HITS EXTERNAL STANDARD OPERATING PROCEDURES (Ext SOP)

HITS Technical Ext SOP
Developed By Fort Carson HITS Team

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Introduction

A. This External Standard Operating Procedures (Ext SOP) addresses the practices and procedures to be followed by all units using the HITS system. HITS is an **Instrumented Training System**, similar to the systems employed at the JRTC, NTC, and CMTC. The primary focus of the HITS system is to provide Home-station Instrumented Training to units during Force-on-Force Field Training Exercises (FTX). This SOP guides personnel through the BEFORE, DURING, and AFTER phases of an exercise.

B. HITS External SOP has four chapters covering:
> **1.** HITS General Description, Chapter 1.
> **2.** BEFORE Exercise Actions, Chapter 2.
> **3.** DURING Exercise Actions, Chapter 3.
> **4.** AFTER Exercise Actions, Chapter 4.

C. Each Phase (BEFORE, DURING, AFTER) has a checklist at the end of the chapter addressing that phase.

D. Recommendations for changes to this publication are welcome and should be addressed to the HITS Lead.

Chapter 1
HITS General Description

- Provides a high-fidelity deployable instrumented training capability to support platoon thru battalion level Live Force-on-Force Training
- Tracks locations of Soldiers and vehicles and simulates weapons effects and engagements, allowing units to "train as they fight" against living opponents
- Provides accurate feedback to training units
- Consists of light deployable components that can be rapidly assembled/disassembled and transported to support deployed training
- Integrates with future and legacy MILES.
- Provides the Live domain for Live-Virtual-Constructive training integration
- **Scalable**: Tracks up to 1100 Live and 8000 Constructive participants within a 20Km x 20Km training area
- **Instrumentation**: Integrates with current and emerging Range Instrumentation Systems
- **Security**: Operates at Sensitive but Unclassified level
- **Interoperable**: Interoperates with various Constructive and Virtual simulations as well as other external systems (BCTC, TENA)

1-1. Mission: HITS supports the United States Army as it transforms into the twenty-first century by providing instrumentation on the training battlefield, training feedback, and mission control using commercial, off the shelf (COTS) electronic equipment. HITS leverages existing technologies and systems to merge critical combat training arenas into one seamless display. The primary product of HITS is the After Action Review.

1-2. HITS is a collection of Live, Virtual and Constructive (LVC) training initiatives, centered on the Home-station Instrumented Training System technology that offers instrumentation, training feedback, and mission control. Technology is focused on the combat training activities of up to

a Battalion sized unit, with specific emphasis on the company-sized elements, down to the individual Soldier level.

1-3. HITS lead's the United States Army in the Homestation Instrumented Training System technology. Technology provides Army Commanders with the ability to create and execute training scenarios available today only at the major Combat Training Centers (CTCs). The Army's goal is to equip every major combat unit with a technology system to facilitate a live training environment similar to the CTCs. HITS stand ready to support this, Army-wide, training revolution as an exemplary, operational, and demonstrated training system platform.

1-4. Ownership & Partnerships: The United States Army, the TSC and HITS Site Lead are responsible for ownership of HITS. Wilson Samot is the HITS site lead and in charge of supporting and overseeing all aspects of HITS operations. Fort Carson operates the system in partnership with several entities.

> **A. System Operation** is provided through WTA/WFF, HITS Site Lead oversees all aspects of operations and system maintenance. HITS staff can aid in developing training scenarios, operates and maintains the system and its components and prepares the training event After Action Reviews (AARs).

> **B. HITS systemic integration** occurs through the Training Support Centers (TSC). The TSC provides for all individual and vehicle kit requirements and hosts HITS as a tenet organization at Fort Carson.

> **C. Other activities** Systems to be integrated into the HITS display include, video, still photos and SINCGARS voice data.

1-4 Background: HITS supports the training activities of Ft. Carson units. This system has been used by combat Brigades, Special Forces Assessment Course and NCO Academies. Between 2012 and 2013, HITS systems have been used at Ft. Campbell, Ft. Hood, Ft. Bliss Korea, Hawaii and Alaska.

