G3 controllers. The G2/G3 controllers place the locations in the player division all-source intelligence center (ASIC). The ECC fire support element relays the remaining firing unit locations to each OPFOR DIVARTY controller by the fastest and most secure means available. In order to simulate radar acquisitions, the DIVARTY controller sends relay locations to the FA battalion umpire, who will provide them to the

player radar section located in the area. The player division artillery is responsible for providing the communications link from the FA battalion umpire to the radar section. To simulate radar detection error, the ECC alters FA unit locations by no more than a 300-meter radial error.

As constraints permit, umpires can use pyrotechnics, munitions, or other aids to add realism. Upon notification of the mission, the umpire with the targeted unit can use an artillery simulator. A smoke grenade can simulate chemical or smoke munitions.

### Assessment

For exercises such as CPXs that have no actual OPFOR, umpires assess field artillery and mortar effects, damage, and casualties using the appropriate tables from Appendix F. For exercises such as FTXs that use an actual OPFOR, umpires with player and OPFOR units should determine the effects of fires and assess damage and losses using the appropriate tables from Appendix F. For example, when an observer locates a target and calls for fire, the unit umpire gets the fire request information. The FDC umpire

**TABLE 24. OPFOR INDIRECT FIRE TARGET ACQUISITION RATES.**

UNIT	NUMBER REPORTED TO EACH FORCE
Mortar platoon	1 each hour
Multiple rocket launcher battery	1 each hour
FA howitzer battery	1 each 2 hours
FA gun battery	1 each 3 hours
FA battalion command post	1 each 4 hours
Missile/rocket battery	1 each 6 hours

informs the company umpire of the impact location, shell, fuze, number of volleys, and observer target direction, rounded to the nearest 10 mils. This information passes from the friendly to the OPFOR umpire, who assesses casualties and damage based on damage tables, accuracy of fire, and subjective judgment, as appropriate. The OPFOR controller provides damage and casualty assessment to, the friendly controller, who then provides it to the FO. The FO uses the assessment in submitting a surveillance report if, in the controller's judgment, the terrain and weather allow observation. If the OPFOR unit correctly conducts a crater analysis, the OPFOR controller will provide the unit with a back azimuth upon which to base a shell report. If the exercise is so large that it is difficult to identify opponents, the umpire should get the call sign for the opposing umpires from the ACC.

Using Table 33, umpires assess personnel losses and equipment damage caused by artillery and mortar fires. Simulated battle losses of cargo carrying vehicles include the loss of the cargo. The controller reduces or stops maneuver and/or delivery of fires, as circumstances require, until the player unit simulates resupply of destroyed cargo. In those firing units where weapon systems are assessed, the umpire adjusts the total rounds fired per mission based on the number of volleys fired, multiplied by the total number of operational tubes remaining.

In order to place realistic restrictions on the number of fire missions that an indirect fire unit can deliver, umpires assigned to mortar and field artillery units must maintain strict and proper ammunition accountability, including simulated losses to counterfire as described above. Maximum daily expenditures by type of firing unit and ammunition are shown in Table 35. Unless OPFORs are designated and configured as threat units, the maximum authorized expenditures listed

for US forces will apply to both. When a unit has fired its maximum daily expenditure or lost it through damage assessment, the umpire denies the unit permission to fire additional missions until it is resupplied. Table 35 approximates the ammunition available daily, based on the unit's on-board basic load plus 2½ turn-arounds of its organic resupply vehicles.

## AIR DEFENSE ARTILLERY PLAY

### Control

Control of ADA play occurs at respective fire units and at ADA tactical headquarters. The chief ADA controller manages play through control channels. Operating elements of the ADA control organization maintain continuous communications and keep records of all key events and observations.

Each OPFOR maneuver battalion is credited with the ADA array in Table 43. It is not necessary to simulate that array since all air defense play is based on tables. Threat capabilities to our rear areas are also simulated regardless of the actual mix of US or allied weapons on the ground.

