the initial shock delay from the first bomb attack has expired, an aircraft in the takeoff queue will leave the airbase after the takeoff interval has expired. In ***Figure 4.7.3-3,*** the shock delay time for the first bomb expires at 150 sec. The first aircraft will leave the airbase at 150 sec plus the takeoff interval time of 90 sec, or at simulation time 240 sec.

For nuclear engagements, PDCALC is used to assess damage to the airbase. Under this methodology, the entire airbase is killed, including all of the aircraft at the airbase.

4.7.3.3.2 Airbase User Rules Phase

The airbase can execute the User Rules phase in response to events in the scenario, including the death of its commander, or the loss or regaining of its commander through communications checks. It can respond by choosing an alternate commander. The use of User Rules is described in Section 4.12.

* + - 1. **Airbase Received Message Processing**

The airbase receives two different types of commanded assignments: the multiple assignment, which is used for direct scramble requests, and the general assignment, which is used for all other scramble requests. The airbase processes a stop command from its commander for the direct scramble request. The airbase can also process communications checks.

* + - * 1. Airbase Commanded Assignment

There are multiple sources of scramble requests. If the commander of the airbase is using a Flexible Commander ruleset, aircraft will be requested to fill/refill CAPs. This can be in response to perceived aircraft or TBM threat. A commander using the Ground Attacker Commander or ground-capable Flexible Commander ruleset can also issue scramble requests to ground target locations. These ground attack requests can come from any commander which is on a network with the airbase and that also has the airbase listed on its airbase list.

The airbase processes the assignment by updating all takeoff times of aircraft at the base. If the airbase is not already launching a flight, it looks for a flight to launch. If no aircraft are available at the airbase, a CANTCO is transmitted to the commander. Also, if the maximum number of scramble requests for the aircraft in the requested queue has been reached, a CANTCO is transmitted to the commander. The remaining aircraft have their takeoff times updated. An acknowledgment message is sent to the commander if a flight is to be launched. If the airbase does not already have flights in the takeoff queue, the target select phase for the airbase is scheduled.

The acknowledgment message is sent to the commander with the status of the assignment. If the airbase is able to completely fill the request, a WILCO is

returned to the requester. If the airbase is able to partially fill the request, a WILCO is returned to the requester with a parameter indicating the number of aircraft that were not replaced. An airbase may be able to only partially fill a request for aircraft because either the alert queue from which the aircraft were requested is empty or the maximum number of scramble requests for the alert queue has been reached. When a message is sent to an airbase requesting a flight of aircraft, the airbase begins processing the flight from the aircraft’s alert queue to the takeoff queue.

* + - * 1. Airbase Multiple Assignment

If a Flexible Commander has direct scrambling capability and an aircraft at the airbase is selected to engage the threat, a multiple assignment command is sent to the airbase. The multiple assignment message is used to differentiate between the other types of scramble requests and the direct scramble request. A direct scramble request is processed using the same methodology as described in the previous section, with one major exception. In the direct scramble case, the airbase will first attempt to assign aircraft from the takeoff queue. If there are aircraft in the takeoff queue with weapons capable of dealing with the threat, they are vectored to the threat. If there are no eligible aircraft in the take-off queue, the processing is the same as described previously, with aircraft moved from the appropriate airbase alert queue to the takeoff queue. Once a flight has been selected for the assignment, the airbase forwards the multiple assignment message to the assigned flight leader.

The airbase then sends a multiple assignment acknowledgement message to the Flexible Commander. The multiple assignment acknowledgement is used by the Commander to differentiate between the actions that have been performed by the airbase. If the airbase was able to fill the request, whether completely or partially, the acknowledgement is a WILCO. If the airbase was unable to scramble any aircraft, a CANTCO acknowledgement is sent. Upon receipt of the CANTCO, if only direct scrambled aircraft were assigned to the target, the Commander will no longer consider the target to be assigned, so that the target may be re-evaluated and reassigned in the next Target Select phase.

* + - * 1. Airbase Stop Command

The airbase can also process a stop message from its Flexible Commander. When multiple aircraft report to the Commander that they are engaging on the same target, the Commander chooses an aircraft as the correct engager and sends a stop command to the other aircraft. If the aircraft is still at the base, the stop command will be sent to the airbase. The airbase then forwards it to the flight leader. If the stopped aircraft was originally assigned to a CAP fill/refill before the direct scramble assignment, then the aircraft is reset to its original assignment. If it was not, it is placed back into the appropriate airbase queue.

* + - * 1. Airbase Communications Check

The airbase ruleset can optionally verify communications with its commander. If the communication with the commander is lost, the airbase can execute its User Rules phase to select an alternate commander.

