

Standardizing Chemical Units

—to enhance force effectiveness

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During the early days of the industrial revolution, craftsmen built or repaired machinery with great difficulty because there were never enough tools on hand. In those days, no standards existed for hand tools or for the bolts, screws, or other fasteners that held things together. Custom made nuts and bolts varied in size from factory to factory. There were no adjustable wrenches, so craftsmen had to carry many different wrenches and/or screwdrivers.

Early in this century, when industry adopted standard fixtures and tools, the work of craftsmen was greatly simplified: a machinist could travel from place to place, carry a limited number of tools, and successfully ply his trade. He could work anywhere — the age of standardization had arrived.

Today's Army resembles a large industry, characterized by constantly changing missions and frequently moving personnel. As the Army grows more complex, its doctrine, materiel, training, and force structure must be developed on a standard. Without standards, a soldier arriving in a new unit today would be like the 19th century machinist arriving at a new factory. It would take him weeks

to understand the organization, its tools would be unfamiliar to him, and previous training would not have adequately prepared him for his job.

Standardization is essential when proponents design future organizations, defend them to the leadership of the Army, and eventually see them programmed into the active or reserve force structure. In this challenging era of NBC and conventional threats, a cap on the Active Army of just over 700,000 spaces, and severe fiscal constraints, personnel and equipment must be organized to provide maximum combat effectiveness. This organizational effectiveness must be consistent, given the Army's worldwide missions, and must be measurable, to compare it to alternatives.

At the Chemical School, standardization of the chemical force structure is being actively pursued. The Commandant, as proponent for chemical organizations, has directed that units be designed to standard. The Director of Combat Developments has included standardization in his "top 10" combat development projects. In this climate, action officers and supervisors involved in organization development are constantly alert for

opportunities to standardize.

The following example points out the benefits from standardization. Last year the Chemical School was tasked to design a chemical organization for the Army's infantry division, five of which now exist in the National Guard. The concept statement for the division, which will fight as a follow-on or alongside heavy divisions, was examined. Potential threats it would face and capabilities of various chemical organizations to provide NBC support were also studied. When the analysis was completed, it was found that the Heavy Division Chemical Company (TOE 3-387J) would satisfy chemical force structure requirements for the division.

This concept was proposed to the US Army Combined Arms Center at Fort Leavenworth. Following preliminary approval, the design was approved for planning by DA and has been submitted for resourcing in the Total Army Analysis (TAA) 93 process. Eventually Army programming of this standard design will result in a savings in resources expended in organization design and force development as well as in training, materiel, and in the de-

velopment of doctrine.

Using a standard existing organization means a costly chemical unit design effort was avoided. Management of the force accounting system, an automated listing of all the Army's programmed units, will be simplified because an additional TOE will not have to be tracked in the Army modernization process. Increased expenditure of training resources in evaluation, analysis, design, development, and implementation of the systems approach to training will be avoided since training and evaluating chemical soldiers in infantry divisions will be essentially the same as in heavy divisions.

Although there may be quantitative increases in materiel, the standard unit will require no new line items of mission equipment. This will result in obvious materiel development savings. Costly doctrine development

will be minimized since doctrine for the heavy division unit will be close to that of the conventional infantry division.

Standardized chemical units and staff sections greatly enhance force effectiveness for the Army at large. When chemical staffs and units are designed and perform successfully during field operations, the military community tends to accept a certain structure as the necessary minimum staffing to get the job done. When a major headquarters such as a corps is redesigned, the correct structure of the corps chemical section can be decided upon quickly. To capitalize on this field experience, however, the Chemical School must present a unified, coherent position on the optimum structure of the section based on carefully developed rationale.

Army units become standard only when their design is based on

approved doctrine. Published field manuals normally are used to redesign existing organizations. For new organizations, however, the basis is frequently a concept statement related to combat requirements or battlefield deficiencies. These statements are written by school or integrating center proponents and published in a 525-series pamphlet after approval by TRADOC. This interim doctrine is often sent to the field as field circulars until it becomes formal doctrine as DA field manuals. Since the modernization process is dynamic and constantly changes with evolving doctrine, chemical force developers must work closely with doctrine writers in the Chemical School as well as other Army schools and centers. Other services also are frequently involved.

Shown in HMMWV application, the XM55, by the use of add-on modules, promises to provide smoke and decon.



Chemical officers and enlisted personnel in the field also play critical roles in standard organization development. DA Forms 2028 (Recommended Changes to Publications and Blank Forms) can be used to provide comments on doctrinal manuals and to recommend changes to TOE. Our Branch Training Team (BTT) is always looking for these type issues. If a BTT is on your installation, they provide another conduit for feedback to the Chemical School. Professional meetings and conferences, such as the Worldwide Chemical Conference, provide excellent opportunities for sharing ideas on improved organizations and doctrine. The key point is that field input is essential and is sought by doctrine and organization developers.

In this spirit, the Chemical School has done a lot to standardize chemical force structure since revitalization of the Chemical Corps began about six years ago. Three techniques have been used with some success: Reduce the number of composite chemical organizations; reduce the number of organization types, for example, the numbers of TOE; and make organizational elements identical in personnel and equipment structure.

To reduce the number of composite organizations, work has been done to incorporate cellular teams into the organizations they support. In the Army's 11 heavy divisions, the five-space TOE 3-500 JA NBC center cellular teams were incorporated into the division chemical section. This was done when the section was relocated from the division headquarters company to the division chemical company. This action will also apply to the conventional infantry divisions discussed earlier, providing the Army adopts the standard heavy division unit for that division.