Aircraft are so fast and air defense tracking systems so sophisticated that a fully automated system is necessary for system-to-system engagements. In order to generate useful air defense play without ADP, control procedures define the flight route, the engagement technique of the aircraft, and the air defense array that they fly over. These become the basis for assessments against the aircraft.

Lacking the capability for system-to-system engagements, ADA training uses simulations. Such simulations include actual tracking (radar and manual), simulated firing, and ammunition resupply. Reports go through command channels to battalion

level where the commanders informed of the number of aircraft engaged, the number estimated to be hit, and the volume of ammunition expended. Although such reports are not used for assessments against aircraft, they exercise air defense systems and reporting channels. An ADA umpire team is assigned to each ADA battalion operations center. The teams monitor and report ADA firing unit locations and are notified of suppression fires delivered against the unit.

### Assessment

When determining losses from ground fire, umpires consider all types of weapons that engage the target, including surface-to-air missiles (SAMs), short-range air defense (SHORAD) artillery, and small arms. To assess losses from simulated engagements by operational ADA units, umpires determine the validity of the engagement. For HAWK units, this occurs in the battery control center (BCC); for Nike Hercules units, it occurs in the director station trailer (DST); for SHORAD units and small arms/automatic weapons, it occurs at the individual fire unit. Additional details on engagement procedures are found in FM 44-4.

Umpires determine the volume of fire during the engagement. SAM units record the number of simulated missile launches by a single fire unit. Vulcan and 40-millimeter units record the length of time the weapons simulate fire.

ADA and USAF controllers operate in the ECC or the TOC. They maintain a situation map indicating current locations and status of air defense assets. They receive aircraft flight data from the air support operations center (ASOC) and determine aircraft attrition.

ADA controllers plot the anticipated aircraft flight route over the opposing ADA

array. Based on the number and type of opposing ADA units, they use Tables 37, 38, and 39 to determine attrition. They enter the figures on the line corresponding to the opposing ADA array and the column corresponding to the number of aircraft flown. The intersection of that row and column indicates the number of aircraft destroyed.

USAF controllers receive the ADA losses and determine additional losses caused by opposing interceptors. They then assess these losses based upon guidance from the USAF controller at the ECC. The overall attrition agreed upon by the ADA and USAF controllers will be given to the ASOC.

ADA unit umpires operate at each ADA battalion and battery and at HAWK platoons. ADA unit umpires determine the success of individual aircraft engagements based on the system kill probabilities shown in Table 30 and the random number table at Table 45. Chaparral/Vulcan (C/V), 40-millimeter, and Rapier engagements will be assessed at the battery operations center when the report is received from the platoon. HAWK engagements will be assessed at battery level. ADA unit umpires pass air defense locations and HAWK operational status reports to the ACC. Company or battery umpires assess Redeye engagements using Table 41. They assess small arms engagements using Table 42.

When ADA units are targeted by FA units, the HAWK battalion controller or the C/V or Rapier battery controller will be contacted by the ACC. The ACC fire support section relays FA mission reports from the suppressing FA unit umpires. HAWK battalion umpires or C/V or Rapier battery umpires determine if any player elements were at the specified grids when the missions were fired. If no element was at the grid, no further action is required. For successful suppression missions, ADA umpires refer to Table 32 to

determine personnel and vehicle casualties. They pass casualty figures to their player counterparts by face-to-face contact.

When ADA units are targeted by air assets, aerial umpires contact HAWK battalion umpires over the player battalion operations net and the C/V or Rapier battery umpires over the battalion controller net. The aerial umpires determine vehicle and personnel casualties. They pass the casualty figures to ADA umpires using the procedures outlined below. The ADA umpires pass casualty figures to their player counterparts face-to-face.