HITS utilizes a variety of positioning and MILES systems to track, observe, record, and playback combat training scenarios for maneuver forces. Tracking is done in near real-time for individual Soldiers and combat vehicles. Weapons engagement data is acquired through several MILES systems. Area Weapons Effects (AWE) is delivered from the system to the individual and/or combat vehicle.

MILES IWS serves as the base platform for the Individual Weapons System (IWS), which includes a vest, a halo, a Small Arms Transmitter (SAT), Twenty One (21) of these IWS systems are packaged in an IWS transit case. A small Radio/GPS unit that uses an 8.2V DC battery connects to the IWS harness via an RS-232 cable. This radio/GPS package transmits IWS events and movement to the EXCON.

Vehicle MILES utilizes the same radio/GPS package to transmit vehicle movement and events to the EXCON.

The HITS system replicates a variety of battlefield effects, such as; Improvised Explosive Devices (IED), Vehicle-Borne IED (car bomb), minefields, Nuclear/Biological/Chemical (NBC) effects, indirect fires, and battle damage down to the individual Soldier level.

These data packages are displayed at the workstations of the works stations where analyst monitor the training and operate the system. The analysts prepare an After Action Review for the training event, which can be completed as quickly as within one hour. The AAR is usually constructed in PowerPoint using screen shots, action replays and Observer/Controller introduced points of focus. The replay of the training event is the most valuable part of the AAR. The action replay is produced in 2D. It is fully dynamic and interactive. The 2D display offers an infinite number of views of the training activity for every one second in time. These displays can capture screen shots and publish them to PowerPoint for AARs they are given to the unit, after the training as a "Take Home Packet".

This Screen Shot shows contact between BLUFOR and OPFOR in 2D.

The illustration above shows the flow of digital information across the training battlefield.
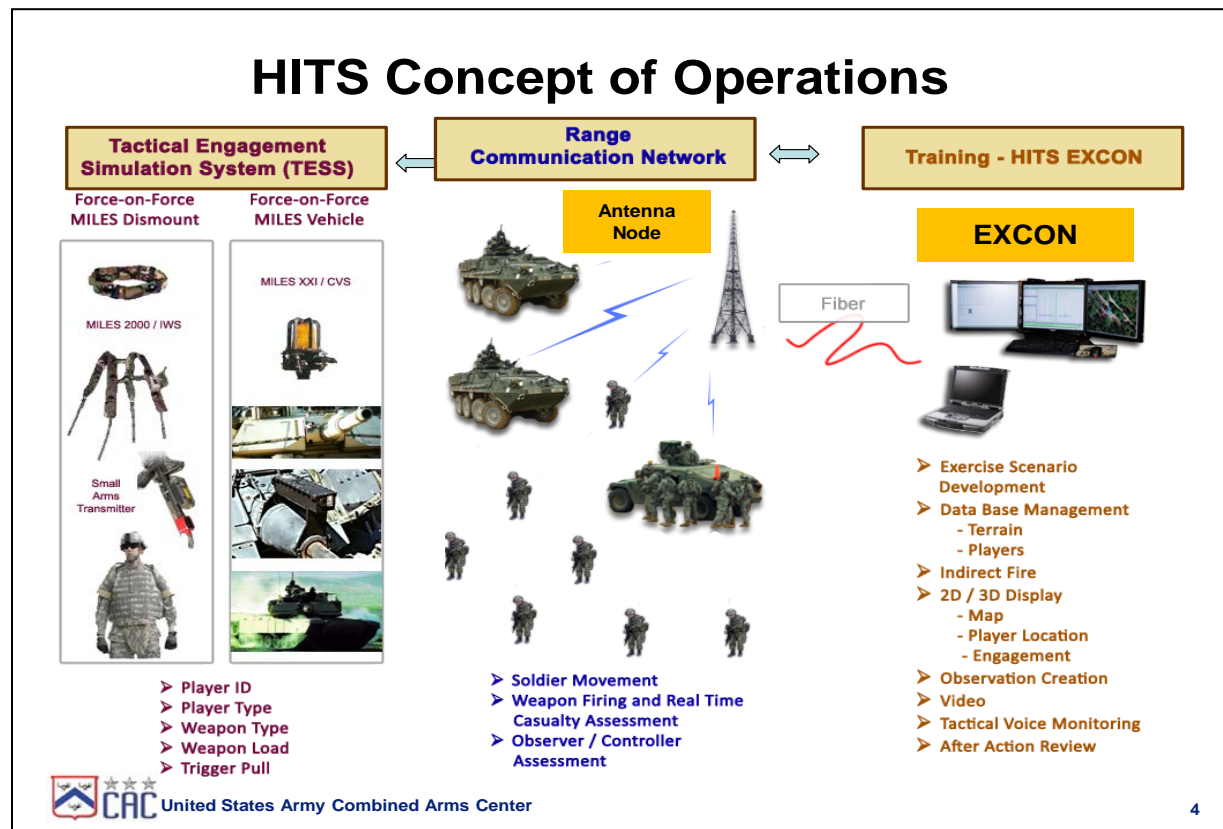
Positioning and other information is passed between the players (in this illustration a Stryker, a Soldier, and a HMMWV) and the IRS Trailers. The information is transmitted via fiber, microwave or cat 5 cable to the (EXCON). Inside the EXCON, the information is processed and displayed to the Analysts workstations. The Analysts monitor the battle and prepare the Instrumented After Action Review, which is presented to the unit by the Observer/Controllers.

