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CHAPTER 1
INTELLIGENCE PREPARATION
OF THE BATTLEFIELD

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Prior to conducting vulnerability analyses, the chemical staff must identify the enemy's and/or terrorist's NBC offensive capabilities and intentions. This is accomplished through the intelligence preparation of the battlefield process. FM 34-130, Intelligence Preparation of the Battlefield, outlines this process in detail.

IPB is a systematic, continuous process of analyzing the threat and environment in a specific geographic area. It is designed to support staff estimates and military decision making. Applying the IPB process helps the commander selectively apply and maximize his combat power at critical points in time and space on the battlefield by:

- Determining the threat's likely course of action (COA).
- Describing your unit's operating environment and its effects.

IPB consists of four steps that are performed each time you conduct IPB:

- Define the battlefield environment.
- Describe the battlefield's effects.
- Evaluate the threat.
- Determine threat COAs.

Conduct IPB prior to and during the commander's initial planning for an operation, but also continue to perform IPB during the operation. Each process function is performed continuously to ensure IPB products remain complete and valid and the chemical staff is providing support to the commander and direction to the NBC intelligence system throughout the current mission and future operations.

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IPB

Define the Battlefield Environment

Describe the Battlefield's Effects

Evaluate the Threat

Determine Threat COAs

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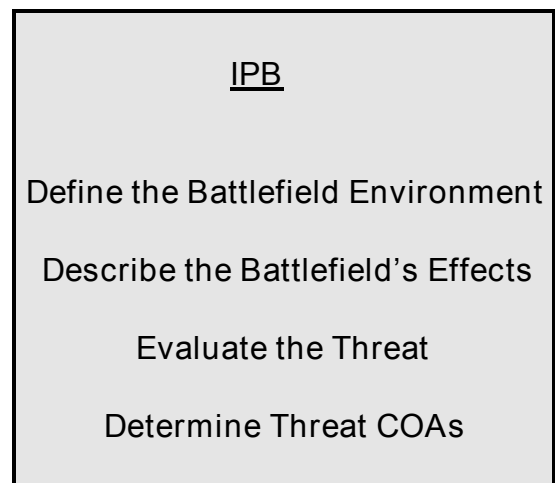
Chemical Staff IPB Responsibilities

The intelligence officer (S2/G2) has primary responsibility for the command's IPB. However, he is not the only staff officer conducting IPB. He is responsible for facilitating the unit IPB effort, but he and his staff cannot provide all unit IPB requirements. Every commander and staff officer, including the chemical officer, must think through the effects the significant characteristics of the battlefield and other aspects of the environment have

on both threat and friendly operations. Furthermore, every staff officer must prepare detailed IPB products and staff estimates tailored for his own functional area. The NBC estimate provides facts and assumptions for use in the decision making process. It can be a separate estimate; however, is it is normally included in the intelligence estimate (either written or graphically depicted). The chemical officer must work in coordination with the intelligence officer, understanding his focus on the "big picture."

A chemical officer's requirements guide for each IPB step follows:

Step 1. Define the battlefield environment. The battlefield environment identifies for further analysis specific features of the environment or activities within it, and the physical space where they exist, that may influence available COAs or the commander's decisions. This is done by:

- Identifying significant environmental characteristics. When identifying significant battlefield characteristics, consider threat forces and all other aspects of the environment that may have an effect on accomplishing the mission. These might include:

  - Geography, terrain, and weather of the area.
  - Population demographics (ethnic and religious groups, income).
  - Political and economic factors (leadership, clans, tribes).
  - Infrastructures (transportation and telecommunications).
  - Industrial and research facilities (nuclear power and waste facilities; weapon, chemical, pharmaceutical and dye plants).
  - Hospitals and universities.
  - Rules of engagement or legal restrictions (treaties and agreements).
  - Threat forces (including terrorist groups) and their capabilities.

Initially, examine each characteristic only in general terms to identify those of significance to the command and its mission. Further evaluation takes place during later steps of the IPB.

- Identifying limits of the command's area of operations (AO) and battlespace. The AO is the geographic area where the commander is assigned the responsibility and authority to conduct military operations (Figure 1-1).   A thorough knowledge of the characteristics of this area leads to its effective use. The command's battlespace limits are determined by the maximum capabilities of a unit to acquire targets and physically dominate the threat. The command's capabilities in this regard include the target acquisition and long-range assets of supporting and higher commands as well as its own organic systems. The battlespace generally includes all or most of the AO, as well as areas outside of the AO.
- Establishing area of interest (AI) limits. The AI is the geographical area from which information and intelligence are required to permit planning or successful conduct of the command's operation. Because the commander and staff need time to process information and to plan operations, the AI is generally larger than its AO and battlespace

(Figure 1-1). The AI's limits include each of the characteristics of the battlefield environment you identified as exerting influence on available COAs or command decisions and on the threat's ability to project power or move forces into the AO.