To use a random number table (see Table 44), controllers enter it at any starting point—for example, row 12, column 2. The number encountered is 15. They take additional random numbers in order from this starting point in any direction. When they reach the end of a row or column without having the required amount of random numbers, they proceed to the next row or column until they get the desired quantity of random numbers. The number 00 in the table means 100, not zero. Thus, if a system or event has 0.64 probability of success, it will succeed 64 times out of 100. When umpires use the random number table to assess the

system, the event occurs for any number between 01 and 64 and fails for any number between 65 and 00.

To assess an engagement with a flight of four high-performance threat aircraft attacking at 2,000 feet and using electronic countermeasures (ECM), an umpire considers the flight route. En route to the target, the aircraft fly through three overlapping HAWK defenses and a Vulcan platoon that surrounds the target. The umpire enters the aircraft attrition table for high-performance aircraft with ECM (Table 37) for an array of three HAWK platoons and one Vulcan platoon. In a flight of four aircraft, three are destroyed. The one surviving aircraft flies through two HAWK defenses exiting the target. The umpire reenters the table for an array of two HAWK platoons. For a flight of one aircraft, none was destroyed. The umpire reports that three aircraft were destroyed before reaching the target.

To assess an engagement of a Chaparral platoon firing three missiles at a flight of high-performance aircraft, an umpire uses the appropriate table. Table 40 shows the kill probability of Chaparral against high-performance aircraft as 0.16. The umpire enters the random number table (Table 44) at

**TABLE 25. ASSUMED AIR DEFENSE CAPABILITIES.**

	HORIZONTAL RANGE (KM)	EFFECTIVE ALTITUDE (KM)
Nike Hercules	130.0	30.0
HAWK	40.0	15.0
Vulcan	1.2	1.0
Chaparral	5.0	4.0
Redeye	3.0	4.0
Small Arms	.3	—

Detailed classified information appears in FM 44-1A and FM 44-1B.

row 15, column 16, and reads down. The first three numbers encountered are 54, 08, and 64. The umpire determines that one missile was successful (08 versus 16) and reports that fact to the player battery TOC.

For additional details on air defense operations, exercise planners and umpires should consult FM 44-1, FM 44-3, FM 44-23, FM 44-90, and FM 44-95.

## ARMY AVIATION PLAY

### Control

Army aviation control computes losses for both aviation and OPFOR units during engagements and insertions. Engagements are confrontations between an attack helicopter (AH) section, platoon, or company and an OPFOR unit for a 5-minute period. Insertions are troops or equipment delivered into landing zones by assault or combat support aviation companies. Engagement outcomes are based on attack positions, exposure times, and OPFOR air defense assets.

### Assessment

For engagements between AH-1 attack helicopters with TOWs against an OPFOR ADA array, an umpire is assigned to each AH platoon. A rated pilot rides in the front seat of the OH-58 or in the back seat of the player platoon OH-58 which accompanies the AH platoon. The pilot must have access to FM communications.

To assess engagements with AHs, OPFOR umpires monitor the number of engagements their ADA units accumulate against helicopter elements, keeping cumulative figures throughout the exercise. OPFOR company umpires coordinate with the OPFOR battalion umpire to determine what ADA assets, in addition to organic or attached systems, are available to the company. With these cumulative figures and knowledge of available ADA assets, OPFOR umpires consult the helicopter-ADA assessment card (Table 26). They determine the line number by indexing available ADA assets on the left of the card. They determine column number by adding 1 to the total number of

TABLE 26. ADA-HELICOPTER ASSESSMENT CARD.

Line	ADA Assets	HELICOPTER CUMULATIVE ENGAGEMENTS (INSERTIONS)									
		1	2	3	4	5	6	7	8	9	10
1	Redeye (Blowpipe)	0	0	0	0	1	0	0	0	0	0
2	Vulcan (allied gun platoon)	0	0	0	0	1	0	0	0	0	0
3	Chaparral/Rapier	0	0	1	0	0	0	0	1	0	0
4	Gephardt	0	1	0	0	1	0	0	0	1	0
5	Line 4 and 1, 2, or 3	0	1	0	1	0	0	1	0	1	0
6	Line 3 and 1 or 2	0	1	0	0	1	0	0	0	1	0
7	Line 1 and 2	0	0	1	0	0	0	0	1	0	0
8	OPFOR ADA	1	0	1	0	1	1	0	1	0	1

prior engagements that have accumulated against the unit. They then transmit the line and column number to the airborne umpire.

