

Helicopter Hasty Decon

—an alternative washdown site

By 1LT Michael A. Weber

During combat operations the demand on helicopters and aircrews is very high. The demand will be even higher on the contaminated battlefield. To best sustain aviation resources, commanders and chemical officers must integrate decontamination planning into all combat operations.

The commander must focus decontamination assets on what will keep helicopters flying. Forward arming and refueling point (FARP) operations are very important to sustaining operational readiness. Decontamination focused on keeping the FARP uncontaminated may often make the most efficient use of decontamination assets. FM 1-102, *Army Aviation in an NBC Environment*, outlines an effective helicopter washdown site as part of hasty chemical decontamination.

I would like to describe an alternative helicopter washdown site. The 13th Chemical Company and 5-6 Air Cavalry conducted field testing of the alternative washdown site at the Friedberg Training Area in Germany. The alternative site requires less area and fewer takeoffs and landings.

Aviation Combat Operations

There are four essential tasks for Army aviation: support the force commander's battle plan, support forces in contact, synchronize force

operations, and sustain force operations. These essential tasks require helicopters to deploy from the communication zone (COMMZ) to the deep battle area.

During sustained combat operations, rearming and refueling is done at the FARP. Additionally, if the mission is to be more than six hours long, the force commander must provide a rest and relief station near the FARP. The figure on page 36 illustrates three typical methods of employing the attack helicopter team, the rest and relief area, and the FARP.

At the FARP, support personnel perform demanding physical tasks 24 hours a day, and aircrews get their much-needed rest. Therefore, it is desirable to set up and operate FARPs in uncontaminated areas. Additionally, you want to keep helicopters from transferring contamination into the FARP.

Helicopter Chemical Contamination Avoidance

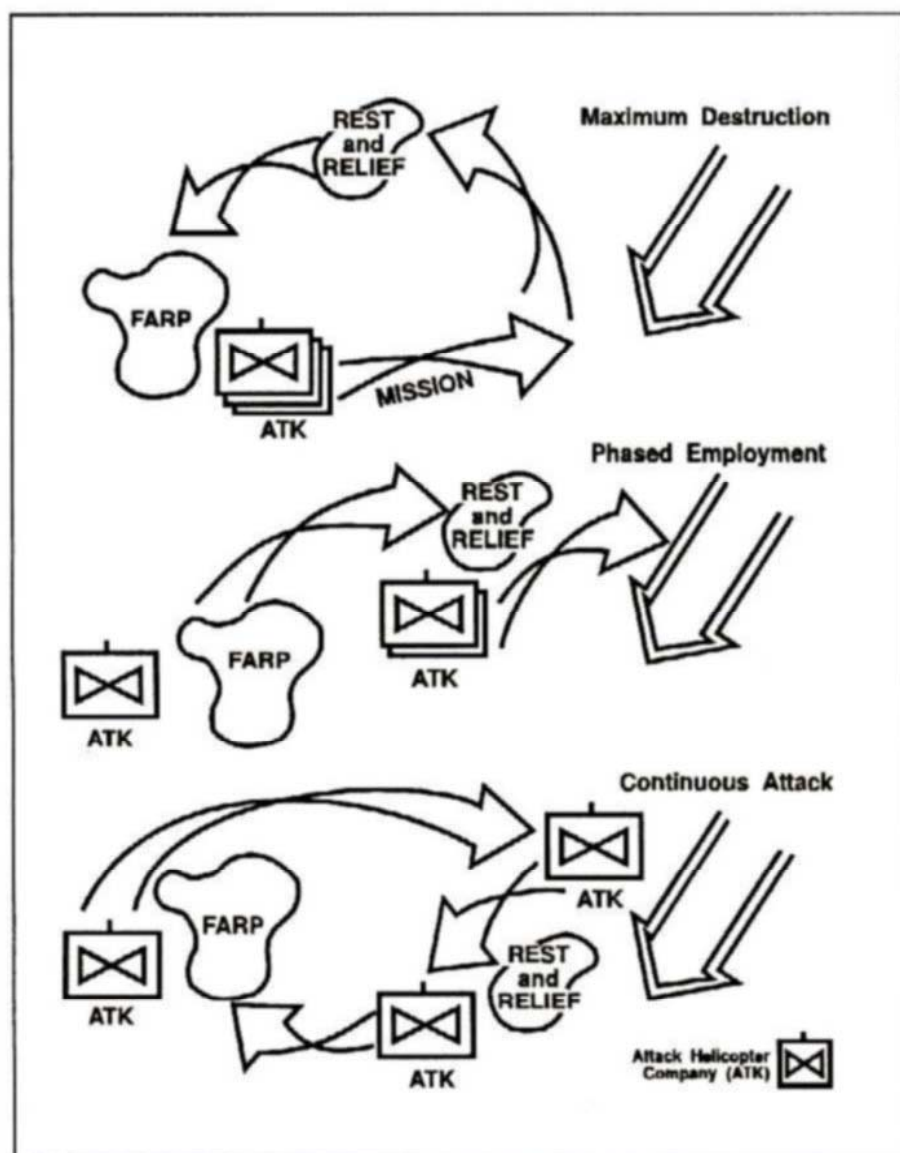
There are three main methods of helicopter chemical contamination: contact with an agent cloud, landing on contaminated ground, and loading contaminated personnel or equipment. There are two different types of agent clouds to consider.

