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SUMMARY OF MAJOR EVENTS
and
PROBLEMS
United States Army Chemical Corps (U)

Fiscal Year 1958

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March 1959

U.S. Army Chemical Corps Historical Office
Army Chemical Center, Maryland

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SUMMARY OF MAJOR EVENTS AND PROBLEMS
(Reports Control Symbol CSHIS-6)

UNITED STATES ARMY CHEMICAL CORPS

Fiscal Year 1958

U. S. Army Chemical Corps Historical Office

March 1959

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Summary of Major Events and Problems
Fiscal Year 1958

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MANAGEMENT

(U) During fiscal year 1958 the Chemical Corps continued to carry out the mission defined in AR 10-5, 22 May 1957. That definition reads as follows:

> The Chief Chemical Officer studies and investigates chemical, biological, and radiological warfare, and develops, provides, and services material and equipment pertaining to these types of warfare required by the Army and, as assigned, for the Navy and Air Force and for foreign aid programs.

In carrying out this mission the Chief Chemical Officer reported directly to the Deputy Chief of Staff for Logistics (DCSLOG). He provided technical and scientific advice and assistance to the Army General Staff, the United States Continental Army Command (USCONARC), and to other agencies of the Department of the Army (DA) on training, equipping, and organizing troops for offensive and defensive chemical, biological, and radiological (CBR) warfare. He commanded those troops which were allocated to him and those organizations, activities, and installations assigned to him.[1]

[redacted] In a word, the Chief Chemical Officer was responsible for maintaining a state of readiness for CBR warfare. How successful was he in maintaining that state of readiness? Perhaps the best answer to that question was contained in a biennial report of the Chief Chemical Officer

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1 Compare OCCm10, Estimate of CBR Situation 1958, p. 1 and 1959, p. 1.

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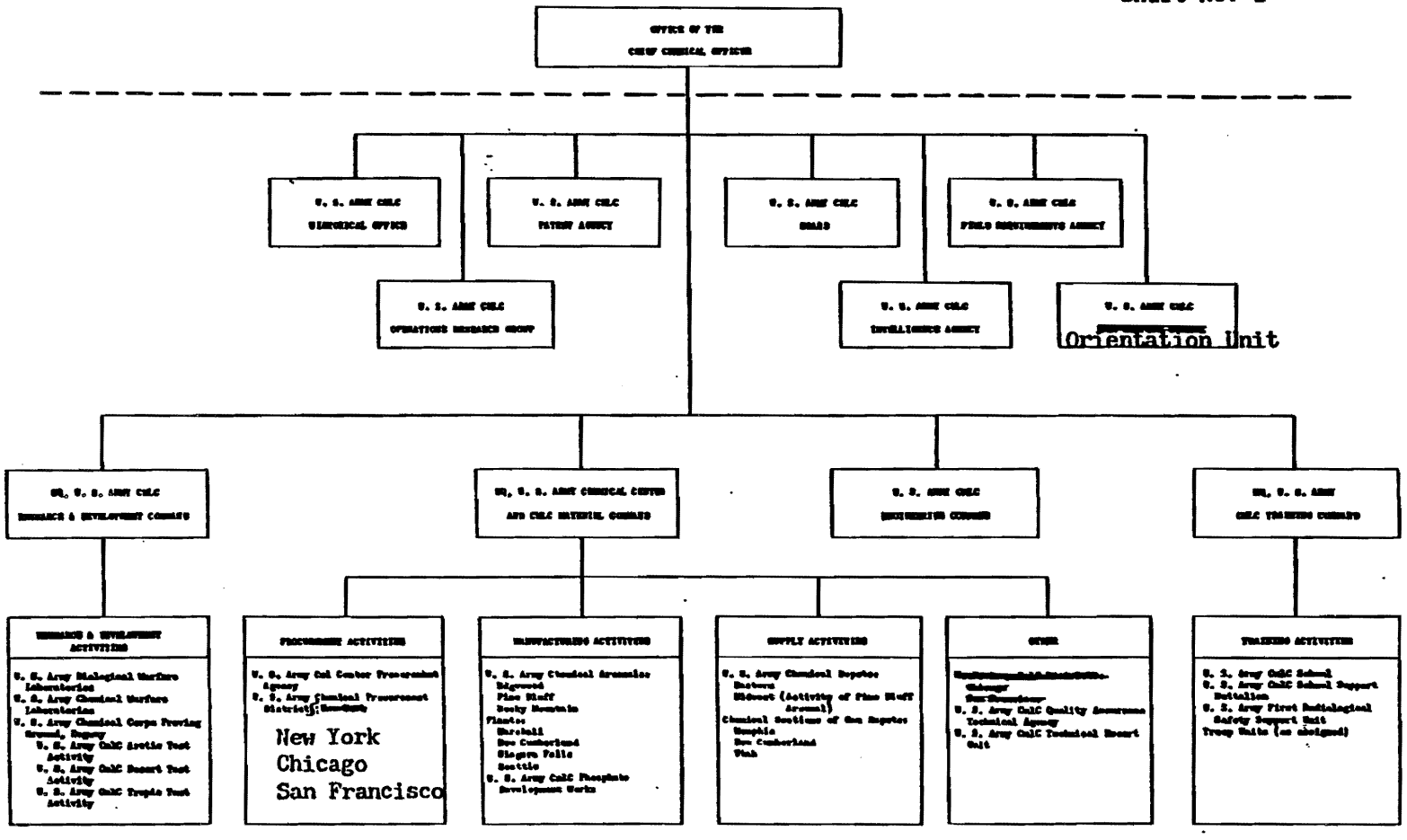
U. S. ARMY
CHEMICAL CORPS

Chart No. 1



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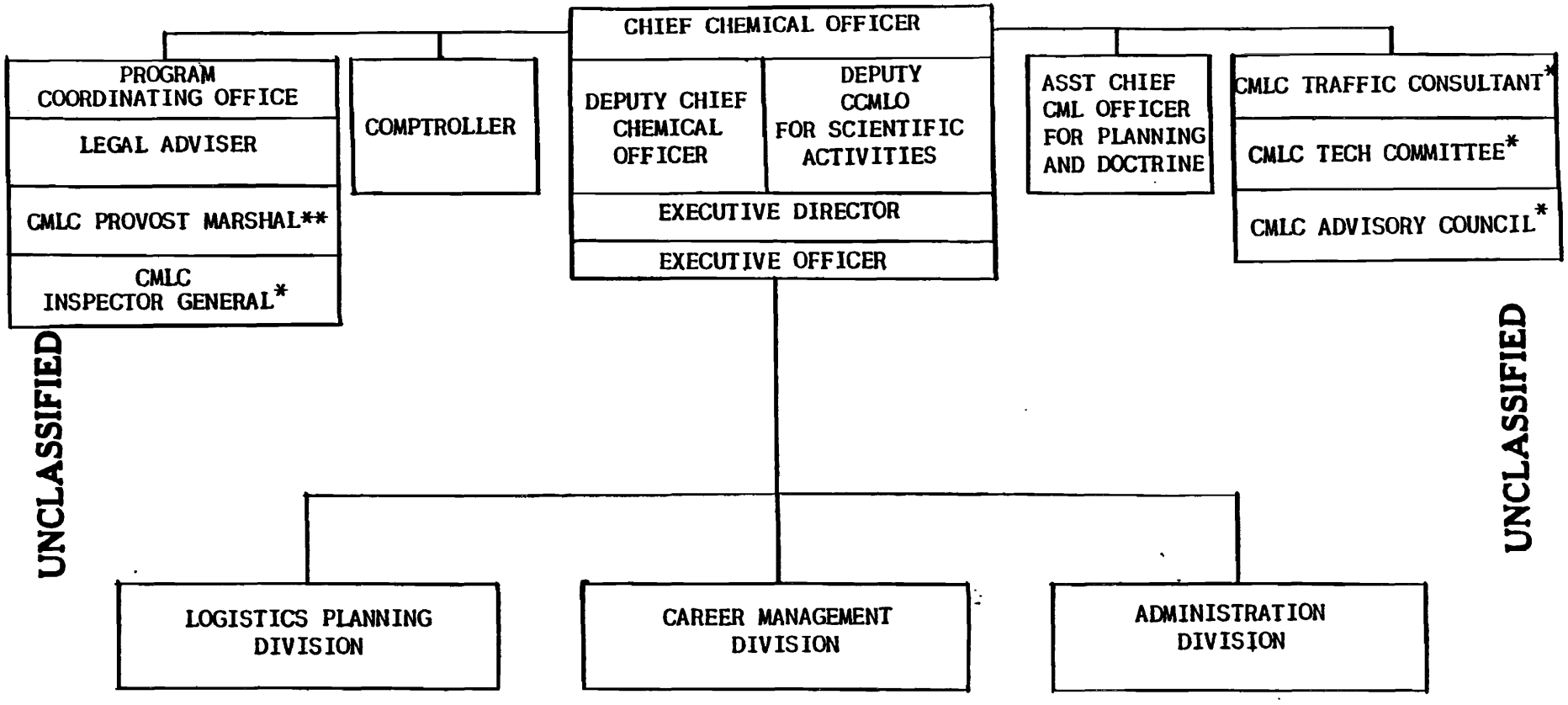
as of 30 Jun 58

HEADQUARTERS, DEPARTMENT OF THE ARMY

OFFICE OF THE CHIEF CHEMICAL OFFICER



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* Located outside Washington
** Located in part outside Washington

30 June 1958

Chart No. 2

[redacted]

sent to the Deputy Chief of Staff for Logistics in June 1958.[2] In that report Major General William M. Creasy presented what he considered the "credit" and "debit" side of the ledger so far as the CBR situation was concerned. On the credit side he listed such items as the modification of the U.S. national policy on the use of chemical warfare and biological warfare, significant advances in research in the CBR field, the existence of a plant to produce one type of nerve gas (GB) and a pilot plant to produce another type (VX), the completion of a BW plant which had been placed on a 90-day ready basis, the accumulation of a limited quantity of anticrop warfare agents and an increased awareness of the potentialities of CBR munitions on the part of higher authority.

[redacted]n the debit side General Creasy listed a half dozen items. He noted that the public was not adequately informed on the proper place of CW and BW in the overall national defense effort and consequently was not prepared to cope with CBR attack, that CW-BW weapons in being were too few, that anticrop and antianimal research programs had been abandoned, that critical installations throughout the country were highly vulnerable to covert BW and even CW attack, that the national policy on CBR was so secret that U.S. allies were confused as to its intentions, and that the U.S. had not integrated its NATO allies in its CBR plans and programs.

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2 Biennial Report of Major General William M. Creasy, Chief Chemical Officer, w/ltr of trans to DCSLOG, 2 Jun 58, sub: Second Biennial Report of Major General William M. Creasy, Chief Chemical Officer, June 1958. Hereafter cited as Biennial Rpt, Maj Gen Creasy. This report was reproduced by OCCmlO.

[redacted] Upon taking stock of the credit and debit aspects of the situation, the Chief Chemical Officer's reaction was not overly optimistic. On balance, then, he stated,

> the cold, brutal fact is that despite the Corps' efforts we are little more prepared for chemical and biological warfare in 1958 than we were in 1950. More alarming, based on the best available intelligence, there is every indication to believe that our CBR capabilities are rapidly becoming inferior to the enemy, who appears to be ever-increasing his emphasis in this area.

[redacted] The tone of the report of the Chief Chemical Officer is that of a thoughtful crusader seriously concerned over the state of CBR readiness and resolved to do all in his power to rectify the condition. General Creasy's attitude was shared generally by members of his staff and other elements of his organization. In carrying out its functions the Corps labored under no illusions. It realized that in the fulfillment of its mission notable objectives had been achieved, but that there were still a number of handicaps that had to be overcome.

Career Management

Civilian Personnel

(U) FY 1958 was a year of declining workload and limited resources in many sectors of Chemical Corps activities. The inevitable consequence of this situation was a substantial reduction in the civilian work force. Over 1,200 reduction in force actions were taken in the course of the year, 800 of them in the three months of July, September, and November 1957. After the mid-year point reductions in force slackened, and by the end of the year the size of the civilian work force had found a new level at about

8,600 spaces, some 2,000 below that of the year before. The bulk of the losses were in Wage Board positions, particularly at the arsenals. The establishment of a Corps-wide referral plan for all employees involved in reduction in force actions made possible the retention of some workers to fill vacancies elsewhere.[3]

[redacted]Reduction of spaces had an indirect effect on a newly established program for co-ordinating recruitment of junior professional employees at the college level. The program was duly launched in the summer of 1957, with two Chemical Corps installations, Army Chemical Center and Dugway Proving Ground, assuming recruitment responsibility for the eastern and western halves of the country respectively. The subsequent cut-back in spaces, though concentrated for the most part in non-professional fields, was severe enough to react adversely on the recruitment drive, limiting the immediate usefulness of the new system.[4]

Civilian Training. [redacted]Training programs also felt the effects of reductions in force. Plans for setting up training programs to meet the needs of specific positions, based on the findings of an earlier survey, required major revisions in many cases after reductions in force had altered the personnel distribution on which these needs were based.

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3 (1) Interv, Hist Off with (b)(6) Career Management Div, OCCml0, 12 Jan 59. (2) Interv, Hist Off with (b)(6) Off of Compt, OCCml0, 17 Dec 58.

4 Flint-Holland interv, 12 Jan 59.

Schedules for personnel to attend training courses sometimes experienced similar disruption. In at least one instance, the Army's new Logistics Management Course at Fort Lee, mandatory quotas of students proved to be unrealistic in the light of current conditions. Cut-backs in the work force had made it impossible for the corps to fill its quotas, and an adjustment had to be made.[5]

Early in the year the Chemical Corps published a regulation[6] setting standards for introductory, basic, and advanced training for supervisors. The regulation included among its general goals the improvement of a "managerial climate," and described proficiency in the art of decision-making as one of the specific objectives of supervisor training. In these respects it marked an advance in the direction of professionalized supervision.[7]

Civilian Career Planning. The task of implementing the civilian career management structure sketched by DCSLOG task forces in the previous year[8] was measurably advanced during FY 1958. The tentative identification

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5 (1) Ibid. (2) Interv, Hist Off with (b)(6) Career Management Div, OCCmlO, 12 Jan 59.

6 CCR 350-3, 4 Sep 57.

7 Interv, Hist Off with (b)(6) Career Management Div, OCCmlO, 13 Jan 59.

8 Summary of Major Events and Problems, U.S. Army Chemical Corps, FY 57, pp. 10 - 11. Hereafter cited as Summary of Major Events and Problems with appropriate fiscal year.

of nineteen career fields made in FY 1957 was followed by more specific action. A succession of task forces, including specialists in the respective fields, undertook the responsibility of working out firm career field identifications in several areas, beginning with engineering. Before the middle of the year, four engineer career field identifications had been made: chemical, mechanical, industrial, and facilities engineering. The engineer area task force that accomplished these identifications was the first of its kind in the Chemical Corps, and had to pioneer in the solution of many of the problems of method and technique. Subsequent task forces identified the biological sciences career field and three fields in the physical science area.[9]

One of the results of the task force operations was the discovery that of the standard ten primary elements of a career management program, eight could be considered as susceptible of common application to all career fields. This led to the planning of a generalized Chemical Corps Career Management Guidebook to cover implementation of these eight elements, leaving only the remaining two -- development of career pattern and development of training programs -- to be worked out individually for each career field. The projected guidebook was scheduled for publication in the first half of FY 1959. with the individual elements for each field appearing in due

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9 Interv, Hist Off with Mrs Frances Hart, Career Management Div, OCCmlO, 13 Jan 59.

course as appendices.[10]

(U) The Chemical Corps Civilian Personnel Career Management Inventory, providing a central data file on all Corps graded civilians down through GS-5, was completed during the year. Appropriate items from the basic inventory file were transferred to IBM cards. The inventory proved to be of immediate value in providing career field task forces with more accurate data on career patterns and backgrounds than would otherwise have been available.[11]

Military Personnel

As of 30 June 1958 the officer strength of the Chemical Corps, world-wide, was 1,250, well below the figure of 1,409 recorded a year before. Actual procurement of officers ran about 100 below scheduled figures. Another factor in reducing officer strength to "austerity" levels was the reduction in force of Reserve officers on extended active duty, an action ordered by DA at the outset of the year and accomplished by November. Altogether, 41 field grade officers, 43 company grade officers, and one warrant officer were relieved by the Corps in meeting its assigned quota. Somewhat less than 10 percent of the Corps' active duty reservists

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10 (1) Ibid. (2) (b)(6) interv, 12 Jan 59. See Summary of Major Events and Problems, FY 57, p. 10, for enumeration of the ten elements.

11 (1) Hart interv, 13 Jan 59. (2) Interv, Hist Off with Miss (b)(6) (b)(6) Career Management Div, OCCml0, 22 Jan 59.

were affected.[12]

The enlisted strength of the Chemical Corps on 30 June 1958 was 4,061, about 250 below the previous year, and roughly 4 percent below the current authorized strength of 4,232. Enlisted Scientific and Professional Personnel (ESPP) losses accounted for 167 of the net total, with 877 ESPP personnel recorded as of 30 June. The rate of decline of ESPP strength tended to accelerate in the latter part of the year.[13]

The new responsibility for directing a re-enlistment program, placed upon the Technical Services in the preceding year,[14] was implemented by the Chemical Corps during the first quarter of FY 58 by the publication of an appropriate regulation.[15] Later in the year a conference of command and installation re-enlistment officers was held at Army Chemical Center. At the end of its first year the Chemical Corps re-enlistment program had produced a rate of re-enlistment which ranked the Corps second only to the Medical Service among the Technical Services, despite the exceptionally high proportion of ESPP's in the Corps' enlisted strength. Re-enlistment rates of

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12 Interv, Hist Off with [redacted], Career Management Div, OCCmlO, 21 Jan 59.

13 Quart Hist Rpts, Career Management Div, OCCmlO, FY 58.

14 Compare Summary of Major Events and Problems, FY 57, p. 17.

15 CCR 601-1, 9 Sep 57.

Regular Army personnel in the Chemical Corps averaged about two-thirds of those eligible,[16] a level exceeded only by overseas commands.

Military Training. The Chemical Corps made six nominations to DCSLOG for FY 1958 appointments to senior service schools, in expectation of receiving three or four appointments. The Corps ultimately gained five appointments, one to the National War College, two to the Industrial College of the Armed Forces, and two to the Army War College. Seven Chemical Corps officers were appointed to the Command and General Staff College and one to its Air Force counterpart, the Air College. This compares favorably with the five equivalent appointments allotted to the Corps in FY 1957.[17]

Studies of officer training needs undertaken during FY 1958 indicated some major shortages in terms of prerequisite educational background in certain critical areas. The most important deficiencies were found in the numbers of officers whose college training qualified them for courses in Nuclear Effects Engineering and graduate study in physics.[18]

A new development in the training of enlisted personnel was in the planning stage at the end of FY 1958. This was the implementation by the

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16 Interv, Hist Off with (b)(6) Career Management Div, OCCmlO, 13 Jan 59.

17 Duncanson interv, 12 Jan 59.

18 Interv, Hist Off with (b)(6) Career Management Div, OCCmlO, 13 Jan 59.

Chemical Corps of an Army plan for college training of selected enlisted men in civilian institutions. The Enlisted College Training Program became official in March 1958 by regulation.[19] Final selection of trainees was to be made by The Adjutant General, and selectees would be required to guarantee re-enlistment. The ultimate objective appeared to be the production from within the ranks of the Regular Army of enlisted men qualified for some of the specialized functions performed in the Army of the United States (AUS) by ESPP's.[20]

Military Career Planning. The formal development of a precise Job Equivalents System for officers, begun in FY 1957,[21] was not pursued in the following year, the pressure of higher priority tasks preventing, though it remained under study. The formulas governing officer career management and assignment planning in FY 1958 continued, therefore, to be those found in the appropriate Army publications. None the less, the general principles underlying the Job Equivalents System were utilized as far as possible in planning assignments.[22]

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19 AR 350-260, 13 Mar 58.

20 (b)(6) interv, 12 Jan 59.

21 Summary of Major Events and Problems, FY 57, pp. 13 - 14.

22 (b)(6) interv, 12 Jan 59.

Machine processing made an important contribution during the year in the handling of personnel data. The Chemical Corps Officers Personnel Reference Data Book, previously assembled manually, was printed from machine record cards for the first time in FY 1958. This first run utilized cards obtained from the records of The Adjutant General, edited to meet the format desired. For subsequent editions, the first of which was scheduled to appear in September 1958, plans were made to prepare cards from Chemical Corps records, so as to have data more nearly meeting requirements.[23] Career management personnel also worked on the problem of coding individual officer qualification data in an effort to adapt automatic data processing methods to the needs of officer assignment planning. A simplified occupational profile code went into use during the year as an interim measure, pending further amplification and refinement.[24]

Financial Management

The characteristic atmosphere of FY 1958 was one of fiscal austerity. At the outset of the year the Army, faced with stringent fiscal limitations deriving from efforts to slow the increase in the public debt, elected to implement these limitations by imposing rigid controls on lower echelons. The Chemical Corps, together with the other Technical Services,

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23 (1) Ibid. (2) Owens interv, 22 Jan 59.

24 (b)(6) interv, 13 Jan 59.

accordingly received instructions from DA to reduce expenditures. Specific net expenditure limitations were placed on all disbursing officers. When the mid-year point was passed, there was some relaxation of direct controls. As of 1 January 1958 the net expenditure limitations were removed and there was a general tendency toward returning to the Chiefs of the Technical Services their usual degree of fiscal responsibility. But the prevailing stringency in available resources continued through the year.[25]

One of the major goals of Army financial management is an integrated management system uniting existing systems of budgeting, accounting and programming, and providing a uniform costing basis for cost-of-performance budgets. Toward the end of FY 1957 DA published an interim management structure, function by function, for O&M appropriations, to be used as a guide for FY 1958.[26] An amendment issued somewhat later made it clear that industrially funded installations were meant to be included "to the extent practicable."[27] These directives created a detailed activity structure for the nontactical operations of the Army, coded each activity

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25 (1) Interv, Hist Off with (b)(6), Off of Compt, OCCmlO, 9 Dec 58. (2) Quart Revs, Jul - Sep 57, pp. 4 - 5; Jan - Mar 58, p. 4.

26 Ltr, TAG, AGAM-P(M)300 (18 Apr 57) COMPT-M, for Dist to Off SA, CofS & Principal Staff Off and Comdrs 23 Apr 57, sub: Interim Management Structure, FY 1958 O&M Appropriation Area.

27 Ltr, TAG, AGAM-P(M)300 (18 Jun 57) COMPT-M for Dist to Off SA, CofS & Principal Staff Off and Comdrs 26 Jun 57, sub: Interim Management Structure, FY 1958 O&M Appropriation Area.

in accordance with the existing O&M budget code, and ordered recording of manpower, performance, and cost data on that basis for FY 1958. The Chemical Corps, which had just completed extension of the Army Industrial Fund (AIF) to all of its installations, found itself in an equivocal position. On the one hand, each industrially funded installation was accounting for its costs and resources under an individual system matching its organizational pattern and designed to fit its own organizational needs. On the other hand, the forthcoming Army Command Management System, as presented in the interim structure, required an accounting by function, according to a single Army-wide pattern. The essential discrepancy, therefore, was that involved in superimposing a functional costing system upon a pre-existing organizational system.

For the time being, at least, the difficulty was resolved by action at DCSLOG level. Although the basic Army system was implemented for the logistics area early in the year as the Logistics Command Management System,[28] the Chemical Corps was informed its installations were not to install separate accounting systems on the new model. The new costing requirements were to be met from existing data as far as applicable, with interpolated or estimated figures to fill the gaps.[29] While regulations appeared during the

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28 Log Dir 259-1, 6 Sep 57, sub: The Logistics Command System.

29 (1) Ltr, CmlC Compt, for distribution "A" 30 Jun 58, sub: Chemical Command Management System. (2) Interv, Hist Off with (b)(6) Off of Compt, OCCml0, 10 Dec 58. (3) Interv, Hist Off with Lt Col William J. Fabritius, Off of Compt, OCCml0, 9 Dec 58.

(Thousands of dollars)

Source/Budget Classification	Obligations		Expenditures			
	FY 1958 Program	Cumulative Obligations	Total Funds Avail	Total Plan FY 1958	Actual	Actual to FY 1958 Plan
TOTAL - CmlC	$107,914	$80,790	$161,855	$97,725	$91,976	95.1%
BY BUDGET CLASS:						
Operation & Maint (DA CmlC)	23,691	23,748	28,555	23,335	23,233	99.6%
Tactical Forces (2000)	2,907	2,904	3,644	2,679	2,542	94.9%
Training Activities (2100)	2,586	2,608	2,751	2,220	2,283	102.8%
Procurement Operations(2210)	6,967	7,015	8,692	7,284	7,631	104.8%
Opn of Supply Depots (2220)	3,503	3,500	4,536	4,350	3,989	91.7%
Opn of Supply Mgt Off (2230)	215	215	215	183	198	108.2%
Reserve Ind Facilities (2240)	5,867	5,867	6,305	4,915	4,997	101.7%
Transportation Svc (2250)	139	138	163	199	143	71.8%
Maj Overhaul & Maint Mat (2300)	789	783	1,488	887	794	89.5%
Medical Activities (2400)	3	3	3	2	3	150.0%
Army-Wide Activities (2500)	704	706	747	605	650	107.0%
Army Reserve & ROTC (2600)	11	9	11	11	3	27.3%
Procurement & Production	46,718	20,619	82,858	34,601	30,060	86.9%
DA (CmlC)	43,665	17,811	57,276	15,100	13,207	87.5%
Other Agencies	3,053	2,808	25,582	19,501	16,853	86.4%
Research & Development	35,867	35,106	48,676	38,566	37,882	98.2%
DA (CmlC)	33,741	33,491	43,259	35,200	35,259	100.2%
Other Agencies	2,126	1,615	5,417	3,366	2,623	77.9%
PSSMP (DA CmlC)	1,319	1,204	1,433	1,160	737	63.5%
MCA (DA CmlC)	319	113	333	63	64	101.6%
BY SOURCE:						
Chemical Corps	102,735	76,367	130,856	74,858	72,500	96.9%
Air Force	616	603	10,160	8,541	5,325	62.3%
Navy	2,388	2,112	7,796	4,241	3,680	86.8%
Miscellaneous	2,175	1,708	13,043	10,085	10,471	103.8%

Source: Quart Rev, Apr - Jun 1958, p. 90.

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year formalizing the Army management structure on the new pattern,[30] the scheduled appendix to AR 1-11 covering AIF installations was never published, and the interim arrangements were still in force at year's end.

Funding

The Chemical Corps obligation program for FY 1958 totaled $107,914,000, but of this amount $24,763,000 carried under Procurement and Production, Army, against an anticipated contract for a major new facility was withdrawn late in the year for subsequent reprogramming. The obligation rate for the remaining funds in the program was 97 percent. Actual expenditures came to 95 percent of the total FY 1958 expenditure plan. Expenditure rates for P&PA, went below 90 percent as a result of late cut-backs in certain areas, but the very high rates for O&M funds, approaching 100 percent, brought the general average up to a satisfactory level. Carryover of funds into FY 1959 amounted to $40,667,000, as compared with $64,000,000 carried over the previous year, marking another substantial reduction in the backlog of unexpended funds.[31]

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30 (1) AR 1-11, 17 Jan 58. (2) AR 11-46, 30 Apr 58.

31 (1) Quart Revs, Apr - Jun 58, pp. 4, 90 - 91; Jul - Sep 58, p. 51. (2) See Table 1.

Army Industrial Fund

FY 1958 was the first in which all of the Chemical Corps' five major installations operated under the AIF. The extension of the AIF to the Army Chemical Center (ACC), accomplished at the outset of the year,[32] proved to be generally satisfactory. In the area of research and development, one which had been a major problem in the preliminary planning for the Fund at ACC, the first six months of AIF costing and billing methods indicated an overcharge in support payments sufficient to justify reprogramming some $300,000 from support to mission activities.[33] The original capitalization of ACC underwent a turnover some 6.14 times during the year for a total yearly business approximating $30,000,000. This met forecasts fairly closely. The expenditures of the Chemical Corps branch of the Fund in general were reasonably close to forecasts. Deviations were in large measure the consequence of tight expenditure restrictions imposed early in the year on most activities. These had the effect of reducing the volume of business somewhat during the first quarter.[34] The overall tendency toward contraction made itself felt in the repeated return of excess cash to Army unallocated reserve from AIF capital funds. Returns from Fort Detrick, Pine Bluff Arsenal and Rocky Mountain Arsenal were virtually sufficient to offset

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32 Summary of Major Events and Problems, FY 57, pp. 24 - 27.

33 Interv, Hist Off with (b)(6) Off of Compt, OCCml0, 9 Dec 58.

34 Ibid.

the additional capital generated by the ACC charter at the beginning of the year.[35]

During FY 1958 the Chemical Corps Comptroller began work on an Industrial Fund Accounting Manual for the Corps. This project was designed to bring together in one document the various accounting methods set up for the individual AIF installations in such a way as to have them implement a uniform accounting policy. In so doing it would, of course, by prescribing enough detail to insure compatibility, modify the existing individuality of the installation methods, each of which was based on separately evolved internal accounting manuals, but this modification was intended to be minimal. The work was begun after consultation with the installations. It proceeded without the benefit of formal DA guidance, there being no uniform policy manual for the AIF as a whole. Publication, following approval of the Comptroller of the Army, was scheduled for the second quarter of FY 1959.[36]

Army Stock Fund

(U) The tendency toward centralization of supply, noted in the previous year as the basis for the establishment of National Inventory Control Points

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35 Chemical Corps Budget Digest, FY 1959, p. 34, (A publication prepared annually by the Office of the Comptroller, OCCm10).

36 (1) Quart Hist Rpt, Off of Compt, OCCm10, Jan - Mar 58. (2) Interv, Hist Off with [redacted] Off of Compt, OCCm10, 17 Dec 58. The manual was published on 16 Dec 58.

in CONUS,[37] continued into FY 1958. It was manifested in the merger of the Chemical Stock Fund branch at Army General Depot, Southern European Task Force (SETAF), established only the year before, with the original U.S. Army, Europe (USAREUR) branch. This action, which became effective as of 30 June 1958, virtually extended the Inventory Control Point system to Chemical Corps supply in Europe. The six station level Stock Fund branches previously established in Third Army area[38] continued to operate despite the trend. Army plans at the end of the year envisaged a separate Zone of Interior station stock fund which would absorb such local Army Stock Fund (ASF) branches and enable the Stock Fund to function ultimately as an exclusively "wholesale" distribution mechanism.[39]

The tightened austerity climate of FY 1958 was reflected in the Chemical Corps Stock Fund area by a DCSLOG directive early in the year setting a $1,800,000 net negative expenditure target for the fund. This meant that the practice of "living off the shelf" -- meeting supply demands from inventory without a corresponding level of new procurement -- was to continue for another year. The fact that the cash surplus target was set as

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37 Compare Summary of Major Events and Problems, FY 57, pp. 30 - 31.

38 Summary of Major Events and Problems, FY 56, pp. 59 - 61.

39 (1) Interv, Hist Off with (b)(6) Off of Compt, OCCmlO, 9 Dec 58. (2) Quart Hist Rpt, [illegible] Apr - Jun 58.

low as it was (considering that $11,000,000 had been turned back as surplus by the Chemical Division of the Stock Fund during the previous three years) indicated forecasts of a high degree of austerity for consumers as well as suppliers. The relaxation of expenditure ceilings later in the fiscal year increased the Stock Fund's level of business well beyond early expectations. In consequence a total of $3,000,000 in surplus cash was accumulated and turned back into Army unallocated reserve. This sum brought the four-year total of cash turn-backs to $14,000,000. It was expected that FY 1959 Stock Fund expenditures would have to increase substantially as the process of living off the shelf approaches its limit.[40]

The Chemical Division of the Stock Fund added eleven items to its inventory during FY 1958. Some of these were transferred from other appropriations. Others, such as the M15 Breathing Apparatus, were new and will constitute new procurement responsibilities.[41]

Fixed Asset Accounting

(U) The report for FY 1957 took note of Chemical Corps preparations for a system of fixed asset accounting in anticipation of a future DA

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40 (1) Quart Hist Rpt, Off of Compt, OCCml0, Jul - Sep 57. (2) Quart Rev, Apr - Jun 58, pp. 8, 92. (3) (b)(6) interv, 9 Dec 58.

