Battle management under NBC conditions consists of actions that provide US forces with an operational and tactical advantage over their adversaries. Battle management requires direct involvement of the chemical leader or staff officer, who integrates chemical operational elements into the commander’s concept of the operation. These elements are —

- Battlefield assessment and risk analysis.
- NBC warning and reporting.
- NBC recon, decon, and smoke operations.
- Nuclear employment operations.
- Flame operations.

Chemical leaders or advisors ensure proper chemical planning measures are incorporated into appropriate staff estimates. They ensure the flow of NBC information supports the current and future battle planning process. Battle management requires effective working relationships with the primary staff and special staff elements such as the air defense, fire support, engineer, aviation, and air liaison officers.

**LEVELS OF WAR**

Battle management at theater strategic and operational levels provide theater and operational-level commanders information on the enemy’s tempo of operations under NBC conditions. It provides a “near-real time” picture of enemy NBC capabilities. This information allows commanders to adjust their plans based on NBC hazards and friendly opportunities for nuclear operations.

Battle management at the tactical level of war enables the tactical commander to continue effective battle operations under NBC conditions. It also provides a “near-real time” portrayal of enemy NBC capabilities at brigade, division, and corps levels. It specifically helps units and soldiers avoid enemy NBC attacks and limit contamination. It allows rapid dissemination of information on required protective measures. It provides early warning of NBC attack to units and soldiers. It helps commanders obtain the chemical assets they need to accomplish their missions.

**BATTLE MANAGEMENT ACTIVITIES**

Battle management is equally important for combat, CS, and CSS units. It may call for chemical specific actions, such as planning for a thorough decon contingency mission. Alternatively it may involve actions that are not specifically chemical in nature. These actions could include monitoring a subordinate unit’s status or passing intelligence information.
Chemical unit commanders and chemical advisors at every level conduct battle management activities.

**Chemical Units**

Chemical brigades, battalions, and companies have expertise and sources of NBC information beyond those of a nonchemical unit. So they have many opportunities to influence battle management under NBC conditions. Chemical units occupy a special role in battle management. The chemical unit commanders work closely with the maneuver commander and S3/G3 on NBC requirements. They position chemical assets to support the maneuver commander’s concept of operations. Chemical units gather information about a wide area of the battlefield. They feed information on NBC hazards into the S3/G3. They help verify enemy first-use of agents. Chemical unit functions are described in Chapter 7 of this manual.

**Chemical Officers and NCOs**

Mission accomplishment under NBC conditions requires “near-real time” collection and dissemination of NBC information. Units are authorized chemical officers and NCOs to facilitate operations under NBC conditions. As part of the responsibilities (see Appendix B of this manual) the chemical officer or NCO—

- Assesses friendly vulnerability.
- Receives, collates, and transmits NBC reports.
- Recommends the use of assigned or attached chemical units.
- Provides support for nuclear offensive operations.

**Battlefield Assessment**

Before the battle, commanders give their concept of the operation to their coordinating staff officers. The chemical staff officer works closely with the coordinating staff as they prepare staff estimates based on the commander’s guidance. As soon as the first operation order (OPORD) is published and the battle progresses, commanders and their staffs continually plan and/or improve the current, and future phases of the battle. The chemical advisor coordinates with the following staff officers on NBC defense, smoke, and flame issues.

**Personnel Officer (S1/G1-AG)**

The S1/G1-AG and chemical staff assess the probability and impact of NBC-related casualties. They also need to assess shortfalls of NBC military occupational specialties (MOSS) and NBC personnel readiness issues. This is especially critical when a majority of our NBC forces are Reserve Component, arriving in theater at various times, and spread over echelon above corps (EAC), corps support command (COSCOM), and divisional units. The S1/G1-AG and medical officer ensure field medical support is available and prepared for an NBC attack. They advise the commander on the medical effects of NBC weapons, treatment and protection available. The medical officer provides recommendations on associated environmental concerns, such as heat stress in MOPP. The chemical staff checks with the S1/G1-AG on the impact of NBC casualties on the unit throughout all phases of operations. The S1/G1 also monitors the OEG of units in coordination with the chemical officer and surgeon.

