

NUCLEAR, BIOLOGICAL, CHEMICAL RECONNAISSANCE VEHICLE (NBCRV) VIRTUAL CREW TRAINER (XM95)



Training Category/Level Utilized:
Chemical/Level 1

Logistic Responsible Command, Service, or Agency:
PEO-STRI

Source and Method of Obtaining:

Through Active and Reserve Component Installations Training Support Centers (TSC). The virtual crew trainer is limited to those Soldiers assigned to units authorized the NBCRV, through direct fielding from the Joint Program Manager (JPM) Reconnaissance Platform and Integration Office.

Purpose of Trainer:

The NBCRV trainer uses Chemical, Biological, Radiological and Nuclear (CBRN) Reconnaissance based scenarios to present the individual and crews with CBRN hazards that cannot be duplicated at the unit location due to various regulatory restrictions of using simulants. It can be configured to include 6 vehicles simultaneously or represent other mounted reconnaissance platforms such as the Nuclear, Biological and Chemical Reconnaissance System (NBCRS) M93A1 and M93A1P1 variants. The NBCRV Master Instructor Workstation (MIW) provides the capability for exercise generation and After Action Review (AAR) that permits performance and evaluation of individual and collective tasks identified using the Combined Arms Training Strategy (CATS) for CBRN Reconnaissance Platoons. All scenarios are written and conform to current doctrine IAW FM 3-11.19 (Multiservice Tactics, Techniques, and Procedures for Nuclear Biological and Chemical Reconnaissance), and FM 3-11.86

(Multiservice Tactics, Techniques and Procedures for Biological Surveillance). The trainer provides the instructor/leader the ability to manipulate the environment using the MIW by changing weather data, type of agent, type of release, and detection component – specific parameters (e.g., Joint Biological Point Detection System (JBPDS) provides a presumptive identification of a known bio agent; Chemical Biological Mass Spectrometer (CBMS) Block II can detect known and unknown chemical hazards).

Special Instructions: The primary purpose of the virtual crew trainer is to support unit sustainment of individual and collective training. The trainer is designed to be used by Soldiers possessing the Military Occupational Specialty (MOS) 74D/74A, with the Additional Skill Identifier (ASI) L6.

Bases of Issue Plan (BOIP): To achieve a sustained, more predictable posture to generate trained and ready modular forces, the Army Force Generation (ARFORGEN) model was used to determine the BOIP. The ARFORGEN is the structured progression of increased unit readiness over time resulting in recurring periods of availability of the NBCRV Virtual Crew Trainer to support trained, ready and cohesive crews/units. The following metric will insure a Virtual Crew Trainer is available at the installation Training Support Center (TSC) to support the ARFORGEN Cycle (Reset/Train, Ready and Available) –

- 1ea Virtual Crew Trainer per Stryker Brigade Combat Team (SBCT)
- 1ea Virtual Crew Trainer per Heavy Brigade Combat Team (HBCT)
- 2ea Virtual Crew Trainers per Separate Chemical Company (Combat Support)

Functional Description:

The Nuclear Biological Chemical Reconnaissance Vehicle Crew Virtual Trainer is a computer based training system that supports the NBCRV platform. The trainer uses the Americas Army (AA) graphics engine while providing two methods of training. The first method: classroom training provides – software and limited mockups for training institutional, unit sustainment, and New Equipment Training (NET) of CBRN sensor equipment. The second method: class room individual and crew-drill training, provides – networked hardware & software to simulate NBCRV vehicle and sensor instruction. Each trainer suite consists of:

1. Instructor Station: The instructor station controls the exercise selection, location, and scenario. Station components allow the instructor to monitor and evaluate the performance of the trainees working on the other three stations.

a.) Instructor AA laptop computer, running Windows XP. Used to run the AA program and AA server.

b.) Instructor FBCB2 - A ruggedized laptop, running Linux. Used to run the FBCB2 program.

2. Driver Station: The driver views the selected exercise on the Driver AA laptop and drives the vehicle using the driver controls - Driver Wheel/Gear Box. The Driver has several visual views to select from in the AA program, which simulates those visual views available in the Stryker vehicle.

a.) Driver AA Laptop - A laptop computer, running Windows XP. Used to run the AA program.

b.) Driver Wheel/Gear Box - Controls vehicle direction and gear during AA simulation. Gear number and speed is displayed on Driver AA laptop screen during AA simulation.

c.) Driver Pedals – Controls vehicle speed during AA simulation. Right pedal accelerates and left pedal brakes.