41 Strother interv, 9 Dec 58.

requirement for financial control of capital property.[42] During FY 1958 each Chemical Corps installation carried on fixed asset accounting under procedures meeting its own needs and conforming to Corps standards. While DA policy requires financial controls of this sort, no action was taken during the year to set up Army-wide criteria for fixed asset reporting, despite earlier expectations. DCSLOG did require submission of annual reports on those fixed assets of the Army which were in the hands of contractors. The first such report was prepared by the Chemical Corps for FY 1958 and submitted in the first quarter of FY 1959.[43]

Administrative Services

Technical and Public Information

Throughout FY 1958 the goal of the Chemical Corps in the field of public information continued to be the creation of maximum public awareness of chemical warfare potentialities consistent with current security standards. The policy of the Chief Chemical Officer and of his Technical Liaison Branch, therefore, has been to expedite the flow of information from the Corps to technical and news media. In the course of the year the Corps was somewhat more successful in clearing information

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42 Summary of Major Events and Problems, FY 57, p. 30.

43 (1) (b)(6) interv, 9 Dec 58. (2) Quart Hist Rpt, Off of Compt, OCCmlO, Jul - Sep 58.

through Army and Defense echelons than it had been in previous year.[44]

A number of major news releases on Chemical Corps activities reached the general public during the year. Notable among these were the announcements of the E13 canisterless protective mask, a new germicidal gas (beta-propiolactone), the Vertical Smoke Curtain, and the psychochemicals as possible military agents. The E13 mask was also the subject of a Signal Corps film strip available for television and newsreel release.[45] Manuscripts processed by the Technical Liaison Branch for Department of Defense review and release to the public totaled 663 for the fiscal year. Several technical manuscripts, dealing with unclassified items or processes of potential use to industry, went to the Office of Technical Services, a Department of Commerce agency which acts as a clearing house for Government releases of industrial interest. The Branch continued its practice of distributing information packets, containing releases on Chemical Corps equipment, recent speeches by Corps personnel, and the like, to officers on detached service and to Chemical Corps installations.[46]

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44 (1) Compare Summary Report of Major Events and Problems, FY 1955, pp. 11 - 12. (2) Interv, Hist Off with [(b)(6)], Admin Div, OCCml0, 18 Dec 58.

45 (1) Quart Rev, Apr - Jun 58, pp. 24 - 25. (2) Kley interv, 18 Dec 58.

46 Quart Rev, Apr - Jun 58, pp. 24 - 25.

The Chemical Corps Exhibit was displayed at 19 locations throughout the country to over a million visitors. During the height of the Exhibit season, summer and early autumn, it was shown to exceptionally large crowds, particularly at the Los Angeles County and the California State Fairs. Later in the year the Exhibit underwent refurbishing and modernization. Meanwhile a second exhibit unit was planned and activated. This new unit was assembled from reconditioned exhibit panels, together with a few new ones, in order to provide Chemical Corps representation in the All-Army Exhibit during its tour in the spring of 1958. The original Exhibit was ready for renewed public appearances in time for the 1958 observance of Armed Forces Day.[47]

The Chemical Corps policy of furthering good relations with communities adjacent to its installations was stressed during the year through such means as maintaining contacts with local civic groups and providing guided tours through facilities. The major event in this field came at the end of the fiscal year, when the Corps marked its fortieth anniversary with public ceremonies and displays at Chemical installations.[48]

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47 (1) Quart Revs, Jul - Sep 57, p. 34, Apr - Jun 58, p. 24. (2) Quart Hist Rpt, Admin Div, OCCmlO, Jan - Mar 58.

48 (b)(6) interv, 18 Dec 58.

Safety

Chemical Corps accident and injury statistics for FY 1958 presented a mixed picture. The unusually low military accident frequency rate of the preceding year was not maintained, the figure rising from 2.2 to 2.7 per 100,000 man days, slightly above the assigned 2.5 ceiling. On the other hand, the civilian accident frequency rate, which had remained above 4 per 1,000,000 man hours for some years past, dropped to a little under 3.5, a marked improvement and well under the DA ceiling of 3.8. The frequency of motor vehicle accidents continued the decline registered in the previous year, dropping from 0.5 to 0.4 per 100,000 miles of operation, against a DA ceiling of 0.7. Despite the favorable overall results in the area of civilian injuries, the rate of occurrence of accidental infection at the Fort Detrick BW laboratories remained relatively high, totaling over one fourth of all civilian injuries recorded by the Corps. A study of this problem was scheduled for FY 1959.[49]

In the course of FY 1958 the Chemical Corps implemented its special responsibilities in the field of radiological safety. Six Chemical Corps installations established Radiological Monitoring and Decontamination

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49 CmlC Safety Program: Annual Report, FY 1958.

Teams in accordance with plans made in FY 1957.[50] Men from each team attended a training program at Fort McClellan in the second quarter of the year. By the end of FY 1958 the teams had acquired most of their major equipment and completed "dry run" exercises.[51] According to interim planning assumptions these teams, like others in the Continental Army Command, would be available for emergency action in the event of an atomic incident. The Chemical Corps expected to establish two additional teams, composed of personnel at a high level of technical competence, to assume the responsibility of certifying the effectiveness of decontamination procedures in areas affected by such an incident.[52] A further development in the Chemical Corps' radiological safety mission was the establishment of a radiological safety course at Fort McClellan. The course was designed to train officers and civilians to supervise control of hazards associated with the use of radioactive materials. The first class in the new course entered in May, 1958.[53] At the end of the fiscal year work was in progress on another project in this field, the preparation for DA of a directive on

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50 Ltr, CCmlO (CMLWA-S) to CmlC Comds, 27 Jun 57, sub: Establishment of Radiological Assistance Monitoring and Decontamination Teams.

51 (1) Resume' of Monthly Chemical Corps Safety Directors Meeting, 2 Oct 57. (2) Interv, Hist Off with (b)(6) and (b)(6) Admin Div, OCCmlO, 17 - 18 Dec 58.

52 (b)(6) interv, 17 - 18 Dec 58.

53 Quart Hist Rpt, Admin Div, OCCmlO, Apr - Jun 58.

Radiological Safety Policy, in pursuance of a requirement placed on the Corps by Deputy Chief of Staff for Personnel (DCSPER).[54]

Welfare and Morale

A survey of recreational facilities at Chemical Corps installations made at the end of calendar 1957 indicated that during the preceding two and one-half years the standard achieved had risen from an estimate of 32 percent to 67 percent of the standard desired. All installations now have bowling alleys and craft shops, and a number of major sports facility improvements have been accomplished.[55] During FY 1958 bowling alley enlargement and improvement constituted the principal item of capital expenditure. The approval of a grant for a golf course at Dugway Proving Ground probably ranked as the major event of the latter part of the year.[56]

Army Welfare and Morale funds for the fiscal year were made available to the Chiefs of the Technical Services for distribution to their installations, a system replacing the former method of distribution of grants through the Zone of Interior Armies and dividends through the Regional Office of the Army and Air Force Exchange Service. Under the present set-up, the

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54 Quart Rev, Apr - Jun 58, p. 26.

55 Quart Hist Rpt, Admin Div. Occml0, Oct - Dec 57.

56 Quart Rev, Apr - Jun 58, pp. 31, 101.

Welfare and Morale Branch of the Administration Division, OCCmlO, sets up an overall estimated budget by editing budget estimates received from installations. Program priorities are prepared similarly. The installations receive their funds quarterly. Funds generated locally are handled independently, though under Welfare and Morale Branch guidance.[57]

Military History

In the course of FY 1958 the Chemical Corps Historical Office continued work on the three-volume history of the Chemical Warfare Service in World War II, the Corps contribution to the series, The United States Army in World War II. The first volume, Organizing for War, was submitted to the Government Printing Office early in the year, after final approval by the Chief of Military History. A draft of the second volume, From Laboratory to Field, underwent panel review in OCMH in August, 1957. Work on a revised draft, following suggestions of the panel, went forward during the latter part of the year, along with research and writing on Volume III, Chemicals in Combat. Six studies on gas warfare in World War I, written under a contract administered by the University of Maryland, were submitted and printed.[58]

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57 Interv, Hist Off with (b)(6) Admin Div OCCmlO, 18 Dec 58.

58 Quart Act Rpts, CmlC Hist Off, FY 58.

Facilities

Disposal of Excess Industrial Facilities

Five Chemical Corps GOCO (Government owned, contractor operated) plants were scheduled for disposal action in FY 1958 as excess to needs. Of these, the Habus Plant, located at Columbus General Depot, was transferred to the Quartermaster General for disposition as of 1 December 1957.[59] The Kansas City Plant was similarly transferred to The Adjutant General as of 15 December 1957.[60] Sale of the Vigo Plant, which had been the subject of negotiation for several years past, was virtually completed by the end of the fiscal year; the formal transfer to the purchaser, Charles Pfizer and Company, took place at the beginning of FY 1959. Negotiations for the sale of the Owl 4X Plant at Azusa, California, were still in process at year's end. Congressional committee action clearing disposal of the fifth facility, the St. Louis Plant, was not completed in FY 1958.[61]

The lessee of the chlorine plant at Pine Bluff Arsenal, Diamond Alkali, cancelled its lease effective 27 April 1958 after opening a new plant of its own in the Southwest. Bids were immediately sought for a new

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59 DA GO 59, 27 Nov 57.

60 DA GO 1, 3 Jan 58.

61 (1) Quart Hist Rpt, MATCOM, Apr - Jun 58. (2) Interv, Hist Off with (b)(6) Log Pl Div, OCCml0, 23 Jan 59.

lease. The Arkansas - Louisiana Chemical Company received the award, following Department of the Army approval.[62]

Military Construction, Army

The pace of construction under the Military Construction, Army (MCA) budget continued its decelerating trend during FY 1958. Six projects, involving a total expenditure of just under $2.3 million, reached completion before the end of the year. These included four new enlisted men's barracks at Dugway Proving Ground (treated as a single project), an improved process water system at Rocky Mountain Arsenal, and road construction at Fort Detrick. The most substantial project completed during FY 1958 was the micrometeorological network built at Dugway at a cost of over $900,000, providing the Chemical Corps with a precision measurement system for recording point to point variations in weather data on a test range. The SO-X laboratory at Fort Detrick, a major new BW research facility, costing over $5,200,000, was on the point of completion as the year ended. As of 30 June 1958, four MCA projects (other than the laboratory mentioned above), with current estimated costs of $1,000,000, were under construction.[63]

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62 (1) Interv, Hist Off with (b)(6), Dir Fac, MATCOM, 29 Jan 59. (2) Quart Hist Rpt, MATCOM, Apr - Jun 58.

63 (1) (b)(6) interv, 23 Jan 59. (2) Quart Rev, Apr - Jun 58, pp. 72, 114.

Family Housing

The construction of thirty-four additional Capehart Act family housing units at Pine Bluff Arsenal, begun the previous year,[64] was completed in March, 1958. By that date construction had already begun on sixty-three Capehart units at Fort Detrick, scheduled for completion in FY 1959. At the end of the year a contractor was about to begin construction of fifty Capehart units at Dugway Proving Ground. This project had originally been planned to include 100 units, but was reduced by successive cut-backs to the number contracted for. The construction of Capehart units at Dugway made mandatory the acquisition by the Army of the Wherry housing units already in existence there. This action was scheduled for FY 1959.[65]

Maintenance of Installation Facilities

Current maintenance (Repair and Utilities) for FY 1958 involved 153 individual projects at a total cost of $3.2 million. Only $300,000 became available during the year for deferred maintenance projects. In consequence, the accrued backlog of deferred maintenance, which had reached $1,940,000 at the end of FY 1957, rose to well over $4 million during the year. As the year ended there was little prospect that the situation would improve in the

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64 Summary of Major Events and Problems, FY 57, p. 38.

65 (1) Quart Revs, Jan - Mar 58, p. 66, Apr - Jun 58, p. 73. (2) (b)(6) interv, 29 Jan 59.

Table 2 - Value of Real Property Under Jurisdiction of Chemical Corps Installations

INSTALLATION, PLANT OR ACTIVITY	ACQUISITION COST			*** REPLACEMENT INDEX	REPLACEMENT VALUE IN M
	REAL PROPERTY	PRODUCTION EQUIPMENT	TOTAL		
TOTAL	$416,897,767	$ 73,966,935	$490,864,702		
Army Chemical Center (incl CWL, less EA, ECD, OAP)	55,248,927	13,094,157	68,343,084	2.90	$198.1
Eastern Chemical Depot	2,660,888	48,079	2,708,967	2.64	7.1
Edgewood Arsenal	6,848,879	3,511,234	10,360,113	3.15	32.8
Ordnance Assembly Plant	3,194,079	320,119	3,514,198	2.47	8.7
Dugway Proving Ground	39,727,427	1,237,134	40,964,561	1.69	69.3
Fort Detrick	61,147,583	--	61,147,583	2.01	123.0
*Purcellville Signal Radio Relay Station.	34,847*	--	34,847*	1.03	.03*
Pine Bluff Arsenal (less MCD)	120,021,997	9,874,383	129,896,380	1.67	216.9
Midwest Chemical Depot	5,926,833	143,796	6,070,629	2.39	14.6
Rocky Mountain Arsenal	52,978,667	24,747,201	77,725,868	(R)1.69	(R)131.3
Phosphate Development Works.	43,589,887	8,742,868	52,332,755	1.28	66.9
St. Louis Plant	3,135,080	2,356,277	5,491,357	2.47	13.6
**Vigo Plant	8,110,083**	1,597,576**	9,707,659**	2.39	23.2**
Marshall Plant	3,009,464	3,404,537	6,414,001	2.33	14.9
New Cumberland (QM)	341,111	322,486	663,597	2.47	1.7
Niagara Falls Plant	2,325,195	2,550,695	4,875,890	2.64	12.9
Owl 4X Plant	2,505,160	1,526,491	4,031,651	2.28	9.1
Seattle Plant	416,823	489,902	906,725	2.33	2.1
Fort McClellan	5,709,684	--	5,709,684	1.24	7.1

*Fort Detrick has R&U responsibility only - amount not included in figure for Fort Detrick nor in Total for the Chemical Corps.

**Vigo Plant sold to Charles Pfizer and Company as of 16 July 1958.

***Replacement Index revised as of 30 June 1958. New indexes based on average indexes as published in Engineering News-Record and Chemical Engineering.

(R)Figure revised 5 September 1958.

Source: Working paper, Dir Fac, Hq, US ACC & CmlC MATCOM.

For Abbreviations see Page 186.

near future, though it was expected that careful pruning of deferred items to eliminate obsolete requirements would at least slow the rate of increase in the backlog.[66]

Table 2 shows the acquisition cost and replacement value of all Chemical Corps real property at the end of FY 1958.[67]

66 (1) (b)(6) interv, 23 Jan 59. (2) Quart Rev, Apr - Jun 58, p. 66. (3) Quart Hist Rpt, MATCOM, Apr - Jun 58.

67 Compare Summary of Major Events and Problems, FY 57, Table 3.

ACTIVITIES OF THE ASSISTANT CHIEF CHEMICAL OFFICER FOR PLANNING AND DOCTRINE

According to Maj. Gen. William M. Creasy, the Chief Chemical Officer, the position of Assistant Chief Chemical Officer for Planning and Doctrine (ACCmlO for P&D) was established in December 1955 "to provide more substantive guidance to R&D and the planning elements of the Corps."[68] Charged with the direction of the Chemical Corps programs for planning, combat development, training, TOE troop, and scientific and technical intelligence, the Assistant Chief Chemical Officer had under his direction four Class II activities. These were the U. S. Army Chemical Corps Training Command (CmlC TNGCOM), the U. S. Army Chemical Corps Board (CCB), the U. S. Army Chemical Corps Field Requirements Agency (CCFRA), and the U. S. Army Chemical Corps Intelligence Agency (CCIA). The fact that these activities were gathered under one director resulted in an immediate improvement of the Chemical Corps doctrine potential.

Combat Developments Program

Another major factor in the improved status in regard to doctrine had been the inauguration of the Army-wide Combat Developments system which was capable of providing, according to General Creasy, "timely CBR operational and organizational concepts, doctrine and new materiel requirements."[69] During FY 1958 the program for Combat Developments was extended

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68 Biennial Rpt, Maj Gen Creasy, p.11.

69 Ibid.

OFFICE OF THE ASSISTANT CHIEF CHEMICAL OFFICER FOR PLANNING AND DOCTRINE

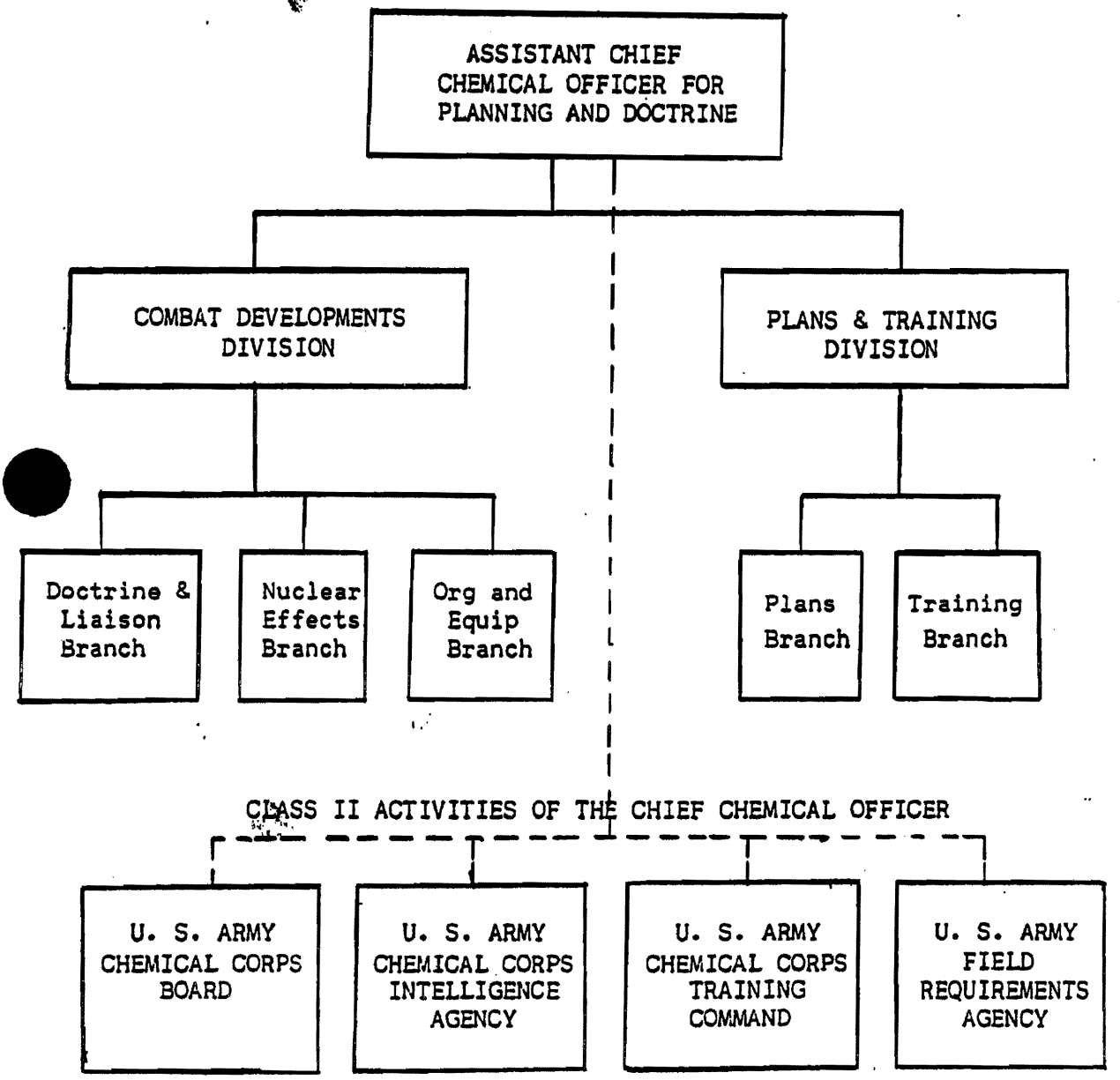

Chart No. 3

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to five years. A Combat Developments Planning Conference held in September 1957 had drawn up a draft for this program and had submitted it to the Chemical Corps Board and the Chemical Corps Field Requirements Agency for further action and planning and to United States Continental Army Command (USCONARC), Deputy Chief of Staff for Logistics (DCSLOG), and Deputy Chief of Staff for Operations (DCSOPS) for comment and assistance. A second planning conference, held in May 1958, formally established the Five Year Combat Development Study and Test Program, FY 59 - 63. This program and the schedule for the first year of operation were included as Annex V of the Chemical Corps Operating Program.[70]

With the Training Literature program also placed on a five year basis and with mutual attendance at planning conferences of Training Literature and Combat Developments programs, there was hope for better synchronization between the closely related activities. It seemed that there could be no repetition of that glaring example reported in last year's Summary of Major Events and Problems (p. 46) where a final draft of a training circular was scheduled for completion two months before a CCFRA project report on the same subject.[71]

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70 (1) Quart Rev, Apr - Jun 58, p. 16. (2) Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58.

71 (1) Interv, Hist Off with (b)(6) or P&D, 16 Jan 59. (2) Interv, Hist Off with (b)(6) and OACCmlO for P&D, 14 Jan 59.

It was obvious that the effective operation of the Combat Developments system depended to a great extent upon a close relationship with the Research and Development and the Materiel Programs. Although the organizational and geographical separation of the activities which conducted these programs posed problems of communication and understanding, it was hoped that co-ordination through visits, conferences, and correspondence would be mutually beneficial for all concerned.[72] Again to quote General Creasy: "I believe that this Combat Developments System will help maintain our R&D and Materiel programs in better alingment with the needs of the using services and, as new CBR munitions and equipment become available, will insure the concurrent development of doctrine, tactics, and techniques for their most effective employment."[73]

The first Combat Developments planning conference mentioned above also reviewed the scheduled objectives of the program as well as manpower and funding resources. Because of a paucity of these resources approximately 50 percent of the scheduled projects were eliminated by means of deferment, cancellation, or consolidation. The elimination of low priority projects meant the achievement of a realistic program, one that lay within the capabilities of the operating agencies.

In April 1958 the Chemical Corps submitted to USCONARC a list of

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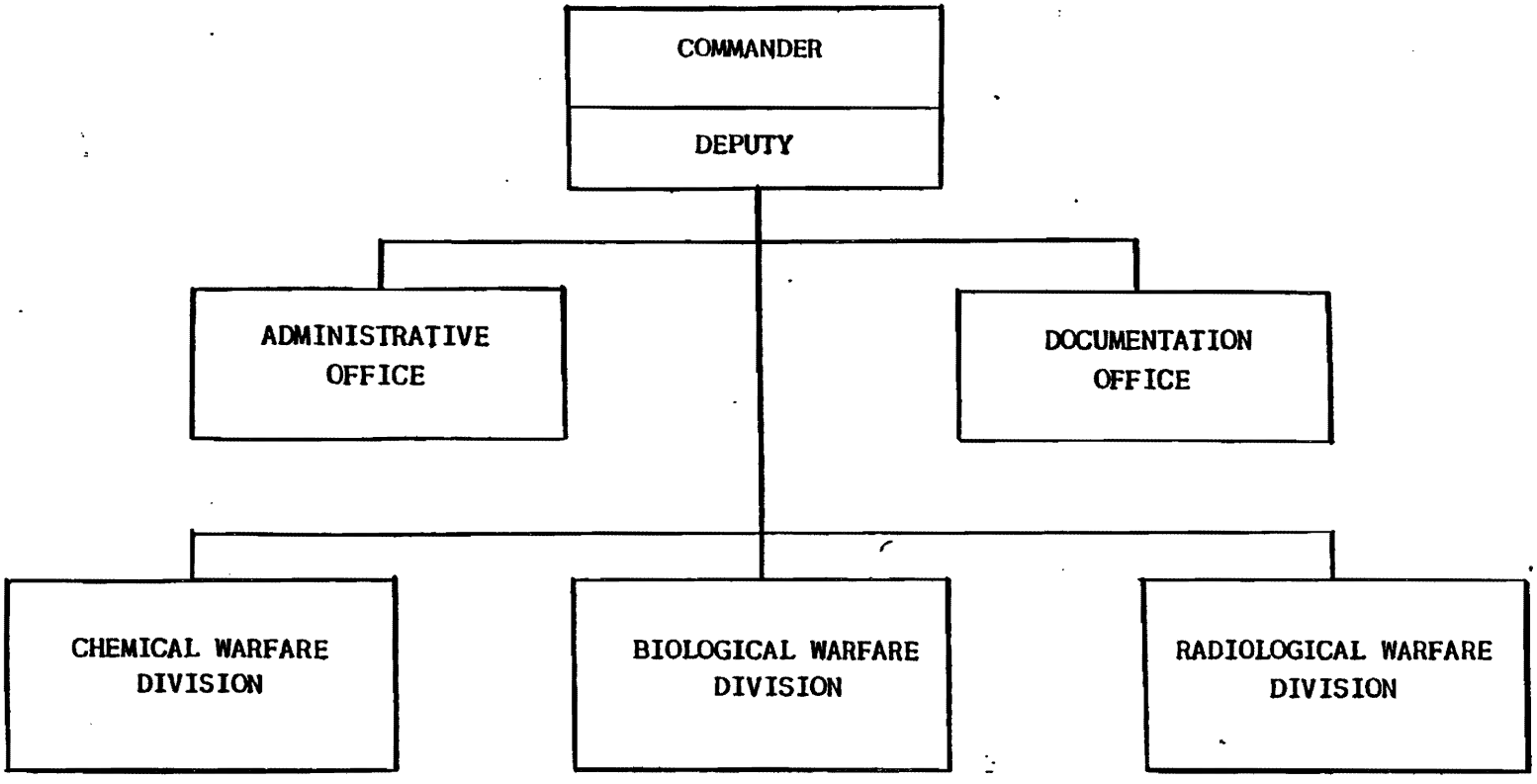
72 Quart Rev, Apr - Jun 58, p. 16.

73 Biennial Rpt, Maj Gen Creasy, p. 12.

U.S. ARMY

CHEMICAL CORPS FIELD REQUIREMENTS AGENCY



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30 June 1958

Chart No. 4

eight FY 1959 and 1960 Test and Field Experiment Project Proposals for inclusion in the Combat Development Objectives Guide (CDOG) 1958.[74] The stature of this publication, and of the Combat Developments program in general, was increased during the year when the Department of the Army assumed control of the publication of CDOG. Previously, it had been a USCONARC responsibility.[75]

During FY 1958 the Chemical Corps expended a great deal of effort in the field of radiological warfare. During the year Lt. Gen. Carter B. Magruder, Deputy Chief of Staff for Logistics, approved a refined and consolidated statement of the RW mission of the Chemical Corps.[76] This statement read:

> The Chemical Corps is the responsible technical staff agency for the Department of the Army for the conduct of Radiological Warfare and Radiological Defense. This responsibility includes research and development not specifically assigned other services, the development of technical doctrine, the determination of requirements for and the determination of the basis of issue of equipment in conjunction with the combat development system, and provision of technical staff and field guidance. These responsibilities include technical coordination within the Department of the Army and for the Department of the Army with other governmental agencies on radiological effects or matters related thereto, except for medical aspects. In discharging these responsibilities the Chief Chemical Officer is the technical staff representative to advise on the technical aspects of radiological warfare employment and defense. He shall lend support and assistance to other staff agencies and units as appropriate. These responsibilities will be performed and coordinated within the framework of normal staff

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74 Ltr, CCmlO to CG USCONARC, 14 Apr 58, sub: CmlC FY 59 and FY 60 Test and Field Experiment Project Proposals for Inclusion in CDOG 58.

75 (1) (b)(6) interv, 16 Jan 59. (2) DA ltr, 10 Mar 58.

76 Memo, DCSLOG to CCmlO, 17 Jun 58, sub: Chemical Corps Radiological Warfare Mission.

relationships and responsibilities. As used herein Radiological Warfare is the employment of agents or weapons to produce residual radioactive contamination as distinguished from the initial effects of a nuclear explosion (blast, thermal, and initial nuclear radiation); Radiological Defense encompasses defensive measures to be taken against radiological warfare and initial nuclear radiation.[77]

The Chief Chemical Officer initially had requested this action in March 1957, and the ensuing time had been spent in the preparation and the staffing of a paper entitled "Study of the Chemical Corps Mission Responsibilities in the Radiological Warfare Field." Staff officers in the Office of the Chief Chemical Officer (OCCmlO) found parts of the RW mission in as many as eighteen different documents ranging from DF's and memoranda to notes of verbal agreements made over the telephone. In approving the mission statement General Magruder directed the Chief Chemical Officer (1) to take whatever steps were necessary to develop Chemical Corps officers as the U. S. Army experts in radiological warfare and (2) to prepare and staff with appropriate Department of the Army agencies such changes to DA publications as might prove necessary.[78]

[redacted]any studies and projects sought to fill existing doctrinal gaps in the RW area. Most of these were the work of the Field

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77 This mission statement, as approved by General Magruder, appeared in OCCmlO,"Study of the Chemical Corps Mission Responsibilities in the Radiological Warfare Field."

78 (1) Interv, Hist Off with (b)(6), OACCmlO for P&D, 16 Jan 59. (2) Interv, Hist Off with (b)(6), OACCmlO for P&D, 12 Feb 59. (3) Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58.

[redacted]

Requirements Agency which had acquired a special competence in the field.[79] A basic study was CMLCD 56-2, Radiological Fallout Problems, approved by the Chief Chemical Officer on 18 October 1957 and by CG USCONARC in the following month. This study brought into focus the difficulties with which military operations would be carried out in areas covered by radioactive fallout. It pointed up the need for getting and recording the essential information about a detonation (the size, type, location, and time) and for dispatching this information rapidly to commanders. It brought out the need for methods of fallout prediction. It stated that current radiac instruments, while suitable for ground survey, had but limited use when employed for aerial work. The study report was well received by other interested agencies and was instrumental in obtaining an Operations Research Organization invitation for CCFRA to participate in the PISGAH IV conference, held in Maine in the fall of 1957.[80]

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79 The CCFRA underwent a major reorganization during the year, authorized as of 1 July 1957 but not accomplished until 19 August. The previous organization had been based upon type of work performed, with one division for research and analysis and another for operation. The latter had branches for each element of CBR as well as one for documentation. The new organization had three divisions, Chemical, Biological, and Radiological (Quart Hist Rpt, CCFRA, Jul - Sep 57).

80 (1) CCFRA FY 58 Progress Rpt, 18 Feb 1959. (2) Interv, Hist Off

(b)(6)

[redacted]

The gaps revealed by CMLCD 56-2 led to other studies, among them CMLCD 57-3, Organization for Radiological Survey, approved by the Chief Chemical Officer on 14 March 1958 and forwarded to USCONARC. This important work determined the optimum organizational structure for radiological survey for theater of operations and CONUS compatible with organizational concepts of the mid-range time frame. It developed an integrated system for surveying and reporting radioactivity. The study concluded that the requirement for radiological centers could be satisfied by adding a basic capability to the existing staff chemical section, with the attachment of cellular teams to provide additional support when necessary. This "basic capability" would be provided in the chemical section of divisions, corps, and armies by the addition of one officer and four enlisted men, and this was the Chief Chemical Officer's recommendation to USCONARC.[81]

An allied project was CMLCD 58-7, Impact of CBR Operations on Requirements for Chemical Corps Personnel and Units. During the year the CCFRA completed Study 1 of this project entitled "Impact of CBR Operations on Requirements for Chemical Corps Personnel in the Field Army." The Chief Chemical Officer approved the report in June 1958. Objectives included the determination of the essential staff chemical representation at all levels of command in a Field Army under CBR and non-CBR conditions and methods for staff augmentation when necessary.

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81 (1) Quart Hist Rpt, OACCml0 for P&D, Jan - Mar 58. (2) CCFRA FY 58 Progress Rpt, 18 Feb 1959.

Recommended increases in staff chemical sections were (1) ROCID and ROCAD, 2 officers and 8 enlisted men, (2) Corps, 4 officers and 11 enlisted men, (3) Army, 4 officers and 10 enlisted men. The study also recommended a ROTAD staff chemical section comprised of 4 officers and 10 enlisted men and it advocated the formation of an additional cell in TOE 3-500D having a radiological center capability.[82]

[redacted] Another important project, but one not included in CDOG, was CMLFR 56, Radiological Monitoring and Survey Capabilities of ROCID. This study had as its principal objective the preparation of a plan to test the capabilities of ROCID to obtain, process, and disseminate radiological fallout data. CCFRA received the assignment from USCONARC which, in turn, applied the test plan at Exercise INDIAN RIVER, a discussion of which appears below.[83]

[redacted] The report of a Radiation Dosimetry study (CMLCD 58-10) was approved by the Chief Chemical Officer in April 1958 and was submitted to USCONARC for approval and implementation. In it CCFRA recommended that each revised type Field Army receive direct reading tactical dosimeters on the basis of two per platoon and that each individual in this Field Army be given an indirect reading dosimeter.[84]

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82 (1) Quart Hist Rpts, CCFRA, Jul - Sep 57, Apr - Jun 58. (2) Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58. (3) CCFRA FY 58 Progress Rpt.