**Intelligence Officer (S2/G2)**

The chemical staff works with the S2/G2 on weather and terrain data. They assess whether environmental factors are conducive to enemy use of NBC weapons or friendly use of nuclear weapons. The S2/G2 information requirements include enemy situation and ability to use NBC weapons. The chemical staff aggressively supports the S2/G2 in the development of PIR. He assists in the IPB process for all phases of operations, determining and/or evaluating enemy capabilities, types of agents, types of obscurants and sensors, protective posture, line-of-sight influences on direct fire, and friendly vulnerabilities to enemy strengths. The S2/G2 also provides information on enemy vulnerability to friendly operations (for example, smoke and obscurants).

**Operations Officer (S3/G3)**

The chemical staff recommends proper MOPP guidance, troop safety criteria, and OEG. They also recommend priorities for limited NBC defense resources to the S3/G3 through all phases of operations. The chemical staff supports the battle managers (S3/G3) in several ways. They recommend task organizations for chemical units, coordinates smoke, decon, and NBC recon with chemical units, and provide guidance on flame operations.

Further, the chemical staff advises the commander on the impact of NBC-related attacks on the current, and future concept of operations. They also provide input to the maneuver commander reference nuclear target analysis, hazard predictions, vulnerability analysis, control of chemical units, mitigating techniques, and recommending priorities for actions such as decon or NBC recon support or chemical defense equipment.
(CDE) resupply. The chemical staff recommends to the S3/G3 decon and smoke support assets required for vulnerable rear area targets. These targets include MSRs, maintenance, and supply facilities.

**Logistics Officer (S4/G4)**
The chemical staff must coordinate with the S4/G4 concerning MOPP gear, decontaminants, and resupply requirements throughout all phases of operations. The S4/G4 and chemical staff officer must know the rate and extent of the unit’s decon capability. They also must plan to decontaminate contaminated supplies or equipment. In addition, the chemical staff officer keeps the S4/G4 abreast of any reported NBC contamination to MSRs, critical supply and maintenance facilities that affect unit sustainability. He also advises the S4/G4 on ways to limit the need for decon of supplies, which includes the use of disposable protective wraps or covers.

**Civil Affairs Officer (G5), Public Affairs Officer (PAO)**
The chemical staff works with the G5 on estimating the impact of NBC events on the civilian population in the unit’s operational area. Psychological operations are also considered when estimating the impact of NBC events. Mass population movements impact mission accomplishment. The chemical staff and the FSCOORD coordinate with the G5 when planning targets for nuclear weapons to avoid collateral damage to civilian population centers, if possible. The G5 advises on appropriate preclusion overlays to assist in target analysis. The chemical staff coordinates with the G5 for integration of host nation assets into decon operations, such as field expedient decon equipment and supplies (steam cleaners and bleach), fire trucks, and wash racks. They also consider the integration of field expedient NBC protective shelters, such as existing buildings in local population centers. The chemical staff and the medical officer coordinate with the G5 for availability of host nation hospitals for the treatment of NBC casualties.

The chemical staff works with the PAO to inform the local civilian community of safety precautions or evacuation routes. The chemical staff also provides the PAO with information concerning the effects of enemy use of WMD. Information, as approved by the Unified Command PAO, is used to educate US and international populations on the effects of such weapons and the facts surrounding their use. The information is also used to keep soldiers aware of the types of NBC weapons used.

**Engineer Officer**
The chemical staff works with the engineer staff to identify NBC obstacles and plan for the use of smoke and obscurants at river crossings sites and obstacle breaching. The chemical staff coordinates engineer support for NBC decon and survivability operations. Smoke, obscurants, and flame weapons are considered necessary to form or reinforce the unit’s obstacle plan.