The following photographs depict the IWS and Major End Items of the HITS system.
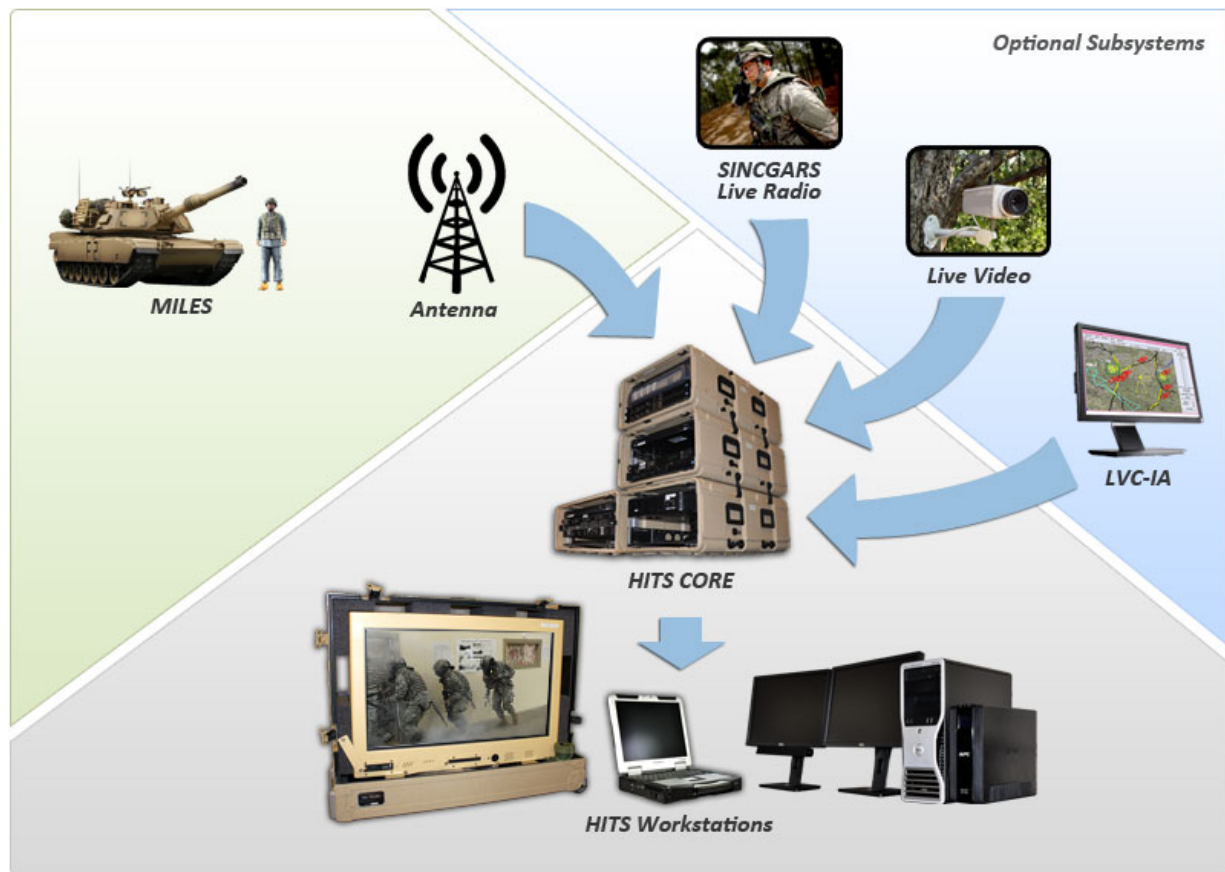