83 (1) See below, pp. 78 - 80. (2) Quart Hist Rpts, CCFRA, Jul - Sep 57, Oct - Dec 57. (3) CCFRA FY 58 Progress Rpt.

84 Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58.

[redacted]

[redacted] Chemical Corps representatives attended a conference on fallout prediction held at the Command and General Staff College, 13 - 22 November 1957. The conferees felt that the responsibility for the prediction of fallout from enemy weapons belonged to the Chemical Corps, but that fallout from U.S. weapons should be the responsibility of the Artillery. They also recommended that a radiological defense center be set up in the chemical staff sections of divisions, corps, and armies. CCFRA and the Chemical Corps School undertook a project to rewrite the TC 3-2, Radiological Monitoring and Survey, to reflect the views reached at the conference. Work began on this project which was scheduled for publication during FY 1959 as TC 101-1.[85]

[redacted] Chemical Corps representatives also attended the Atomic Burst Detection Conference held at Fort Sill, Okla., in April 1958. The purpose of this conference was the development of overall operational and organizational concepts for atomic burst detection for use in fallout prediction and post-strike analysis. Friendly weapons were considered as were enemy weapons delivered in areas of the Field Army, Communications Zone, and CONUS. As a result of this conference USCONARC was looking at the Field Army capability in atomic burst detection and at the possibility of integrating more complicated electronic devices.[86]

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85 (b)(6) interv, 29 Jan 59. (2) (b)(6) interv, 12 Feb 59. (3) Memorandum, OCCmlO, 15 Jan 58, an informal informational memorandum from CCmlO to CmlC key personnel. Hereafter cited Memo, OCCmlO.

86 (1) Rpt, Conference Atomic Burst Detection, Fort Sill, 8 - 15 April 1958, 18 Apr 58. (2) (b)(6) interv, 12 Feb 59.

[redacted] Still another study CCFRA 3-56, Tactical and Strategic Evaluation of Radiological Warfare, appeared in August 1957. It had a rather long history and had recently been revised to compare RW with CW and BW and explosive radiological weapons with those which were non-explosive. This study concluded that most targets are more profitably engaged by explosive rather than non-explosive weapons. Exceptions to the rule occur when minimum damage to personnel and property was desired. The study also concluded that it was more difficult to protect against RW than against CW and BW, and that RW was less vulnerable to weather conditions.[87]

(U) Non-radiological warfare projects completed by CCFRA during the year included Phase I of CMLCD 57-6, entitled "CBR Protection." Phase I contained an analysis of the areas to be covered in the remainder of the study, namely, Phase II, CW and BW Detection; Phase III, CW and BW Individual Protection; Phase IV, CW and BW Collective Protection; and Phase V, RW Protection.[88]

[redacted] On 3 April 1958 the Chief Chemical Officer approved the report of study project CMLCD 57-8, Employment of Smoke. CCFRA substantiated the need for smoke and smoke generator units in support of tactical operations, but indicated that progress in the employment of nuclear weapons, infrared detection devices, electronic delivery systems, and bombing devices had greatly reduced the effectiveness of fog oil screens

87 Quart Hist Rpts, CCFRA, Apr - Jun 56, Jan - Mar 57, Jul - Sep 57.

88 Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58.

[redacted]

in rear areas.[89]

[redacted]mong the completed Chemical Corps Board projects was CCB 2-56, An Evaluation of the Guided Missile Program as Related to the Delivery of CBR on Ground Troops [redacted]. The objectives of this project, assigned in April 1956, were the determination of the potential usefulness of guided missiles and the Honest John rocket for the delivery of CBR agents and the recommendation of the best CBR agent - guided missile combinations to provide an optimum CBR offensive capability against ground targets. The Board considered those agents and missiles that were slated for use until 1965. CCB 2-56 concluded that guided missiles had an excellent potential for the delivery of chemical and biological antipersonnel agents on tactical targets and all biological agents on strategic targets. A guided missile - RW agent combination was not feasible. The report contained a list of eight missile-agent combinations and recommended that first priority be given to the development of chemical and biological warheads with self dispersing, interchangeable bomblets and that the Chemical Corps should make every effort to obtain requirements for chemical and/or biological warheads for the aforementioned list of missiles. The report especially praised the unique potentials of the Matador B/Regulus II missile for anticrop and antianimal BW attack.[90]

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89 (1) Ibid. (2) CCFRA FY 58 Progress Rpt.

90 (1) CCB Progress Rpt, FY 58. (2) Quart Hist Rpt, OACCmlO for P&D, Oct - Dec 57.

[redacted]

[redacted]

[redacted] Another Board project completed in FY 1958 was CCB 5-57, Retention of Mustard as an Authorized Agent. The study, as approved by the Chief Chemical Officer, recommended the retention of HD as a standard agent, H as a substitute standard agent, HT as limited standard, and that HN-1 be made obsolete. The study further advised that the retention of mustard be revaluated at that time when V agents proved acceptable for combat use.[91]

(b)(2) HIGH

91 CCB Progress Rpt, FY 58.

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[redacted]

planners in general. A similar report on the employment of CW also was well received.[92]

[redacted] Progress continued in two important projects which the Chemical Corps Board initiated last year. These were CCB 3-57, Field Experiments of Effectiveness of CW Munitions against Hard Targets, whose objective was self evident, and CCB 1-57, Tactical Troop Test of CBR Defensive Means. The second project, better known as JACKPOT, would determine the capability of troops to continue their mission under CBR attack. JACKPOT, carried out in collaboration with the Human Resources Research Office, George Washington University, had an expected completion date in FY 1959.[93]

(U) Several other fiscal 1958 actions in the field of Combat Developments were worthy of mention. One project, carried out at the Chemical Corps Training Command, concerned the development of work measurement criteria for the operation of an M2A1 impregnation plant with its ultimate effect on personnel allotments in the appropriate TOE. These criteria, based on the 2-shift, 24-hour operation of 1 platoon, revealed that the plant had less productivity than had been determined by a similar test during World War II, a fact largely attributed to the increased weight of uniforms. The test also disclosed a probable 50 percent increase

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92 (1) CCB Progress Rpt, FY 58. (2) Interv, Hist Off with (b)(6) CCB, 22 Jan 59.

93 (1) See Summary of Major Events and Problems, FY 57, pp. 52 - 54, for background of these two projects. (2) Quart Hist Rpt, CCB, Apr - Jun 58. (3) CCB Progress Rpt, FY 58.

[redacted]

in productivity, without a corresponding increase in operating personnel, by the addition of a third drier. Confirmatory tests were to be held at Fort McClellan early in FY 1959, with invitations extended to the Corps of Engineers, TAG, The Quartermaster General, USCONARC, and DCSLOG.[94]

The Deputy Chief of Staff for Logistics directed that a study be made to determine the desirability of a small general depot in overseas theaters in time of nuclear war. If the findings pointed to a negative answer, proposals for a workable system were to be made. Each technical service prepared a paper on the subject and then a committee comprising all of the technical services reconciled the individual findings in one final report. This report did not recommend the establishment of small general depots, but proposed that logistical support be provided on a technical service basis with organizational change in the logistical command structure to improve versatility and mobility.[95]

An interesting action resulted from a December 1957 request by the First Region, U. S. Army Air Defense Command, to turn in its protective masks because of lack of storage space and maintenance personnel. The Air Defense Command concurred in this proposal with the proviso that ten masks per battery be kept in unit supply. In February 1958 the Chief Chemical Officer, in recommending disapproval of this request to the Deputy Chief of Staff for Operations, pointed out that the stationary

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94
(1) Quart Hist Rpts, OACCmlO for P&D, Jul - Sep 57, Apr - Jun 58. (2) Interv, Hist Off with (b)(6) and (b)(6) (b)(6) (ret), CmlC TNGCOM, 28 Jan 59.

95
Quart Hist Rpt, OACCmlO for P&D, Jan - Mar 58.

nature of AAA units made them likely chemical warfare targets in case of war. He also pointed out the minimum requirements for storage and maintenance demanded by the protective masks. DCSOPS concurred with the Chief Chemical Officer.[96]

Planning

War Planning

(U) All programmed war planning objectives were met during FY 1958, although during the first quarter the Department of the Army suspended several significant actions because of the pending revisions in structure and strength of forces. Accomplishments during the year included supporting annexes to four DA Strategic Logistics Studies and the formulation of CBR policy guidance for inclusion in several DA War Plans. Among the latter was a capability study of Chemical Corps TOE unit support of ASCP 59 involving troop requirements and capabilities for the support of the divisions deployed throughout the world. Troop bases were prepared to support DA War Plan MOB-R-ASOP-61 and the Theater Type Mobilization Corps Force Capabilities for FY 1958.[97]

[redacted] The Office, Assistant Chief Chemical Officer for Planning and Doctrine prepared Chemical Annexes for two limited war plans involving a potential conflict between Syria and Jordan. These plans, DA-SL-1 (60) and DA-SL-1 (63), differed only in point of time and both envisioned the

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96 Ibid.

97 (1) Quart Revs, Apr - Jun 58, p. 21, Class Sup, Jul - Sep 57, p. 10. (2) Quart Hist Rpt, OACCmlO for P&D, Jan - Mar 58.

services of a Chemical Group comprised of three smoke battalions and three service battalions.[98]

(U) The draft of the FY 1958 version of the Estimate of the CBR Situation was completed on 15 November 1957 and submitted to DCSLOG for DA approval in December. It was finally published during the 4th quarter. In the future, in accordance with a DCSLOG suggestion, the Estimate of the CBR Situation, with the exception of the Intelligence Annex, will be published without Department of the Army approval. This logical move would eliminate the delay which has often caused information to become obsolete by the time it was actually published.[99]

Mobilization Planning

(U) Mobilization plans and programs during FY 1958 continued to be based upon the assumption that M Day and D Day will coincide and with M Day assumed to be 30 June 1958. As has been the case in the past, certain Chemical Corps planning activities were delayed because of tardy DA guidance. Instructions for the FY 1958 TD Mobilization Troop Basis and M+12 TD's, for example, did not reach the Chemical Corps until the 4th quarter. The Mobilization Troop Basis, which was only slightly changed from the 1957 version, was finally submitted to DCSLOG in May 1958. The M+12 TD's involved extensive revision and had not been completed by the end of the fiscal year.

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98 (1) Quart Hist Rpt, OACCm10 for P&D, Jan - Mar 58. (2) Quart Rev, Class Sup, Jan - Mar 58, p. 3.

99 (1) Quart Hist Rpts, OACCm10 for P&D, Oct - Dec 57, Jan - Mar 58. (2) Interv, Hist Off [redacted] with (b)(6) OACCm10 for P&D, 15 Jan 59.

(U) Mobilization Designation TD's, submitted to DA in January 1957, were not returned to the Chemical Corps until February 1958. This delay held up the mobilization assignment of some Reserve officers and adversely affected this training program. In the DA review DCSPER eliminated 162 mobilization designation spaces. Of this total 85 were rejustified by OCCmlO.[100]

[redacted] In November 1957 DCSLOG approved a Chemical Corps proposal for the establishment of a replacement training center and a unit training center as reserve Chemical Corps TD units. The Corps took this action because of recent Army Regulations limiting mobilization designee assignment to active Army TD units. These two units, with respective strengths of 103 and 21, would be organized and trained in the Third Army area.[101]

[redacted] On 17 October 1957 the Chemical Corps published Volume I of an Emergency Check List, providing a consolidated list of actions to be taken during periods of strained relations, limited emergency, and general war emergency. The check list included guidance for the preparation of similar documents by all Chemical Corps field elements. Volume II, entitled "Readiness File," came out later in the year and covered guidance for actions to be taken in the event of an actual attack against the United States. The volume included lists of canned messages which would implement appropriate action under a wide variety of situations.[102]

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100 (1) Quart Revs, Oct - Dec 57, p. 21, Apr - Jun 58, p. 21, Class Sups, Jul - Sep 57, p. 10, Jan - Mar 58, p. 3. (2) Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58.

101 (1) Bost interv, 15 Jan 59. (2) Quart Hist Rpt, OACCmlO for P&D, Oct - Dec 57.

102 (1) Interv, Hist C [redacted] with (b)(6) OACCmlO for P&D, 15 Jan 59. (2) Quart Rev, Class Sup, Jul - Sep 57, p.10.

(U) Annex Z, Continuity of Field Operations (COOP), of the Chemical Corps Alternate Headquarters Plan was approved in the 3d Quarter of FY 1958 and published early in the 4th. This annex furnished Chemical Corps field agencies the guidance necessary for the preparation of their own continuity of operation or alternate headquarters plans under emergency conditions. This action had been scheduled much earlier but was delayed because of the lack of the necessary DA guidance.[103]

[redacted]A change occurred in the overall Chemical Corps Alternate Headquarters Plan when DCSOPS designated the Chemical Corps Training Command as the Alternate Headquarters for the Office of the Chief Chemical Officer in the event of Condition Alpha (complete destruction). Heretofore, Fort Lee, Va., had been the Alternate Headquarters and relocation site and the Training Command had been the interim alternate headquarters. Fort Lee remained the relocation site for DCSLOG and all technical services under Condition Bravo (relocation with warning of attack).[104]

(U) Operation ALERT - 1958, the annual exercise designed to test the capability of the United States to react successfully to atomic attack,was carried out in three phases: I, Attack (6 - 7 May 1958), II, Federal Action (14 - 18 July), and III, Evaluation (15 - 17 September). The first phase saw the participation of field activities, local governments, and the civil defense organization. The Chemical Corps field

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103 Quart Revs, Oct - Dec 57, p. 21, Apr - Jun 58, p. 21, Class Sup, Jan - Mar 58, p. 3. (2) Quart Hist Rpt, OACCmlO for P&D, Jan - Mar 58. (3) Bost interv, 15 Jan 59.

104 Quart Hist Rpt, OACCmlO for P&D, Oct - Dec 57.

Table 3 - Chemical Corps Units and Their Location as of 30 June 1958

Type	Designation	Station
Cml Bn (Smoke Generator) HHD	2d	DPG, Utah
	4th	Germany
	5th	Ft Bragg, N.C.
	218th	Ft McClellan, Ala.
Cml Co (Smoke Generator)	4th	Germany
	44th	Germany
	45th	DPG, Utah
	46th	DPG, Utah
	51st	Germany
	62d	Ft McClellan, Ala.
	68th	Germany
	69th	Ft McClellan, Ala.
	74th	Ft McClellan, Ala.
	84th	Ft Bragg, N.C.
	85th	Ft Bragg, N.C.
	86th	Ft Bragg, N.C.
	87th	Ft Benning, Ga.
Cml Co (Cmbt Spt)	22d	Ft McClellan, Ala.
Cml Plt (Cmbt Spt)	50th	Ft Ord, Calif.
	502d	Ft Bragg, N.C.
Cml Group (Field Army) HHD	81st	Ft Bragg, N.C.
Cml Group (ComZ)	100th	Ft McClellan, Ala.
Cml Bn (Service) HHD	1st	Ft McClellan, Ala.
	3d	Ft Bragg, N.C.
	83d	Ft McClellan, Ala.
	85th	Germany
Cml Co (Decontamination)	21st	Ft McClellan, Ala.
	24th	Ft Bragg, N.C.
Cml Co (Depot)	7th	Ft Bragg, N.C.
	9th	Germany
Cml Co (Depot) (ComZ)	66th	Ft McClellan, Ala.
	501st	Ft McClellan, Ala.
Cml Co (Maintenance)	11th	Ft Bragg, N.C.
	12th	Ft McClellan, Ala.
	13th	Ft George G. Meade, Md.
	59th	Germany
Cml Co (Processing)	55th	France
	111th	Ft McClellan, Ala.
	317th	Ft McClellan, Ala.
Cml Co (Service)	216th	RMA, Colo.
Cml Det (Laboratory)(Mbl)	275th	Germany
Cml Det (Tech Intelligence)	17th	A Cml C, Md.
	18th	Ft McClellan, Ala.
	19th	Germany
	48th	Germany
	503d	Japan

Based on: Troop Bases Program of the Army
Annex I Troop Bases Data Section V
Current Active Strength, 30 June 1958.

[redacted]

activities reported to the OCCmlO any civil defense requests for help as well as estimates of their own damage and casualties resulting from the attack. The federal action phase called for the removal of a limited number of DA personnel, including about two people from each technical service, to the appropriate relocation site. The last phase dealt with an evaluation of the exercise. As was the case last year, information received by the Chemical Corps about the operation was limited and late.[105]

Troops

A total of forty-six Chemical Corps troop units were on duty in the United States and Overseas as FY 1958 ended.[106] Thirteen of these units were in the theater and thirty-three were located in the zone of interior. Of the latter, twenty were assigned to the Chief Chemical Officer and the remaining to the CONUS Armies. At the end of the year the authorized strength of the Strategic Army Force (STRAF) units assigned to the Chief Chemical Officer was 1,606 while the actual strength was 1,292. Authorized strength one year ago was 1,839 and actual strength was 1,790.[107]

The Strategic Army Force comprised those units in the United States earmarked for support of the theater forces. Within STRAF was

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105 (1) (b)(6) interv, 15 Jan 59. (2) Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58.

106 See Table 3 for type and location of units.

107 Quart Rev, Class Sup, Apr - Jun 58, p. 1. (2) Summary of Major Events and Problems, FY 57, [redacted] p.64.

[redacted]

the elite Strategic Army Corps, commonly known as STRAC. This four-division force had the support of twenty of the Chemical Corps units possessing a high degree of readiness. Priority classification of STRAF units was revised in FY 1958 in order to better meet requirements for the tentative deployment schedules of STRAC units. The revision established certain standards for personnel and equipment readiness for each of eight categories. Chemical units were placed in four categories, 1, 2, 6, 8. Standards for Class 1 units were 100 percent strength, 100 percent POM qualified, and with full TOE equipment; for Class 2: 100 percent strength, 90 percent POM qualified, and with full TOE equipment; Class 6: 90 percent strength, 80 percent POM qualified, and with full TOE equipment. Class 8 units, the least ready, were to be filled and equipped to the extent that available resources would permit. The Chemical Corps units earmarked for STRAC fell in either Class 1, 2, or 6.[108]

[redacted]Keeping the Chemical Corps units at top strength and fully qualified proved to be a problem. DCSLOG on 6 September 1957 called attention to a tendency in the technical services of having the TOE units at less strength than the units formed under tables of distribution and asked that the imbalance be corrected. Compliance, of course, would mean transferring men from TD to TOE units. The Chemical Corps Training Command was faced with the problem of transferring troops from

108
(1) Interv, Hist Off with [redacted] (b)(6) OACCml0 for P&D, 14 Jan 59. (2) Ltr, DA to Dist, 15 Nov 57, sub: STRAF and US ARADCOM Class Designations. (3) Quart Rev, Class Sup, Apr - Jun 58, p.1. (4) Interv, Hist Off with Maj ~~Stephen D. Noyes~~, 100th Cml Gp, 29 Jan 59.

the TD unit supporting the Chemical Corps School to units of the 100th Chemical Group. Protests registered by the commanding officer of the Training Command brought relief for this situation, although by this time the attainment of the strength percentage requirements of STRAC units, mentioned above, had proved to be equally serious.[109]

[redacted] One of the outstanding features of the FY 58 Chemical Corps Troop Program was the activation of units of a new type. These were the 22d Chemical Company (Combat Support) and the 50th and 502d Chemical Platoons (Combat Support), located at Fort McClellan, Ala., Fort Ord, Calif., and Fort Bragg, N.C., respectively. The 22d and the 502d were manned by personnel released by the inactivation of the 30th Chemical Company (Decon) and the 8th Chemical Company (Depot). The 50th formerly had been designated a chemical service platoon. It was envisioned that the 246-man chemical company, combat support, would be assigned to a corps, with one of its six platoons attached to each division of the corps. The remaining one or two platoons would remain with corps. Missions of the new unit included chemical technical intelligence, third echelon maintenance of organic chemical equipment, operation of a divisional chemical supply point, CBR monitoring and radiological surveys, and the supervision of unit decontamination. A chemical company, combat support, could replace a current chemical service battalion comprised of

109
(1) Conference, Hist Off with (b)(6), et al, CmlC TNGCOM, 28 Jan 59. (2) (b)(6) 14 Jan 59. (3) Statement, (b)(6), CmlC TNGCOM, 29 Jan 59.

CHEMICAL CORPS

HEADQUARTERS, UNITED STATES ARMY CHEMICAL CORPS TRAINING COMMAND

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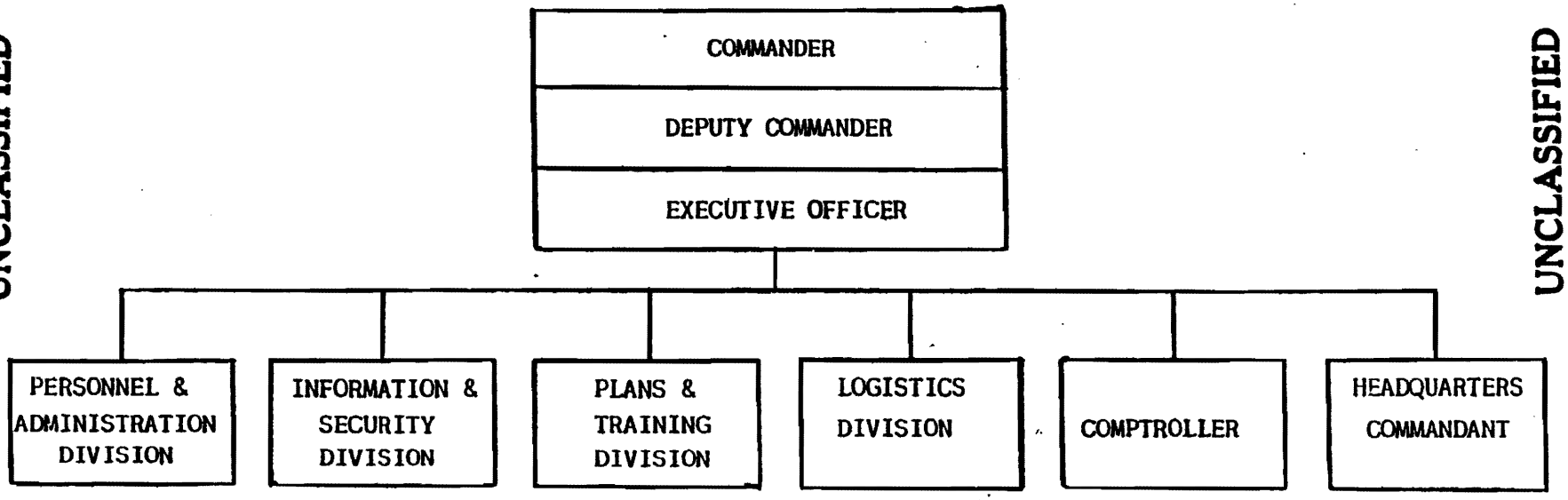

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Chart No. 5

single maintenance, depot, and decon companies.[110]

[redacted] In another important troop action, the 2d Chemical Weapons Battalion at Dugway Proving Ground was deactivated effective 7 January 1958, and its personnel reorganized into the HHD, 2d Chemical Battalion, Smoke Generator, and the 45th and 46th Chemical Companies, Smoke Generator. These new units provided additional support for the European Reinforcement Troop List and would participate in activities at Dugway Proving Ground in so much as this did not interfere with their primary mission.[111]

Training

Chemical Corps Training Command

(U) The U.S. Army Chemical Corps Training Command, located at Fort McClellan, Ala., is a Class II activity of the Chief Chemical Officer which functions under the staff supervision and operational control of the ACCmlO for Planning and Doctrine. It is charged with the supervision, co-ordination, and inspection of all training of military personnel and units assigned to the Chief Chemical Officer. The major elements of the Training Command are the U.S. Army Chemical Corps School, the 100th Chemical Group (COMZ), the First Radiological Support Unit (RSSU),

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110
(1 (b)(6) interv, 14 Jan 59. (2) Memo, OCCmlO, 15 Jan 58. (3) Quart Hist Rpt, OACCmlO for P&D, Jan - Mar 58. (4) This particular chemical company, combat support, designated the 1st in January 1958, was redesignated the 22d later in the fiscal year.

111
(1) OCCmlO GO 5, 16 Feb 59. (2) R&A Briefing Notes, OACCmlO for P&D, 2d Quart FY 58.

and the School Support Battalion.

[redacted] The interest in radiological warfare which the ACCmlO for P&D displayed during the year was noticeable in the activities at the Chemical Corps Training Command. The First Radiological Safety Support Unit, whose entire mission concerned RW, was particularly active.[112] It provided radiological safety support for Operation PLUMBOB held at the Nevada Test Site during the period April - October 1957 and during Operation HARDTACK which took place at the Eniwetok Proving Ground between February and August 1958.

[redacted] The First RSSU participation in the latter operation was as individuals, not as a unit.[113] Before leaving for the Pacific its personnel was supplemented by Air Force, Navy, and Los Alamos Scientific Laboratories representatives, most of whom received training at Fort McClellan before departure. This group became Task Unit 6, the radiological safety unit of Task Group 7.1, the scientific task group of Joint Task Force SEVEN.

[redacted]he specific mission of Task Unit 6 included performance of all ground monitoring services connected with scientific missions; provision of laboratory services and technical assistance; provision and maintenance of radiac equipment and protection for the scientific task

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112 The general mission of the First RSSU was the provision of radiological safety support during atomic tests for the Armed Forces Special Weapons Project and for Joint Task SEVEN.

113 The HARDTACK account is based upon (1) Rpt, CO First RSSU to CO CmlC TNGCOM, 1 Jul 58, sub: Report of Participation in Operation HARDTACK - 1958. (2) Interv, Hist Off with (b)(6) Jr and (b)(6) 28 Jan 59.

group, another task group, Headquarters, Joint Task Force SEVEN, and specified recovery personnel; and maintenance of a radiological safety center for the operation of two task groups.

(U) Several shortcomings were revealed in the radiological safety activities in support of Operation HARDTACK. For one thing, too many short term officers and men took part in the operation which meant the unique experience gained at the Eniwetok Proving Ground would soon be lost to the Chemical Corps. This situation was to be corrected in future operations by sending, as far as possible, career Chemical Corps personnel.[114] Also deemed questionable was the policy which placed the Radiological Safety Advisor of Task Group 7.1, a staff officer, in command of Task Unit 6 in that this practice deprived the commanding officer of the First RSSU of his normal functions. In the matter of equipment, activities at the Eniwetok Proving Ground demonstrated that the Army had no satisfactory radiac instrument for aerial survey work.

(U) In August 1957 the First RSSU organized and trained the first emergency monitoring team and later trained teams from the Army Chemical Center, Fort Detrick, Pine Bluff Arsenal, Rocky Mountain Arsenal, and Dugway Proving Ground.[115] During September and October the rad safety unit took part in a Chemical Corps School project which determined that

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114 (1) Palmer conference, 28 Jan 59. (2) Newlander statement, 29 Jan 59.

115 See above pp. 30 - 31 for more on these teams.

it was feasible to conduct surveys from armored vehicles using existing instruments if certain modifications were made on the instruments. The tests also determined the optimum placement of these instruments on the vehicles.[116]

(U) During the year the Chemical Corps Training Command made great strides in the program to memorialize deceased Chemical Corps personnel by naming streets and facilities at Fort McClellan in their honor. The names and bases for memorialization of officers and men of both combat and technical background from World War I through the Korean War were provided by the U.S. Army Chemical Corps Historical Office. The list of names included (b)(6) (Chemical Corps School Library), (b)(6) (Field), Maj. Gen. Egbert F. Bullene (Parade Ground), (b)(6) (Chemical Corps School Auditorium), (b)(6) (Circle), and Maj. Gen. Walter C. Baker (Road).[117]

(U) Two noteworthy accomplishments took place in FY 1958 in keeping with DA policy concerning the enhancement of prestige of noncommissioned officers. Noncommissioned Officers Advisory Councils were organized within the Training Command as well as within the 100th Chemical Group (COMZ) and the Chemical Corps School Support Battalion. These councils,

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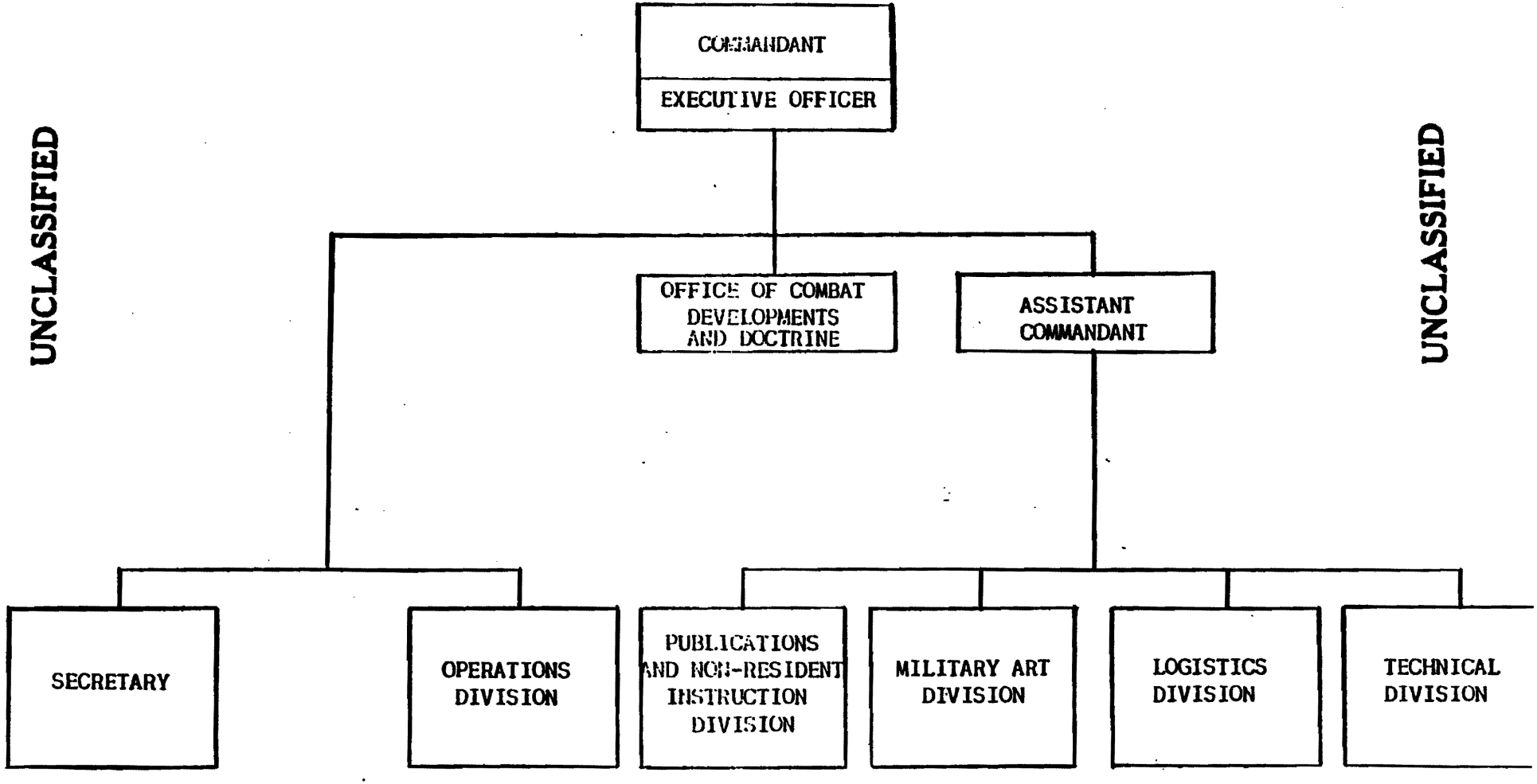
116 (1) (b)(6) interv, 28 Jan 59. (2) Rpt of Test, Field Test of Tank/Armored Vehicle - Radiac Instrument System, CmlC TNGCOM, 27 Jan 58.

117 (1) Hq Ft McClellan GO 23, 26 Nov 57; GO 1, 20 Feb 58; GO 5, 3 Jun 58. (2) Statement, (b)(6) CmlC TNGCOM, 29 Jan 59.