* + - 1. **Airbase System Configuration**

The airbase ruleset should only be used on a ground platform. A communications device is required. Weapons and sensors are not used. The airbase cannot be a commander, but it can be commanded by a platform using the Flexible Commander ruleset. The airbase ruleset does not use targets or assets.

* + - 1. **Airbase Network Recommendations**

A duplex or other two-way communications net with the airbase’s commander is required. The message class type is command. If the vertical capability is specified for the link, the Flexible Commander will not load the network with SAM engagement information. This information is ignored by the airbase anyway.

A command net should also be configured with all associated Ground Attacker Commanders and ground-capable Flexible Commanders. This network needs to support communications both to and from the commander platform.

* + 1. **Corps Tactical Operations Center (CTOC)**
       1. **CTOC Overview**

The Corps Tactical Operations Center represents the highest modeled level of the surface-to-surface chain. It can optionally receive track messages from a source such as the Intelligence Collection and Analysis Center. The CTOC sends the Border Crossing Authority (BCA) and track messages to its subordinates in the surface-to-surface command chain.

* + - 1. **CTOC Battle Management Phases**

The CTOC's role within battle management is to send the BCA message to its subordinates. Prior to receipt of the BCA message, the subordinates are in a "weapons hold" state. Receipt of the BCA message allows this weapons state to be changed to "not-on-hold."

The target-select phase for the CTOC ruleset is actually the BCA command routine. The BCA command-generating routine is scheduled to occur at the start time of the target-select phase, and the scheduling occurs only once.

* + - 1. **CTOC Received Message Processing**

The CTOC receives track messages from an intelligence source. The CTOC determines if the message should be delayed. If the message is to be delayed, the message-delay routine will schedule the processing of the message at a future time. If the message is not to be delayed, the CTOC immediately forwards the message.

* + - 1. **CTOC System Configuration**

The CTOC ruleset can only be used on ground platforms. A communications device is required, and weapons are not used. The CTOC can be a commander to a platform using the Corps Artillery (CArty) ruleset, SAM Commander, or Ground Attacker Commander, but CTOC cannot have a commander. As a ground unit, the CTOC cannot be a flight leader or wingman. The CTOC does not use either the target or asset lists.

* + - 1. **CTOC Network Recommendations**

A simplex or broadcast link with message class command to subordinates is needed. Track links can be set up as desired.

* + 1. **Corps Artillery (CArty)**
       1. **CArty Overview**

The Ground Attacker Commander ruleset is recommended for use over the Carty ruleset. Corps Artillery (CArty) receives targets in the form of intelligence information from the Intelligence Collection and Analysis Center (Intel CAC) ruleset. CArty assesses those targets and determines if a target is within one of its subordinate battalion's areas of responsibility. The CArty assigns subordinate battalions to the target. The subordinates must operate with the MLRS Battalion Fire Direction Center (MBnFDC) ruleset.

* + - 1. **CArty Battle Management Phases**

CArty uses a target-select phase that assesses targets. CArty processes only Red TEL targets that are received as intelligence information. For each target, a random draw is made only once and checked against the target-assess probability. If the target is to be engaged, it has to be determined whether that target is within one of the subordinate battalion's AORs. If randomness is eliminated, the target will always be eligible for engagement.

Each battalion subordinate to CArty should have an AOR defined. When a target is evaluated, it checks AORs to determine which battalion should be assigned to the target. If no MEZ or AORs are defined for a battalion, CArty designates a default AOR of a 100-km radius for that battalion. The CArty assigns the first battalion for which the target is in an AOR of that battalion. CArty generates a track message that constitutes an assignment to the specified battalion.

* + - 1. **CArty Received Message Processing**
         1. BCA Message

CArty's message-processing routine receives and forwards the BCA message received from CTOC.

* + - * 1. CArty Track Data

The CArty processes track data into its track file as described in Subsection

4.6. Since intelligence data are required for the target-select phase, the special conditions for intelligence data apply for this ruleset.

* + - 1. **CArty System Configuration**

The CArty ruleset can only be used on ground platforms. A communications device is required. Sensors are optional, and weapons are not used. CArty can be a commander to MBnFDC and can be commanded by CTOC. CArty cannot be a flight

leader or wingman, since it is a ground platform. The CArty does not use the target or asset list.

* + - 1. **CArty Network Recommendations**

The following links are recommended: a duplex link with message class command and track for CArty and its subordinates, a simplex link with message class command from CArty's commander, and a simplex link with message class track and intel from the Intel CAC.