HITS Type I IWS

Interim Range System (IRS) Antenna system

The following diagrams illustrate the basic aspects of how the system works.

Chapter 2
BEFORE Exercise Actions

2-1. General

    A. Actions taken before an exercise will often determine the probability of success or failure of the instrumented portion of the exercise. HITS **BEFORE Exercise Actions** are in four (4) parts:
        1. Exercise Development.
        2. Observer/Controller Integration.
        3. MILES Preparation.
        4. Equipment Issue to users.

    B. The *BEFORE EXERCISE CHECKLIST* is provided at the end of this chapter.

2-2. Exercise Development. An exercise could be as small as a Recon Platoon performing crew drills or as large as a ground maneuver Battalion level exercise?

    A. At the earliest opportunity establish contact with the TSC to schedule the MILES and HITS system for your exercise. Ideally, this would be <mark>90 days</mark> in advance of your training.

    Points-of-Contact;

        - Jeff Brown, Training Support Officer, 719-526-0799, jeffreybrown5.civ@mail.mil

        -Bill January, TADSS Branch Chief, 719-526-2950, william.l.january.civ@mail.mil

        -Jason Kenyon, SR Instructor, 719-526-0820, jason.m.kenyon.civ@mail.mil

        -Wilson S. Samot, HITS Lead, 719-526-4091, wsamot@vt-lccs.org

        -Located at 6710 Specker Ave. Building 2010 Fort Carson 80913

    B. Include HITS in your exercise IPR. HITS will want an "over-all" view of the exercise and needs to determine what the unit expects from the HITS system.

    C. At the IPR HITS will explain what the system can offer and what the system capabilities and limitations are.

    D. At the IPR TSC will emphasize the importance of the various MILES systems and be prepared to explain what MILES equipment is available and how it is used.

        1. Unit must have their personnel <mark>MILES certified</mark> on combat vehicle platform or individual MILES equipment.

    E. HITS will request any exercise documentation that is available. This includes, but is not limited to:
        1. Dates times of exercise, objective, and commander's intent.
        2. Any Warning Orders (WARNO), Operations Orders (OPORD), and or any

Fragmentary Orders (FRAGO) that have been published by the unit.

    3. Identity size of the training unit (BLUFOR).

    4. Identity size of the Opposing Forces (OPFOR).

    5. Identity and contact information for the Senior Observer/Controller (OC).

    6. Identity and size of any attached and/or supporting units.

    7. Identify location of the training event and request air space for 100' RBS antennas, NOTAMS are unit responsibility and must be approved 30 days in advance and a week prior of starting exercise, this allows HITS team to deploy in advance to prepare, test equipment and trouble shoot any LOS issues.

    9. Maps and digital map data of the exercise area.

    10. Operations (OPS) graphics of the exercise (scheme of Fires, intel, etc.) need to be turned in to TSC/HITS NLT 30 days prior to training exercise, so that The HITS team can build the unit scenario.