UNITED STATES ARMY CHEMICAL CORPS SCHOOL

Chart No. 6



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composed of senior NCO's, discussed areas where welfare and morale could be improved and made recommendations to the appropriate commanders. A measure aimed at increasing the prestige and esprit de corps of non-commissioned officers was the establishment in the 100th Chemical Group area of Bachelor NCO Quarters, which consisted of two buildings, each with a capacity of fifty. NCO's of Grade E-6 or higher who were assigned to the Training Command, the Chemical Corps School, post headquarters, and the Army hospital were eligible to occupy these quarters.[118]

(U) During the summer of 1958 elements of the 100th Chemical Group (COMZ) again contributed to the training program at Fort McClellan of National Guard and Army Reserve units. The 83d Chemical Battalion (Service) received this mission on 12 May 1958 and normal training activities for battalion headquarters and for the 501st Chemical Company (Depot) were suspended as of that date. Although two organic units of the battalion, the 22d Chemical Company (Combat Support) and the 317th Chemical Company (Processing) were excluded from this program, five other companies from the 100th Group were attached to the 83d for these support operations for different periods during the summer. Overall, these units expended a total of 12,558 man-days in the accomplishment of this mission.[119]

Chemical Corps School

(U) Although there was no major reorganization at the Chemical Corps

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118 (1) (b)(6) statement, 29 Jan 59. (2) Interv, Hist Off with (b)(6) 100th Cml Gp, 29 Jan 59.

119 (1) Quart Hist Rpt, 83d Cml Bn, Apr - Jun 58. (2) Ltr, CO 83d Bn to CO 100th Gp, 2 Sep 58, sub: After Action Report.

School during FY 1958 there was one major addition to its organizational structure and there was time to survey the results of the comprehensive changes in organization which took place in FY 1957.[120]

(U) The major addition to the School organization was an Aviation Branch which was added to the Operations Division on 1 January 1958. Its authorized strength was eleven officers and twenty-three enlisted men, and its principal mission was the provision of instruction in air radiological survey methods. Filling the branch with pilots, crew chiefs, and mechanics experienced with all the varied types of allotted aircraft proved to be a slow process. These officers and men were usually proficient in one or two of the types of aircraft assigned to the branch but not in all of them. (Aircraft assigned included 3 light cargo heliocopters, 2 recon helicopters, 1 L20, and 1 L19). The Atlanta General Depot, Fort Benning, and the Army Aviation School supported the Chemical Corps School with maintenance and flying instruction.[121]

(U) How did the rather sweeping organizational changes of the previous year work out? One innovation called for the instructional divisions to prepare the initial drafts of the several types of training publications on the theory that those who teach doctrine are in the best position to write about it. These drafts then were put in proper form

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120 See Summary of Major Events and Problems, FY 57, pp. 73 - 75, for an account of the FY 1957 reorganization.

121 (1) Quart Hist Rpt, CmlC Sch, Jan - Mar 58. (2) Interv, Col (b)(6) Cmdt CmlC Sch, 28 Jan 59. (3) Quart Hist Rpt, OACCmlO for P&D, Jan - Mar 58.

for publication by a staff of editors in the Publications and Non-Resident Instruction Division. The experience during FY 1958 with this system indicated that it would work out. The idea was good, and the instructional division produced excellent raw material. A factor which qualified its success was the overworking of instructor personnel, particularly that nucleus of experienced field grade officers whose review of almost all material was deemed essential.[122]

(U) One of the novelties of the FY 1957's reorganization was the elimination of branches within the instructional divisions. The chiefs of each of these divisions were given an overall mission; the use of personnel to accomplish this mission was left up to the individual chief. Although this system seemed to be working from the point of view of the Commandant, it encountered external opposition. The annual training inspection by OCCmlO of the Chemical Corps School, for example, resulted in a recommendation that the organization of instructional divisions be revised to reflect appropriate branches. Manpower surveys also objected to instructors performing administrative duties, a matter which would not have come up if branch chiefs had been designated. Consequently, by the end of the fiscal year branches in the instructional divisions were reinstated.[123]

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122 (1) (b)(6) interv, 28 Jan 59. (2) Interv, Hist Off with (b)(6), OACCmlO for P&D, 14 Jan 59.

123 (1) (b)(6) interv, 28 Jan 59. (2) Ltr Rpt, Lt Col (b)(6) Sr Insp to CCmlO, 6 Mar 58, sub: Annual Training Inspection of the U.S. Army Chemical Corps School.

(U) Another feature of the previous reorganization was modified but without any detrimental results. Last year the Special Troops had been changed to the School Support Battalion, from a position parallel to the School in the overall structure to a place within the School organization. This change had been in line with the policy of having the School control those units which provided its support. During the current year the Chemical Corps School Support Battalion was reassigned to the Chemical Corps Training Command with attachment to the Chemical Corps School. While this moved placed the Support Battalion back in a position parallel with the School on the organizational chart, the attached status of the Battalion meant that the School would continue to supervise its activities.

(U) A final innovation, the creation of an Office of Combat Developments and Doctrine within the School structure remained unimplemented because of a lack of qualified personnel. As a stopgap measure to provide a focal point within the School for the consideration of doctrinal problems an AD Hoc Chemical Corps School Doctrine Committee was established. Its Executive Secretary was the Chief of the Writing Branch, Publications and Non-Resident Instruction Division, its chairman, the Assistant Commandant. The latter was a permanent member of the committee as were the chiefs of the instructional divisions. Meetings were to be held when need for the clarification of a doctrinal position arose.[124]

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124 Quart Hist Rpt, CmlC Sch, Oct - Dec 57.

(U) The fact that the Office of Combat Developments and Doctrine could not be manned with officers of appropriate rank and experience represented one aspect of a rather chronic personnel problem which has faced the Chemical Corps School for some time. Not only had the overall strength of the staff and faculty been declining, while the work had remained constant or had increased, but the rank and experience spectrum of the assigned officers was poor.[125] Quite possibly enough officers could have been spared for assignment to the Office of Combat Developments and Doctrine but these would have not been officers with the prime requirements for the job -- grade and experience. Poor grade distribution also affected the overall operations of the School. Junior officers in many cases did not have the background required of instructors.[126] The officers making the annual training inspection concluded that the assignment level in the rank of lieutenant colonel and major was "significantly" less than the authorized strength and recommended that this be corrected.[127]

(U) In contrast with problems of number and rank of officers assigned to the Chemical Corps School, there continued to be an improvement in the quality of personnel, a situation which in great measure

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125 Actually, the last quarter of FY 1958 showed a decided improvement in assigned officer strength at the School, although the increase was in the form of lieutenants. This was not the case for the first three quarters nor the quarter which followed (Quart Hist Rpts, CmlC Sch, 1958, 1959).

126 (b)(6) statement, 29 Jan 59.

127 Ltr Rpt, Annual Training Inspection.

resulted from the good offices of the Career Management Division, OCCmlO.[128]

(U) One new course was inaugurated during FY 1958 and plans were made for two more. In line with the recent emphasis on RW matters, a Radiological Safety Course was established on 19 March 1958, designed to train officers and civilians in the detection and control of hazards associated with the use and handling of radioactive materials or with nuclear detonations. Two classes of the two-week course were held before the end of the fiscal year.[129]

(U) One new course approved but not conducted in FY 1958 was the Radiological Warfare Orientation Course, a one-week course designed for senior Chemical Corps officers and civilians.[130] Another one, which the Chief Chemical Officer on 13 June 1958 recommended that USCONARC approve was entitled "Nuclear Weapons Effects Officer Course." At the same time he forwarded for approval a draft program of instruction. The twelve-week course would train officers of all arms and services to perform staff functions associated with the operational aspects of nuclear warfare, including offensive employment and defensive measures. Officers completing this course would be given the MOS 7330, Nuclear Effects Officer, formerly awarded only to graduates of the Navy's

128 (b)(6) interv, 28 Jan 59.

129 (1) Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58. (2) Quart Rev, Jan - Mar 58, p. 16.

130 Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58.

two-year course at Monterey or to officers having equivalent academic and/or practical experience. To differentiate between the two applications of the Nuclear Effects Officer MOS, prefix 4, signifying competence in research and development, was added to the MOS of those graduating from Monterey or otherwise meeting the R&D requirements.[131]

(U) Another action regarding prefixes should be mentioned. In January 1958 the Commandant, Chemical Corps School, received permission to grant prefix 5, indicating nuclear weapons training, to graduates of the Chemical Officer Advanced Course and to those of the Atomic Defense Course. This action partly stemmed from a USCONARC directive requiring a greater number of officers with this competence on the staffs of division, corps, armies, and logistical commands.[132]

(U) The enrollment of students at the Chemical Corps School dropped from a total of 2,549 in FY 1957 to 2,299 in 1958. This represented 96.5 percent of the revised figure of input and was considerably lower than the number scheduled at the beginning of the fiscal year, 2,870. The drop in enrollment was caused by undersubscription of several officer and enlisted classes, factors largely under the control of TAG and CG USCONARC.[133]

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131 (1) Quart Rev, Apr - Jun 58, p. 18. (2) Quart Hist Rpt, OACCmlO for P&D, Apr -Jun 58. (3) (b)(6) interv, 28 Jan 59. (4) (b)(6) interv, 14 Jan 59. (5) (b)(6) interv, 12 Feb 59.

132 (1) Quart Rev, Jan - Mar 58, p. 16. (2) (b)(6) interv, 12 Feb 59. (3) Memo, OCCmlO, 15 Jan 58. (4) USCONARC Memo 19, 23 Jul 57.

133 Quart Revs, Jul - Sep 57, p. 23; Oct - Dec 57, p. 24; Jan - Mar 58, p. 16; Apr - Jun 58, p. 18.

CBR Orientation Course

(U) On 17 June 1958 the Vice Chief of Staff, U.S. Army, approved the establishment by the Chemical Corps of a high level course to orient senior commanders and key staff officers on the capabilities of chemical and biological warfare. This represented the fruit of several years planning by the Chief Chemical Officer,[134] who thought that any "indifference" to CBR on the part of these senior officers resulted primarily from a "lack of understanding and knowledge." General Creasy felt the CBR Orientation Course would be a vehicle to overcome this lack of understanding and knowledge.[135] The course would be taught at the newly organized U.S. Army Chemical Corps CBR Weapons School located at Dugway Proving Ground. The first class was scheduled for the first quarter of FY 1960.[136]

Pulications

(U) For several years adjustments had been made in the Chemical Corps training literature program in an attempt to co-ordinate the publication of manuals with the programs which produced the basic data from which the manuals were prepared. In FY 1956 a two-year literature program was adopted in the hope of achieving the necessary correlation.

134 See Summary of Major Events and Problems, FY 56, p. 108, FY 57, p. 79.

135 Biennial Rpt, Maj Gen Creasy.

136 (1) Quart Hist Rpt, OACCmlO for P&D, Apr - Jun 58. (2) Edwards interv, 14 Jan 59.

Experience proved that even this was an insufficient time.[137] During FY 1958 both the publication program and the Combat Developments Program were extended to five years. As explained above, the synchronization of the programs of these interdependent activities was expected to be mutually beneficial.[138]

(U) As a matter of fact, the accomplishments in the production of training literature in FY 1958 were considerable, nontheless. Four of the seven field manuals programmed for the year were completed, although not all were printed and distributed. These were: FM 3-5, Tactics and Techniques of CBR Warfare; FM 21-40, Small Unit Procedures in Atomic, Biological and Chemical Warfare; FM 21-41, Soldiers Manual for Nuclear, Biological and Chemical Warfare; FM 3-130, U.S. Army Chemical, Biological and Radiological Warfare (CBR) Intelligence. Of the others, one was suspended, one was changed to a training circular, and the third, FM 3-50, Chemical Smoke Generator Battalion and Chemical Smoke Generator Company, was carried over to the following year.

(U) Three of the four scheduled technical manuals were completed during the year -- TM 3-225, Radiological Survey of Field Military Installations; TM 3-200, Capabilities of Employment of Toxic Chemicals; and TM 3-366, Fire Bomb and Flame Thrower Fuels. The fourth was suspended.

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137 Summary of Major Events and Problems, FY 57, p. 80.

138 See above, pp. 39, 41.

(U) Outstanding progress was made with training films. Thirteen were programmed for FY 1958 and during the course of the year seven more were converted from film strips. Of this total of twenty, eighteen were completed, reviewed, and approved for distribution, while the other two were in their final phase of completion. All programmed graphic training aids were finished except the one for the E13 protective mask which remained unfinished because of the status of development of that item.

(U) The Chemical Corps School prepared an ROTC brochure entitled "Chemical Corps Careers in the U.S. Army." Approved by DCSLOG, published in June 1958 by TAG, and distributed to all colleges and universities having an ROTC program, this brochure was aimed at arousing the interest of cadets in a career with the Chemical Corps.[139]

Field, Command Post, and Logistical Exercises

During FY 1958 three exercises, one field, one command post and one logistical, proved to be of particular interest to the Chemical Corps. The first was Exercise INDIAN RIVER held at the Yakimo Firing Center, Wash., in May 1958; the second was Exercise CUMBERLAND HILLS, which took place at Fort Bragg, N.C., during the last week in May; and the last was the annual logistical exercise LOGEX 58, held as usual in May at Fort Lee, Va.

The first two exercises included tests of a new organization,

139
(1) Quart Rev, Apr - Jun 58, p. 18. (2) Interv, Hist Off with (b)(6) OACCm10 for P&D, 14 Jan 59. (3) (b)(6) interv, 28 Jan 59. (4) Quart Hist Rpt, OACCm10 for P&D, Apr - Jun 58.

the Radiological Center (RADC). Developed jointly by the U.S. Army Field Requirements Agency and the U.S. Army Chemical Corps School, the Radiological Center had as its mission the prediction, survey, computation, plotting, and dissemination of fallout information from enemy nuclear weapons.[140] USCONARC directed that Exercise INDIAN RIVER, primarily a maneuver for the 4th Infantry Division, include a troop test of the radiological monitoring and survey capabilities of the pentomic infantry division (ROCID). The Chemical Corps Field Requirements Agency prepared the troop test plan.[141]

(U) Specific test objectives were (1) the determination of ROCID capability to obtain, process, and disseminate fallout data using the authorized radiac instruments and communication equipment, (2) the determination of the adequacy of current doctrine on radiological matters, (3) the determination of the radiological survey support to ROCID of the chemical platoon, combat support, and (4) an evaluation of the radiation survey training set 48E1a in field exercises.[142]

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140 (1) See above p. 47 for more on the origins of the Rad Center. (2) Quart Hist Rpt, CmlC Sch, Apr - Jun 58.

141 This plan (Project CMLFR 56) published on 20 December 1957 and approved by USCONARC on 10 January 1958 appears as Annex B of Final Report, Troop Test Radiological Monitoring and Survey Capabilities of ROCID, Exercise INDIAN RIVER, May 1958.

142 (1) Final Report, Troop Test Radiological Monitoring and Survey Capabilities of ROCID, Exercise INDIAN RIVER, May 1958, p. 1. (2) The 48E1a, developed by the Navy, consisted of a radio transmitter and ten small transistorized radio receivers which simulated radiac instruments. It was the only safe, realistic device for introducing atomic defense training into field exercises without involving actual radiation (Quart Hist Rpt, CmlC Sch, Apr - Jun 58).

(FOUO) Among the conclusions resulting from the test were (1) the division radiological center was capable of handling fallout prediction for both friendly and enemy nuclear weapons, (2) no basic flaws were revealed in the organization and concept of operation of the combat support platoon, although it did not get enough utilization to thoroughly evaluate its capabilities, and (3) the radiological survey training set worked well with certain limitations. Recommendations included (1) the revision of the appropriate training circular to include information on multiple yield fallout prediction, (2) the revision of doctrine to place on the RADC responsibility for fallout prediction for friendly as well as enemy nuclear weapons, and (3) the provision of radio communication for the RADC.[143]

[redacted] The CUMBERLAND HILLS CPX had as a secondary mission the testing of the radiological centers of the three participating infantry divisions. A report submitted by the eight Chemical Corps officers at the exercise stressed the difference in preparedness, training, and composition of the divisional RADCs, the 1st having one which was well equipped and well trained, the 101st having one which was well equipped but poorly trained, and the 82d having virtually no RADC at all.[144]

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143 Final Report, Troop Test Radiological Monitoring and Survey Capabilities of ROCID, Exercise INDIAN RIVER, May 1958, pp. 8 - 10.

144 Report on Radiological Center Operations in Exercise CUMBERLAND HILLS, Fort Bragg, N.C., 25 May - 31 May 1958, p. 2.

Some of the conclusions of the unofficial report advocated a radiological center with a full complement of well trained personnel and one which was completely mobile, completely equipped with communication facilities, and, ideally, equipped with its own aircraft. The Chemical Corps observers felt that at this particular exercise the command personnel were not properly oriented on the purpose and responsibilities of the radiological center.[145]

(S) Eighty Chemical Corps officers, including the members of the Advanced Class, participated in LOGEX 58, held 12 - 17 May, either as players or umpires. In addition, ten Corps officers were present as observers. Pre-exercise preparation for Chemical Corps Advanced Class students took the form of CHEMEX, a forty-hour period of special classes presented by the Chemical Corps School.

(S) The objectives of LOGEX 58 were (1) practical application by students of instruction received at service schools, (2) training of certain Reserve officers, (3) stress of the importance of maintaining continuous logistical support under assumed combat conditions and against an enemy with mass destruction weapons, and (4) emphasis of inter-technical service team play and the need for interservice co-operation of Army, Navy, and Air Force for the fulfillment of the logistics mission in the theater of operations.[146]

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145 Ibid., pp. 20 - 21.

146 Report of the Maneuver Director, LOGEX 58.

[redacted] The total number of personnel involved in LOGEX 58 was 5,793, 10 percent of whom were observers. Doubtless, this was the reason for a conclusion in the Chemical Corps final report concerning the interruption of student play by the excessive number of visitors in the area. The Chemical Corps also concluded that LOGEX 58 attained its stated objectives and proved an excellent vehicle for all participants -- players, umpires, Reserve officers on active duty for training, and enlisted men. It felt that the exercise did not provide for the realistic play of radiological contamination and that a radiological center in the major commands would have resulted in more realistic atomic play. As far as chemical warfare was concerned, the only large scale attack of this nature took place during the last day, a circumstance of timing which reduced the full impact of CW on the overall operations.[147]

Intelligence

(U) On 21 March 1958 the Chemical Corps Intelligence Agency (CCIA) moved from Building T-7 to Arlington Hall Station, the home of the Army Security Agency (ASA) and the intelligence agencies of several other technical services.[148] There it acquired similar facilities but

147 Final Report LOGEX 58, incl to ltr, Comdt, CmlC Sch to Maneuver Director LOGEX 58, 29 May 58.

148 This section on intelligence activities is based upon the following: (1) Interv, Hist Off with Maj [redacted] CCIA, 15 Jan 59. (2) Interv, Hist Off with Capt [redacted] CCIA, 15 Jan 59. (3) Quart Hist Rpts, CCIA, FY 58. (4) Quart Revs, Class Sups, FY 58.

of increased capacity. The CCIA underwent a few organizational changes during the year which were designed to improve efficiency and tighten security. The Adjutant was placed in charge of the Administrative Division, and the former Chief, Administrative Division, in a position directly under the Deputy Commander, was made responsible for all budget, fiscal, and programming activities. The Document Library Branch was moved from the Administrative Division to the Collection and Operation Division, whose Chief was made Security Officer for the entire Agency. As the year ended plans were underway for a major reorganization early in FY 1959.

(U) Throughout the year this Agency had a civilian strength very close to its authorized number of forty. The shortage in its military strength lay primarily in the enlisted area. In May 1958 the Chief Chemical Officer delegated most civilian personnel responsibilities to the Chief, CCIA, who in turn delegated them to the commanding officer ASA. The consolidation of these civilian personnel responsibilities at Arlington Hall was proving to be extremely satisfactory.

(U) FY 1957 had seen the establishment at Fort Detrick of a Technical Intelligence Office, CCIA, and in the year under discussion a like organization was activated at the Army Chemical Center. The latter took over the facilities of the 42d Chemical Laboratory which was inactivated in June 1958. The function of these organizations was the integration of intelligence activities with other activities of the Chemical Corps. The Office at Army Chemical Center assumed the

responsibilities of the former 42d Laboratory in the evaluation of foreign equipment and materiel.

During the year the 51st and the 52d Chemical Detachments (TI) were inactivated and the fate of the 503d Chemical Detachment (TI) in Camp Zama, Japan, was in doubt as the year ended.

Collection activity during the year included the completion of the program sponsored by the Assistant Chief of Staff, Intelligence (ACSI), and the CIA for the interrogation of Hungarian refugees.[149] CCIA personnel interviewed nine of these people who had some experience with industrial or military chemical activities. The resulting information, some new and some confirmatory, included: (1) that Hungary was actively interested in offensive CW, especially mustard, (2) that it could not sustain chemical warfare without Soviet assistance, and (3) that the USSR and its satellites would initiate CW and RW if they felt the conditions warranted it.

The Canadian Joint Intelligence Bureau asked the CCIA to participate in the interrogation of an escaped Polish Major who had had experience with the chemical branch of his country's armed forces. Not only did the interrogation result in some valuable information, but it was an indication of the good rapport that exists between this country and the Dominion of Canada.

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149 Summary of Major Events and Problems, FY 57, p. 86.

[redacted]n exchange of protective masks was arranged with Switzerland. Three U.S. M9A1 masks were sent to that country in return for three Swiss masks. The latter were tested by the Technical Intelligence Office at Army Chemical Center and the results sent to Chemical Corps agencies and to the Swiss government.

[redacted]The CCIA continued to improve techniques for the collection of information. Chemical Corps delegates to the 12th Tripartite Conference held in September in England were briefed on the subject, and CCIA provided increased guidance to collectors in the field.

(U) The year saw a number of changes in intelligence publications. A consolidated Combat Equipment Technical Intelligence Bulletin, in which the Chemical Corps was allocated almost 100 pages, replaced DA Pamphlet 30-12-1, Foreign Military Weapons and Equipment Reference Handbook, first published in 1955. The Army eliminated four types of publications -- Intelligence Collection Guide, Specific Request for Information, Intelligence Collection Memo, and Summary of Current Needs -- and replaced them generally with four others -- DA Long Range Intelligence Needs, DA Short Range Intelligence Needs, DA Consolidated Statement of Intelligence Requirements, and DA Technical and Scientific Intelligence Guide.

[redacted]Among the important CBR Intelligence Studies produced by CCIA were "Soviet Development and Production of G and V Agents," which concluded that the USSR had a 6 or 7 year lead over the United States in the former agent and 4 in the latter; "Economic Import to Crop and Animal Losses"; and "Role of the Soviet Chemical Service in Support of Nuclear Warfare." Other studies appeared on all known Soviet Bloc chemical units [redacted]

RESEARCH, DEVELOPMENT AND ENGINEERING

Administration

(U) Research and Development activities in the Chemical Corps were carried on by the Research and Development Command (RDCOM) and by the Engineering Command (ENCOM) (Charts 7 and 8). At the end of September the command of RDCOM changed hands when Brig. Gen. Jacquard H. Rothschild left the Army to accept a professorship of chemical engineering at the University of Colorado, and was succeeded by [redacted].

(U) In the spring of 1958 [redacted] carried out a reorganization within the headquarters of RDCOM by combining the Process Development Division and the Products Development Division into a Development Division, as shown in Chart 9.[150]

(U) At Dugway Proving Ground [redacted] carried out a reorganization at the end of 1958. This was done to economize on operations, and to conform to the latest testing requirements. [redacted] divided the Proving Ground's activities into two phases; support and technical. Under the Director of Technical Operations he placed 4 divisions - chemical warfare, technical services, biological warfare, radiological operations. Under the Director of Post Operations he placed all the supporting activities,

150
Hq RDCOM GO 1, 3 Apr 58. (2) Interv, Hist Off with Mr [redacted] 3 Mar 59.

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U.S. ARMY CHEMICAL CORPS RESEARCH AND DEVELOPMENT COMMAND

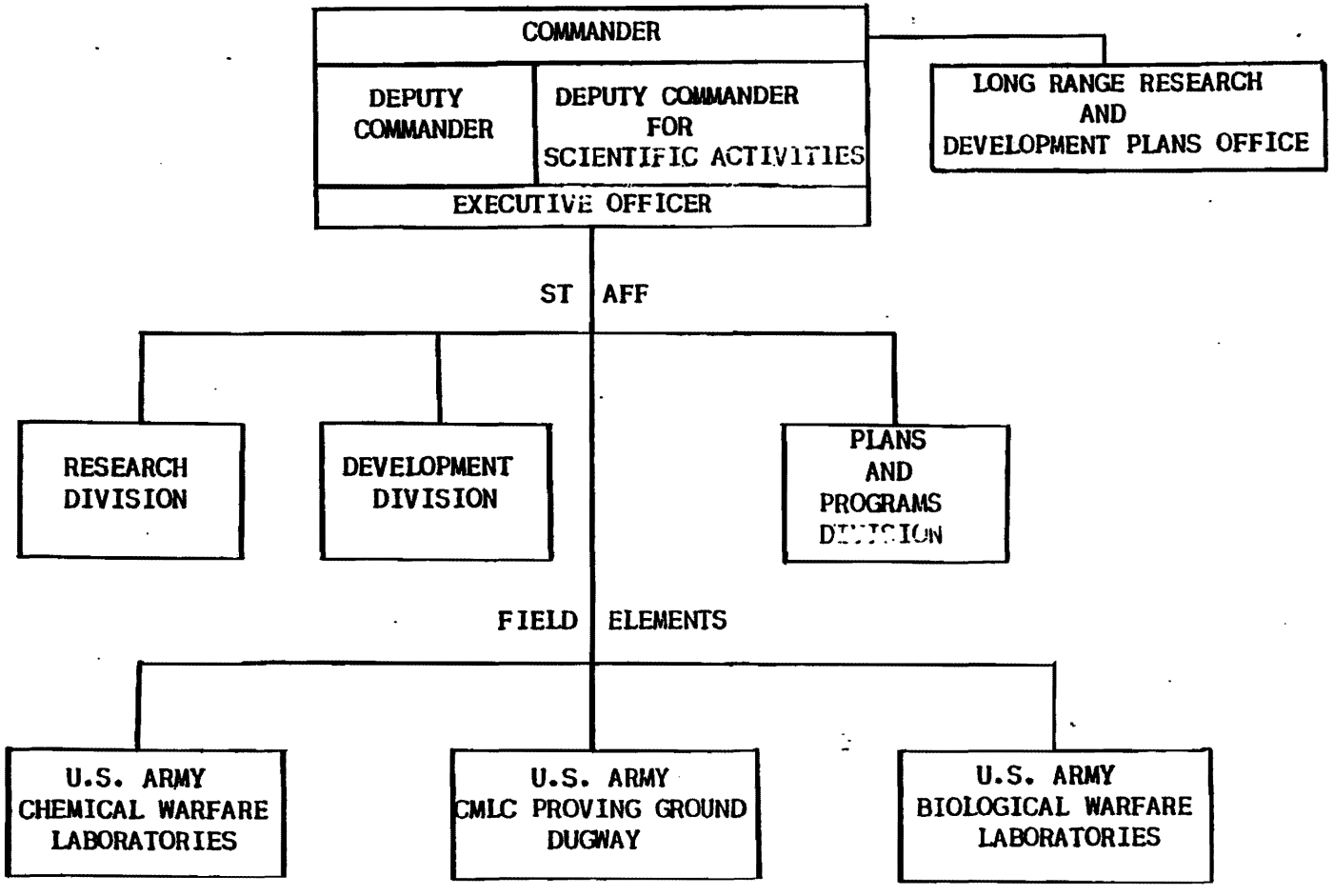

Chart No. 7

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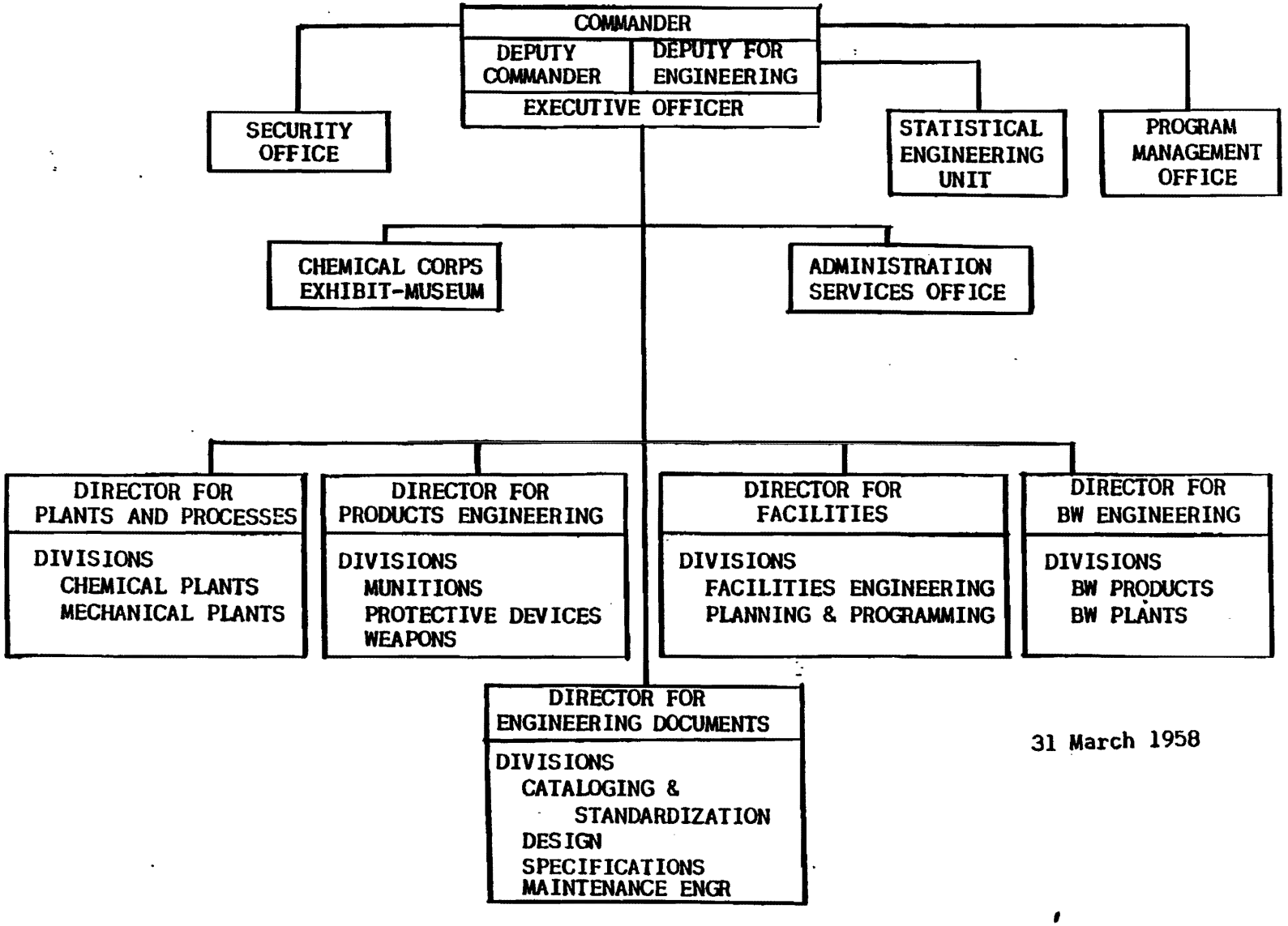
U.S. ARMY

CHEMICAL CORPS ENGINEERING COMMAND



31 March 1958

Chart No. 8

UNCLASSIFIED

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HEADQUARTERS, U.S. ARMY CHEMICAL CORPS