Ground bursting munitions deliver air-contaminating clouds that are

generally non-persistent. For example, the air-contaminating nerve agent GB has a volatility of 22,008 mg/m³ at 25 degrees Celsius. GB evaporates at about the same rate as water (23,000 mg/m³ at 25 degrees Celsius). A wet helicopter will dry itself off as it flies. Similarly, a non-persistent-agent contaminated helicopter will decontaminate itself as it flies. On the other hand, air-bursting munitions deliver ground contaminating clouds that are generally persistent. For example, the ground-contaminating nerve agent VX has a volatility of 10.5 mg/m³ at 25 degrees Celsius. In other words, VX is 2,190 times less volatile than water. Hence, only helicopters contaminated by air-bursting munition clouds require hasty decontamination.

Contact with an agent cloud will cause general fuselage contamination concentrated on forward surfaces. Aircrews should attach M9 paper to forward surfaces, including windscreen, to detect the presence of chemical agents.

Helicopters may need to land in areas contaminated with persistent nerve or blister agents. The rotor wash can cause general fuselage contamination, but contamination will be greatest on the landing gear and underbelly. The aircrew should attach M9 paper to the skids or use a sampling stick made from NBC



Three typical methods of employing the attack helicopter team, the rest and relief area, and the FARP.

marking kit stakes and M9 paper to detect ground contamination.

There may be situations when helicopters have to load contaminated soldiers or contaminated equipment. Aircrews should put M9 paper on seat belts, hand holds, steps, and cargo restraints to detect the presence of chemical contamination inside the helicopter.

Helicopter Chemical Decontamination

Helicopter hasty decontamination will limit the spread of contamination

and maintain an uncontaminated FARP. According to Chemical Corps doctrine, hasty decontamination limits the spread of contamination, but does not check for completeness of decontamination.

Deliberate decontamination checks for completeness and allows long-term reduction from MOPP4. However, deliberate decontamination of helicopters may not always be practical. During combat operations, there might not be enough time for helicopter deliberate decontamination. Additionally, on the contamination

ted battlefield, pilots must fly in MOPP4 anyway to at least protect themselves against miosis (excessive contraction of the pupil of the eye).

Effective decontamination management should focus on long-term rest for aircrews and ground support personnel in the FARP. To achieve this focus, helicopter hasty decontamination includes the aggressive removal of contamination and a final check.

The entire hasty decontamination operations includes a MOPP gear exchange site, a pre-decon staging area, and a washdown site. Additionally, the hasty decon operation must tie in with the rest and relief area and the FARP. Keep in mind that attack helicopters do not have room for a second set of MOPP gear.

Observation helicopters may have enough room in the back seat if there are no additional passengers. Utility and cargo helicopters are large enough to carry second sets of MOPP gear. The MOPP gear exchange area is set up by the aviation unit. Appendix C of FM 1-102 contains a detailed description of MOPP gear exchange for aircrews.

Decontamination platoons are ideally equipped to perform helicopter washdown. Appendix D of FM 1-102 outlines a four-station washdown site where the helicopter flies to each station. The following description is for a two-station washdown site (see figure, page 37). For area planning, the description assumes the decon platoon has M12s mounted on 5-ton trucks and the largest helicopter is the CH-47 (Chinook).

Washdown Site Layout

NOTE: Light, unsecured items can become foreign objects and debris (FOD) and can cause serious damage to the helicopter.