    11. Identify any other "effects based" elements, such as: Civil Affairs or Human Intelligence Teams.

F. The HITS staff understands that some of this information will, most likely, not be available at the first meeting. This information is critical to the successful conduct of an instrumented training exercise and is expected to be made available to the HITS staff by the OC team or unit. HITS will remain in contact with the OC team to get the information as it becomes available.

2-3. Observer/Controller Integration. Observer/Controllers (OCs) are the link between HITS and the training unit once the exercise has begun. The moment that the exercise begins, the OCs become the most important people on the training battlefield, from a HITS perspective. It is the OCs that observes the planning and actions of the unit, and prepares and presents the After Action Review (AAR). OCs operate in teams led by the Senior OC. The Senior OC will often be the Commander of the next higher unit in the chain-of-command. The individual OCs have specific roles to fulfill during the exercise. The Senior OC is responsible for preparing the AAR and presenting it to the training unit. HITS is part of, but not all of, the systems the OCs use to observe and control the training unit. To the team of OCs, the HITS EXCON is the Tactical Analysis Feed-back workstation (TAF).

    A. HITS will meet with the Senior OC and its team early, and often.

    B. HITS will brief the Senior OC on the capabilities and limitations of the HITS systems.

    C. HITS will determine how the Senior OC wants to conduct the AAR, and offer suggestions for system maximization.

    D. Determine the communications equipment and procedures to be used between the OCs and HITS.

    E. Determine if products not produced by HITS, i.e., video, sound, photographs, etc., are to be processed and integrated into the AARs. If there will be such products, HITS will inform the Senior OC of the impact on the AAR production timeline.

    F. Coordinate with TSC to set a time and place to demonstrate the various MILES equipment to the OC team.

    G. Inform the OC team of their responsibility to control the use of the MILES equipment on the training battlefield.

    H. Determine when and where the "OC Academy" is to be held, and have the Senior OC integrate HITS into the Academy's structure. Complete OC/T training of any support personnel 30 days prior to exercise execution.

Tools for the Observer Controller

2-4. MILES Preparation. MILES preparation will be TSCs, single-most, time and manpower consuming effort during the BEFORE Exercise Actions phase. During the exercise the equipment can be switched between players and vehicles. The batteries will need to be recharged. Accountability must be maintained and minor repairs will be required. Before the exercise, HITS will:

    A. Perform all MILES/HITS equipment checks, on equipment maintained by HITS directly, to insure the equipment is functioning normally.

    B. Determine the requirement for use of vehicle kits, Controller Devices and other major MILES items, normally maintained by the TSC. HITS will be prepared to guide the unit and the OCs in acquiring and using this equipment.

2-5. Equipment Issue to users.

    A. HITS meet with unit and the Senior OC.

    B. The unit and HITS work together and review the issue plan to insure proper coverage.

    C. HITS will stress the importance of getting the player unit numbers back (GPS radio serial #) for Battle Roster development, tracking, and AAR generation. (Battle Rosters must be turned in 2 weeks prior to execution of exercise).

    D. The unit and HITS develop and review any switch-over plans.

    E. The unit and HITS/TSC develop and review the battery charging plan.

    F. The unit and HITS/TSC develop and review the contact team procedures.

    G. The unit draws MILES/HITS and AAR equipment from the TSC.

BEFORE EXERCISE Checklist

BEFORE EXERCISE CHECKLIST

1. Exercise Development.
- ☐ Contact TSC/HITS to schedule system use and certifications (90 days in advance)
- ☐ Include HITS in the IPR
- ☐ Understand HITS Capabilities and Limitations
- ☐ Understand the use of MILES and have certified personnel
- ☐ Request airspace for training areas and the use of HITS 100ft antennas (30 days in advance) through Range Control/DPTMS poc Mr. Korcheck telephone # 719-526-9713

Exercise Documentation (Must have for HITS)

- ☐ Dates and Timelines
- ☐ Objective
- ☐ BLUFOR unit and size
- ☐ OPFOR unit and size
- ☐ Contact information for Senior O/C
- ☐ Supporting/Attached unit(s) and size
- ☐ Battle Rosters (14 days prior to execution) players (COB, GO's, NGO's, etc.)
- ☐ Area of operations.
- ☐ Maps and Digital Data
- ☐ OPS Graphics (30 days in advance) Fires, Firing units and Intell.