RESEARCH AND DEVELOPMENT COMMAND

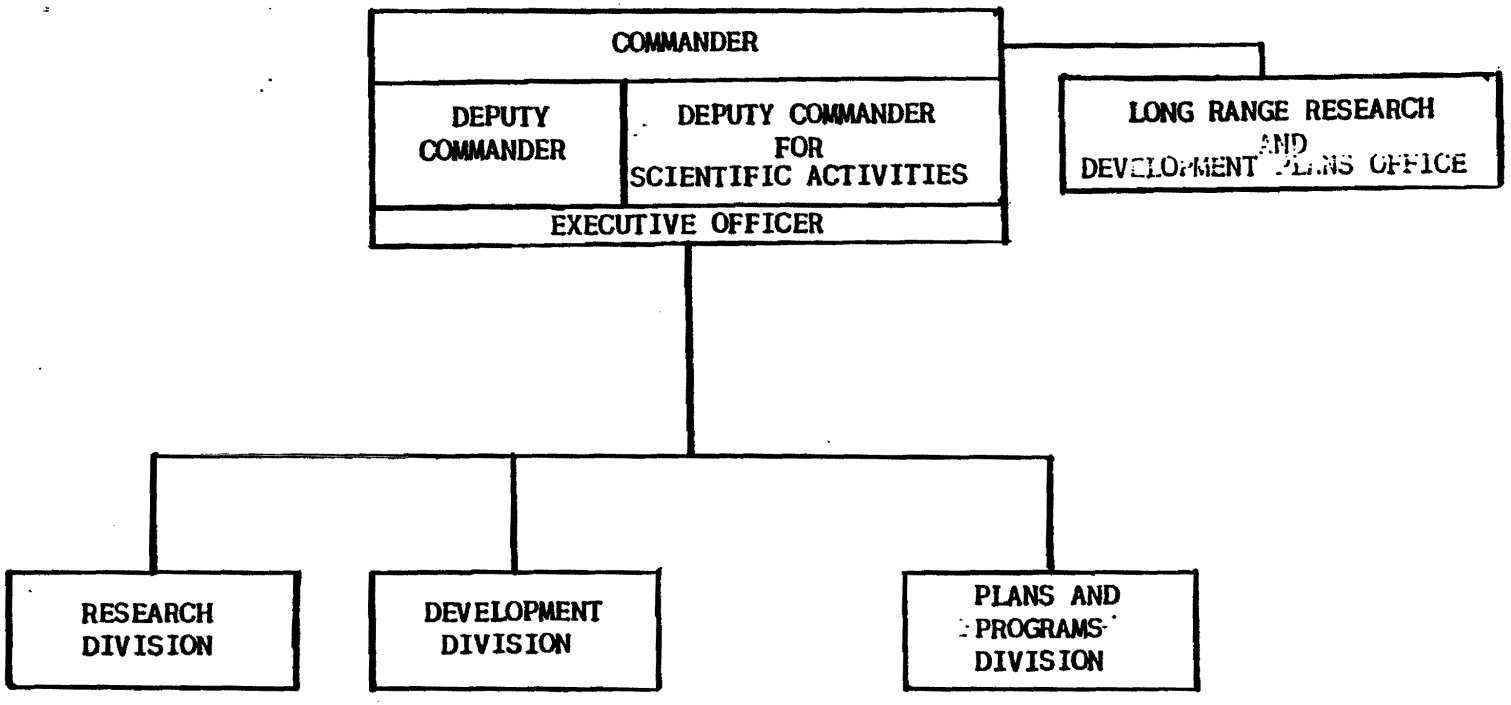


Chart No. 9

U.S. ARMY CHEMICAL CORPS RESEARCH AND DEVELOPMENT COMMAND

U.S. ARMY CHEMICAL CORPS PROVING GROUND

DUGWAY PROVING GROUND

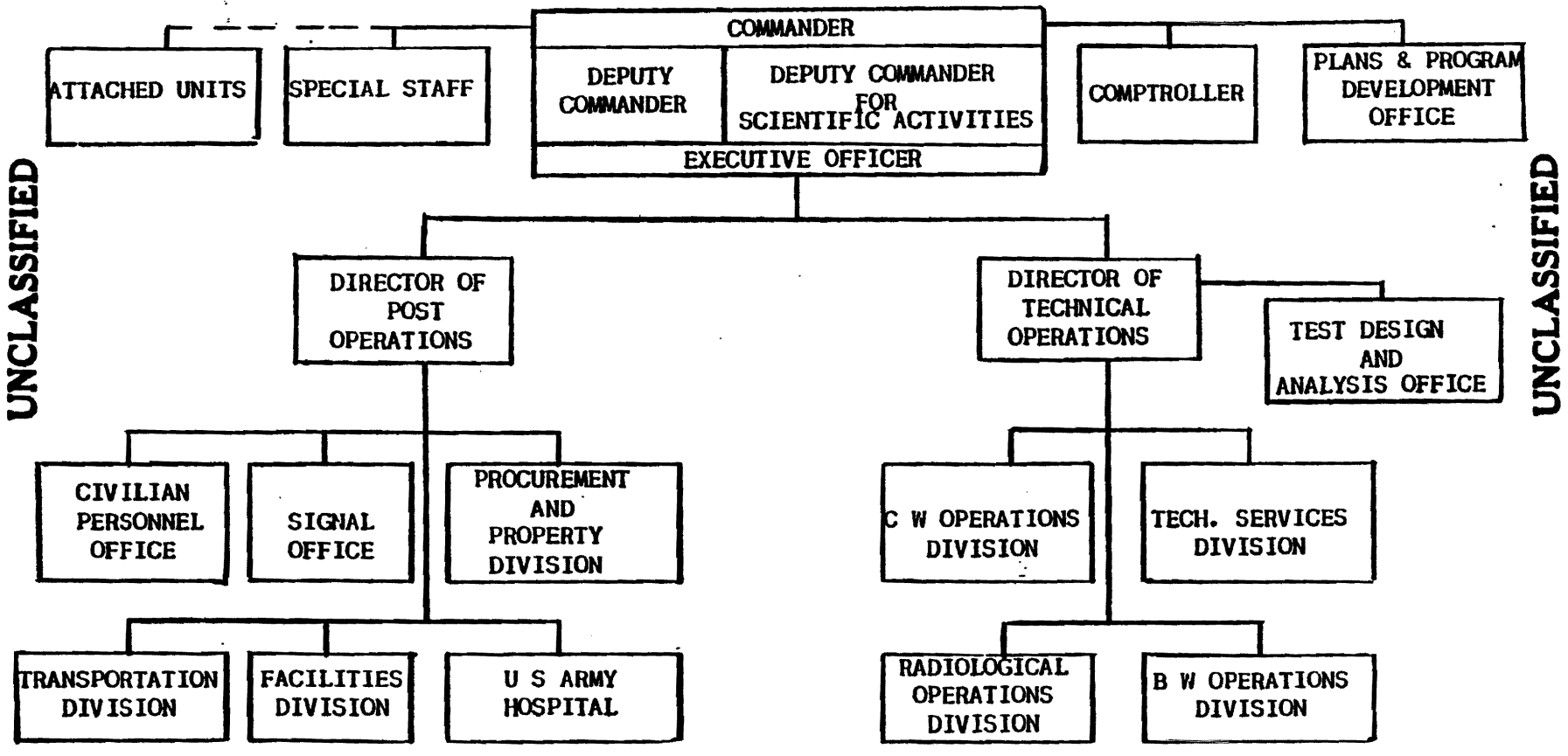


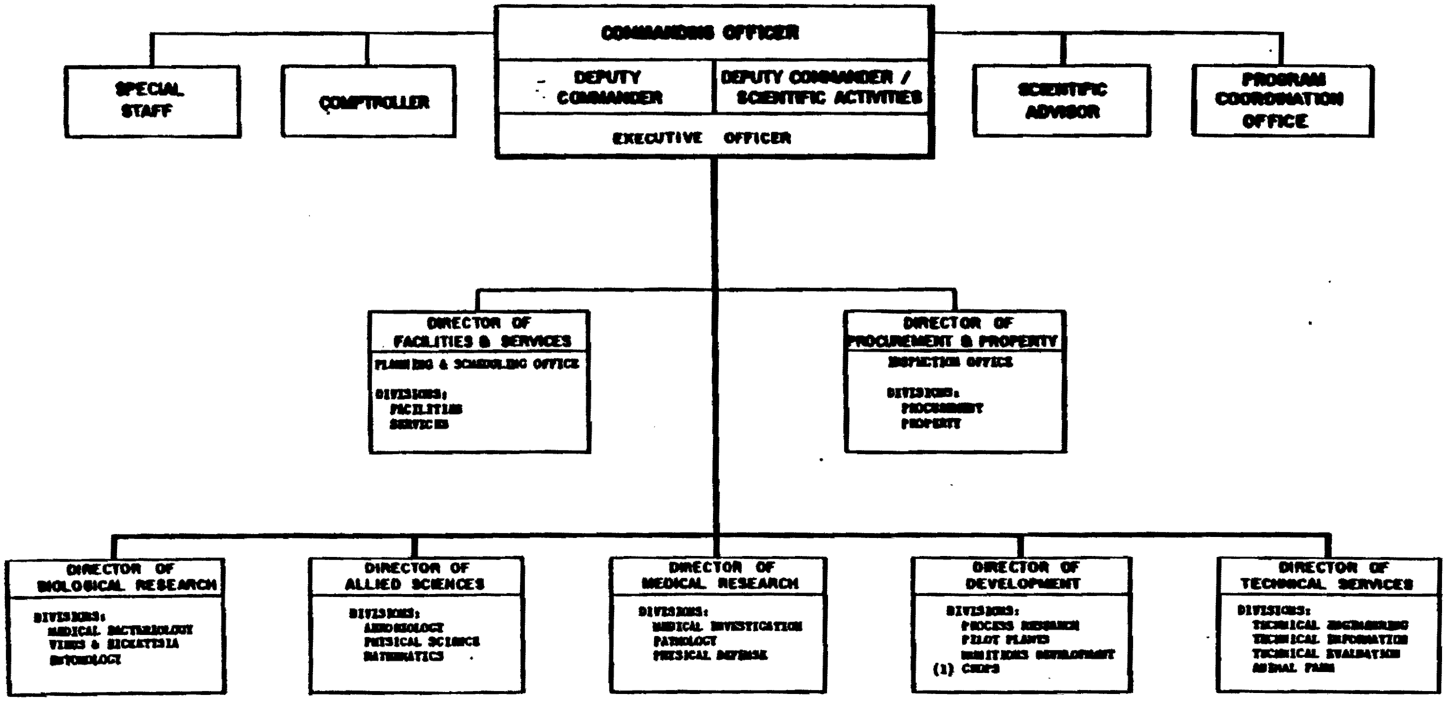
Chart No. 10

U.S. ARMY CHEMICAL CORPS RESEARCH AND DEVELOPMENT COMMAND

U.S. ARMY BIOLOGICAL WARFARE LABORATORIES

FORT DETRICK

Chart No. 11



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SUBMITTED:
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APPROVED:
COMMANDING, CMLCRDCOM

DATE: 1 February 195[illegible]

[redacted]

as shown in Chart 10.[151]

(U) At Fort Detrick (b)(6) assumed command of the U.S. Army Biological Warfare Laboratories on 5 August 1957. Before coming to Fort Detrick (b)(6) had been the Commanding Officer of Rocky Mountain Arsenal, Denver, Colorado. (b)(6) who had commanded Fort Detrick since 3 October 1953 went to the Army War College at Carlisle Barracks, Pennsylvania.

[redacted] On 1 February 1958, (b)(6) realigned the organization of the Biological Laboratories. (Chart 11). This was necessary because of the decrease in the amount of money made available for biological warfare research and development, because of the phasing out of anticrop research and development, and because of a reduction in force of more than 200 civilian employees. The major changes resulted in (1) the separation of the research portion of the program into three major organizational elements: Medical, Biological, and Allied Sciences; and (2) the grouping together of technical service elements under one directorate, which included a new central engineering organization. The changes clarified and defined more precisely the organizational missions, and led to increased co-ordination between the various elements of the Laboratories.

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151 (1) Quart Hist Rpt, Dugway Proving Ground, Oct - Dec 57. (2) Hodgkinson interv, 3 Mar 59.

[redacted]

(U) During the fiscal year the Engineering Command increased its responsibilities by the acquisition of the U.S. Army Chemical Corps Museum. On 29 March 1958 the Chief Chemical Officer merged the Museum, located at Army Chemical Center, Maryland, with the U.S. Army Chemical Corps Exhibit and assigned the new unit to the Engineering Command. (b)(6) Jr., appointed (b)(6) director of the unit and the Chemical Warfare Laboratories transferred the museum curator and his assistants, who had been on the CWL payroll, to the unit.[152]

(U) The Mission of the U.S. Army Chemical Corps Exhibit - Museum was the following:

a. Maintain and operate a Museum for exhibit and display of various devices and models of domestic and foreign products of Chemical Warfare, both of defensive and offensive nature.

b. Maintain and display upon request a traveling exhibit of specially designed panels and items of Chemical Corps materiel that relate to the Corps' role in the Department of Defense (DOD) and in support of Civil Defense.[153]

(U) Another change in the organizational structure of ENCOM took place during the year as (b)(6) reorganized the Directorate of Engineering Documents, establishing Maintenance Engineering as a separate division and

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152 (1) OCCmlO GO 11, 19 Mar 58. (2) USA CmlC ENCOM GO 4, 29 Mar 59. (3) See above p. 29 for more about Exhibit.

153 Annual History, USA Chemical Corps Exhibit-Museum Unit, 31 Dec 58, p. 1.

thereby increasing the efficiency of the Directorate. At the end of the period under review, the Engineering Command was organized along the lines shown in Chart 8.[154]

(U) On 24 June 1958 (b)(6) left the Engineering Command to take command of Rocky Mountain Arsenal, Denver, Colorado. (b)(6) who had been chemical officer, USCONARC, Fort Monroe, became the new Commanding Officer of ENCOM.

(U) The funds allocated for research and development as of 30 June 1958 were $35,867,000, approximately 33 percent of the Corps' obligations, and a decrease from the $38,065,000 obligated by the end of FY 1958. This decrease in funds continued a trend that had been going on for several years. It has been of considerable concern to the Chief Chemical Officer and all those engaged in the scientific activities of the Corps because the combination of inflation and smaller appropriations has meant a real cut in the money available for technical work.[155]

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154 Interv, Hist Off with (b)(6) Prog Mgmt ENCOM, 26 Feb 59.

155 (1) Summary of Major Events and Problems, FY 57, p. 88. (2) Quart Rev, Apr - Jun 58, p. 90. (3) Presentation by (b)(6), Meeting of the U.S. Army Chemical Corps Advisory Council, 5 - 6 Dec 57, p. 9.

[redacted]

(U) The research and development funds received from other agencies were as follows:

Source	Amount as of 30 June 1957 [156]	Amount as of 30 June 1958 [157]
Navy	$1,064,904	$634,754
Air Force	1,066,778	297,670
Ordnance	333,147	14,500
Surgeon General	405,204	150,000
Quartermaster	122,735	175,000
Armed Forces Special Weapons Project	289,616	249,016
Walter Reed	---------	104,399
Corps of Engineers	---------	27,000
Working Funds	---------	791,971

[redacted]At the start of FY 1958 the Corps was conducting its research and development program through 38 projects in the CW-RW area, 21 in the BW area, and 3 in the testing area. In order to keep the project program in agreement with the Department of the Army program, the Research and Development Command realigned the program in November, 1957, decreasing the number of projects in the CW-RW area from 38 to 19. In January 1958, the Command decreased the number of BW projects from 21 to 16, the action

156 CCTC Item 3323.

157 CCTC Item 3422.

to take effect at the beginning of the next fiscal year.[158]

Ad Hoc Committee on Assessment

On 25 June 1957 General Creasy established an Ad Hoc Committee on Assessment to evaluate the Chemical Corps' assessment and testing programs and to recommend improvements in these fields. Two important reasons for the establishment of this committee were the high cost of tests, particularly in the face of the decreasing research and development funds available to the Corps, and the feeling that the Corps might not be getting the maximum amount of information from its tests.

General Creasy appointed (b)(6) Chemical Corps Board, chairman of the Committee. On the Committee with Colonel (b)(6) were representatives of the Engineering Command, Proving Ground, Materiel Command, Chemical Warfare Laboratories, Chemical Corps Board, Biological Warfare Laboratories, and Operations Research Group.

The Committee began its task by ascertaining the views of (b)(6), Deputy Chief Chemical Officer for Scientific Activities (DCCmlO/SA). It then went on to study all documents relating to Chemical Corps tests in order to learn what agencies were involved and how tests fitted into the agencies' programs. The Committee next interviewed executives in those agencies to find the problems involved in testing and to obtain suggestions for solving the problems.

158
(1) CCTC Item 3388. (2) CCTC Item 3402.

[redacted]

[redacted]From all this information the group sought to develop simple, practical measures for improving the assessment program, without disrupting morale, projects, or organizations. Its report took the form of a series of conclusions, refined by sufficient discussion to prevent misunderstanding, and followed by recommendations and suggestions.

[redacted]On 19 June 58 General Creasy distributed the report and directed his commanders to implement it. By following the recommendations of the Committee, the Corps hoped to improve its ability to define and to meet objectives and to provide greater responsiveness from the assessment program.[159]

[redacted]

(b)(2) HIGH

(b)(2) HIGH

(b)(2) HIGH

[redacted]

(b)(2) HIGH

[redacted]

[redacted]

(b)(2) HIGH

[redacted]

had suggested this program for two reasons: to enhance the Corps chemical warfare potential by means of outside research, and to increase the number of American scientists who would be aware of the Corps' program and who therefore would be prepared to be assigned to the Corps in case of national emergency.

[redacted]nder the Kharasch program the Corps has signed a contract with the University of Chicago, under which Dr. Kharasch had been appointed principal investigator. Dr. Kharasch, in turn, prepared and monitored a number of subcontracts with university researchers. During 1958 there were 7 contracts. Each contractor works on a long-range project of his own choosing, unrestricted in any way except that it had to be of interest to the Corps. (b)(2) HIGH (b)(2) HIGH Dr. William J. Bailey of the University of Maryland was working on high molecular weight polymers. Dr. Sidney Winehouse, Lankenau Hospital Research Institute, was trying to obtain basic information on brain metabolism. Dr. John A. Hinckley, of John A. Hinckley & Associates, was conducting research on photography of fast moving aerosol particles. Dr. Peter A. S. Smith, of the University of Michigan, was investigating isocyanides. (b)(2) HIGH (b)(2) HIGH Dr. Kopple, at the University of Chicago, was studying mechanism of very fast reactions to improve the Chemical Corps detection procedures.

[redacted]

(U) With the death of Dr. Kharasch the program no longer had a principal investigator. The University of Chicago tried to make a replacement, but those men who were desirable because of their stature would not accept the responsibility of administering the contract, supervising the contractors, evaluating results in terms of benefits to the Corps, and recommending any changes needed in the program. The University finally decided to drop the contract after the expiration date. This left the Corps with two problems: finding someone to administer the program, and finding someone to take Dr. Kharasch's place as supervisor. At the end of the fiscal year the feeling was that both the administration and technical supervision would be carried on by the Chemical Warfare Laboratories with the same subcontractors continuing their work.[163]

(b)(2) HIGH

163
(1) CmlC Consolidated R&D Annual Report, 31 Dec 57, Project 4-08-03-016-07. (2) Presentation by (b)(6), Meeting of the Agents Committee, USA CmlC Advisory Council, 12 - 13 May 58, pp. 87 - 92.

164
This section is based on the following: CmlC Consolidated R&D Annual Report, 31 Dec 57, Project 4-08-03-016-07.

[redacted]

(b)(2) HIGH

[redacted] Later the Department of Defense noted the absence of the Anticrop research and development program, and wrote to the Department of the Army, stating that this was contrary to DOD directives. The Joint Chiefs of Staff then took the matter up, but the outcome remained the same. The Army, Air Force, and Navy stated they had no funds, and the Chemical Corps had to phase out the program by the end of December 1957.

(b)(2) HIGH

166 CCTC Item 3412, 27 Mar 58.

(b)(2) HIGH

[redacted] UNCLASSIFIED [redacted]

(b)(2) HIGH

[redacted]

(b)(2) HIGH

Operation LAC

[redacted] Operation LAC, which received its name from the initials of the words, "Large Area Coverage," was the largest test ever undertaken by the Chemical Corps. The test area covered the United States from the Rockies to the Atlantic, from Canada to the Gulf of Mexico. In brief, the Corps dropped a myriad of microscopic particles from a plane, and determined the distance and direction these particles traveled with the wind. The Corps wanted to learn these things: would it be feasible to contaminate a large area by this method using, for example, BW organisms, and if so, what logistics would be involved.

[redacted] The first test took place on 2 December 1957. A C119 "flying boxcar," loaned to the Corps by the Air Force, flew along a path leading from South Dakota to International Falls, Minnesota, dispersing fluorescent particles of zinc cadmium sulfide into the air. A large mass of cold air moving down from Canada carried the particles along. Meteorologists expected the air mass to continue south across the United States, but instead it turned and went northeast, carrying the bulk of the material

168

(1) Technical Study No. 6, Military Effectiveness of Bacterium Tularense (c), Program Co-ordination Office, Fort Detrick. (2) CCTC Item 3458, 27 Aug 58.

into Canada. The test was incomplete, but it was partially successful since some stations 1200 miles away in New York State detected the particles.

[redacted] Dugway ran a second trial in February 1958. This time the "polar outbreak," as the Canadian cold air masses are generally called, continued on to the Gulf of Mexico, carrying fluorescent particles with it. As the air mass moved south the front broadened so that the line of particles 200 miles long at the aircraft's path had spread out to 600 miles at the Gulf.

[redacted] The sampling scheme set up by Dugway was quite elaborate. Scientists at Fort Detrick devised a collecting device consisting of a filter and a pump to draw the air through the filter. The filter trapped fluorescent particles in the inspirated air. A special counting device was used to ascertain the number of particles on the filter. The Civil Aeronautics Authority co-operated by having its personnel at 63 CAA stations collect samples, and the Weather Bureau did the same at 112 stations. The stations mailed the 2200 filters employed in each test to Dugway, where technicians made the count.

[redacted] During the spring of 1958 Dugway conducted two additional tests, this time with the wind blowing haphazardly instead of steady from the north. In the first, the plane flew south from Toledo, Ohio, and then turned west to Abilene, Texas. In the second, the course ran from Detroit to Springfield, Illinois, then west to Goodland, Kansas. Sampling stations on both sides of the flight path reported particles, proving that random flight over a target area would disperse small particles widely.

[redacted]hese tests proved the feasibility of covering large areas of a country with BW agents. Many scientists and officers had believed this was possible, but LAC provided the first proof. While the tests were a great step forward, they did not provide the Corps with nearly as much data as the Corps would like to have had in order to predict the behavior of particles released in clouds. To obtain additional data the Corps planned further tests for the next fiscal year.[169]

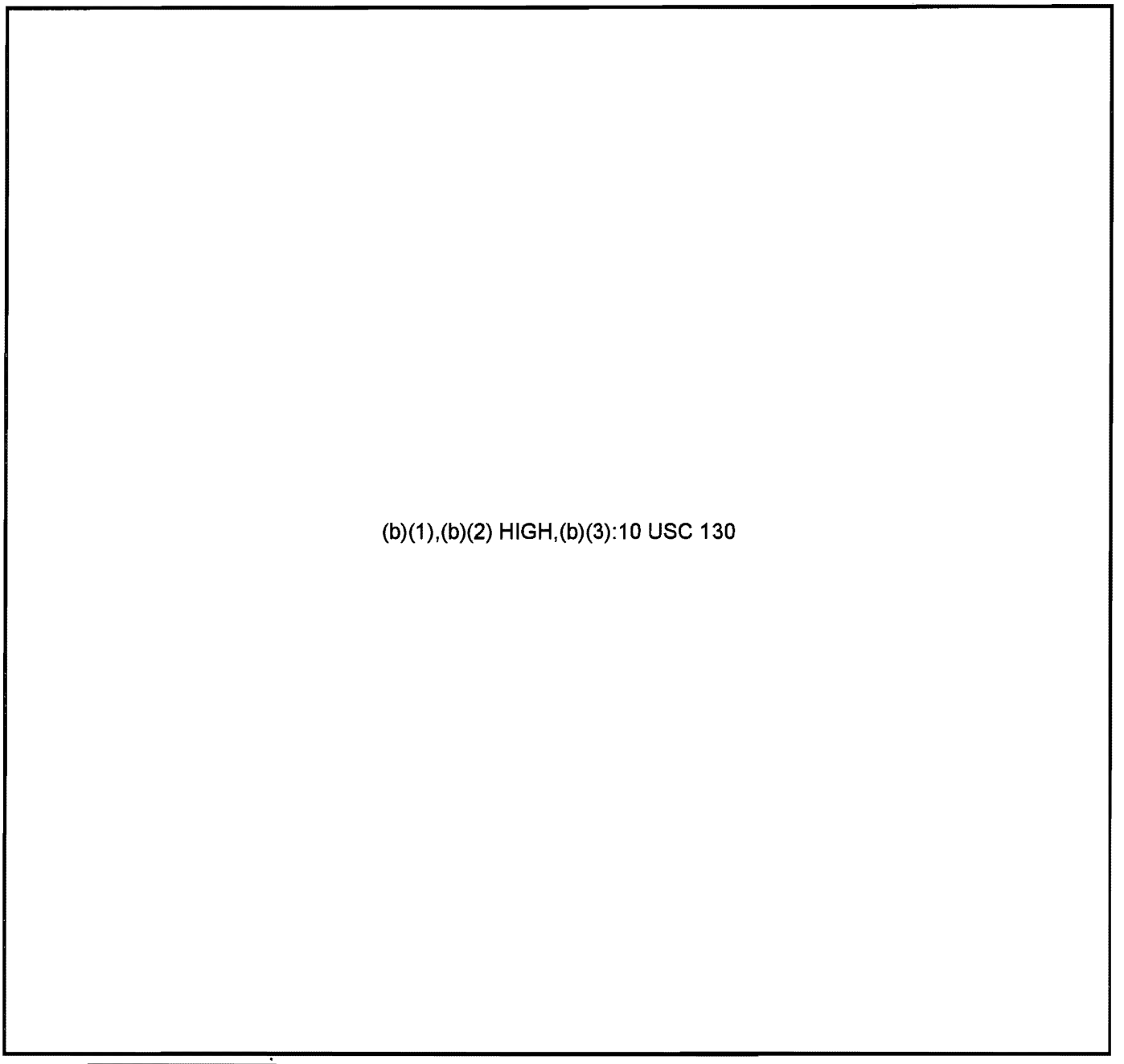
One-Shot Flame Thrower

(U) During World War II one of the problems that arose in the use of flame throwers was the servicing that had to be done in theaters of operation before weapons could be used. The Corps decided that one way of [redacted]y-passing this obstacle was to design a single shot flame thrower that could be shipped from the United States ready for use. Engineers worked on the weapon but did not perfect it in time for battle. Development continued until 1949, when the Corps, forced to economize, cancelled the project.

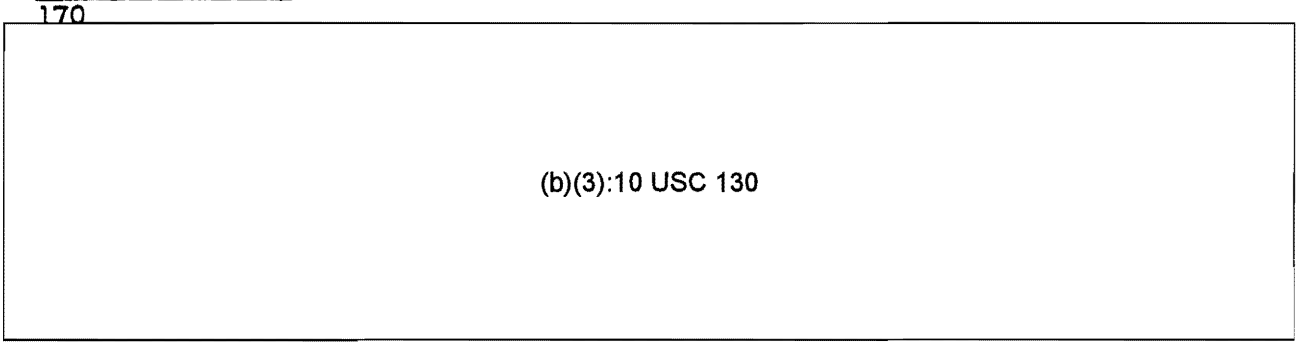
(U) During the Korean War the experiences of American troops in flame warfare caused the Corps to take up the one-shot weapon again. (b)(2) HIGH

(b)(2) HIGH

169
(1) Presentation by (b)(6), Meeting of the Dissemination and Field Testing Committee, USA CmlC Advisory Council, 6 - 7 - 8 Nov 57, pp. 14 - 20. (2) Presentation by (b)(6), Meeting of the Dissemination and Field Testing Committee, USA CmlC Advisory Council, 22 - 23 - 24 May 58, pp. 30 - 41.



170



Mechanized Flame Thrower

(U) At the other extreme from the small one-shot flame thrower was a huge flame thrower intended for tanks. Several years ago the Corps developed a mechanized, main armament flame thrower for the Marine Corps. The Marine Corps installed the device on M48A1 tanks in such a way that the flame thrower was an integral part of the tank. These flame-throwing tanks were known as model M67. In 1956 the Army tested Marine Corps flame throwing tanks and found that, with certain modifications, the flame throwers would be satisfactory for use by the Army. The Chemical Corps changed the flame thrower assembly as requested by USCONARC and in December 1957 standardized the weapon as the Flame Thrower, Mechanized, Main Armament, Turret Mounted, M7-6.

(U) In the meantime the Army had improved the M48A1 tank by the adoption of a better engine, engine deck, gun control system, and fire control equipment. It designated the new model the M48A2. The Army then decided that it would be preferable to place flame throwers in the new model rather than the old for reasons of economy and to provide up-to-date equipment for troops. Chemical Corps engineers and contractors had to modify the flame thrower assembly to fit the new model tank. This was done and the new assembly standardized as Flame Thrower, Mechanized, Main Armament, Turret Mounted, M7A1-6 in FY 1958. The M48A2 tank complete with flame thrower was designated as Tank, Combat, Full Tracked, Flame Thrower, M67A1. The Corps M7-6 type flame thrower is the only mechanized flame thrower now

[redacted]

in the Army's supply system.[171]

Fire Bomb

(U) Another important action in flame warfare was the standardization of the improved 750 pound fire bomb as model M116A2. The Corps adopted the original model, M116, in July 1953. (b)(2) HIGH (b)(2) HIGH (b)(2) HIGH planes dropped a large number of these bombs on enemy positions during the Korean War.

(U) In Korea handlers found it difficult to assemble fire bombs. To meet the objection the Corps changed position of the assembly bolts, the position of the filling caps, and also strengthened the braces. The modified fire bomb, M116A1, was declared standard in December 1954.

[redacted] In the meantime the Air Force was bringing out a plane, type F100, with a forced ejection release system for fire bombs. Unfortunately, the M116A1 fire bomb was not strong enough for ejection from F100 planes. The bombs either had to be discarded or strengthened. The Air Force found that the center bulkhead of the bomb could be strengthened readily, making

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171 CCTC Item 3336, Classification of Flame Thrower, Mechanized, Main Armament, Turret Mounted, M7-6 for Army Issue & Use in M67 Flame Thrower Tank, 12 Dec 57. (2) CCTC Item 3417, Classification of the Flame Thrower, Mechanized, Main Armament, Turret Mounted, M7A1-6 as a Standard-A Type & Related Actions, 27 Mar 58.

[redacted]

the bomb sufficiently rigid to stand the ejection force of approximately 30,000 pounds. In November 1957 the Air Force and Chemical Corps held a conference at which both parties agreed that modified bombs would be suitable as an interim munition (a new fire bomb was under development) for use in F100D and F100F aircraft. The Corps standardized the modified bomb as model M116A2 in March 1958.

[redacted] The Corps planned to convert 43,000 M116A1 bombs into M116A2 bombs at Chemical Corps Depots. These would be used until the Air Force High-Nest Ratio Fire Bomb, which tests indicated would be much superior, was completed and adopted.[172]

Gasoline Thickeners

(U) During World War II the Chemical Corps and its contractors uncovered three agents for thickening gasoline in incendiary bombs and flame throwers. (b)(2) HIGH (b)(2) HIGH After V-J Day the Corps continued its work along this line and standardized two additional thickeners, M2 (Antiagglomerated Napalm) and M3 (Octal). (b)(2) HIGH

(b)(2) HIGH

CCTC Item 3409, Classification of the Bomb, Fire, 750-lb., M116A2 as a Standard Type with Reclassification of Superseded Types, 27 Mar 58.

The Corps kept searching for other substitutes for napalm which could be obtained from domestic materials. (b)(2) HIGH

(b)(2) HIGH

(b)(2) HIGH

Smoke

(U) The major action in the field of smoke production was the standardization of the M3A3 smoke generator. This model was a further improvement of the M3 generator that the Corps had been using for large

173 CCTC Item 3346, Classification of Thickener, Incendiary Oil, M4 (E4R1) as a Standard Type & Reclassification of the Superseded M1 Thickener to Limited Standard, 12 Dec 57.

area smoke screening since 1952. The M3 was a pulse jet generator which produced smoke by injecting fog oil into the extremely hot exhaust gases coming from the engine. It had only one moving part, an engine valve, which simplified maintenance and operation.