   • Identifying amount of detail required within the time available for IPB. Overcoming time limitation requires a focus on the most important IPB parts.

   • Evaluating existing data bases and identifying intelligence gaps. A gap is any area in which sufficient detail is not known. Not all the information required to evaluate each battlefield characteristic's effects and each threat force will be in the current data base. Identifying the gaps early allows you to initiate action to collect the intelligence required to fill them.
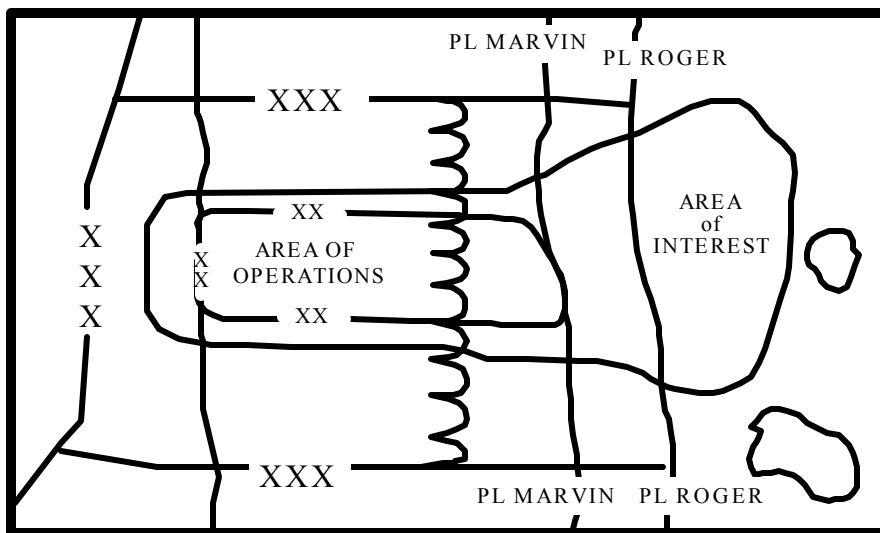

Figure 1-1. Battlefield Areas.

   • Collecting any material or information required to conduct the remainder of the IPB. Initiate collection or request for information (RFI), through the S2/G2, to fill intelligence gaps to the level of detail required to conduct IPB. RFIs should contain specific questions for a particular event or disposition. RFI examples include:

   Are any NBC production, storage, or research facilities located in AI?
   • Does enemy have aerial chemical agent employment capability?
   • Has there been an increase in activity at NBC storage sites?
   • Are there special operations, intelligence, or terrorist units in AO?

   In this step, the chemical officer would attempt to identify threat forces and their capabilities (such as delivery systems, chemical units), the geography, terrain, weather, and any relevant political factors. For example, is enemy's national or military leadership willing to use NBC weapons on own territory or expose population to NBC hazards? Again, examine each characteristic only in general terms to identify those of significance to the command and its missionFurther evaluation of characteristic effects takes place during later steps of IPB. For example, at this step the evaluation of threat

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Step 1. Define the Battlefield Environment

Chemical staff must:

- Attempt to identify threat forces and their NBC capabilities, such as chemical units and delivery systems.
- Assess geography, terrain, weather, and any political factors, such as the enemy's national/military leaderships' willingness to use NBC weapons on their own territory or other's territory or expose civilian populations to NBC hazards.
- Define NBC area of interest.
- Obtain rules of engagement for responding to NBC events.
- Examine the area's infrastructure.
- Obtain information on the availability of reconnaissance assets.

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forces is limited to an identification of forces that have the ability to influence the command's mission based on their location, mobility, general capabilities, and weapons ranges. During later steps you will actually evaluate each threat forces' specific capabilities and probable COAs.

Step 2. Describe the battlefield's effects. The determination of how the battlefield environment affects both threat and friendly operations. The specific steps are:

- Analyze the battlefield environment.
- Conduct terrain analysis.
- Conduct weather analysis.
- Analyze other battlefield characteristics.
- Describe battlefield's effects on threat and friendly capabilities and broad COAs.