Helicopter losses are the total losses for an engagement (5-minute period). OPFOR controllers use line 8 for any ADA assets when OPFOR tactics and organizations are used. Controllers use this card when the OPFOR ground unit is attacked by helicopters or when an OPFOR ground unit occupies the landing zone used for an insertion. OPFOR ground unit controllers keep track of the cumulative number of insertions and engagements that have been conducted against their units. For example, four engagements (20 minutes total time) have been conducted against an OPFOR ground unit since the start of the exercise. When the helicopter controller again makes contact with the OPFOR controller, the OPFOR controller sends the helicopter controller line 8, column 5, because this engagement is the fifth conducted against the unit. The helicopter controller consults the ADA-helicopter assessment card and follows line 8 across to column 5 and finds the number 1 under column 5. This means that one helicopter is lost during the first 5 minutes. If the engagement lasts longer than 5 minutes, the helicopter controller uses line 8, column 6. The number 1 under column 6 means that another helicopter is assessed during the second 5-minute period. The helicopter controller keeps going across the line for each additional 5-minute period. After reaching column 10, he returns to column 1.

When air assault, air cavalry, or attack helicopter missions overfly OPFOR territory, the inbound and outbound flights are subject to casualty assessments. Helicopter unit umpires should establish communications with OPFOR umpires along the intended flight routes. Doing so determines losses inflicted on the way in and out of the mission objective areas before the missions are

actually flown. Once the assessment process has been coordinated and computed by aviation and OPFOR umpires, helicopter units are allowed to perform the mission. Helicopter unit umpires will direct their units to divert the losses back to their home bases, to a FARP site, or in the case of an air assault, to the predesignated casualty holding area.

Aviation umpires should consider air-to-air engagements both in planning and controlling field exercises. Because Army aviation performs a wide range of missions with a wide variety of helicopters, standardized assessments are very difficult. Range, weapons, and targets control air-to-air and antihelicopter engagements. For example, rapid fire Gatling weapons are extremely effective at ranges less than 1,000 meters, but their effectiveness decreases significantly as the range increases. At 1,000 meters or less, machine guns or Gatling guns are effective. At 1,000 to 1,800 meters, folding fin aerial rockets or air-to-air missiles are effective. At distances greater than 1,000 meters, antitank guided missiles (ATGMs) or air-to-air missiles are effective.

In addition to the weapon systems and how they relate to range, planners must consider other factors. Gatling guns have a high volume of fire and create devastating effects on point targets at ranges under 1,000 meters. They require little time to lay on targets but must hit targets directly to be effective. Rockets require relatively little time to lay on targets. However, firing aircraft must aim at the targets, which requires maneuvering time. The greatest advantage of rockets is their effectiveness without making a direct hit. Although ATGMs are long-range and accurate weapons, they require targets that are stationary or moving very slowly. They are relatively ineffective against air-to-air targets including other helicopters. Air-to-air missiles are effective from 500 meters to their individual maximum effective ranges.



Aircraft must be maneuvered to aim the weapon.

Target presentation is the third factor to be considered in an anti-helicopter confrontation. Does the target helicopter present its flank or front? Is it hovering, flying nap-of-the-earth (NOE), masked, flying contour, or attacking? Optimum hit and kill probability may occur when the target helicopter presents its flank and is engaged as a point target at a range of less than 1,000 meters. As the presentation becomes frontal and the range increases, the hit/kill probability decreases proportionally. Given all the possible factors, the professional judgment of qualified control personnel must still remain primary in assessing results.