(U) American troops employed the original M3 model for area screening in the Korean War. When battlefield operations showed that various components needed improvement the Corps corrected the faults, redesignating the revised models as the M3A1 then as the M3A2. (b)(1),(b)(3):10 USC 130,(b)(2) HIGH

(b)(3):10 USC 130,(b)(2) HIGH

(U) While Corps engineers improved the design considerably, one inconvenient feature remained; the method of supplying fog oil to the generator. In the original generator exhaust gas from the engine passed through a hose into the drum of fog oil, building up pressure that forced fog oil through another hose into the generator. This method of getting fog oil into the engine was not completely satisfactory. The hoses were bulky and inconvenient and at times the pressure could not be maintained. Several years ago the Corps began to develop a special pump that might be used to force fog oil from drums into the generator. The problem was complicated because the generator did not have any moving parts capable of transmitting power. Engineers, therefore, decided to develop a pump that would be driven by exhaust gas from the generator.

(U) Their labor resulted in a air-motor, oil-pump assembly that can pump 50 gallons per hour. Made from aluminum castings, the pump weighs

approximately 16 pounds. It is self-starting, self-priming, self-lubricating, and is extremely efficient and free from friction.

(U) The M3A2 pulse-jet generator, modified to carry the new fog oil pump, was standardized as model M3A3 in March 1958. The Corps planned to convert the existing stocks of M3A2 generators into the M3A3 type by adding motors, and in the future would procure only M3A3's.[174]

Irritant Hand Grenade

(U) During the year the Corps adopted a new irritant hand grenade. The previous model, M6, had been a standard item in the Corps for many years and had proved effective in controlling Prisoner of War (POW) riots during the Korean conflict. It was not a lack of effectiveness that caused the Corps to modify the munition, but the difficulty that the M6 grenade had in meeting post World War II surveillance criteria. The Corps decided that the grenades should be able to withstand storage conditions of 160°F. At this temperature CN-DM fillings in some sample lots of grenades were not stable, and the grenades would not pass inspection. To correct this situation the Chemical Warfare Laboratories modified the munition.

(b)(2) HIGH,(b)(3):10 USC 130

174
CCTC Item 3410, Classification of the Generator, Smoke, Mechanical, Pulse Jet, M3A3 (E19R5) as a Standard Type & Reclassification of the M3A2 Generator to Standard-Mod Code B Type, 27 Mar 58.

(b)(1),(b)(2) HIGH,(b)(3):10 USC 130

(b)(1),(b)(2) HIGH,(b)(3):10 USC 13 The grenade, in tests, gave off about as much DM as the earlier model but only about one-half as much CN. To prove mass reproducibility of the munition Edgewood Arsenal produced approximately 13,000 grenades as an Industrial Preparedness Measure. The Corps standardized the munition as Model M6A1 in December 1957.[175]

Detector Kit

(U) Since 1952, the standard detector kit had been model M9A2, consisting essentially of an air sampling pump, detector tubes, reagents, bottles, vials, and instruction cards, all carried in a canvas case weighing 2½ pounds. The Army issued this kit down to the Company level, where it was intended for use by qualified personnel.

(U) While this kit provided satisfactory tests for toxic agents that might be found on the battlefield, the Corps had constantly been searching for new reagents and equipment that would permit the soldier, who would be under considerable strain, to make tests more quickly and simply. As a result the Corps arranged a kit containing the following new components: an improved G-agent test, modified blue dot tubes (H, HN, CK, G-Agent

175 CCTC Item 3330, Classification of Grenade, Hand, Irritant, CN-DM, M6A1 (E17R1) as a Standard Type, Reclassification of the Superseded M6 Grenade, 12 Dec 57.

detectors), M6 Vesicant Detector Paper, and two rubber aspirator sampling bulbs to replace the C9 pump of the M9A2 kit. The entire kit was approximately the same size and weight as the M9A2 kit.

(U) The Corps adapted the new kit, M18, as a standard item of equipment in December 1957, relegating the M9A2 to the position of limited standard. While the new kit contains direct tests for some toxic agents, it still requires reagents for the detection of others. The Corps planned to continue research with the hope of uncovering other direct tests.[176]

The Non-Combatant Mask

(U) In 1936 the Chemical Corps began development of a mask for civilians employed at military installations. The device was standardized as the Non-Combatant Mask, MI-I-I, in 1940. During the war the Office of Civilian Defense procured large quantities of a modified version, the MIA2-I-I, for civilians. The mask was fairly satisfactory but not entirely so. To overcome the flaws and in addition to modify the mask so that it would protect the wearer from radioactive particles and biological warfare agents that might be used in future war, the Corps began development of a better mask in 1948. Among the problems involved in the development of this mask were these: it had to fit people of all age groups except very small children, it had to be wearable without undue discomfort for at least an

176
CCTC Item 3348, Classification of Detector Kit, Chemical Agent, M18 (E28) and Refill Kit, Chemical Agent Detector, C18 as Standard Types and Reclassification of the Superseded M9A2 Kit to Limited Standard.

hour, it had to be effective over a range of temperatures from -30 degrees F to 120 degrees F, it had to be easily disinfected, water repellent, mildew-proof, corrosion resistant, and it was to be made from noncritical and nonstrategic materials.

(U) The new mask consisted of a facepiece, canister and carrier. The stockinette facepiece was coated on both sides with GRS rubber, and held a one-piece, wide vision, vinyl plastic eye lens. The canister was the same as that used in the standard M9A1 Field Protective Mask. Incoming air, purified in the canister, swept over the eyepiece. Exhaled air passed through an outlet valve. For ease in carrying, the mask was provided with a shoulder strap.

(U) The designers made provision for six sizes, from size 1 (child) to size 6 (large), but the Federal Civil Defense Administration, which will be the using agency for the mask, had indicated it would not procure the smaller two sizes of the mask. The cost of the mask was relatively low, $9.50 each.[177]

Filter Units

(U) Following World War II the Chemical Corps designed collective protectors, now called filter units, capable of removing CBR agents from air entering Army command posts, field shelters, and mobile units. These devices

177
CCTC Item 3334, Classification of Mask, Protective, Noncombat, M16 (E51R15-11-22R1) as a Standard Type, 12 Dec 57.

were not entirely suitable for permanent structures and in 1953 the Corps opened a project to develop filter units that would purify large volumes of air, would cost less, and would be adaptable to buildings such as those found in rear areas and on naval shore installations. The devices were completed in late 1957 and standardized shortly thereafter.

(U) The filter units functioned in this manner: A blower, driven by an electric motor or gasoline motor, forced contaminated air through a charcoal filter to remove chemical agents and then through a particulate filter to remove biological agents or radioactive particles. The pure air then passed through large flexible pipes into the protective shelter. The apparatus was sheltered in a plywood housing and mounted on a skid. The unit was made in several sizes, from 600 CFM (cubic feet per minute) capacity to 5,000 CFM, and weighing from 800 pounds for the former to 2,800 pounds for the latter. The potential users of these filter units were the Navy Department's Bureau of Yards and Docks, the Federal Civil Defense Agency, NIKE sites, NATO, the Corps of Engineers, the USAF and Atomic Energy Commission.[178]

Filter Units for Vehicles

(U) In addition to developing filter units for shelters, the Corps worked on units to protect troops in tanks, tank recovery vehicles, and

178 CCTC Item 3329, Classification of Filter Unit, Gas-Particulate, GED, 600 CFM, M9 (E28R2) as a Standard Type, 12 Dec 57. (2) CCTC Item 3411, Type Classification of Seven (7) Fixed Installation Gas-Particulate Filter Units & Four (4) Gas-Particulate Filters, 27 Mar 58.

personnel carriers. It standardized a unit, consisting of a blower, air purifier, hoses and masks, in November 1953 and a revised version of the unit in 1956. When development was first undertaken the Chemical Corps, Ordnance Department, and Army Field Forces held a conference, at which time the Ordnance Department agreed to provide detailed drawings of the mounts that would be needed to install the filter units inside the vehicles, and the Chemical Corps to procure and issue the necessary equipment for installation. The Ordnance Department furnished the drawings for steel frames, shock mounts, cable assemblies, etc., in 1956, and the Chemical Corps standardized a kit in December 1957. Approximately 3,500 kits would be needed to permit installation of filter units in vehicles.[179]

Protective Mask Repair Kit

(U) The protective mask repair kit had been a useful item of equipment since the days when the Army first adopted the mask. It remained more or less uniform for almost three decades, until the Corps switched from the hose-type mask to the snout-type in 1948. Designers then had to make drastic changes in the kit, which was standardized as Model 9. Subsequently the Army Field Forces found that the new repair kit was largely unnecessary, because the new mask was well constructed and simpler in design than the old mask. The AFF finally decided to restrict first echelon protective gas mask repairs to the replacement of parts, leaving major repairs to Chemical

179 CCTC Item 3347, Classification of the Installation Kit, Gas-Particulate Filter Unit, Armored Vehicle, M20 (E20) as a Standard Type, 12 Dec 57.

Corps Maintenance Units. The effect of this decision was to make the repair kit unnecessary and the AFF recommended that it be dropped from the Army supply system. With this recommendation the Chief of Staff, G - 3, concurred. The Navy, however, which had no Chemical Corps Maintenance Units, felt that it needed the repair kit. Chemical Corps thereupon revised the kit to meet several suggestions sent by the Bureau of Yards and Docks and then standardized it as the Repair Kit, Field Protective Mask, M19, in December 1957.[180]

180
CCTC Item 3335, Classification of Repair Kit, Field Protective Mask, M19 (E22R2) as a Standard Type for Navy use, 12 Dec 57.

MATERIEL

Management and Organization

(U) The major events and problems in the Chemical Corps materiel field in fiscal year 1958 reflected the two major areas of emphasis: (1) continued striving to achieve maximum efficiency and economy in all materiel operations; (2) renewed effort to maintain and improve current and mobilization procurement and production capability. The assignment of responsibility for supply control of all Chemical Corps major end-items to the Headquarters, U.S. Army Chemical Center and Chemical Corps Materiel Command (US ACC and MATCOM), and the concomitant establishment of a National Inventory Control Point (NICP) within that headquarters were the principal events in the achievement of increased efficiency. With respect to procurement and production capability, the declining trend which first became apparent in fiscal year 1954 again characterized fiscal year 1958. [181]

Supply Control

(U) During the last half of fiscal year 1957 the phased transfer of

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181

(1) Interv, Hist Off with Brig Gen Harold Walmsley, CG, US ACC and MATCOM, and the following members of his staff: Col (b)(6) Jr., Dep Cmdr; Col (b)(6), Exec O; Col [illegible] Pyden, Dir QA; Lt Col (b)(6) Dir IMP; Mr (b)(6), Dep Dir IMP; Lt Col (b)(6) Dir Sup Opns; (b)(6) Dir Sup Opns; Lt Col (b)(6) r Indl Opns; Mr [illegible] Dir Indl Opns; [illegible] Jr., Dir Fac; (b)(6) Log Mgmt Bd; 20 Dec 58. (2) Interv, Hist Off wit[illegible], Log Pl Div, OCCml0, 21 Jan 59.

stock control and accountability to the headquarters, Materiel Command, from chemical depots and chemical supply sections of three general depots was accomplished. In the last two months of that fiscal year the records and functions of requirements determination, supply control, inventory distribution and procurement direction were transferred from Logistics Planning Division, OCCmlO, to the Headquarters, U.S. Army Chemical Center and Chemical Corps Materiel Command. This transfer was completed and became officially effective on the first day of fiscal year 1958, and the functions were internally assigned to Supply Division, Materiel Command. The designation, National Inventory Control Point, was assumed as a result of these actions.[182] Subsequently, effective 18 November 1957, in order further to centralize inventory control and accountability internally within the materiel headquarters, the responsibility for these functions with respect to quality assurance inspection aids was transferred from the Directorate for Quality Assurance (Dir QA) and the Quality Assurance Technical Agency (QATA) to the Supply Division. Another internal action to centralize responsibility came on 4 February 1958 when Supply Division assumed the responsibility, formerly delegated to Industrial Division (Indus Div), for staff supervision of supply activities at Materiel Command installations and activities. Supply

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Supply Division became the NICP for all chemical items other than repair parts. The Chemical Corps NICP for repair parts is located at Memphis General Depot (Summary of Major Events and Problems, FY 54, pp. 115 - 17; FY 55, pp. 149 - 52).

Division also assumed responsibility for receipt, storage, issue, and stock control of all industrial reserve components at all Chemical Corps Materiel Command Class II field activities and installations. On 28 February 1958, in recognition of the centralization of all supply control functions throughout the Chemical Corps and in keeping with the provisions of AR 700-5 on the organization and operation of inventory control points, Brig. Gen. ~~Harold Walmsley~~, Commanding General, U.S. Army Chemical Center and Chemical Corps Materiel Command, was designated as the Chemical Corps Supply Manager, responsible for the overall direction, co-ordination and supervision of the activities of the Chemical Corps National Inventory Control Points and related procurement, distribution and maintenance activities.[183]

(U) Judged on the basis of a full year's experience, the centralization of supply control promoted efficiency and permitted a number of measures to be taken in the interest of economy. General Walmsley, as Chemical Corps Supply Manager, dealt directly with higher authority on many aspects of the supply program, and this direct communication simplified the transmittal of operating instructions and the submission of reports. Administrative

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183

(1) Summary of Major Events and Problems, FY 57, pp. 122 - 23. (2) Quart Hist Rpts, MATCOM, Jul - Sep, Oct - Dec, 57; Jan - Mar, 58. (3) OCCmlO GO 17, 11 Jun 57. (4) US ACC and MATCOM GO 43, 8 Jul 57 (assignment, operating responsibility). (5) US ACC and MATCOM GO 82, 24 Dec 57 (inspection aids). (6) US ACC and MATCOM GO 5, 26 Feb 58 (staff supervision, supply activities). (7) OCCmlO GO 5, 25 Feb 58. (8) AR 700-5, 18 Sep 57. (9) Briefing, (b)(6) Dir Sup Opns, MATCOM, for Maj Gen Marshall Stubbs, CCmlO, 6 Nov 58. (10) Interv, Hist Off with (b)(6) Log Pl Div, OCCmlO, 23 Jan 59.

arrangements were made which permitted Logistics Planning Division, OCCmlO, to gather the supply control information essential to the Chief Chemical Officer, and Logistics Planning Division continued to provide guidance and liaison to the Materiel Command when necessary or desirable for expediting action. Since the Materiel Command was able, under the centralization of procedures, to deal directly with all requisitioners, world-wide, all requisition information was integrated and distribution expedited. The centralization of accountability and the operating improvements afforded by the installation of a transceiver network to Chemical Supply Sections of general depots and the elimination of shipping document typing reduced time required for the transmission of shipping documents from about five days to a matter of minutes. At the end of the fiscal year, plans were complete to install transceiver networks to all overseas supply agencies, and it was hoped to extend transceiver service to all Chemical Corps branch depots in fiscal year 1959. A measure of the fiscal 1958 accomplishment was the outstanding overseas supply performance record. For the year 96 percent of shipments were on time, and the Director of Supply Operations, Office of the Deputy Chief of Staff for Logistics forwarded a commendation to the Chief Chemical Officer for a record of 100 percent on time shipments in both overseas troop supply and Mutual Assistance Program supply during the months of April and May 1958. These accomplishments were the principal events in the management of the Chemical Corps materiel distribution

system during fiscal year 1958.[184]

(U) Materiel Command commodity managers were able, after the inauguration of the centralized system, to direct every element of the supply process from the determination of initial requirements to disposal actions for every item. Utilizing the information and control thus generated, the Command planned and forecast the entire Chemical Corps supply status not only for the period then current but also for some years in advance. Individual item Supply Control Studies are forwarded to OCCmlO with Five Year Materiel Program Item Data Sheets in the process of planning, and the consolidated information allows early computation of procurement, maintenance, storage, distribution, surveillance, and disposal requirements. The result as greatly improved supply management within the Materiel Command and the Chemical Corps.[185]

Procurement and Production Capability

(U) The problem of maintaining and improving current and mobilization

184
(1) Rhorer interv, 23 Jan 59. (2) Briefing, Lt Col Olson, 6 Nov 58. (3) Interv, Hist Off with (b)(6), Log Pl Div, OCCmlO, 21 Jan 59. (4) Interv, Hist Off with M (b)(6) ir Sup Opns, MATCOM, 3 Feb 59. (5) Quart Revs, Oct - Dec 57, p. 60; Jan - Mar 58, p. 54; Apr - Jun 58, p. 64.

185
(1) Walmsley and Staff interv, 20 Dec 58. (2) (b)(6) interv, 23 Jan 59. (3) Briefing, (b)(6) 6 Nov 58. (4) (b)(6) interv, 21 Jan 59. (5) Statement, Dir Sup Opns, MATCOM, to Hist Off, 20 Dec 58, sub: Establishment of National Inventory Control Point in Headquarters, U.S. Army Chemical Center and Chemical Corps Materiel Command. (6) Interv, Hist Off with Mr (b)(6) Log Mgmt Bd, MATCOM, 30 Jan 59.

capability consists of two interrelated elements: (1) the necessity for retaining operating personnel and facilities ready for rapid action and/or expansion to meet current or emergency requirements; (2) the necessity for retaining or acquiring a sufficiently large materiel mission to support operating personnel and facilities and to build up an adequate item stockpile for current needs and emergency expansion. Fiscal year 1958 saw a decline with respect to personnel and facilities, and, while there was some gain in mission, the year also reflected a decline in item status.

(U) For the fifth consecutive year there was a reduction in procurement personnel during fiscal year 1958, and for the second consecutive year there was a reorganization of procurement districts to accomodate to the reduced circumstances. The reduction in personnel again, as in previous years, resulted in a loss in the trained procurement nucleus and hence in a loss of procurement and planning capability for the Corps.[186] Prime cause of the FY 1958 retrenchment was a further decline in the availability of funds and a drop in the amount of new procurement and production business of about $6.1 million from the fiscal year 1957 level. The Chemical Corps procurement and production program for fiscal year 1958 by the end of the year totaled $11.4 million of which $9.1 million was Chemical Corps funds and the remainder was allotted from other services. Actual expenditures in the

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(1) See below, pp. 143,145 for discussion of procurement district reorganization. (2) Summary of Major Events and Problems, FY 54, pp. 97 - 100; FY 55, pp. 122 - 23; FY 56, p. 164; FY 57, pp. 125 - 26.

[redacted]

procurement and production field, including funds carried over from previous years, amounted to slightly more than $30 million, a drop of more than $9 million from the previous fiscal year.[187]

[redacted]The declining availability of funds had an even more serious impact on the arsenals than on the procurement districts since a total new workload of $16.9 million was necessarily divided into the sums of $10.2 million for district action and $6.7 million for arsenal action.[188] This small amount of new business plus carryover business in the arsenals was barely enough to sustain those facilities in minimum operation. The toxic production schedule at the U.S. Army Chemical Arsenal, Rocky Mountain, for example, was completed during the first quarter of the fiscal year, and the toxic facility was processed for lay-away. The Ordnance shell program at the same installation was greatly reduced while the bomb clustering program was completed. By the end of the fiscal year, Rocky Mountain had only four active manufacturing orders and two of these were for the demilitarizing of munitions.[189]

[redacted] The U.S. Army Chemical Arsenal, Pine Bluff, was in better state for

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187 (1) See below, pp.145 - 63 for details on procurement and production. (2) Quart Rev, Apr - Jun 58, pp. 54, 90. (3) Summary of Major Events and Problems, FY 57, pp. 129 - 30.

188 Figures obtained from Dir Indl Opns, MATCOM, 4 Feb 59. The total is greater than that cited for the total procurement and production program since part of the allotted workload was supported from other funding programs.

189 Quart Hist Rpts, USA Cml Ars, RM, FY 58, Classified Appendixes, Sect II.

[redacted]

[redacted]

maintaining its operating capability. Four small schedules for smoke munitions were in production during the fiscal year, and industrial mobilization production development projects were carried on in the Directorate for Biological Operations. Three production schedules were to be carried on in fiscal year 1959, but it is probable that these schedules will be stretched out to be in production alternately so that only one full crew will be employed.[190]

[redacted] The one other U.S. Army Chemical Arsenal, Edgewood, during the fiscal year had from six to fourteen small orders for smoke munitions, protective equipment, and engineer-test, user-test items.[191] Considering the unique character of the Chemical Corps arsenals,[192] and in line with the desire of the Deputy Chief of Staff for Logistics to maintain Army production facilities for which there is no commercial counterpart, a determined effort was made to retain arsenal production capability. The programming of more development and engineering work into the arsenals, along the pattern already established in Edgewood arsenal and in the Directorate for Biological Operations at Pine Bluff, was one method, providing

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190 (1) Quart Hist Rpts, USA Cml Ars, PB, FY 58. (2) Interv, Hist Off with (b)(6) and Ma (b)(6), Log Pl Div, OCCml0, 21 Jan 59. (3) Interv, Hist Off with Lt Col (b)(6) and Mr (b)(6) A. (b)(6) Dir Indl Opns, MATCOM, 28 Jan 59. (4) Rhorer interv, 23 Jan 59.

191 Quart Hist Rpts, USA Cml Ars, E, FY 58.

192 Summary of Major Events and Problems, FY 57, pp. 126 - 27.

[redacted]

a measure of relief, to be given more emphasis for fiscal year 1959 and the following years. There is an insufficient amount of work available in the development and engineering field, however, to provide a basis for extensive planning. Requirements for smoke pots and smoke grenades, approved during fiscal year 1958, will serve to continue minimum production at Pine Bluff while Edgewood can retain a portion of its valuable rush-order and experimental capability with its present combination of development and production work. It was hoped that a sufficient amount of rocket and missile warhead work could be obtained to avoid the lay-away of the entire production complex at Rocky Mountain arsenal, but, while requirements exist, funding prospects seemed dim at the end of the fiscal year.[193]

(U) The decline in personnel and workload in the arsenals and the districts during fiscal year 1958 had a serious impact on that element of the capability problem having to do with operating personnel and facilities. While any peacetime mobilization plan must depend upon reserve production facilities, the eventual value of such facilities is directly proportional to the ability to operate those facilities in event of an emergency. The ability to operate, in turn, is dependent upon the retention and modernization of production techniques, a function of current production, and upon the

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193
(1) Walmsley and Staff interv, 20 Dec 58. (2) (b)(6) interv, 21 Jan 59. (3) (b)(6) interv, 28 Jan 59. (4) (b)(6) interv, 23 Jan 59. (5) Quart Hist Rpt, Log Pl Div, OCCm10, Oct - Dec 57.

[redacted]

physical maintenance and modernization of the plants themselves. With respect to maintenance and modernization, the Chemical Corps has long been on an austerity basis, and the maintenance of most reserve plants has been reduced to lower categories in the past few years.[194]

[redacted]he mission and item status in fiscal year 1958 was somewhat more encouraging than the personnel and facilities status. Potentially the most important acquisition with respect to logistic responsibilities during the year was that for chemical agent warheads for guided missiles. This assignment immediately became important in the research and development area, but it will have little effect in the materiel area for at least another year. The requirements so far stated have been for chemical warheads only; there has been no statement of a requirement for a biological warhead. The fiscal year 1957 assignment of responsibilities for gas and incendiary rockets became effective 1 October 1957, and during FY 1958, the Ordnance Corps transferred its work on the T238 rocket, an item of considerable potential production importance, to the Chemical Corps. Other FY 1958 assignments included those for chemical agent mines, safety and rescue equipment, and technical chlorine. Also assigned were: dyes (with two exceptions); precious metal plate, sheet, strip, foil, and wire (with exceptions); some gas detection devices, and toxic gas cylinders and ton containers. These assignments are of lesser importance than that for the

194
See below, pp. 166 - 67 for further discussion of reserve facilities.

[redacted]

missile warhead, but they are closely related to the logistics assignments previously handled by the Chemical Corps, and they will make their contribution to procurement capability since continuous, if small, requirements exist in connection with each of them. At the close of fiscal year 1958, the Chemical Corps was presenting to higher authority its ability to handle responsibilities in connection with chemical analysis instruments, laboratory equipment and supplies, chemicals other than those already assigned, pest control agents and disinfectants, and miscellaneous chemical specialties which includes antifreeze. These assignments, if acquired, would again increase the Chemical Corps procurement volume and would therefore enhance procurement capability; no assignment acquired during the fiscal year or in the offing would, however, furnish a basis for the type of current production expansion which the Chemical Corps urgently needs.[195]

[redacted]The Chemical Corps item status potential in fiscal year 1958 was greatly increased by progress in development and standardization of several new CBR agents.[196] Some progress was also made toward a logistics capability,

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195 (1) Interv, Hist Off with Mr (b)(6) Log Pl Div, OCCmlO, 23 Jan 59. (2) AR 701-1336, 5 Mar 58 (missile warheads); AR 701-1340, 18 Feb 57 (gas and incendiary rockets); AR 701-1345, 3 Jan 58 (mines); AR 701-4240, 3 Jan 58 (safety and rescue equipment); AR 701-6830, 10 Mar 58 (chlorine); AR 701-6820, 22 Jul 57 (dyes); AR 701-9545, 23 Jul 57, (precious metals); AR 701-6350, 22 Jul 57 (gas detection devices); AR 701-8120, 10 Apr 58 (gas cylinders); AR 701-8140, 5 Nov 56 (ton containers). (3) Quart Hist Rpts, Log Pl Div, OCCmlO, Jul - Sep 57, Jan - Mar 58. (4) Quart Hist Rpts, MATCOM, Jan - Mar 58, Apr - Jun 58. (5) Memo, OCCmlO, 30 Aug 57. (An informal informational memorandum from the Chief Chemical Officer to Chemical Corps key personnel). (6) Summary of Major Events and Problems, FY 57, p. 113.

196 See above, pp. 97 - 108

but the Chemical Corps supply position was far from satisfactory. Stocks of World War II toxics were available, even, in a few cases, in excess of presently stated mobilization requirements, yet total capability was limited since stocks of newer agents and modernized munitions are either available in small quantities or unavailable. According to current estimates, CBR offensive ground and surface requirements were not expected to be met during the three years following fiscal year 1958. Air requirements had been completed with respect to the M34A1 1,000-lb. GB cluster, and the Chemical Corps is capable of meeting the Air Force plans for biological antipersonnel munitions and for biological anticrop munitions. Air Force requirements for other agents had not been stated by the end of fiscal year 1958. The readiness state for CW-BW defensive materials was not satisfactory, and defensive assets were expected to exceed 50 percent of requirements only with respect to two items by the beginning of FY 1962.[197]

A Chemical Corps procurement and production capability reassessment for fiscal year 1958 would list on the credit side three of those items indicated by Maj. Gen. William M. Creasy, Chief Chemical Officer, in his report to the Deputy Chief of Staff for Logistics, as CBR situation credits: a reserve plant capable of quantity production of nerve gas (GB), a BW munitions plant capable of producing at requirement rate in 90 days, the

197
(1) OCCm10, Estimate of CBR Situation, 1959, pp. 5 - 7, and Annex 4. (2) (b)(6) interv, 21 Jan 59. (3) See below, pp. 153 - 63 for further discussion of agents production.

existence of a pilot plant to produce the new agent (VX).[198] To these credits should be added the funding of a project for a full scale VX agent production plant and Department of the Army approval of Chemical Corps mid-range materiel planning. On the debit side would be listed: the seriously declining current workload of the Corps in its impact upon the status of procurement and production personnel and facilities; the critically deficient item stockpile, as of the fiscal year and in forecast; the prospect of a failure to fund procurement and production items already approved in planning; and the absence or insignificance of requirements stated for new agents and munitions by all the Armed Forces. In sum, the Chemical Corps in fiscal year 1958 lacked procurement and production capability to support its mission.[199]

Organization

(U) Brig. Gen. Marshall Stubbs, Commanding General, U.S. Army Chemical Center and Chemical Corps Materiel Command, principal Chemical Corps materiel officer for more than three years, was designated Commanding General, First Logistical Command, Fort Bragg, North Carolina, in July 1957. Colonel (b)(6) Commanding Officer, U.S. Army Chemical Procurement District,

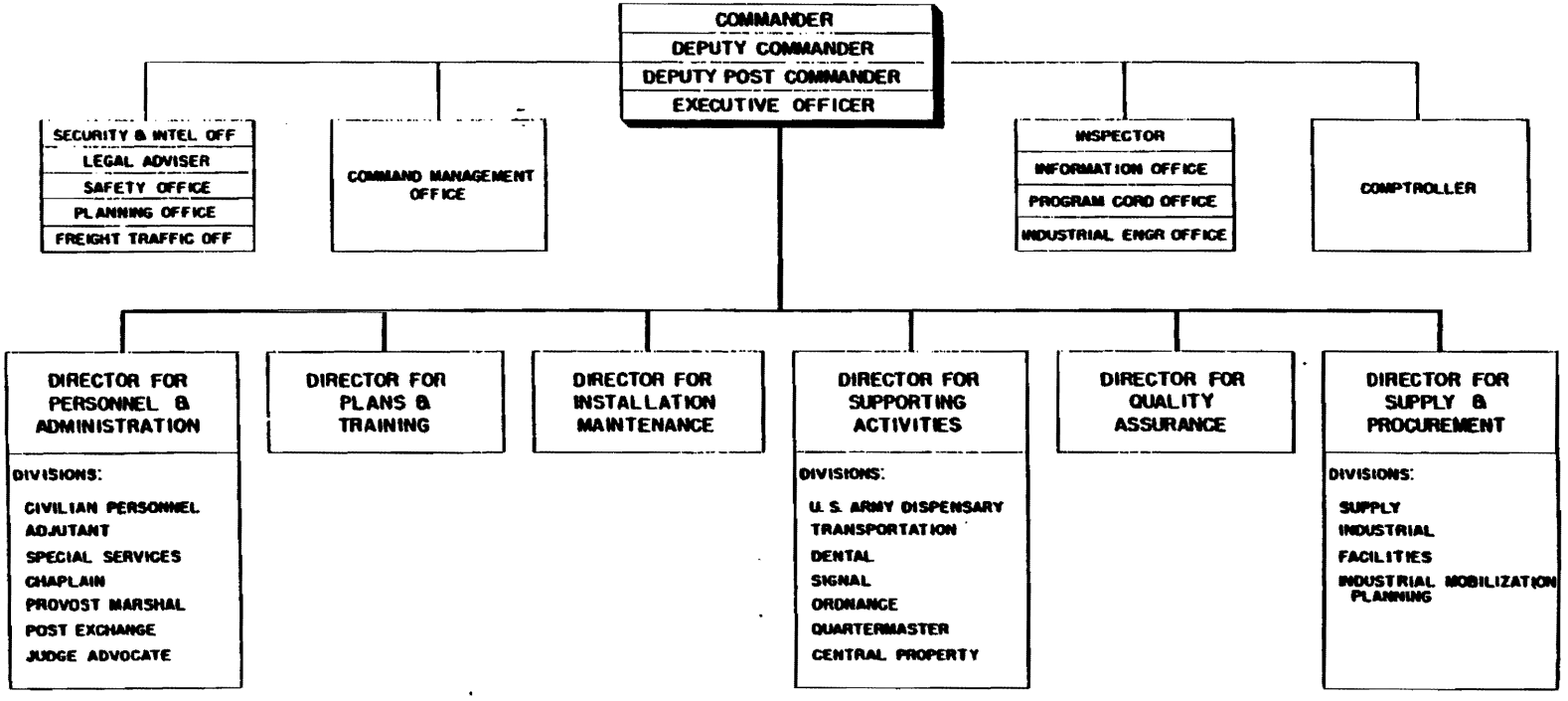
198 See above, pp. 6, 9 - 10, for a summary of General Creasy's report.

199 (1) (b)(6) and staff interv, 20 Dec 58. (2) (b)(6) interv, 21 Jan 59. (3) (b)(6) interv, 21 Jan 59. (4) (b)(6) interv, 23 Jan 59.