**Fire Support Officer (FSO)**
The chemical staff works with the fire support officer on the effects of friendly nuclear attacks. The FSO and chemical staff work together to nominate nuclear targets, conduct target analysis, and provide recommendations to the commander on use. At the battalion/brigade level the chemical staff and FSO also work together to plan the use of obscurants and riot control agents.

**Air Liaison Officer (ALO)**
The chemical staff works with the air liaison officer to provide information, as needed, on obscurant use and NBC defense protection measures for supporting Air Force personnel. The chemical staff also provides needed information to the ALO on chemical downwind hazards. In coordination with logistics personnel, the ALO and chemical staff assist with immediate airlift requirements for needed stocks such as chemical defense equipment. The chemical staff also coordinates with the ALO on use of friendly nuclear strikes.

**Air Defense Artillery (ADA) Officer**
The chemical staff and ADA officer coordinate to exchange information on smoke use, NBC defense, and chemical downwind hazards from enemy NBC attack. ADA units can also provide needed data for NBC reports as part of the system of designated observers.

**Aviation Officer**
The chemical staff and aviation officer coordinate to exchange information on smoke planning and execution, NBC defense, and chemical downwind hazards. NBC survey requirements are also closely coordinated. Coordination, as needed, is also
provided to logistics personnel on aerial resupply of critically needed supplies.

**Provost Marshal**

The chemical staff and provost marshal coordinate and exchange needed information on NBC defense, especially needed data on NBC identification, detection, and warning. Timely information exchange on NBC defense is especially important for battlefield circulation control. Traffic control points should be well informed on the location of any contamination.

**Vulnerability Analysis and Reduction**

NBC vulnerability analysis is an important part of battlefield assessment and risk analysis. Commanders, with staff input, assess their units’ vulnerability to NBC attacks and obscurant use. Commanders determine the protection of the units versus the enemy’s capability to use WMD. They estimate the likely impact of NBC attacks, and based on the concept of the operation, determine methods of reducing any impact to allow mission accomplishment. A separate vulnerability analysis is made for a nuclear, biological, and chemical attack because of the specific nature of each type of use. For a nuclear attack commanders consider the size and location of units and sensitivity of equipment. For a biological or chemical attack, they consider the protection available and the type and the amount of agent employed.

Commanders reduce vulnerability to NBC weapons through the use of active and passive measures. (Active measures are those taken to find and destroy either the munitions or the delivery systems; passive measures are those taken to avoid or reduce the effects of NBC weapons.)

Commanders assess their units’ and the enemy’s vulnerability when operating in an obscured environment. This analysis requires an understanding of Threat smoke capabilities and what types of obscurants will degrade friendly target acquisition and guidance systems. In addition, commanders determine enemy vulnerabilities to friendly obscurants. They base this determination on what the friendly spectral obscurant capability is and what systems it will defeat.

**Identifying and Targeting**

**Enemy NBC Weapons and Delivery Systems**

Based on the commander’s PIR, the S2/G2 directs the collection, evaluation, and production of intelligence for identifying and targeting enemy NBC weapons and delivery systems.

Targets are identified which contribute to the success of the enemy’s battle plans, and the most effective attack asset is used. The intelligence cycle estimates enemy capabilities, courses of action, and locations of the enemy’s various units. These estimates form the basis for identifying high-value targets and predicting enemy intentions. A target analyst reviews probable enemy courses of actions (allows the start of preliminary targeting). The target and intelligence analysts estimate a correlation between an expected event within the geographical location and the time the event is expected to take place. Target analysis for nuclear weapons is a continuous process. The focus of nuclear planning, at any level, is command guidance. Amplifying guidance, as well as changes and modifications to the original guidance, may be generated by the staffs and commanders when required by the changing battlefield situation.

Command guidance for targets using nuclear weapons includes intent, casualties desired, amount and duration of contamination, and degree of assurance required.