The chemical staff must address terrain and weather effects on NBC operations (see Appendix F), such as soil type, surface drainage, vegetation type and distribution, precipitation, wind patterns, temperature, humidity, cloud cover, and topography. This information is key for chemical staffs to conduct NBC IPB. These variables affect agent and radiation persistency, effectiveness, and probable contamination areas. The chemical staff must also consider these variables for hazard prediction and reduction measures, such as decontamination. Most of this information can be found through a map analysis supplemented by reconnaissance (chemical, aerial, military intelligence or scout assets), the chemical downwind message (CDM), the effective downwind message (EDM), and any supporting weather elements.

Step 2. Describe the Battlefield's Effects

Chemical staff must:

- Address terrain and weather effects on NBC weapons.
- Obtain weather predictions.

Step 3. Evaluate the threat. Threat force capabilities and the doctrinal principles and tactics, techniques and procedures (TTPs) employed. This is done by:

- Updating or creating threat models, ideally before deployment.
- Convert threat doctrine and operational patterns to graphics (doctrinal template). Doctrinal templates illustrate the deployment patterns preferred by the threat's normal tactics when not constrained by the battlefield's environmental effects.
- Describe in words the threat's NBC employment tactics.
- Identify high-value targets (HVTs). HVTs are assets the threat commander requires for successful mission accomplishment.
- Identify threat capabilities. Threat capabilities are the broad COAs and supporting operations the threat can take to influence the accomplishment of the friendly mission. They take the form of statements such as:

> Enemy has the ability to deliver chemical weapons by fixed wing, artillery, rockets, cruise and ballistic missiles.
> Enemy chemical units are well trained in NBC operations.
> Enemy has previously used NBC weapons.

During threat evaluation, the chemical staff, in coordination with the intelligence officer, determines the enemy type/composition(NBC capable units) in the AO/AI , disposition (command and control posts, threat training status),capabilities (ranges and effectiveness of NBC delivery systems, types of WMD available, NBC protective and detection equipment available), andintent (national policy and NBC employment doctrine). A nuclear-capable threat normally bases employment doctrine on weapon type, yield, and delivery systems available. How the enemy employs biological weapons is dependent on similar factors, usually agents and delivery systems available. Enemy chemical employment doctrine can be classified into three groups: terrain-oriented, force-oriented, or a combination of the two. A terrain-oriented threat will attempt to use chemical agents, particularly persistent agents, to restrict terrain or shape the battlefield. A force-oriented threat directly targets troop concentrations. Both nonpersistent and persistent chemical agents can be used in a force-oriented attack.

Step 3. Evaluate the Threat.

Chemical staff must assist the G2/S2 in determining :

- Enemy type and composition, particularly NBC capable units in the AO/AI.
- Enemy disposition, such as command and control posts.
- Threat training status, especially NBC training.
- Threat capabilities, such as NBC delivery system ranges, weapons of mass destruction available, protective and decontamination equipment available, and possible covert or terrorist operations.
- National and military policy regarding NBC employment.
- Any previous NBC weapons use.
- NBC employment doctrine
- Probable employment indicators (Appendices D and E).

Step 4. Determine threat COAs. The identification and development of likely threat COAs that will influence accomplishment of the friendly mission. Specific steps are:

- Identify threat's likely objectives and desired end state.
- Identify the full set of COAs available to threat.
- Evaluate and prioritize each COA.
- Develop each COA in the amount of detail that time allows.
  Identify initial collection requirements.

In this step, the chemical staff combines the information developed previously to identify possible enemy NBC employment courses of action. Ensure each NBC employment COA meets the five criteria outlined in FM 34-130: suitability, feasibility, acceptability, uniqueness, and consistency with doctrine.

Once the S2 has identified the complete set of COAs, he develops each COA into as much detail as the situation requires and time allows. The chemical staff must ensure their input is included. Each developed threat COA has three parts:

- Situation template (SITEMP).
- Description of the COA and options.
- HVT listing.

Situation templates are graphic depictions of expected threat dispositions should he adopt a particular COA. They usually depict the most critical point in the operation as determined by the intelligence and operations officers. They are used to support staff wargaming and develop event templates.

The intelligence officer begins with the threat model representing the operation under consideration. He overlays the doctrinal template on the products that depict the battlefield's environmental effects on operations, usually the modified combined obstacle overlay (MCOO).

The dispositions are then adjusted to account for the battlefield environment. He also depicts locations and activities of HVTs, points where forces would transition from

one formation to another, and potential assembly areas. He then develops time phase lines (TPLs) depicting threat movement based on doctrinal rates of movement, drawing them on the template to depict the expected progress of attacking forces, movement of reserves, and deep forces.