The chemical units (NBC troops) of armored cavalry regiments were redesigned to incorporate TOE 3-500 JA NBC center teams, FA decon

teams, LA NBC recon teams, and the regimental chemical section into a single TOE unit. This provides the five regiments with a standard NBC organization capable of smoke, decon, and NBC recon in addition to NBC staff services. At present, the NBC organization in heavy brigades, infantry brigades, and theatre defense brigades is being redesigned. Under this plan, the brigade's final design will include NBC centers, NBC recon teams, and NBC decon teams in one unit. This plan will give the Army's 23 separate brigades a standard chemical organization.

The reduction in types of chemical TOEs has been less dramatic. This is partially due to increased roles for chemical forces since revitalization. Additionally, force constraints and caps on the size of certain organizations (for example armored cavalry regiments) have made it difficult to tailor forces to the exact size desired. As discussed above, cellular teams are being reduced. The only TOE now scheduled to completely disappear (which will not be replaced by another version) will be

the processing company (TOE 3-77H). It will not be a part of the force after 1987. Review of TOEs continues to eliminate those which are not viable in the Army of the eighties.

Making chemical organizational elements identical in size has been possible in a number of instances. A chemical section and NBC center composed of 13 spaces is standard for all divisions: heavy, infantry (light), airborne, and air assault. The infantry division discussed earlier should also contain that size chemical staff element at its headquarters. This structure has gained recognition as the minimum essential chemical staffing to perform two shift operations.

When the NBC recon platoon of the armored cavalry regiment was designed, it was given the same structure as the 20-space heavy division NBC recon platoon (which is being relocated from the cavalry squadron to the division chemical company). The dual purpose squads, which perform smoke/decon operations in airborne, air assault, motorized divisions, armored cavalry regiments, and the corps dual purpose

Dual Purpose Squad (Smoke/Decon) Chemical Company (Smoke/Decon) (TOE 03457L) Personnel Staffing

Smoke/Decon Squad

Squad Leader	SSG	54B	1
Chemical Operations NCO	SGT	54B	1
Chemical Operations Specialist	SP4	54B	4
Chemical Operations Specialist	PFC	54B	4
Total			10

The smoke/decon squad, as part of the dual purpose chemical company, provides corps augmentation support to light infantry divisions. Efforts continue to optimize this squad's design in light of the latest de-

velopmental chemical materiel such as the XM55 large area screening system and dual purpose smoke generating and decontaminating system (DPSG/DS).

company (supporting the infantry division—light) are standard at 10 personnel each.

The chemical infrastructure, where chemical officers and enlisted are assigned to non-chemical TOE organizations throughout the Army, provides another example of successful standardization. The field now relies on the expertise of standard NBC staffing—a chemical sergeant in each company, lieutenants and staff sergeants in each maneuver battalion, and a captain and sergeant first class in each maneuver brigade. NBC operations are enhanced in separate companies by a staff sergeant, and in non-maneuver battalions by a sergeant first class. The career development implications are significant. In the active Army alone, with greater than 50 percent of chemical soldiers assigned to this infrastructure, there

are invaluable opportunities for field service.

Work continues on standardization of the chemical force. The NBC recon platoon of the corps NBC recon company is being studied to determine if it can exactly duplicate heavy division and armored cavalry regiment NBC recon platoons. There is an on-going project in the School to standardize dual purpose platoons by making adjustments to the organic fuel supply squads. This will provide identical platoons for motorized and airborne/air assault divisions, along with corps dual purpose and armored cavalry regiment chemical companies. These are just two examples of a number of ongoing standardization projects.

Changes in mission equipment in chemical units present new opportunities for designing units to

standard. As the nuclear, biological, and chemical reconnaissance system (NBCRS) approaches fielding in the early nineties, conceptual NBC recon squads are being studied to determine the best organization design for that system. As development continues on a dual purpose smoke/decon system, conceptual force structure is being studied to maximize the effectiveness of that device. An item of mission equipment, like the developmental large area screening system, XM55 (capable of performing both smoke and decon), promotes the dual purpose squad design.

Personnel resources are a key to developing chemical units. Force analysis personnel are now studying the impact on the force of the merger of enlisted chemical specialties into a single MOS. It is too early to assess the overall impact of this action on chemical units, but discussion and analytical work is progressing to see if savings of resources or increases in unit productivity can be found.

Guided by awareness that force development is a dynamic field influenced by rapidly changing technology and limited financial and personnel resources, the Chemical School continues to design flexible, doctrinally-based chemical organizations to support the Army on the air-land battlefield.

Chemical Company Heavy Division (TOE 03157L) Chemical Staff Personnel

Division Chemical Section

Division Chemical Officer	LTC	74B	1
Assistant Division Chemical Officer	MAJ	74B	1
Senior NBC Staff NCO	SGM	54B	1
NBC Staff NCO	SFC	54B	1
Clerk/Typist	SP4	71L	1

NBC Center

Chemical Staff Officer	CPT	74B	1
NBC Center Director	CPT	74B	1
Chemical Operations NCO	MSG	54B	1
NBC Staff NCO	SFC	54B	1
Operations Sergeant	SFC	54B	1
NBC NCO	SSG	54B	2
Clerk/Typist	SP4	71L	1
Total			13

The current design for the chemical staff of heavy divisions, shown above at 13 spaces, provides a minimum standard capability to support wartime

NBC operations. This also serves as a point of departure from which to develop chemical staffs for other large Army organizations.

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