## TACTICAL AIR SUPPORT PLAY

### Control

For tactical air support during exercises, the ECC should be manned by sufficient Air Force TACP personnel and equipment to maintain 24-hour duty and the Air Force control net. Normally, Air Force controller functions are performed by the ALO attached to the Army HQ that is given the mission to establish control for the exercise. Each active ACC should be manned by sufficient TACP personnel to maintain and operate the Air Force control net as directed by the chief controller, and to receive/record BDA reports for airstrikes conducted within the ACC's area of responsibility. On joint training exercises, the appropriate Air Force headquarters will designate a chief controller for the exercise.

The Army controller organization should man the ASOC with sufficient ADA controller personnel and equipment to maintain 24-hour duty and communications with the ECC. If the ASOC is not deployed to the exercise area, ADA controllers must establish communications to the ASOC or to

the Air Force organization fulfilling the ASOC mission for the exercise.

### Assessment

For all Air Force tactical air support sorties entering the exercise area airspace (close air support, battlefield air interdiction, reconnaissance), the ADA controller computes attrition from ground-based ADA. The ASOC advises the ADA controller of missions, times over targets (TOTs), target coordinates or initial contact points based on NATO procedures, and numbers of aircraft involved. Using the attrition reports, the ASOC advises the ADA controller of the number of sorties remaining.

**Close Air Support.** Forward air controllers are also players. They control specific missions and supply BDA for them using mutually agreed upon tables provided for the exercise. They also introduce BDAs into controller channels and transmit them via controller communications to targeted unit umpires.

The ASOC notifies FACs of the number of aircraft for which BDA will be made. For example, the message *Four aircraft; score three* shows that ADA killed one aircraft. BDA reports only three aircraft are scored. All other ASOC transmissions to and from the FACs are standardized.

After each mission, the FACs make the BDAs using mutually agreed upon tables and deliver the standard reports. In addition, the FACs contact the ACC responsible for the area of the target coordinates and pass on messages indicating the mission number, TOT, target coordinates, BDA, and number of aircraft in the area. The ACCs log these mission reports.

**Battlefield Air Interdiction.** The ASOC notifies the Air Force controller in the ECC of

all ground attack missions that will not be observed or for which a BDA by a FAC will not be made. The ASOC will provide mission number, actual TOT, target coordinates, type of attack (visual, radar, air support radar team), target description, type/number of aircraft to score, and ordnance. The Air Force controller will determine what unit may have been at the coordinates at the time of the strike and initiate assessment procedures.

**Reconnaissance.** The ADA controller at the ASOC will notify the ECC if a reconnaissance mission was unsuccessful due to OPFOR action. The G2/S2 air controller will prevent the appropriate reconnaissance mission reports from being used by player units.

For tactical air reconnaissance missions, the ASOC notifies the supported unit TACP of how many aircraft were lost before they reconnoitered the approved targets. The TACP then notifies the designated or supported unit umpire, as well as the appropriate staff member of the supported unit. Unit umpires should provide an appropriate intelligence readout given the flight path of the reconnaissance flight.

**Air Transport.** For tactical air transport missions, the ASOC notifies the supported unit TACP of how many aircraft were lost before they got to the drop or landing zones. The TACP then notifies the designated supported unit controller, as well as the appropriate staff member of the supported unit.

## ENGINEER PLAY

### Control

The planning sequence for engineer play in training exercises and for actual combat are identical. Exercise objectives determine the scope of engineer operations. The OPLAN

published by the higher headquarters conducting the exercise provides subordinate commanders with EEL necessary to carry out the mission.

The engineer staff officer assigned to the exercise planning staff writes the engineer annex to the OPLAN. During planning, major engineer elements participating in the exercise work with the engineer planner to ensure that operations are adequate.