At the wash substation—

- Select an area at least 30 meters wide and 60 meters long.
- If available, use perforated steel planking or British roll matting to

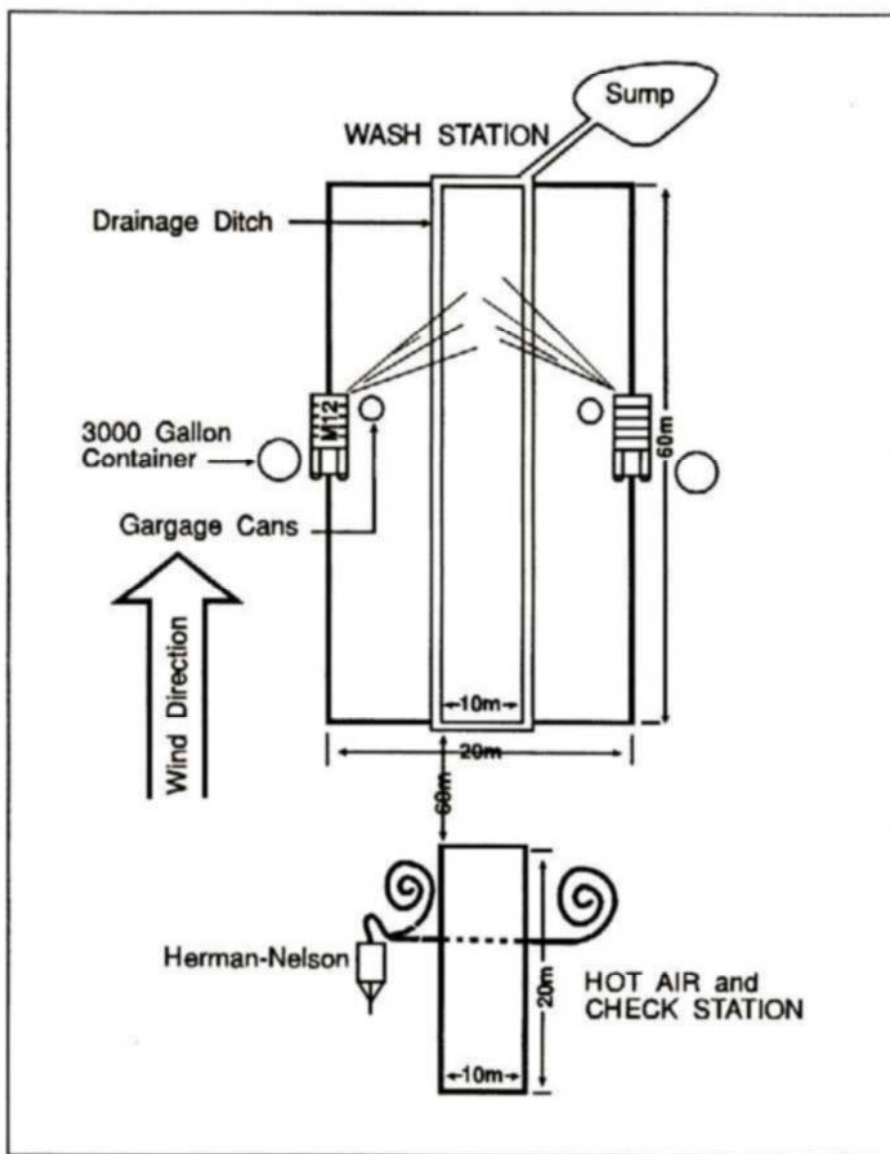
create a center airstrip 10 meters wide and 60 meters long.

- Dig an eight-inch drainage ditch around the center airstrip.
- Dig a sump at least 20 meters downwind and connect it to the drainage ditch.
- Line the sump with STB dry mix.
- Mark the sump with an NBC marking kit.
- Unroll a discharge hose from each M12.
- Park the M12s so there is 1 meter between hoses, centered on the airstrip. Each hose is 15 meters long, giving a 6-meter buffer zone on each side between the CH-47's rotors and the M12's truck.
- Attach the slurry nozzle to each discharge hose and adjust the nozzle to spray in a large fan pattern.
- Park the trucks facing upwind. This will help the pilots orient to the site.
- Erect and fill 3,000 gallon tanks to the side of each M12.
- Place a 50-gallon garbage can close to each M12 on the airstrip side. Keep the cans filled with hot water to make sure they are not blown over. Add aircraft soap.
- Stake a camouflage net over the garbage can. This becomes an area in which to secure items during the decontamination.
- Place a wind sock upwind and away from the center of the airstrip.
- Conduct water resupply with tank-and-pump-unit (TPU) trucks.

Hot Air and Check Station

The main concern at this station is evaporating the water (from the wash substation) on the helicopter. This second station could be omitted based on weather and available space. Herman-Nelson heaters are organic to aviation units. Their primary use is to de-ice helicopters.

- Select an area at least 10 meters wide and 30 meters long.
- Place a Herman-Nelson heater on one side of the station.
- Use a "Y" fitting on the main



Two-station washdown site layout.

heater exhaust hose to create two exhaust hoses. Pull one hose across the station. Dig a trench across the station and bury the segment of hose that's on the landing area.

Site Improvement

If time and equipment are available, the following actions will improve efficiency and control of the site.

- Install the hot loop TA 312s for each ground guide and the air traffic control (ATC) NCO.
- Place a JP4 TPU near the hot air station for emergency refuel.