2. Scenario (Individual Mission) Development.

Mission (GIVE to HITS for each mission)
- ☐ Task
- ☐ Purpose
- ☐ End State
- ☐ Commander's Intent
- ☐ WARNO
- ☐ OPORD
- ☐ FRAGO

Equipment (TSC EQUIPMENT TSC will inform about)
- ☐ IWS Batteries
- ☐ IWS Halos
- ☐ M4/M16 SATS
- ☐ M240 SATS
- ☐ M249 SATS
- ☐ Vehicle Kits
- ☐ MILES Controller Devises (TSC Equipment)

☐ SAT Alignment Devise (TSC Equipment)
Time (GIVE to HITS Exercise Timeline)

☐ D-Day/G-Day
☐ Detailed Exercise Time Line
   For each Mission
☐ SP/LD Time
☐ Intermediate Training Events
☐ Expected Culmination Time
☐ AAR Time

3. Observer/Controller Integration.

☐ HITS meets with the Senior OC
☐ HITS briefs the Senior OC on the systems.
☐ The Senior OC inform HITS how he wants to conduct the AARs
☐ HITS will demonstrate the system
☐ The Senior OC and HITS will determine the communications equipment and procedures
☐ The Senior OC will Integrate HITS into the O/C Academy's structure. Any use of HITS computer system requires certification (30 days prior to event).
☐ The Senior OC will Identify the other members of the OC team and HITS will meet with them

Other than HITS AAR products (GIVE to HITS information about)

☐ Video
☐ Sound
☐ Photographs
☐ Other

4. MILES Preparation. (TSC will do these Items)
☐ Perform MILES equipment Pre-exercise checks
☐ Guide the unit in obtaining other MILES equipment from TSC

5. Equipment Issue to Users. (HITS will be responsible for these items)
☐ Meet with unit and the Senior OC

(The unit and HITS/TSC will be responsible for these items together)

☐ Review the issue plan
☐ Stress the importance of getting the player unit numbers back for Battle Roster development.(14 days prior to exercise)
☐ Develop and review any switch over plans
☐ Develop and review the battery charging plan
☐ Develop and review the Contact Team procedures
☐ TSC Issues equipment to the unit(s)

Chapter 3
DURING Exercise Actions

3-1. General

A. Actions taken during an exercise is "where the rubber meets the road". The HITS system is capable of providing remarkable training battlefield views, in near real-time. The system offers outstanding AAR products for the OC/Units to use. The equipment and HITS crew are at the exercise location, the equipment is set, the systems have been checked, and the crew is now ready to operate. HITS **DURING Exercise Actions** are in three (3) parts:
> 1. Exercise Support.
> 2. Products for the AAR.
> 3. Post Scenario (Mission) AAR Preparation and Presentation.

B. The *DURING EXERCISE CHECKLIST* is provided at the end of this chapter.

3-2. Exercise Support.
The products that HITS produces are the mission AARs. Once on-site it is critical that HITS get "tied-in" with the unit and the OCs as soon as possible. The MILES must be set for efficient distribution, the battery chargers need to be set-up, and the AAR location needs set-up and tested.

> **A.** HITS will make contact with the unit leadership; inform them that HITS is on site and providing them with the status of the system. HITS needs briefed on any timeline and organizational changes that may (will) have occurred.
> **B.** HITS will make contact with the Senior OC to verify the communications arrangements and the mission timelines.
> **C.** HITS will develop and publish the AAR for distribution to the AAR location.
> **D.** HITS will be prepared for a variety of requests and questions.

3-3. Products for the AAR.