UNCLASSIFIED

CHEMICAL CORPS

HEADQUARTERS, U. S. ARMY CHEMICAL CENTER & CHEMICAL CORPS MATERIEL COMMAND



UNCLASSIFIED

Chart No. 12

PAGE 137 OF 189 PAGES

COPY 1 OF 35 COPIES

SUBMITTED: MARSHALL STUBBS
BRIG GEN, USA
COMMANDING

APPROVED: WILLIAM M. CREASY
MAJ GEN, USA
CHIEF CHEMICAL OFFICER

DATE: 10 JUNE 1957

PREPARED BY: COMPTROLLER
MANAGEMENT ENGR BR

OFFICE OF THE CHIEF CHEMICAL OFFICER

LOGISTICS PLANNING DIVISION

ORGANIZATION CHART

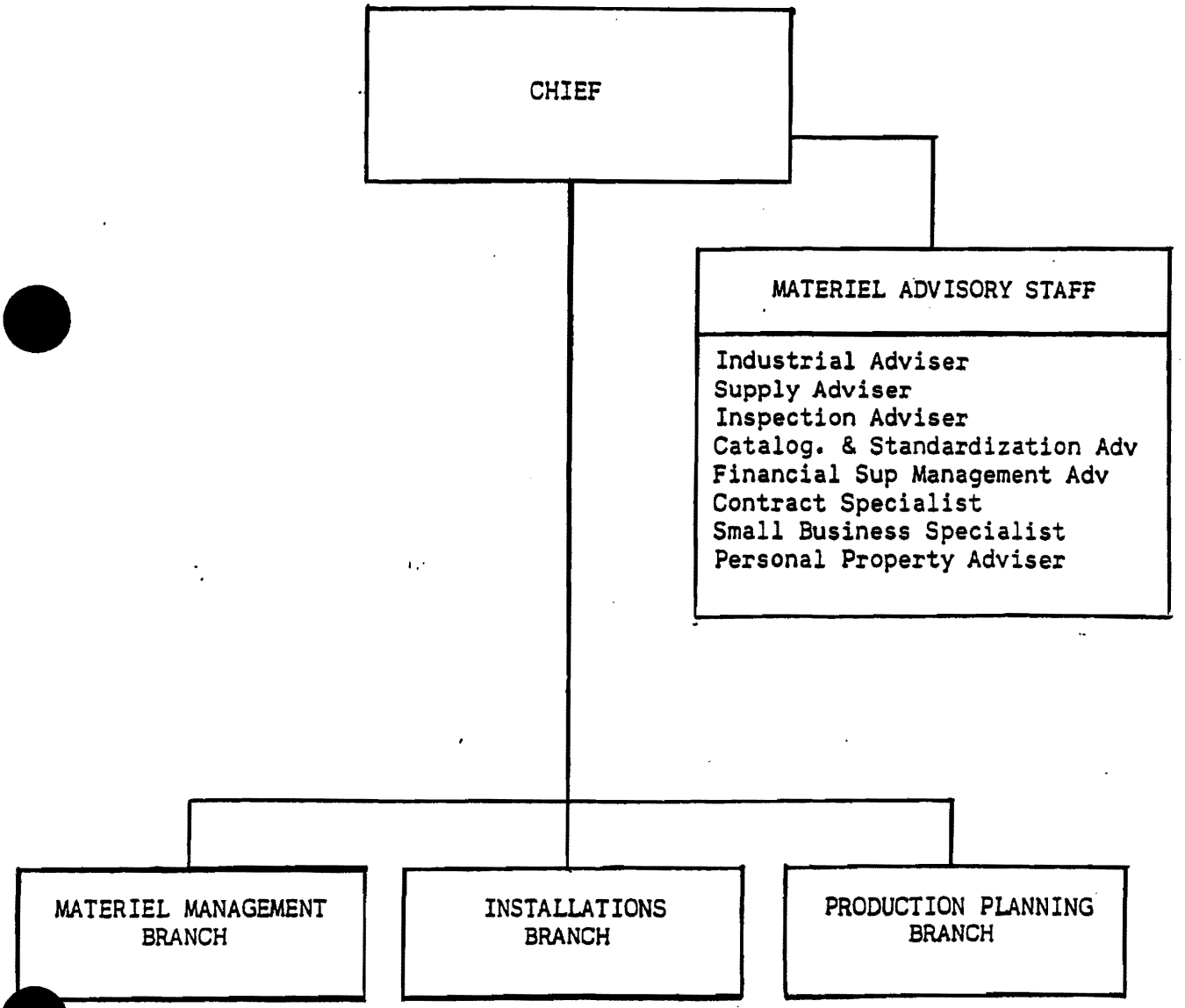


Chart No. 13

30 June 1958

New York, succeeded General Stubbs on 27 July 1957.[200] Colonel Walmsley was appointed Brigadier General effective 22 December 1957.[201]

(U) The organization of Headquarters, U.S. Army Chemical Center and Chemical Corps Materiel Command (Chart 12), remained essentially unchanged during fiscal year 1958 as did the organization of Logistics Planning Division, OCCml0 (Chart 13). With the transfer of supply control and requirements determination responsibilities from Logistics Planning Division to Materiel Command, the Requirements Branch, Logistics Planning Division, was redesignated Materiel Management Branch.[202] The element acquiring supply control responsibilities, Supply Division, Materiel Command, made minor adjustments in its organizational and functional arrangement to accomodate to the new workload, and, in the third quarter, the Maintenance and Repair Parts Branch was consolidated with the Storage Branch and redesignated the Storage and Maintenance Branch (Chart 14).[203] The problems connected with acquiring and training an adequate staff to handle the transferred functions which had become apparent in fiscal year 1957 were

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200 (1) DA SO 133, 9 Jul 57. (2) OCCml0 GO 27, 25 Jul 57. (3) US ACC and MATCOM GO 54, 5 Aug 57, and GO 58, 20 Aug 57. (4) See Appendix A for other logistics and materiel key personnel.

201 DA SO 250, 24 Dec 57.

202 Quart Hist Rpt, Log Pl Div, OCCml0, Jul - Sep 57.

203 Quart Hist Rpt, MATCOM, Jan - Mar 58.

Chart No. 15

HEADQUARTERS
U.S. ARMY CHEMICAL CENTER
AND
CHEMICAL CORPS MATERIEL COMMAND

15 October 1957

OFFICE OF THE DIRECTOR FOR QUALITY ASSURANCE

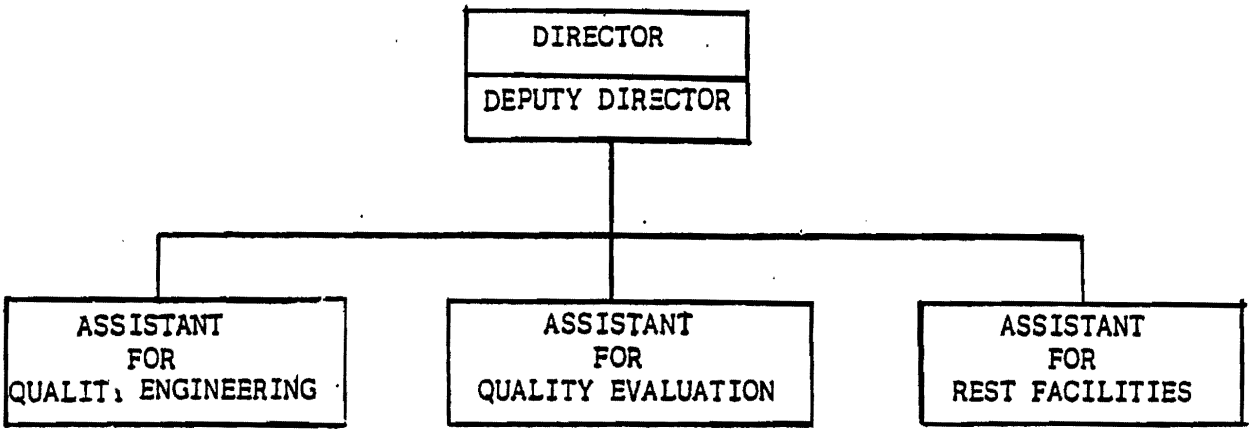
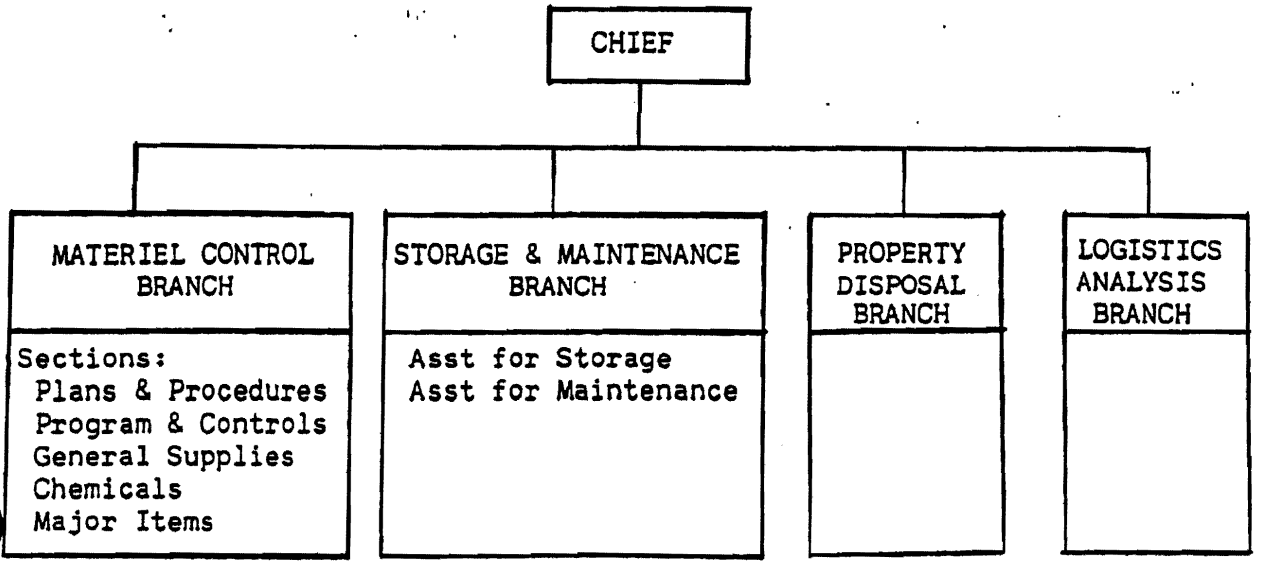


Chart No. 14

HEADQUARTERS
U.S. ARMY CHEMICAL CENTER
AND
CHEMICAL CORPS MATERIEL COMMAND

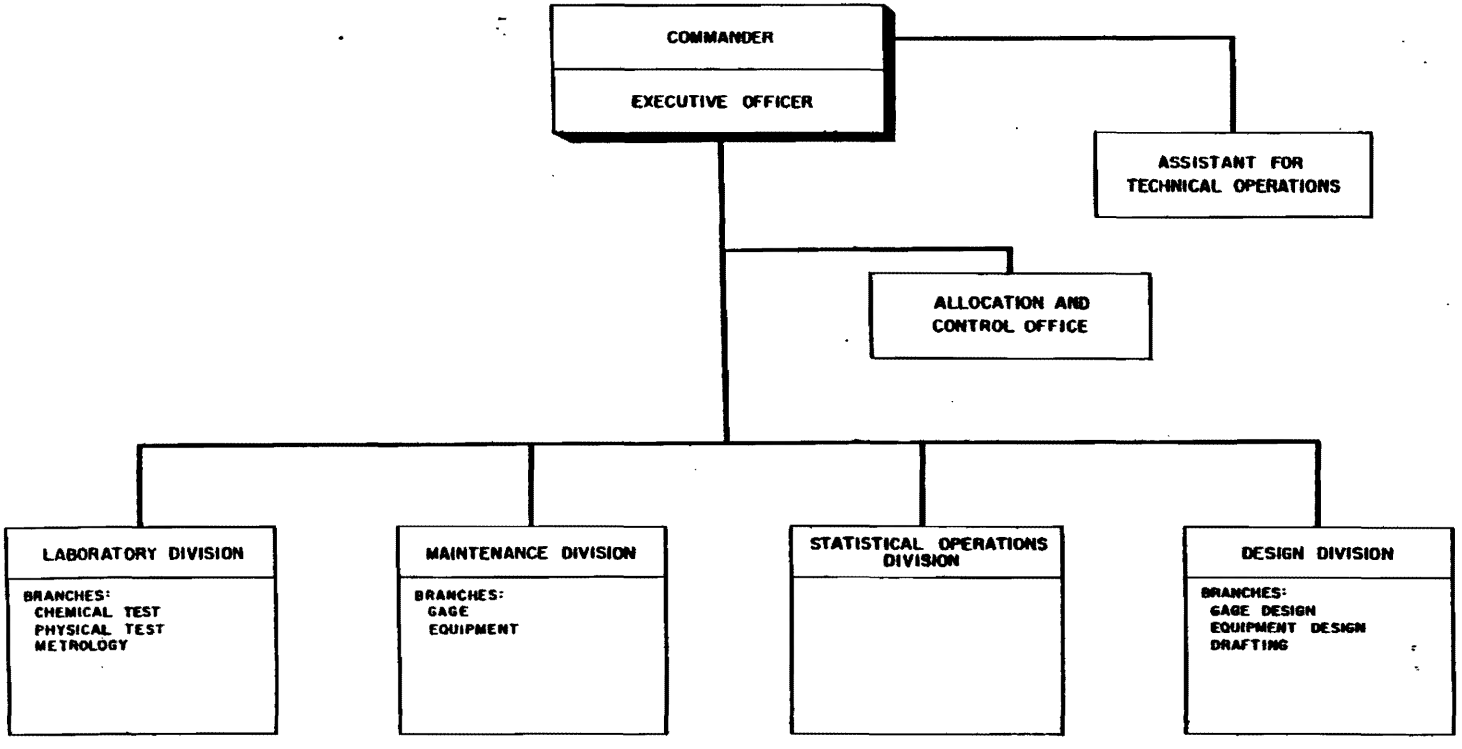
15 May 1958

SUPPLY DIVISION



U.S. ARMY CHEMICAL CORPS
QUALITY ASSURANCE TECHNICAL AGENCY

Chart No.16



SUBMITTED

APPROVED: N. WALMSLEY

DATE: 10 January 1955

PREPARED BY: EXECUTIVE OFFICE

largely solved in fiscal year 1958.[204]

(U) Early in fiscal year 1958 the combined organization, under test for two years, of the Directorate for Quality Assurance, a staff element of the Materiel Command headquarters, and the Quality Assurance Technical Agency, an operating field activity, proved too cumbersome for a period of declining activity. In order to redefine staff and operating responsibilities, to streamline the organization, and to reduce the number of employees, the staff element, the Directorate for Quality Assurance, (Chart 15) was reconstituted within the headquarters, Materiel Command, and the U.S. Army Chemical Corps Quality Assurance Technical Agency was reorganized as a field activity (Chart 16). At the same time, the Quality Assurance Biological Warfare Office, an element of the Quality Assurance Technical Agency, was closed, and subsequently the personnel and functions of that office were transferred to the Directorate for Quality Assurance. A net personnel reduction of 47 percent was made with a savings greater than $400,000 per annum as a result of these changes. General Walmsley states that both staff and operating functions were more efficiently handled after the reorganization.[205]

204
(1) Summary of Major Events and Problems, FY 57, p. 123. (2) (b)(6) interv, 23 Jan 59.

205
(1) (b)(6) and Staff interv, 20 Dec 58. (2) Quart Hist Rpt, MATCOM, Oct - Dec 57. (3) OCCm10 GO 42, 14 Oct 57, and GO 45, 4 Nov 57. (4) US ACC and MATCOM GO 73, 15 Nov 57.

(U) Within the headquarters, Materiel Command, the management, planning and support activities were still a matter of concern in fiscal year 1958 as they had been in the previous year.[206] No change was made during FY 1958, but, through continuing study of the headquarters requirements, a plan for the organizational realignment of the Commanding General's immediate staff was evolved for implementation early in fiscal year 1959.

(U) In the field the principal organizational event of fiscal year 1958 was the reorganization of the procurement districts.[207] As a result of a series of surveys and studies of the Chemical Corps procurement organization, a part of an Army-wide activity, the Deputy Chief of Staff for Logistics late in fiscal year 1957 directed the Chief Chemical Officer to: (1) close the Atlanta and Dallas chemical procurement districts and the Boston Sub-Office of the New York district; (2) limit the Chicago district solely to industrial mobilization planning and contract administration; and (3) effect all possible reduction in force at remaining Chemical Corps procurement offices. On 16 October 1957 the two districts and one sub-office were closed. Chicago was reduced from fifty-nine civilians to twenty-four, but the district retained five officers and nine enlisted men. On the day following the closing of the districts, offices of Field Liaison Representatives of the U.S. Army Chemical Corps Materiel Command were established in

206 Summary of Major Events and Problems, FY 57, pp. 119 - 20.

207 See above, p. 129

Table 4 - Chemical Corps Procurement by Item and Month (FY 58)

	Cumulative To 30 Jun 57	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Cumulative To 30 Jun 58
Bomb, E77	70	10	C	---	---	---	---	---	---	---	---	---	---	80
Bomb, Fire, 750 lb; M116A1 Less Igniter & Fill	236,351	2,835	3,990	2,835	3,780	2,968	2,400	3,390	2,160	1,330	C	---	---	262,039
Canister, Smk, Green, 105mm, Shell, M2	104,963	0	0	C	---	---	---	---	---	---	---	---	---	104,954
Canister, Smk, HC, 105mm, M1	1,437,268	43,150	40,780	31,237	0	39,888	30,178	40,272	44,016	41,952	34,147	C	---	1,782,771
Canister, Smk, Yellow, 105mm, Shell, M2	319,098	7,483	0	0	0	0	0	0	0	0	C	---	---	326,581
Cluster, Incendiary, 750 lb; M36	7,644	0	C	---	---	---	---	---	---	---	---	---	---	7,644
Cluster, Incand., Bomb, PT1, 750 lb; M35 (E115R5)	18,290	710	C	---	---	---	---	---	---	---	---	---	---	19,000
Cryptographic Equipment Dest. Incend. TH1, M1A2	---	---	---	---	0	850	949	C	---	---	---	---	---	6,704
Cryptographic Equipment Dest. Incend. TH1, M2A1	0	0	0	0	1,430	680	C	---	---	---	---	---	---	7,159
Document Destroyer, Emergency Incend, M3	---	---	---	---	---	---	0	0	575	C	---	---	---	23,342
Fuze, Igniting, Grenade, M201A1	---	---	0	22,000	68,000	55,000	5,000	0	0	C	---	---	---	1,159,682
Grenade, Hand, Smoke, HC, AN-M8	---	---	---	---	---	---	---	---	---	---	0	23,853	33,375	57,228
Shell, Cml, 105mm, M360 (17381)	802,142	31,416	30,672	---	---	---	---	---	---	---	---	---	---	864,230
Shell, Cml, 105mm, Art., M360 (17381) Fill Only	---	---	---	27,432	19,896	16,230	0	C	---	---	---	---	---	927,788
Shell, Cml, 155mm, M121 (T77)	19,995	0	6,146	4,803	8,208	4,789	5,752	3,910	1,024	7,759	64	0	5,602	C 68,406
Shell, Cml, 155mm, M122 (T179) Filling Only	---	---	---	---	---	0	0	5,925	8,240	2,973	5,727	4,341	C	28,617
Shell, Cml, 155mm, (T179) Filling Only	1,411	0	0	0	0	---	---	---	---	---	---	---	---	1,411
Shell, Smk, WP, 155mm, M110	314,788	8,675	0	0	6,692	6,692	C	---	---	---	---	---	---	330,155
Starter, Fire, M2	---	---	---	0	0	0	0	8,000	9,224	0	0	0	7,100	50,374
Thickener, Incendiary Oil, M2	---	---	0	14,800	C	---	---	---	---	---	---	---	---	32,342,400
Alarm, Carbon Monoxide, Automatic, E23	0	0	0	12	C	---	---	---	---	---	---	---	---	12
Alarm, Field, Automatic, E21	246	0	0	0	0	68	37	115	100	18	0	0	100	684
Breathing Apparatus, Compressed Air, M15	1,113	21	C	---	---	---	0	283	283	C	---	---	---	2,834
Decontaminating App. P.D., Skid-Mounted, M6	---	---	0	24	0	0	---	---	0	9	C	---	---	108
Decontaminating App. P.D., T.M.; M3A3	---	---	---	---	0	16	40	0	0	0	0	10	30	425
Detector Kit, Cml Agt, E28	---	---	---	0	0	226	C	---	---	---	---	---	---	1,106
Detector Kit, Cml Agt, M15 (E27R4)	---	0	---	0	0	0	76	2,861	1,260	1,075	4,293	71	C	9,355
Filter Unit, Gas Particulate, MBA1	---	---	---	---	---	0	0	0	0	0	19	288	339	646
Filter Unit, Gas Part., GED, 600 CFM, M9 (E28)	---	---	---	---	---	---	---	---	---	---	30	30	30	1,199
Mask, Gas, ND, Mk V	183,081	13,008	9,392	5,607	11,328	13,200	12,000	11,500	11,864	10,185	C	---	---	281,165
Mask, Protective, Field, E13	---	---	---	---	---	---	---	354	97	370	173	12	167	1,173
Mask, Protective, Non-Combat, E51R15	12,483	5,344	7,937	7,835	8,695	1,034	C	---	---	---	---	---	---	43,328
Prot. Coll. 600 CFM, E28	826	---	---	---	0	60	60	60	66	37	---	---	---	1,109
Regulator, Air Pressure, Protective Shelter, M1	---	---	---	0	0	1,400	---	1,900	876	C	---	---	---	11,229
Respirator, Air Filtering, M5	---	---	---	---	---	0	0	4,876	2,198	C	---	---	---	39,174
Valve, Antibackdraft, Prot. Shelter, M1	---	---	---	---	---	0	300	825	1,604	C	---	---	---	8,057

C - Complete

Source: Compiled from Monthly Summaries of Procurement Performance, "9-CmlC," FY 58, Headquarters, Materiel Command (RCS: CMLMC - ZP 23).

Atlanta, Dallas, and Boston. These offices, with a total complement of twelve civilians and four officers, were assigned identical missions within their respective geographical areas: (1) to act as liaison with industry on mobilization procurement planning; (2) to provide assistance to small business; and (3) to perform special assignments as directed by the commander, Materiel Command. Each Field Liaison Representative was made a part of the Materiel Command headquarters and reports directly to that headquarters, but, for purposes of convenience and economy the offices are satellited for support on a military installation or activity in the area. The San Francisco and Chicago district offices are likewise satellited for support. By the end of November 1957, a total reduction of sixty-four civilians and four officers had been made in the districts and offices.[208]

Procurement and Production

(U) As indicated above,[209] the total Chemical Corps procurement and production program again declined from the previous year. The lessening volume of actual item deliveries is apparent as set forth in Table 4.[210]

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208 (1) (b)(6) interv, 20 Dec 58. (2) (b)(6) interv, 21 Jan 59. (3) (b)(6) interv, 28 Jan 59. (4) Supplementary Statement, 23 Jan 59, to Quart Hist Rpt, Log Pl Div, OCCml0, Apr - Jun 58 (hereafter cited as Supp Statement, Log Pl Div, OCCml0). (5) DF, Log/El-32918, DCSLOG to CCml0, 15 Jun 57, sub: Consolidation of Army Procurement Centers. (6) OCCml0 GO 43, 17 Oct 57. (7) US ACC and MATCOM GO 66, 19 Sep 57, and GO 75, 20 Nov 57.

209 See above, pp. 129 - 30.

210 Compare Summary of Major Events and Problems, FY 57, Table 5, p. 133; FY 56, Table 5, p. 165; FY 55, Table 6, p. 129; FY 54, App. B.

While this lessening volume is indicative of the procurement and production area major events and problems, several fiscal year 1958 improvements in procurement and production management should be mentioned as contributing to both efficiency and economy of operations.

(U) One management improvement of considerable value for collecting information and planning was the Five-Year Materiel Program. Preparation of this program was directed by the Deputy Chief of Staff for Logistics and was implemented by the Chemical Corps and the other technical services. The Chemical Corps program was cited as an example of thorough preparation by the Office of the Deputy Chief of Staff for Logistics. Under the Five-Year Materiel Program status and forecast for each item in the budget category, Procurement of Equipment and Missiles, Army, is extensively analyzed in terms of priorities, costs, inventory objectives, planned procurement, anticipated deliveries, losses, assets, and maintenance, storage and disposal requirements.[211] Attached to the analysis is a planned production schedule and an obligation and expenditure schedule. The program greatly improved the knowledge and co-ordination of specific item requirements, and the consolidated item information gives an excellent picture of the overall Chemical Corps materiel program which has been extensively used in the Materiel Command headquarters and in OCCmlO. At the end of fiscal year 1958 plans were being formulated to promote the use of this information in

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211 Commercial items, Army Stock Fund items, and repair parts are excluded.

management in the field. It was hoped that some means would be found for including Air Force and Navy requirements in this program since other service requirements are now included only when stated for Army items.[212]

(U) The quarterly Chemical Corps documentary presentation, "Readiness Position of Selected Chemical Corps Items," introduced in fiscal year 1957,[213] proved to be a valuable management tool. This presentation, which provides the Chief Chemical Officer and his principal assistants with "a review of the responsiveness of the Chemical Corps in meeting established objectives for the introduction of selected development items into the supply system," was expanded from initial consideration of five items to a consideration of forty-five items for the presentation in preparation at the end of fiscal year 1958. The information value of the presentation caused the Chief Chemical Officer to designate the publication as the medium by which his established time objectives for item type classification and/or availability to troops should be made known. To assure close staff co-ordination and close supervision of schedules, the Chief Chemical Officer appointed a committee of representatives from OCCmlO

212 (1) (b)(6) interv, 20 Dec 58. (2) (b)(6) interv, 30 Jan 59. (3) (b)(6) 21 Jan 59. (4) (b)(6) interv, 28 Jan 59.

213 Summary of Major Events and Problems, FY 57, pp. 129 - 30.

staff elements, chaired by the Chief, Logistics Planning Division.[214]

(U) During fiscal year 1958 further progress was made toward the goal of developing a single medium for publishing procurement regulations. Items in the chosen medium, Chemical Corps Procurement Instructions, were extensively revised and brought up to date, and twenty-six Chemical Corps Materiel Command Instructions and 115 Circular Letters were rescinded or incorporated into Chemical Corps Procurement Instructions.[215]

(U) The closing out of completed Chemical Corps contracts which have been held up for fiscal or legal reasons by the Government or by the contractor was an activity rigorously supervised in fiscal year 1958 under the measures instituted in fiscal year 1957.[216] By the end of the fiscal year the Chemical Corps had taken action in every case open to action at the Corps' level; the remaining cases were in the process of litigation, or were before the Armed Forces Board of Contract Appeals, or were awaiting decision by higher authority, and were therefore out of the Corps' hands. Contract administration and completions were closely supervised throughout

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214 (1) (b)(6) interv, 21 Jan 59. (2) (b)(6) interv, 21 Jan 59. (3) Supp Statement, Log Pl Div, OCCmlO. (4) CCR 11-6 (in preparation, FY 58), 22 Sep 58.

215 Quart Hist Rpts, MATCOM FY 58.

216 Summary of Major Events and Problems, FY 57, p. 132.

the year to insure orderly closing of all current contracts.[217]

(U) Some procurement and production items of current or potential importance during fiscal year 1958 will be discussed in the following paragraphs.[218]

M35 Incendiary Bomb Cluster

(U) Production of the M35 incendiary bomb cluster, which had been one of the large arsenal production schedules, was completed at Rocky Mountain arsenal during the first month of fiscal year 1958. The previous year's solution of the problem of providing shipping guards became standard in FY 1958. The E41 wooden guard, standardized as the M4, was used in storing 12,000 clusters, and the remaining 7,000 clusters were shipped to storage without guards. The facility for producing M3 metal guards was destroyed by fire during the second quarter of the year, and the 4,000 delivered M3 guards were stored in the Air Force account pending possible use in other programs.[219]

217
(1) See Quart Revs, Jul - Sep 57, pp. 53 - 54; Oct - Dec 57, pp. 48 - 49; Jan - Mar 58, pp. 44 - 45; Apr - Jun 58, pp. 44 - 45. (2) (b)(6) interv, 23 Jan 59. (3) (b)(6) interv, 28 Jan 59.

218
See Quart Revs, Jul - Sep 57, pp. 51 - 52, 55 - 56; Oct - Dec 57, pp. 46 - 47, 50 - 51; Jan - Mar 58, pp. 40 - 44; Apr - Jun 58, pp. 44 - 47, 54 - 55 for other items, events and accomplishments.

219
(1) Summary of Major Events and Problems, FY 57, pp. 134 - 35. (2) Quart Hist Rpt, MATCOM, Jul - Sep 57, Oct - Dec 57.

M116A1 Fire Bomb

(U) As anticipated, the production of the M116A1 fire bomb by the Evans Reamer Company as the sole contractor was completed during third quarter, FY 1958. No production difficulties were experienced in completing the contract. The Air Force authorized use of $800,000 from existing funds for modification of 33,000 bombs, from the total production of 71,661, to the M116A2 type, a strengthened design compatible with the F100 type aircraft. The modification was scheduled to be done by Eastern and Midwest depots and by the Deseret chemical activity of Tooele Ordnance Depot with industrially procured components. By the end of the fiscal year, Eastern depot had modified 3,000 bombs and the modification work assigned to Tooele and Midwest depots was expected to be completed in the first quarter, fiscal year 1959.[220]

Protective Masks

[redacted] E13 Field Protective Mask.[221] The Chemical Corps, and hence the Army, stock position relative to field protective masks became even more critical in fiscal year 1958 than it had been in previous years. Stocks of

220
(1) Summary of Major Events and Problems, FY 57, p. 135. (2) Quart Hist Rpts, MATCOM, FY 58.

221
This and following paragraph based on: (1) (b)(6) interv, 20 Dec 58. (2) (b)(6) interv, 21 Jan 59. (3) Supp Statement, Log Pl Div, OCCmlO. (4) Briefing, Brig Gen Wm. R. Currie, ACCmlO for P&D for Maj Gen R. W. Colglazier, ADCSLOG, 27 May 58 in Memo for Record, Prod Pl Br, Log Pl Div, OCCmlO, 29 May 58. (5) Memo, C Log Pl Div, OCCmlO for CCmlO, 12 Jun 58. App by CCmlO, 15 Jun 58. (6) Readiness Position of Selected CmlC Items, OCCmlO, 1 Aug 58 (Data a/o 30 Jun 58). (7) Quart Hist Rpt, MATCOM, Jan - Mar 58. (8) Summary of Major Events and Problems, FY 57, pp. 135 - 37.

the World War II lightweight (M3 and M4), substitute standard mask were disappearing as age and training use rendered it unserviceable. Stocks of the standard M9A1 mask, which has not been manufactured since 1954, were insufficient to meet mobilization requirements, and, if the rate of attrition continued, would not meet current requirements in the near future. In keeping with the Chief Chemical Officer's program of FY 1957, a determined effort was made to complete testing and type classification of the improved E13 field protective mask so that quantity production could begin in FY 1959. During FY 1958 a total of 5,050 E13 masks was being procured from Mine Safety Appliances Company for user and engineering testing. In the third quarter of the fiscal year, USCONARC advised that the mask was failing to meet the requirements for Arctic test although it was acceptable in other tests. Immediate steps were taken to improve the mask to meet Arctic requirements, and, by the end of the year, it appeared that the mask could be retested in the winter of 1958 - 59. Type classification is expected in FY 1959.

[redacted] On 27 May 1958, Brig. Gen. William R. Currie, Assistant Chief Chemical Officer for Planning and Doctrine, briefed Major General R. W. Colglazier, Assistant Deputy Chief of Staff for Logistics, on the protective mask problems. General Colglazier approved the production of 12,000 E13 masks in FY 1959, but he reserved judgment on quantity production pending further study. On 15 June 1958 Maj. Gen. William M. Creasy, Chief Chemical Officer, approved the recommendations of the chief of his Logistics Planning Division on further study. These recommendations included continuance of the

previous testing, type classification, standardization and mass production program, but rejected for the time being an Office of the Deputy Chief of Staff for Logistics suggestion that the mask might be designated a limited production type before standardization. Unless standardization were to be, by some unforeseen circumstance, unduly delayed, mass production of the standardized mask seemed the economical and feasible prospect. At the end of the year, therefore, a study on mass production rates was in preparation for presentation to the Deputy Chief of Staff for Logistics early in FY 1959.

(U) E51R15 Non-Combat Protective Mask. Production of the E51R15 non-combat protective mask by the Firestone Industrial Products Company was completed in November 1957. The minor production difficulties of fiscal year 1957 were eliminated. No further requirement for this mask was stated by the Federal Civil Defense Administration.[222]

(U) Navy Mark V Gas Mask. Production on two fiscal 1957 contracts for the Navy Mark V gas mask with the General Tire and Rubber Company were completed in March 1958 with no production difficulties. A fiscal year 1958 requirement for 32,554 masks resulted in a contract with the Acushnet Process Company for this production and for rework of some old stocks. While production was scheduled to begin in March 1959, some problems were anticipated in the transfer of Government-owned production equipment from one contractor

222
(1) (b)(6) interv, 28 Jan 59. (2) Quart Hist Rpt, MATCOM, Jul - Sep 57. (3) Summary of Major Events and Problems, FY 57, p. 137.

to the other since past experience has proved that contractors usually find it difficult to adapt equipment, particularly faceblank molds, previously used by another contractor, to their own production processes.[223]

Agent Planning and Production

[redacted] Production of "dichloro," the intermediate product for the manufacture of GB nerve gas, at the Muscle Shoals U.S. Army Chemical Corps Phosphate Development Works was terminated in July 1957 since stockpile requirements for the agent had been met. Effective 1 September 1957 the installation was officially placed on inactive status, and a project was approved for lay-away at an estimated cost of $3,759,493. A new lay-away concept, developed at the installation and approved by the Materiel Command, was expected to result in a net savings of approximately $1,250,000 in lay-away costs. Under the new lay-away concept, the amount of preservation and rehabilitation within the plant was considerably reduced, partly on the assumption that rehabilitation work would have to be repeated on reactivation even when done at lay-away, and partly on the assumption that preservation measures had previously been more extensive than required. For example, instead of following the previous pattern of checking resistance, rewinding and varnishing all electric motors, the lay-away crew surveyed all

223
(1) (b)(6), 28 Jan 59. (2) Quart Hist Rpts, MATCOM, Jan - Mar 58, Apr - Jun 58. (3) Interv, Hist Off with (b)(6), Chief Inspector, USA CmlC Dist, Chicago, 9 Dec 58. (4) Summary of Major Events and Problems, FY 57, pp. 137 - 38.