**NBC Warning and Reporting System**

An integral part of battle management is an NBC warning and reporting system (NBCWRS). This system provides commanders information on NBC hazards that could profoundly affect their concept of operations. The NBCWRS is used to rapidly report an NBC attack. These reports are transmitted to higher, subordinate, and adjacent headquarters. They inform these headquarters of predicted and actual contamination within their area of operations. Each report has a specific purpose and uses standard codes to shorten and simplify the reporting process. See

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A: Strike serial number
B: Position of observer
C: Direction of attack from observer, to include unit of measure
D: Date-time of detonation
E: NA
F: Location of area attacked
G: Suspected or observed event and means of delivery or kind of attack
H: Type of burst
I: NA
J: Flash-to-bang time
K: Presence or absence of crater and diameter
L: Cloud width at H + 5 minutes
M: Stabilized cloud top or cloud bottom angle or cloud top or bottom height at H + 10 minutes
N: Estimated yield
O: Reference date-time for estimated contour line when not H + 1 minute.
P: Radar purposes only.
Q: Location of reading
R: Dose rate or actual value of decay exponent
S: Date-time group rading
T: H + 1 date-time group
U: 1,000-cGph contour line
V: 300-cGph contour line
W: 100-cGph contour line
X: 20-cGph contour line (30 cGph contour line is used by other NATO forces)
Y: Direction of left and right radial lines.
Z: Effective wind speed

**Figure 3-1. NBC reports.**
NBCWRS Management
The process of reporting NBC data involves units at every echelon. These units must establish controls on handling NBC information. Without such controls too much raw data may flood the communications system. Uncontrolled NBC message traffic may overload communications and disrupt tactical operations.

Information Collection
NBCWRS management is effected by the information available and personnel available to collect it. Information maybe immediate without detail, such as the first report by an observer of an NBC attack. Information obtained by monitoring, surveying, and reconnoitering provides location, type, and strength (radiation) of the hazard.

Observer reports (NBC 1) provide initial information about the attack and is the most widely used. This information allows the NBC center (NBCC) (EAC, corps, or division) to predict the location of nuclear and chemical hazard contamination. This prediction (NBC 3 report) is only an estimate of where the hazard area will be. The unit standing operating procedure (SOP) should designate primary and alternate units for observing and reporting nuclear attacks. Different observers may be designated as the battlefield situation changes. The designated observer system provides the essential data for hazard location predictions and nuclear damage assessment. The NBCC specifies the precedence of the report and the primary and alternate means of communication. Observers are selected to provide total coverage. This coverage requires ground and aerial observers (see FM 3-3-1 for more information on ground and aerial observers). All units are required to record their observations concerning nuclear strikes in the prescribed format. Nondesignated units do not send reports unless specifically requested by the NBCC to do so.

The NBCC requires feedback from units to determine the exact location of contamination. It makes this determination from monitoring, surveying, and reconnoitering (NBC 4) reports. Initial monitoring reports, providing location of contamination, are forwarded to the NBCC. If additional information is needed, the NBCC recommends a unit (because of its location or capability) be tasked to obtain it.

Collecting NBC information is a joint effort between units and the NBCC. The NBCC plans for and directs collection efforts, in coordination with the intelligence community, while units collect this information.

Information Evaluation
Collected NBC data are evaluated and used as battlefield intelligence. The NBCC is the primary evaluation center. Units and intermediate headquarters use raw data to do quick, simplified evaluations. These results should be used until the detailed evaluations arrive from the NBCC.

Information Transmittal
Critical NBC reports (observers’ initial report) usually flow through coremand channels. However, there are exceptions—
- When the NBCC requests survey information, the unit doing the survey may report its data to the NBCC. This reporting is done during ground or aerial surveys.
- Attached units, operational control (OPCON) units, or units that provide area support report information to the supported headquarters.

The method of transmitting information depends on the tactical situation and mission of the unit. NBC reports normally pass through the operations net. Wire transmission is an alternate means. The NBCC should evaluate all possible methods of communications and recommend those that best serve the purpose.