3. Commander Station: The Commander views the selected exercises on the on the Commander AA laptop. The view shown on the AA laptop can be toggled through Remote Weapon Station (RWS), left, center, and right periscope views. The commander also has tactical Nuclear, Biological and Chemical Detection Analysis Communication System (NBCDACS) and Force XXI Battle Command, Brigade and Below (FBCB2) software on two ruggedized laptops. This software is integrated with the simulation to display NBC analysis and navigational information that is appropriate for the simulated environment.

a.) Commander NBCDACS – A ruggedized laptop running Windows XP. Used to run the NBCDACS program.

b.) Commander AA Laptop – A laptop computer running Windows XP. Used to run the AA program.

c.) Commander FBCB2 – A ruggedized laptop, running Linux. Used to run the FBCB2 program.

4. Surveyor Station: The Surveyor observes detection status on software simulations and mock-up devices of NBCRV sensors, reacts to agent alarms, deploys agent markers, and simulates other NBCRV surveyor functions.

a.) Surveyor NBCDACS – A ruggedized laptop, running Windows XP, Used to run the NBCDACS program.

b.) Surveyor AA laptop – A laptop computer, running Windows XP. Used to run the AA program and the message router.

c.) Surveyor Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) Virtual Trainer – A ruggedized laptop, running Windows XP, Runs the software that simulates JSLSCAD functions. The JSLSCAD Operator Display Unit (ODU) Mock-up is also part of the Surveyor JSLSCAD Virtual trainer.

d.) Surveyor Chemical Biological Mass Spectrometer (CBMS) Virtual Trainer – A ruggedized laptop, running Windows XP, Runs the software that simulates CBMS functions. The CBMS Soldier Display Unit (SDU) mock-up and Double Wheel Sampling System (DWSS) Control Box Mock-up are also part of the Surveyor CBMS Virtual trainer.

e.) Surveyor Ruggedized Laptop – Provides a Virtual Chemical Vapor Sampling System (CVSS); Virtual Joint Biological Point Detection System (JBPDS); and Virtual METSMEN (Meteorological Data).

f.) DWSS Control Box Mock-up – A physical mock-up of the control-box, used with the CBMS.

g.) CBMS Soldier Display Unit (SDU) Mock-up and stand – A physical mock-up of the CBMS SDU and stand.

h.) JSLSCAD ODU Mock-up and stand – A physical mock-up of the JSLSCAD ODU and a stand.

5. Instructor Station: Controls the exercise selection, location, and scenario. The station components allow the instructor to monitor and evaluate the performance of the crew/individuals working on the other three stations.

a.) Instructor AA laptop computer, running Windows XP. Used to run the AA program and AA server.

b.) Instructor FBCB2 - A ruggedized laptop, running Linux. Used to run the FCBC2 program.

Physical Information:

Instructor AA Laptop	Instructor FBCB2	Driver AA Laptop
Driver controls – Wheels and Gearbox Unit	Driver controls – pedals	Steering wheel/pedals
Commander AA laptop	Commander NBCDACS	Commander FBCB2
Surveyor JSLSCAD Virtual Trainer	Surveyor NBCDACS	Network Hub
Surveyor JSLSCAD Display Mock – up	Surveyor AA Laptop	Projector
Surveyor CBMS II Virtual Trainer	Virtual CVSS	Cabeling
Surveyor CBMS II Display Mock-up	Virtual METSMAN	RWS Grip
Surveyor DWSS Control Box Mock-up	Virtual JBPDS	Transit Cases

Equipment Required, Not Supplied:

Clean dry indoor location; Large Table/s (tables side by side) capable of holding all the equipment.

Special Installation Requirements:

Follow setup procedures within the Technical Manual (TM).

Power Requirements:

The trainer requires a standard 120 V power source. At least two power strips should be used with the trainer, plugged into two wall outlets.

Applicable Publications:

MIL-STD-498; Virtual Crew Trainer TM 3-6665-406-10; complete list of all sensor and NBCRV TM's: NBCRV Operator TM 9-2355-311-10-10-1, 2 & 3 (volume 1, 2 & 3), Stryker Common TM 9-2355-311-10-1-1 & 2 (Volume 1 & 2), NBCSPG TM 3-6665-391-13&P, CBMS TM 3-6665-392-10, JSLSCAD TM3-6665-353-12&P, CVSS TM3-6665-393-13&P, JBPDS TM 3-6665-352-12&P.

Reference Publications:

None

Training Requirements Supported:

NBCRV Stryker Brigade Combat Team (SBCT) Course and the awarding of the Additional Skill Identifier (ASI) L6 at the U.S. Army CBRN School (USACBRNS); Unit Sustainment Training for SBCT, Heavy Brigade Combat Team (HBCT) and Separate Chemical Companies (Combat Support CS).