The description of COAs can range from narrative description to a detailed "synchronization matrix" depicting the activities of each unit and battlefield operating system (BOS) in detail. The intelligence officer will rely on staff experts, such as chemical officer, for help with each particular BOS.

After the intelligence officer identifies the set of potential threat COAs, the challenge is to determine which one the enemy will adopt. Initial collection requirements are planned to help answer this challenge. Identifying initial collection requirements revolves around predicting specific areas and activities, which, when observed, will reveal which COA the threat has chosen. These areas where key events are expected to occur are named areas of interest (NAI), see Figure 1-2.

An NAI can be a specific point, a route, terrorist target, industrial facility, or an area (as in the case of a predicted chemical strike). NAIs are used to confirm or deny enemy courses of action. The activities that reveal the selected enemy COA are called indicators An indicator can be a positive or negative threat activity that points toward threat vulnerabilities or the adoption or rejection of a particular capability. They may result from previous actions or from threat failure to take action. The chemical staff ensures templated NBC events become NBC NAIs and are placed on the situation template for each COA. When templating the use of enemy chemical agents, the chemical staff must identify enemy trigger lines or decision points. This information is also valuable in conducting mission-oriented protective posture (MOPP) analysis, designating time-driven MOPP levels and automatic masking criteria.

The differences between NAIs, indicators, and TPLs associated with each COA form the basis of the event template (EVENTEMP). The intelligence officer compares the NAIs and indicators associated with each COA against the others and identifies their differences, concentrating on the differences that provide the most reliable indications of adoption of each unique COA. He then marks the selected NAIs (from each COA) on the event template (Figure 1-3). The event template is the guide for collection efforts and reconnaissance and surveillance (R&S) planning.   It depicts when and where to collect the information indicating which COA the threat has adopted. This impacts the chemical staff by driving the reconnaissance tasking for available chemical assets.

> An excellent indicator for a threat COA is the placement of a persistent chemical strike prior to an enemy offensive operation. This is an area the enemy uses to shape the battlefield. He probably does not intend to use this terrain.
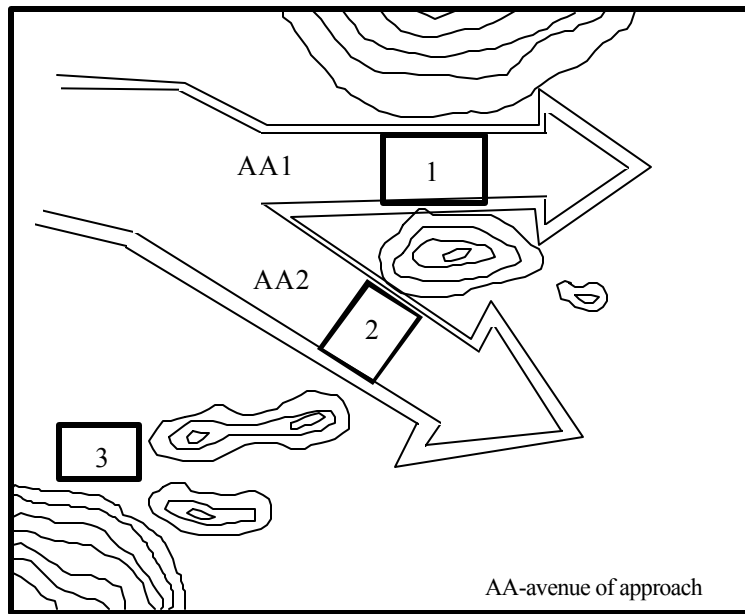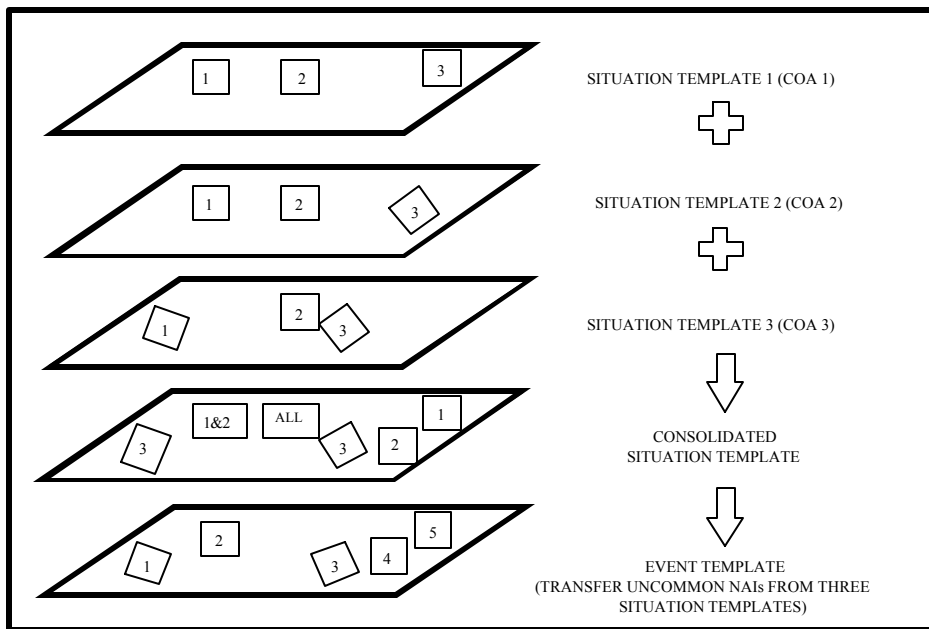
Figure 1-2. Named Areas of Interest.