Umpires validate all simulated obstacles with obstacle certificates. Upon partial or full completion of a simulated obstacle, the umpire assigned to the emplacing unit fills in and signs the certificate and gives it to the obstacle guard. Obstacles should be so constructed that encountering units have difficulty in breaching or bypassing them. Attrition will be enhanced if an obstacle is covered by fire or if it coincides with a direct fire kill zone. The emplacing engineer unit umpire or, in the case of reserve targets, the umpire with the maneuver company guarding the obstacle reports completed obstacles to the ACC. Demolition obstacles are not effective until execution, including detonation, is reported to the ACC.

Umpires of units capable of delivering scatterable mines are informed of the minefield mission by the delivering unit. After the emplacement, the maneuver unit umpire submits a report to the ACC, completes the obstacle certificate, and marks the obstacle.

Atomic demolition munitions are used only as obstacles and should be controlled as such. Once an ADM squad has deployed, the team umpire should ensure the proper delay for transporting the munitions from the special ammunition supply point (SASP) to the target site. The team umpire should also ensure that the squad is proficient in ADM procedures before validating the emplacement and detonation. After the simulated detonation, the team controller reports the

resulting obstacle to the ACC and marks the obstacle with appropriate marking material. Appendix F contains information concerning ADM target analysis. See Figures 34 and 35 for an obstacle certificate. Residual radiation casualties from ADM obstacles are not normally assessed during combined arms exercises.

### Assessment

Upon entering an exercise area, the maneuver battalion umpire receives obstacle information from the ACC. The maneuver unit umpire is responsible for ensuring that the unit takes appropriate action when encountering an obstacle. Units encountering obstacles should actually perform all steps of the breach possible. For example, when a unit encounters a minefield, the leader must choose the breaching method. If mine detectors are used, operators with

detectors should actually attempt to locate and neutralize the mines. The nature of an obstacle determines the time required to reduce or breach it. This time obtained from the breaching requirements specified on the obstacle certificate. Appendix F provides the time required for breaching and the casualty assessment criteria for simulated minifields.

When an obstacle is covered by fire, the encountering unit must suppress or eliminate the source of fire and proceed with the breaching requirements specified in the obstacle certificate. Casualties from direct or indirect fire will be determined by casualty assessment instructions.

The exercise control organization provides obstacle guards who have the same authority as other exercise controllers. Obstacle guards enforce and ensure active compliance by all participating troops encountering the obstacle.

**FIGURE 34. OBSTACLE CERTIFICATE (FRONT).**

#### OBSTACLE CERTIFICATE

(To be completed by unit officer)

1. **TYPE AND NATURE OF OBSTACLE** (Example: Bridge demolition, bridge damaged by bombs, road crater, pre-positioned weapons.)
2. **METHOD USED** (Brief description of work done. Example: ADM placed at center of abutment; for conventional explosives, attach a sketch, indicate location, type and amount of explosives in each charge and include the wiring diagram.)
3. **MATERIAL OR EXPLOSIVE USED** (Example: ADM \_\_\_\_\_KT; 6 charges, TNT, 200 pounds each with electric or nonelectric blasting caps.)
4. **STARTED** (Date and hour)  
     **EXECUTED** (Date and hour)      or      **DATE AND HOUR BOMBED**
5. **COMMENT:**

**FIGURE 35. OBSTACLE CERTIFICATE (BACK).**

**CONTROLLER CERTIFICATE**

**1. I HAVE INSPECTED THE OBSTACLE DESCRIBED ABOVE AND FIND THAT IT (WILL/ WILL NOT) CREATE AN EFFECTIVE MILITARY OBSTACLE.**

**2. DATE AND HOUR EXECUTED:**

\_\_\_\_\_  
**UNIT**

.....  
**OBSTACLE REDUCED AT \_\_\_\_\_ HR**

**DATE \_\_\_\_\_**

**BY \_\_\_\_\_**  
**(Unit) (Signature of controller) (Rank)**

**LEGEND:**

**ADM - atomic demolition munition**

**KT - kiloton**