Friendly Attack Warnings

This section implements STANAG 2104, Friendly Nuclear Strike Warning.

See FM 3-3-1 for further information on techniques and procedures. Units affected by a friendly nuclear strike must be warned whenever possible. Warnings must be encoded or sent via secure means to avoid warning the enemy. A warning may be sent in the clear only if there is no time for the enemy to react.

There are several ways to speed the warning. SOPS establish general procedures for passing a friendly nuclear attack warning and reaction to it.

Operation plans (OPLANS) can add more specific instructions about a particular operation, such as code words for a preplanned attack.

While a nuclear attack is being planned, a warning order may be given to alert troops in an affected area. They should remain alert for a follow-up message
that will cancel, confirm, or alter the warning. All of these (SOPS, OPLANS, and warning orders) allow commanders to react or hold a warning until the last moment to achieve surprise.

Friendly forces who may be affected by a strike should receive a warning. Sometimes this warning is not possible. While good SOPs help, commanders must weigh the effects of the strike on their own personnel versus the effects on an unwarned enemy. When low-yield weapons are employed in dynamic situations, operational requirements may dictate some relaxation of the warning requirement.

Target analysis determines probable effectiveness of the weapon. Troops in the open and in aircraft are particularly vulnerable; they should be warned. Blast overpressure can destroy light aircraft, and dazzle effects from a nuclear blast can temporarily blind a pilot. Warning should go to any troops or aircraft in, or likely to maneuver through, the fallout hazard area.

Deciding when to warn friendly personnel and units is similar to deciding who gets warned. Early warning gives friendly forces time to prepare. It may also cause the enemy to launch a preemptive strike against us. Commanders must weigh the factors and give the warning at the optimum time. Commanders must ensure an attack will not interfere with the operations of adjacent commands. They must ensure the attack is a coordinate effort, with conflicts resolved by higher headquarters. Early warning is extremely critical for special operations forces (SOF) elements deployed deep in the enemy’s rear area. SOF normally are foot mobile and usually use special communications procedures often with fixed contact times at 24-hour intervals or more. As soon as a nuclear strike is contemplated that may affect deployed SOF elements, it is imperative that their controlling headquarters (Theater Special Operations Command) be notified. SOF units deployed forward of the forward line of own troops (FLOT) must rely only on early warning and avoidance for protection.

The commander who orders the attack must issue the warning. For example, the division commander ordering the attack must issue the warning even if corps assets are used. The G3 has staff responsibility for issuing warnings for friendly attacks. The corps or division army airspace command and control element (A’C’E) is responsible for alerting aviation assets.

All nuclear attack warning messages are transmitted by the fastest means available; they are not transmitted in the clear unless troop safety makes it essential. All messages, including cancellations, must be authenticated according to signal operation instructions (SOIs). A false message given by the enemy over our nets could seriously disrupt our operations.

Each warned headquarters notifies subordinate headquarters that might be affected.

Nuclear attack warnings do not pass below battalion level. Instead, companies receive specific instructions. These instructions must be kept brief by using SOIs and procedures written into unit SOPs. They must include code words indicating an attack and a brief prearranged message or brevity code to take specific actions, such as move or go into a protective posture. The SOP should include time limits for these actions and the expected time of attack.

All unit SOPs should include specific methods for passing warnings. These SOPs should include procedures for preattack, attack, and postattack actions.

Unit SOPs should also include specific methods for canceling warnings. Units previously warned are notified by the fastest secure means available. The notification gives lines Alfa and Delta from the nuclear warning message followed by the word “Canceled” (see FM 3-3-1).

**NBC RECONNAISSANCE, DECONTAMINATION, AND SMOKE OPERATIONS**

Chemical units can provide NBC recon, decon, and smoke support at all levels.

Chemical units are employed based on the concept of operations. Synchronized NBC recon, decon, and smoke operations begin with planning, preparation, and teamwork.