Figure 1-3. The Event Template Process.

The event matrix supports the event template by providing details on the type of activity expected in each NAI, the times the NAI is expected to be active, and its relationship to other events on the battlefield. Its primary use is in planning intelligence collection.

The commander directs the intelligence effort by selecting and prioritizing intelligence requirements. They support the commander in conducting and planning

operations. The information the commander needs to visualize the outcome of current operations and the critical information the commander must understand to make timely decisions are called the commander's critical information requirements (CCIR). CCIR include information of both friendly and threat forces. These requirements focus the staff's efforts. It is the NBC staff's responsibility to assist the commander in prioritizing his WMD CCIR.

Threat COA models drive the wargaming of potential friendly COAs. They aid in decision support template development and other synchronization tools the staff uses during mission execution. As the chemical staff, you must coordinate with the intelligence section to ensure you understand threat doctrinal models to ultimately develop more detailed products and provide sound, timely advice to the supported commander.

During analysis and comparison of friendly COAs (staff wargaming), the staff identifies a set of intelligence requirements (IR) for each potential friendly COA. Each requirement supports a friendly decision expected to occur during execution of a COA. This is the basis of the command's list of intelligence requirements. To this list are added those received from higher units, in the form of intelligence acquisition tasks, and lower units, in the form of requests for intelligence. After arranging the list of requirements in priority order, the collection manager recommends the most important to the commander as priority intelligence requirements (PIR).

PIR are intelligence requirements that are critical to accomplishing the mission. They are usually related to the command's COA, becoming apparent during mission analysis and wargaming. They may, however, come from the intelligence requirements of higher or lower units. The commander approves the prioritized list of intelligence requirements and designates some of them as PIR. Only the commander can approve PIR.

Each PIR should come from the original list of intelligence requirements developed during wargaming. Hence, each should be focused, specific, and directly related to a friendly decision expected to occur during execution of the COA. Just as there are no standard situation templates or friendly COAs that will serve in all situations, there are no standard PIR. Good PIR have several things in common:

- They ask only one question.
- They focus on a specific fact, event, or activity.
- They provide intelligence required to support a single decision.

A good example for the chemical staff is-
- Will the enemy use chemical agents on our reserve force before it leaves AA Dragon?

Based on this PIR, the staff must wargame the command's response or reaction if the enemy does in fact use chemical agents on the reserve.

Step 4. Determine Threat Courses of Action

Chemical staff must:

- Template probable target areas for all COAs.
- Designate NAIs and overwatch responsibilities. NAIs include terrorist targets; N, B, or C industrial hazards; or routes, points, and areas of concern.
- Determine probable friendly ground point of penetration.

NBC IPB Summary

How do the NBC IPB efforts support the force? Once the initial IPB is completed (remember IPB is a continuous process), the information gathered drives:

- Vulnerability analysis.
- Automatic masking criteria.
- NBC threat status (FM 3-4, STANAG 2984).
- MOPP analysis.
- NBC protective measures.
- Chemical asset employment and task organization.

You, as the commander's advisor on NBC defensive operations, can provide a valid recommendation based on a logical thought process.

Once suspected strikes are templated, decontamination sites can be established to best support the force should it become contaminated. Stand-off detection, surveillance, and reconnaissance assets can be positioned to overwatch NBC NAIs or task organized to support a maneuver element, while smoke can be employed to counter the threat's capabilities.

IPB results and products are essential elements of the decision making process (see FM 101-5). Commanders and staffs use the decision making process to select a friendly COA and develop an operations plan (OPLAN), operations order (OPORD), or fragmentary order (FRAGO) to implement the COA.

Failure to conduct NBC IPB will result in failure to support your commander and the unit.