- Have extra MOPP gear ready for aircrews.
- Coordinate for a medic and ambulance to evacuate contaminated casualties.

Staging Area Actions

- Aircrews conduct internal decontamination.
- Close all windows and windscreens to avoid washing contamination into the helicopter.
- Cargo and utility helicopter crews should conduct MOPP gear exchange.
- Aviation unit leader will prioritize

helicopters going to the washdown site.

- In order of priority, the pilot radios the ATC NCO. The pilot identifies the helicopter, describes the method of contamination, describes the extent of contamination, reports status of internal decon, reports status of MOPP gear, identifies medical emergencies on board, and requests entry to washdown site.

- The ATC NCO asks the decon platoon leader for permission to land the helicopter.

- The ATC NCO tells the pilot the wind conditions at the decon site, the approach information, and advises him to take landing cues from the ground guide.

- The pilot ensures weapon systems are on safe.

Wash Substation Actions

NOTE: Everyone will approach and exit the helicopter from the front at a 45-degree angle (except the CH-47).

- CH-47—The ground guide signals the pilot to taxi and land so the mid-point of the helicopter is between the two garbage cans. All helicopters except the CH-47—The ground guide signals the pilot to taxi and land so the nose of the helicopter is between the two garbage cans

- The wash substation team leader gets the contaminated helicopter's information from the ATC NCO.

- After the helicopter lands, the pilot maintains flight RPMs and pushes the collective all the way down to reduce rotor wash.

- The team leader approaches the helicopter with the wash team and the JP4 decon soldier. The wash team chalks the landing gear, if appropriate. The team leader and JP4 decon soldier locate areas of contamination and circle them with chalk. The JP4 decon soldier washes these areas with a JP4-soaked natural sponge or rag. Wear solvent-resistant gloves over MOPP gloves to prevent MOPP glove damage. Unit armorers

stock solvent-resistant gloves.

- The team leader and JP4 decon soldier walk around the front of the helicopter and decon the other side.

After they finish, they exit and secure the contaminated JP4.

- The wash teams come forward with brushes and 5-gallon pails of hot, soapy water taken from the 50-gallon garbage can. They scrub the helicopter (no higher than eye level), top to bottom, side to side, starting with the helicopter's nose.

- The wash teams do not go further than halfway back on the tail boom. The tail rotor will be invisible and extremely dangerous. As the wash team finishes, it exits.

- The rinse team comes forward. The M12 operator maintains a discharge water pressure only strong enough to reach the helicopter. The rinse team sprays the helicopter top to bottom, side to side, starting at the nose of the helicopter. NOTE: The CH-47 must taxi forward after the rinse team sprays the front half in order for the discharge hoses to reach the back half.

- The rinse teams exit with the chalk blocks.

- The decon team leader checks for any unsecured objects and signals the ground guide to move the helicopter to the hot air and check station.

- The ground guide asks the ATC NCO for permission to move the helicopter to the hot air and check station.

- The pilot flies to the hot air and check station.

Hot Air and Check Station

- The ground guide signals the pilot to land in the center of the station.

- The Herman-Nelson heater team chalks the landing gear, if appropriate. Then they dry the helicopter.

- A chemical soldier makes a final check with M8 and M9 paper and reports to the ATC NCO.

- If the helicopter's exterior is not contaminated, the helicopter can go

to the MOPP gear exchange area, the rest and relief area, or the FARP.

- If the helicopter's exterior is contaminated, it must re-enter the washdown site.

Safety

- Never direct water into the helicopter's air intake system.

- Do not get in front of helicopters with turret weapon systems.

- Everyone working on the helicopter must wear TAP aprons over their MOPP gear. The rotor wash will drive water and contamination into an unprotected MOPP suit.

Summary

The AirLand Battlefield requires commanders to use initiative, agility, depth, and synchronization to maximize combat power. Chemical officers must advise commanders on how the contaminated battlefield impacts on operations. Decon that fits into the overall operation is an integral part of the chemical officer's advice. The site layout for helicopter decon will depend on METT-T. By planning for alternative layouts of tactically sound decon, the chemical officer provides the commander with the flexibility to succeed on the AirLand Battlefield. The two-station washdown site requires less area than the four-station site. Takeoff and landing time at the two-station site is half that of the four-station site. The advantage of the two station site is faster decon in less area, keeping more combat power available to the commander.

At the time this article was written, 1LT Michael A. Weber was attending the Chemical Officer Advance Course. His previous assignments include decon platoon leader with the 13th Chemical Company in Baumholder, Germany. On 1 May 1990 he became the chemical officer for the 6-29 Field Artillery (155mm). 1LT Weber's next duty station will be Fort George G. Meade, Maryland.