Chemical staff sections (EAC, corps, and division) play an important part in the use of chemical units. These staffs are involved in recommending mission priorities and task organization of supporting chemical units, and planning logistical requirements for chemical unit support.

Units evaluate the need for external NBC unit support (recon, decon, and smoke) before submitting requests. The chemical staff provide recommendations to the S3/G3 on possible NBC recon, decon, and smoke operations. Evaluation requests or recommendations become mission
requests. They are coordinated with the S2/G2, S4/G4, and chemical unit commander for all chemical unit missions. Requests coordinated with the FSCOORD, staff weather officer (SWO), ALO, ADA, and engineers for smoke support missions. Chemical units are task organized to provide full use of available assets.

Once chemical unit support is arranged, use is based on the combat power multiplier contribution and synchronization with maneuver.

EAC, corps, and division chemical staff sections constitute the technical and planning chain of command for chemical units. The chemical battalion commander and his staff are the tactical chain of command for these chemical units. Chemical staffs are responsible for advising or recommending to the EAC, corps, and division commander and/or G3 concerning the following—

- What the chemical mission priorities should be.
- How the chemical unit should be task organized.
- What the support, logistical requirements, and priorities are for the chemical unit.

EAC, corps, or division chemical unit assets are normally employed on a direct support (DS) or general support (GS) basis. The basis depends on—

- Commander’s intent.
- Staff recommendations.
- Major subordinate unit mission requests.
- Higher headquarters directives.

Chapter 7 and FM 3-101 provides more details on chemical organizations and their command and support relationships.

**NUCLEAR EMPLOYMENT OPERATIONS**

The primary objective in using nuclear weapons is to end war on terms acceptable to us and our allies.

Nuclear weapons should be integrated with other forms of fire support in a combined arms, joint service approach. Conventional and nuclear weapons must be thoroughly integrated—

- To alter the course of the battle positively and persuasively.
- To preclude the enemy’s achieving its objective.
- To ensure the success of the attack by US, North Atlantic Treaty Organization (NATO), or allied forces.

EACs allocate nuclear weapons to major maneuver commanders—normally corps commanders.

Allocation is for a specified purpose, period of time, or phase of an operation. Depending on the concept of operations, these commanders may further delegate employment authority to subordinate commanders.

The use of nuclear weapons in battle to achieve US political goals depends on political and strategic decisions made by civilian authority at national and NATO levels. Regardless of political motives, the military perspective should always be to integrate nuclear fires into the units’ plans and support the scheme of maneuver and the campaign. See JP 3-12, FM 100-30 and FM 101-31-1 for more information and discussion of nuclear use and target analysis.

The principle of retaliatory response is to control escalation. US forces select retaliatory targets to discourage further enemy use. They maintain the capability for additional strikes if enemy use escalates.

Keys to controlling escalation are rapid verification of enemy first use of NBC agents and rapid processing of requests for weapons release. Verification of first use will be a politically sensitive issue. The enemy will use disinformation programs to conceal use. The United States must present its evidence in such a manner as to leave no doubt of enemy use. In a combined theater host nation corroboration of enemy use of nuclear weapons greatly enhances the verification process.

Commanders should make full use of public affairs assets (the only authorized channel of communication to the American public) to inform the American public of enemy NBC warfare operations. PAO and other channels of communication (PSYOPs, US Information Agency) will be used to inform host nation, third nation populaces, and other target audiences of enemy NBC operations, as appropriate. Such information should be presented in print, photographic, and electronic news media and directed at both internal and external audiences.

No universal standard for verification exists. It will depend on the extent and type of enemy attacks and on whether these attacks have sufficient impact on our forces to require a retaliatory response. Limited enemy chemical strikes will require more stringent verification efforts. This is because there will be less evidence to collect. Data will be collected and evaluated to provide critical input to the decision on a retaliatory response. Evidence to support verification is submitted before our retaliatory response.

Additionally, we assess whether the enemy continues to use its CB weapons so we can determine when we should terminate our retaliatory response(s).