> **A.** The AAR, itself, is the primary product that HITS provides to the training unit.
> **B.** HITS AAR Support Products are:
> **1. AAR** - An After Action Review (AAR) is constructed as a PowerPoint presentation that may include standard PowerPoint content (e.g., bullet charts, audio, and video), 2D dynamic replays, static situation snapshots, and situation display flipbooks.
>
> **2. THP** - The Take Home Package (THP) is a self-contained CD/DVD that may be used for review of exercise material, including but not limited to complete AAR PowerPoint presentations (with embedded interactive dynamic replays) and independent interactive dynamic replays.

3-4. Post Scenario (Mission) AAR Preparation and Presentation.

    A. HITS creates the AAR using PowerPoint.
        1. The HITS crew is often asked to help prepare the PowerPoint presentation of the Senior OC. Inform the OC of the impact on the preparation timeline.
        2. This method requires an "AAR Rehearsal" with the HITS crew and the Senior OC.
        3. Some AARs may use a PowerPoint screen capture presentation on one screen and a variety of media on the other, as when conducting an AAR at CACTF, where film footage is interspersed with the PowerPoint presentation on the second screen.

        4. Preparing AAR:
            a. SHELL-out a PowerPoint AAR.
            b. MAKE and save a 2D replay/AAR of the mission.
            c. Meet with the Senior OC after the mission to complete the PowerPoint AAR.
            d. Play the replays for the OC to make selections of critical events.
            e. Jointly develop scheme of presentation with the Senior OC.
            f. Rehearse the AAR with the Senior OC.
            g. Set-up the AAR site for dual screens if required.
            h. Conduct the AAR.

DURING EXERCISE
Checklist

DURING EXERCISE CHECKLIST

7. Exercise Support (HITS will accomplish these items)
- ☐ Make team available with the unit leadership
- ☐ Make team available with the Senior OC
- ☐ Unit will setup the AAR area.
- ☐ Record the PU number for each individual

8. Products for the AAR
- ☐ The AAR is HITS primary product, provide a PowerPoint AAR
- ☐ Make and save a 2D AAR/Video replay of the mission
- ☐ Meet with the Senior OC, complete the PowerPoint AAR Play the AAR/ Video replays for the OC,
- ☐ Jointly develop scheme of presentation with the senior OC

Chapter 4
AFTER Exercise Actions

HITS provides the following output:
- **AAR PowerPoint Presentation File**
- **Take Home Packages CD**
  - *with AAR presentation and evidence (images, video, audio)*

AAR Workstation

A. HITS recovery operations at the exercise location require that care be taken not to leave items behind and that all things are done safely. A more detailed recovery process will occur once the equipment and crew return to home station. HITS **AFTER Exercise Actions** are in two parts:
    1. Take Home Packet.
    2. Equipment Recovery.

B. The *AFTER EXERCISE CHECKLIST* is provided at the end of this chapter.

4-2. Take Home Packet.

A. HITS will prepare a Take Home Packet for the unit at the end of the exercise.

4-3. Equipment Recovery.

A. HITS will recover the EXCON and Support Equipment.
    1. Receive HITS issued equipment from users and using units.
    2. Check the equipment against the issue documents for accountability.
    3. Notify the unit and the next higher unit of missing items, at the turn-in time.
    4. Note any damaged equipment.
    5. Note any missing equipment.

B. TSC personnel will recover the AAR Equipment and any other HITS or MILES associate equipment that was issued through TSC main.

AFTER EXERCISE
Checklist

AFTER EXERCISE CHECKLIST

10. Take Home Packet
(HITS prepares the Take Home Packet which includes)
- ☐ All PowerPoint AARs.
- ☐ All Selected Mission replays.
- ☐ Any other items the leadership and OCs want in the Take Home Packet.
- ☐ The Take Home Packet will be made on a DVD.

11. Equipment Recovery
MILES and MILES Support Equipment (the unit and TSC will Do these items together)
- ☐ Receive HITS issued equipment from users and using units (cameras)
- ☐ Check the HITS equipment against the issue documents for accountability

Recover the EXCON and Support equipment (HITS will Do this)
- ☐ Recover the EXCON