[redacted]

motors and followed the complete procedure only in the case of some large, exposed motors. The crew dried and left in place other motors in good condition and in relatively protected locations, and they moved some small motors to dry storage. Since humidity is the greatest enemy of equipment in reserve, workmen fabricated electric strip heaters to provide a few degrees of drying warmth in specific locations, and they left a slight trickle charge on transformers. Facilities maintenance personnel made and were scheduled to continue frequent checks of the facility in lay-away to insure that the reduced standards of maintenance did not lead to the deterioration of any equipment.[224]

[redacted] The production capacity of the Phosphate Development Works at a rate more than twice the accepted roundout figure of 45 tons per day had been proved in fiscal year 1957. While it had also been proved that the facility for the reduction of by-product phosphorus oxychloride could support the operation of the product plant at the mobilization rate of 30,000 tons per year, the reduction facility operation remained costly, difficult and relatively unsafe. Lt. Col. Serge Tonetti, commanding officer of the Phosphate Development Works at the time of its inactivation, studied

224
(1) Interv, Hist Off with Lt Col (b)(6) and (b)(6) MATCOM, 28 Jan 59. (2) Interv, Hist Off with Maj (b)(6) ., and Mr (b)(6) Dir Fac, MATCOM, 29 Jan 59. (3) Annual Hist Rpt, USA CmlC PDW, CY 57. (4) DA GO 48, 11 Sep 57. (5) Quart Hist Rpt, Log Pl Div, OCCmlO, Apr - Jun 57. (6) Quart Hist Rpts, MATCOM, Jul - Sep 57, Apr - Jun 58. (7) Summary of Major Events and Problems, FY 57, pp. 139 - 42.

[redacted]

[redacted]

the problem and recommended that step I (production of dimethyl hydrogen phosphite which gives the whole process its designation, DMHP) of the product process be converted to high temperature methanation (HTM) with a product of methyl dichloro phosphine. The new step I product could then be processed through the existing steps II and III to the same end product. (b)(6) dubbed this proposed combination of the existing and HTM processes HTM-LY; in the new designation the LY represents the existing step II pyro mixture product. The apparent advantages of the proposed process were virtual elimination of by-products, lower production costs and greater plant flexibility. Funding and planning limitations did not permit the further examination of the new process recommendations during fiscal year 1958.[225]

[redacted]The two step agent production facility at the U.S. Army Chemical Arsenal, Rocky Mountain, was likewise closed down on 16 August 1957. No major production difficulties were encountered in the terminal production while rates were increased from 150 percent to 200 percent and, finally, 250 percent of design capacity. Overall agent yield during these final runs was 93.65 percent and all material produced met specification. The production plant was placed in standby, and lay-away under the concepts developed at the Phosphate Development Works was begun. Munitions filling

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225

(1) Annual Hist Rpt, USA CmlC PDW, CY 57, and Annex B, Staff Study prepared by (b)(6) 30 Jan 58, sub: Comparison of DMHP and HTM-LY Processes. (2) See below, pp. 163-68 for discussion of planning limitations.

[redacted]

on a one-crew basis was continued until April 1958 when the filling lines were also closed down. Lay-away for the Rocky Mountain facility was estimated at $1,229,852 at the beginning of the fiscal year; a later estimate was $832,000 for an estimated total lay-away savings of $1,519,000 on both GB facilities.[226]

[redacted] During fiscal year 1958 the Chemical Corps proceeded with plans to acquire a production facility for the new agent, VX, which is to replace mustard as the standard persistent agent.[227] Major General William M. Creasy, Chief Chemical Officer, had decided in fiscal year 1957 that the interests of the Government could best be served by contracting with industry for the design, construction and operation of a 10 ton per day production plant. General Creasy, in making this offer to industry, wished to provide incentive to develop a continuous manufacturing process in place of the batch process, which has previously been the source of quality control problems, to improve agent stability and to develop and construct a munitions filling line as an adjunct of the production facility. General Creasy also desired to stipulate that the process and facility be designed for a potential four-fold expansion of which the initial capacity increment

226
(1) Quart Hist Rpts, USA Cml Ars, RM Class App, FY 58. (2) Annual Hist Rpt, USA CmlC PDW, CY 57. (3) Quart Hist Rpt, Log Pl Div, OCCmlO, Apr - Jun 57. (4) Quart Rev, Oct - Dec 57, p. 58.

227
See above, pp. 97 - 99 for information on standardization of VX.

[redacted]

(10 ton per day) should be ready by 1 January 1960. A subsidiary consideration was to determine the extent of industrial support for the Chemical Corps agents production program. Since a majority of the fifteen industrial firms consulted indicated an interest in the Chief Chemical Officer's plan, the Chemical Corps, on 16 September 1957, transmitted to the Deputy Chief of Staff for Logistics a project request for $24,763,000 to be obligated in FY 1958. On 10 December 1957, DCSLOG advised the Chief Chemical Officer that the Assistant Secretary of the Army (Logistics) had approved the project inclusion in the FY 1958 program. Subsequently, in response to a DCSLOG objection that the plant would be ready before munitions were available for filling, the Chemical Corps instituted an accelerated program to effect standardization and procurement of a selected group of munitions. Then, at various times during the first three months of CY 1958, General Creasy briefed Mr. Wilber M. Brucker, Secretary of the Army, Mr. F. H. Higgins, Assistant Secretary of the Army (Logistics), and (b)(6) Army Director of Research and Development; in each briefing General Creasy stressed the urgency of obtaining an early project approval from the Deputy Secretary of Defense in order to achieve VX capability with the least possible delay. Mr. Donald A. Quarles, Deputy Secretary of Defense, did not, however, approve the Secretary of the Army's request for construction approval when it was presented to him in March. General Creasy then again discussed his proposals with Mr. Higgins, and, at Mr. Higgins' invitation, briefed Mr. Floyd S. Bryant, Assistant Secretary of Defense (Properties and Installations), and Mr. Paul D. Foote, Assistant Secretary of Defense (Research and Engineering), with the result that the matter was again brought to Mr. Quarles'

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attention. Mr. Quarles approved the Chemical Corps project request on 27 April 1958 with the provision that full consideration should be given to the utilization of any available and appropriate Government-owned facilities as location for the plant.[228]

[redacted]Approval of the VX plant project was received too late in fiscal year 1958 to allow a contract to be let, and, consequently, funds could not be obligated in the fiscal year. On 9 May 1958 the Chemical Corps asked the Corps of Engineers to issue invitation for proposals to the interested industrial firms; the invitation was issued to ten firms on 23 May with a date of 26 August 1958 set for receipt of proposals. Meanwhile, agreement was reached among the Chemical Corps major commands and with the Corps of Engineers on the delineation of responsibilities in establishing a VX agent production facility. These agreements were approved by General Creasy on 2 June 1958. A few days before the end of the fiscal year a conference was held in the Office, Chief of Engineers, at which representatives of the Chemical Corps and the Corps of Engineers answered questions put by the industrial firms receiving invitations for proposals. As of the end of the fiscal year some delays in site selection and approval were expected to delay the receipt of proposals, but it was expected that funds could be obligated and design work started during fiscal year 1959.[229]

228
(1) [redacted] (b)(6) interv, 21 Jan 59. (2) Summary Sheet, CCmlO to DCSLOG, 13 May 57, sub: V-Agent Program. (3) Summary of VX Agent Production Facility, prepared by Installations Br, Log Pl Div, OCCmlO, no date.

229
Ibid.

[redacted]

[redacted]

[redacted] A factor limiting the extent of planning both with respect to GB and VX was the lack of a firm, approved day-of-supply calculation for toxics. The plans for agent production, which were presented as indicated above, included calculations for toxic supply which were derived from Chemical Corps interpretation of wartime supply experience since no expenditure data for toxics post World War I is available. Higher authority indicated that requirements so estimated appeared to be reasonable and modest, but the Chemical Corps intended these estimations as interim statements pending an official determination. The Office of the Assistant Chief Chemical Officer for Planning and Doctrine continued to work on a basis for a firm calculation. It was expected that a Command and General Staff School study on toxic requirements would be of material assistance in this area, and it was hoped that a day-of supply calculation would be approved by higher authority in fiscal year 1959.[230]

[redacted] Production capability for the biological antipersonnel agent AB-1 has been maintained in the Directorate for Biological Operations (DBO) at the U.S. Army Chemical Arsenal, Pine Bluff, and facilities are maintained at the same location for filling of bomblets and clustering operations. The Directorate for Biological Operations was, in 1958, the only facility for the production of antipersonnel biological munitions in the Free World. When the question arose, during fiscal year 1958, whether to continue this

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230 (b)(6) interv, 21 Jan 59.

[redacted]

facility or to seek some other means of maintaining capability, Brig. Gen. Clifford L. Sayre, on temporary active duty, made a study of BW productive capability. General Sayre reported to the Chief Chemical Officer that "...an operating [DBO] production facility is necessary to the readiness capability of the country in CBR;...there is no acceptable "cheap" substitute...." The Chief Chemical Officer, on 21 November 1957, accepted General Sayre's report as the Chemical Corps position, and the ready standby status of the Directorate for Biological Operations was maintained. Actual production, filling and clustering were not accomplished during fiscal year 1958 because agent viability and infectivity potential decreases with storage. From the original establishment of capability in 1954 until October 1957, the production facility was maintained in ready standby with an initial delivery time of 72 hours. Since the cost of such readiness was considered excessive, Air Force Logistical Plan AMC 13-57 which provides the readiness base for this plant was amended on 7 October 1957 with the result that initial delivery was set back to 90 days plus 72 hours and funding for the operation was reduced from an approximate annual sum of $5.5 million to $3.3 million.[231]

231
(1) Interv, Hist Off with [redacted] and Mr [redacted] Dir Indl Opns, MATCOM, 28 Jan 59. (2) Vincent-Hewitt interv, 28 Jan 59. (3) [redacted] interv, 21 Jan 59. (4) OCCmlO, Estimate of the CBR Situation, 1957, p. 7 and Annex 4. (5) Quart Hist Rpt, Log Pl Div, OCCmlO, Oct - Dec 57. (6) Memo, Brig Gen Clifford L. Sayre, CmlC - USAR, for CCmlO, 1 Nov 57, sub: Active Duty, 20 October - 2 November; Consideration of Continuity of Readiness at PDL [DBO], Pine Bluff Arsenal.

[redacted]

(U) An administrative problem in connection with operating the biological facility at Pine Bluff arsenal was in the statement of funds. Each year program and project approval was secured for the fiscal year, and each fiscal year it was necessary to secure approval on an incremental basis because of the delays experienced in fiscal year funding. In fiscal year 1958 the funding program was received in September 1957, and sub-allocations were not available until November. Approval of the project in the amount of $3,683,000 was received in December 1957. These delays resulted in deferral of required operation, inability to plan on an orderly basis, and numerous accounting adjustments. In the interest of establishing an orderly lead time for the operation of the facility, the Chief Chemical Officer on 29 April 1958 proposed financing on a calendar year basis to the Deputy Chief of Staff for Logistics. DCSLOG recommended approval of the Chief Chemical Officer's proposal to the Assistant Secretary of the Army (Logistics), and on 12 June 1958, the Assistant Secretary of the Army approved an increase in fiscal year 1958 funds to $5,283,000 to support operation through 31 December 1958, thus placing funding on a calendar year basis. Calendar year funding precluded the hiatus in operations occasioned by delay in Congressional appropriation of funds. The Pine Bluff facility was believed to be the first in the Army so funded.[232]

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232 Supp. Statement, Log Pl Div, OCCmlO.

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In keeping with the policy to assign development work to the arsenals and in consideration of the special facilities available, Materiel Command assigned the Directorate for Biological Operations production development work on the agent B. tularense which was prepared for standardization during fiscal year 1958. In all, 47 batches (2200 gallons each) of agent were prepared under an Industrial Preparedness Measure, and producibility was improved. At the same time work progressed on establishing a munitions filling capability for the agent,[233]

Budgetary limitations and some undecided policy matters prohibited the Chemical Corps from engaging in active anticrop research during FY 1958. This lack of research was reflected in curtailed activity in the production field. Edgewood Arsenal continued to produce two of the naturally occuring plant disease agents, SX and TX, under a reduced program. But at the end of the fiscal year there was a sufficient amount of agent in refrigerated storage to meet Air Force requirements for operational capability under plan AMC 12-58. Although the anticrop program differed from the antipersonnel program in that anticrop production was current, munitions filling and assembly under the anticrop operational plan, as under the antipersonnel plan, was not scheduled to take place until immediate need arises. In case of need, munitions hardware was on hand, including some stocks already located in overseas bases, for approximately 4,000 M115 biological bombs;

233
(1) (b)(6) interv, 28 Jan 59. (2) CCTC Item 3458, 27 Aug 58.

[redacted]

on notification, the agent could be processed, packaged, and air shipped for final munitions assembly at overseas bases, thus providing immediate operational capability. During fiscal year 1958, production development work was being done under contract on one other naturally occuring plant disease agent, rice blast. The Chemical Corps was able to perform this production development work and much of the other work in the anticrop program during fiscal year 1958 only because funds were made available through Industrial Preparedness Measures.[234]

Industrial Mobilization Planning

[redacted] Industrial Mobilization planning and current procurement tended, in the Chemical Corps, to become less and less separate entities and more and more mutually supporting activities. As indicated above,[235] capability, including mobilization capability, is frequently dependant upon current procurement and production since capability develops and is maintained through the operation of current production processes. This dependance has been administratively recognized by increased emphasis placed on programming mobilization activities as an extension of current programming. Current

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234 (1) (b)(6) interv, 28 Jan 59. (2) OCCml0, Estimate of CBR Situation, 1959. (3) Project Invertebrate (C) rpts, USA Cml Ars, E, 1957 Summer Season, dtd Dec 57; 1957 - 1958 Winter Season, dtd Jun 58; 1958 Summer Season, dtd Oct 58. (4) Quart Hist Rpts, MATCOM, Sep - Dec 57, Jan - Mar 58, Apr - Jun 58.

235 See above, pp. 132 - 33, 135 - 36.

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production, on the other hand, is frequently initiated or sustained through the use of mobilization funds or measures as is illustrated by the process of acquiring production capability for the new agent, VX, which was being entirely supported from mobilization funds. This inter-dependence of current procurement and production and mobilization planning made particularly significant the impact of a new planning concept for limited and general war which became effective in fiscal year 1958. Under this concept a new base superseded the Budget-Supported Force (BSF-40 mobilization divisions) concept for planning in effect during fiscal year 1957. The new limited and general war concept provided that a 20 division force would be initially provisioned and equipped, and furnished with the first six months' combat consumption allowances from a stockpile of material either already procured or planned for current procurement in the five-year materiel program. Industrial mobilization planning would then provide the facilities and the procurement and production plans to supply material equal to the combat consumption rates of those 20 divisions after the first six months of war. These facilities and plans, designated the production base, should, according to the new concept, be capable of expansion to provide the material for equipping and for furnishing the combat consumption rate allowances for a 40 division force by the end of the first year of war. The FY 1958 concept limited the expenditure of funds for planning and for the maintenance of the production base in a high state of readiness, however, to that capacity which would permit the combat consumption rate resupply of the 20 division force. Higher authority did not authorize the expenditure of funds to provide for

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or to maintain a capability to produce known deficiencies in stockpile quantities or to furnish the additional materials required by the total 40 division force. In those cases where production capability with which to support the additional 20 divisions was already available, higher authority allowed this capacity to be maintained in a low state of readiness with a minimum expenditure of funds.[236]

(U) The immediate effect of the new concept upon the Chemical Corps was a drastic reduction in capability and potentiality planning since the combat consumption rate is only a fraction of the mobilization requirement upon which the Chemical Corps had previously been planning. The Chemical Corps had been planning for initial issue and stockpile requirements which find no place under the new concept. The impact was not dramatically apparent in the area of funds specifically allotted for industrial mobilization planning although the reduction in operations and maintenance funds by about one million dollars from the FY 1958 Budget Execution Plan caused important reductions in the numbers of planning personnel and personnel employed in the maintenance of industrial reserve equipment. The

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236 (1) (b)(6) and Staff interv, 20 Dec 58. (2) (b)(6) interv, 28 Jan 59. (3) Interv, Hist Off with Mr (b)(6) Log Pl Div, OCCm1O, 23 Jan 59. (4) The new concept was formalized in the following directives: DCSLOG, Log Dir 232-715, 5 Jun 57; Log Dir 233-715, 5 Jun 57; Log Dir 240-715, 19 Jun 57; Log Dir 752-715, 5 Jun 58; Log Dir 71-715, 14 Jul 58 (confirming instructions in force during FY 58). (5) Summary of Major Events and Problems, FY 57, pp. 143 - 46.

[redacted]

planning reduction was $367,000 or 43.6 man years, and it was accomplished by reorganization of the procurement districts and reductions within the headquarters as discussed above. The $235,000 reduction in the maintenance of industrial reserve equipment meant the elimination of twenty-six personnel spaces by 1 November 1957 and a total of forty spaces by 1 January 1958. A $432,000 reduction in budget project 2240.4, maintenance of public housing, resulted in lowering the standards of maintenance to the expenditure of no more than fifty cents per square foot.[237]

[redacted]The long-range effect of the new concept was to reduce the Chemical Corps mobilization production base. At the beginning of fiscal year 1958, the Chemical Corps production base consisted of:

59 arsenal plants and lines;
9 GOCO plants;
74 package plants (including packages of special tooling);
1,574 pieces of production equipment in Industrial Equipment Reserve;
38,842 items of inspection gages and equipment;
production capacity allocated in 175 commercial facilities.

It was at once apparent that seventeen arsenal manufacturing units, more than five GOCO plants, and fourteen packages of production equipment and tooling would be excess to the new requirements. It was also apparent that production capacity allocated in commercial facilities would be curtailed; for example, sufficient requirements existed to use only two of the five planned protective mask suppliers. An exhaustive survey made during the fiscal year revealed

237
(1) (b)(6) Interv, 28 Jan 59. (2) Quart Hist Rpt, MATCOM, Jul - Sep 57.

[redacted]

capacity excess to the new limited requirements with respect to almost every item. Disposal action in the fiscal year was not indicated in the majority of cases since excess capacity was allowable when facilities were kept in low state of readiness, but some disposals were completed or were in process, particularly those effecting GOCO plants and some package plants. The major impact was rather in reduction of readiness status. The Chemical Corps plants for the production of mustard gas were reduced from 120 days readiness to a "no maintenance" category because of the reduction in requirements and because mustard is scheduled for replacement as the standard persistent agent. The phosgene plant at Edgewood arsenal was similarly reduced for like reasons. Several other arsenal manufacturing units were reduced or were in process of reduction at the end of the fiscal year.[238]

Industrial Mobilization Projects[239]

(U) Thirty-nine industrial mobilization projects covering the rehabilitation, conversion and expansion of reserve plants, conversion and expansion of privately owned plants, acquisition of reserve production

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238
(1) (b)(6) interv, 23 Jan 59. (2) (b)(6) interv, 29 Jan 59. (3) Review and Analysis Presentation to Chief Chemical Officer by Lt Col (b)(6) Dir S&P, and (b)(6) IMP Div, MATCOM, 5 Nov 57. (4) See above, pp. 34 - 35 for further details on disposal of GOCO plants.

239
See Quart Revs, Jul - Sep 57, pp. 61 - 62 and 113; Oct - Dec 57, pp. 56 - 57 and 108; Jan - Mar 58, pp. 50 - 51 and 104; Apr - Jun 58, pp. 56 - 57 and 112 for further details on these projects.

equipment, lay-away of plants and equipment, and industrial preparedness measures for a total of $37.5 million were submitted at the beginning of fiscal year 1958. One of these projects, for the construction of a classified agent facility,[240] amounted to nearly $25 million. By the end of the fiscal year twenty-nine projects for a total of $34.9 million had been approved, and all but the classified agent project had been placed in whole or in part, representing a 94 percent obligation of approximately $10.1 million. Planning in this area was limited as it was in other mobilization activities in that projects, except lay-away, were approved only when production of the subject item was expected to take place in the next fiscal year after project completion. Much needed project work on the phosphorus filling lines at Pine Bluff and Edgewood arsenals, and other purely mobilization tasks, were accordingly deferred.[241]

The industrial mobilization projects, and particularly the industrial preparedness measures which accounted for nearly $7.5 million of the projects total $10.1 million, enabled the Chemical Corps to continue with and to initiate many essential activities. As indicated above, the biological anticrop production development program depended to a large extent on mobilization projects, and advanced harvesting equipment was purchased from project funds. Also as indicated, the capacity of the

240 See above, pp. 156 - 58.

241 (1) (b)(6) interv, 28 Jan 59. (2) Quart Hist Rpts, MATCOM, Jul - Sep 57, Apr - Jun 58.

Directorate for Biological Operations was maintained and expanded through mobilization projects. This directorate provided the Chemical Corps Research and Development Command, other Department of Defense agencies, and even, in special cases, private industry, with information on the production of biologicals, such as the antibiotics. The Directorate maintains constant contact with industry and with educational institutions along approved lines with benefit to the defense establishment and to the nation. Industrial preparedness measures permitted the improvement of producibility of polivalent botulinum toxoid and the production study of anthrax vaccine. Significant progress was made in producing vaccine, and it was expected that a capability for protecting the whole populace would be achieved by the expected completion of the study in fiscal year 1959.[242]

Requirements, Cataloging and Standardization

(U) The principal event with respect to Chemical Corps materiel requirements, the centralization of responsibilities in the Headquarters, Chemical Corps Materiel Command, is discussed above.[243]

(U) During fiscal year 1958 the Deputy Chief of Staff for Logistics revised Chemical Corps cataloging responsibilities. The Chemical Corps was assigned cataloging responsibility for those federal supply classes for

242 (1) (b)(6) interv, 28 Jan 59. (2) (b)(6) interv, 23 Jan 59.

243 See above, pp. 124 - 28.

which it has Army-wide logistics responsibility. For the cataloging of chemical items falling within supply classes assigned as the responsibility of other technical services, the Chemical Corps was directed to deal as a requiring cataloging activity with the responsible service. The Chemical Corps, as a requiring activity, had formerly dealt directly with Cataloging Division, Office of the Assistant Secretary of Defense (Supply and Logistics), on all cataloging matters. The additional responsibilities were assumed without enlarging cataloging capacity.[244]

(U) In response to Congressional recommendations, the Defense Standardization Program was revised, in the first quarter, FY 1958, to accelerate the elimination of items from the supply system. Since the Chemical Corps had vigorously pursued a program of eliminating commercial, duplicate, obsolete, and non-essential items from supply for several years prior to FY 1958, there was little impact on Chemical Corps standardization activities.[245]

244

(1) Quart Hist Rpts, Log Pl Div, OCCmlO, Jul - Sep 57, Oct - Dec 57. (2) See Quart Revs, Oct - Dec 57, pp. 52 - 53; Jan - Mar 58, pp. 46 - 47; Apr - Jun 58, pp. 48 - 49 for discussion of other items and quantitative review of cataloging activities.

245

(1) Ltr, Actg DCSLOG to CCmlO, 18 Jun 57, sub: Reduction of the Number of Items in the Supply System, file: LOG/Gl 38537, reproduced in CCTC Item 3372, 12 Dec 57. (2) Quart Hist Rpt, Log Pl Div, OCCmlO, Jul - Sep 57. (3) See Quart Revs, Oct - Dec 57, pp. 52 - 53; Jan - Mar 58, pp. 46 - 48; Apr - Jun 58, pp. 50 - 51 for discussion of other items and quantitative review of standardization activities.

Table 5 - Chemical Corps Storage and Maintenance Performance - FY 1958

		UNIT	TOTAL FY 58	1st QUARTER	2nd QUARTER	3rd QUARTER	4th QUARTER
STORAGE SPACE OPERATED	TOTAL	sq. ft.	7,710,000[a]	7,603,000	7,730,000	7,394,000	7,415,000
	Branch Depots and Storage Area		6,336,000	6,321,000	6,539,000	6,304,000	6,348,000
	Chemical Sections of General Depots		1,374,000	1,282,000	1,191,000	1,090,000	1,067,000
	Net Usuable Space[b]		--	4,635,000	4,562,000	4,652,000	4,726,000
	Usuable Covered Space		--	2,492,000	2,375,000	2,430,000	2,476,000
	Occupied Covered Space		--	1,802,000	1,764,000	1,805,000	1,865,000
	Usuable Open Storage Space		--	2,343,000	2,187,000	2,222,000	2,250,000
	Occupied Open Storage Space		--	1,828,000	1,580,000	1,786,000	1,762,000
STORAGE[c]	TOTAL	tons	--[d]	362,176	349,306	345,625	344,511
	Issuable		--	252,072	251,410	237,757	245,496
	Ammo and Toxics		--	221,630	210,946	205,380	201,820
	Issuable		--	191,372	191,850	185,061	183,158
	General Supplies		38,508	37,009	35,115	34,348	34,779
	Issuable		29,788	30,425	29,202	27,645	28,046
	Repair Parts		6,947	6,690	6,025	5,097	4,756
	Issuable		5,944	3,048	3,702	3,195	2,535
	Strategic and Critical Materials		69,240	69,240	69,240	69,242	69,491
	Issuable		0	0	0	0	0
	Other[d]		25,631	27,610	28,480	31,556	33,506
	Issuable		25,606	26,427	26,656	21,896	31,427
INVENTORY VALUE CLOSING	TOTAL	dollars	--[e]	--	384,000,000	375,000,000	354,000,000
	Major Items Stocks, Army, Total		--	--	130,000,000	126,000,000	109,000,000
	Army Stock Fund, Total		42,000,000	39,000,000	35,000,000	33,000,000	31,000,000
	Claimant Stocks, Total		--	--	219,000,000	216,000,000	214,000,000
MATERIALS RECEIVED AND SUPPLIED[f]	TOTAL HANDLED	tons	39,009	13,456	5,018	12,336	8,199
	Received		28,371	9,879	3,602	9,458	5,431
	Ammo and Toxics		15,575	7,638	2,287	5,292	358
	General Supplies		3,449	253	430	888	1,878
	Repair Parts		92	9	34	23	26
	Other[e]		9,255	1,979	851	3,255	3,170
	Issued		10,638	3,577	1,416	2,878	2,767
	Ammo and Toxics		5,390	2,009	300	1,526	1,555
	General Supplies		4,607	1,455	1,021	1,054	1,077
	Repair Parts		588	113	93	286	96
	Other[e]		53	0	2	12	39
STORAGE OPERATING COST	TOTAL	dollars	3,685,240	954,295	878,417	876,920	975,608
	Branch Depots and Storage Area		1,306,482	369,775	281,741	314,105	340,861
	Direct		915,691	260,609	203,827	203,886	248,369
	Indirect		390,791	109,166	77,914	111,219	92,492
	Chemical Sections of General Depots		2,378,758	584,520	596,676	562,815	634,747
	Direct		1,389,554	328,631	331,192	338,039	391,692
	Indirect		989,204	255,889	265,484	224,776	243,055
CARE AND PRESERVATION	TOTAL	tons	284,733	92,592	60,047	55,572	76,522
	On the Spot		276,344	90,220	57,937	54,247	73,940
	Ammo and Toxics		235,792	73,245	50,193	46,338	66,016
	General Supplies		27,508	7,154	7,058	7,430	5,866
	Repair Parts		2,614	373	663	473	1,105
	Other[f]		10,430	9,448	23	6	953
	Line Processing		8,389	2,372	2,110	1,325	2,582
	Ammo and Toxics		4,131	761	1,317	545	1,508
	General Supplies		3,735	1,521	667	634	913
	Repair Parts		422	84	108	98	132
	Other[f]		104	6	21	48	29
MAINTENANCE	Estimated Rebuild and Renovation Cost	dollars	602,754	114,573	196,053	112,791	179,337
	Estimated New Procurement Value		2,037,887	259,377	608,075	494,466	675,969

[a] Total not applicable to this section; data given is 30 June 1957 status. -- Figures not available.

[b] Non-usuable space includes offices, care and preservation lines and other areas occupied by storage support operations, aisle space, fire walls, etc.

[c] Deseret depot activity of Tooele Ordnance depot, Black Hills and Navajo Ordnance depots excluded.

[d] "Other" includes industrial reserve components, magnesium scrap, and inspection aids equipment.

[e] "Other" includes strategic and critical materials, industrial reserve components and inspection aids equipment.

[f] "Other" includes industrial reserve components and inspection aids equipment.

Source: Quart Hist Rpts, MATCOM, FY 58.

Supply

(U) The benefits accrued to the Chemical Corps and the Army through the centralization of Chemical Corps supply management are discussed above.[246] This centralization was the major event in the supply field during fiscal year 1958.

(U) The initial fiscal year 1958 supply program funding estimate was for approximately $5.5 million of which about $4.5 million was to apply to depot operations and supply management and the remainder to depot maintenance. Obligation limitations later reduced maintenance to $789,000 in new funds with an expenditure level of $887,000. This amount of funding meant that all supply operations were on an austerity basis. Only minimum essential [redacted]re and preservation was accomplished, and maintenance was restricted to rebuild of items for return to user and the schedules required to meet immediate needs.[247] Table 5 indicates performance in those areas, and it presents data of storage space, tonnage in storage, tonnage handled, and the value of Chemical Corps stocks including those accounted for in the Chemical Division of the Army Stock Fund.

[redacted]rmy Stock Fund procedures were a matter of concern to the Materiel Command operating staff in fiscal year 1958. Procedures in the

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246 See above, pp. 124 - 28 for discussion of supply management and distribution improvements and accomplishments.

247 (1) Review and Analysis Presentation to Chief Chemical Officer, by Lt Col (b)(6), Dir S&P, and Capt (b)(6), IMP Div, MATCOM, 5 Nov 57. (2) Briefing, ~~Lt Col Olson~~, 6 Nov 58. (3) See Quart Rev, [redacted]pr - Jun 58, p. 90.

[redacted]

budget and apportionment processes in effect gave the Bureau of the Budget control of the stock fund, and, from the Materiel Command point of view, this control limited the management scope of the stock fund manager. The stock fund was instituted as a self-regulated revolving fund into which consumers would pay for purchases and out of which management could provide inventory to meet future requirements. Under the system in effect during fiscal year 1958 and for several previous years, the stock fund manager was required to justify procurement authority to the Deputy Chief of Staff for Logistics, the Comptroller of the Army and the Bureau of the Budget regardless of the availability of cash accumulated from sales and regardless of inventory requirements implicitly stated by sales. This system required overlapping reports of no apparent management value, and it adversely affected the operating management of the fund. For example, despite the fact that the Chemical Corps had turned back $14 million to the treasury since the 1954 inauguration of the fund, procurement authority had not been received to bring mobilization reserve stockage to the required level. Further, in one instance during the second half of fiscal year 1957, peacetime requirements could not be met under the existing procurement authority. After repeated justifications, higher authority granted procurement authority in the last days of the fiscal year, necessitating expedited action to obligate funds. Such reduced and

erratic funding required the institution of rigid obligation and expenditure controls.[248]

[redacted] The Chemical Corps brought operating problems in connection with the Army Stock Fund to the attention of higher authority. From the staff point of view, super-imposed controls are necessary as long as rigid regulation of the entire defense funding system is mandatory and until the Army as a whole has proved its ability to manage inventories successfully for the complete segregation and elimination of excess stocks. The Chemical Corps eliminated stocks by sales and by disposals in the amount of $12 million, or about 25 percent of inventory, in fiscal year 1958; further elimination from inventory could take place only by policy decision of higher authority, and the expected trend was toward an over-all inventory increase in the coming years because receipt of authority to procure mobilization reserve deficiencies was expected to be forthcoming. Staff elements have also pointed out that stock fund justifications are made on the basis of groups of items rather than individual items and that, therefore, justifications are more readily obtained than those in the Procurement of Equipment and Missiles, Army (PEMA) category in which justifications are made on an individual item basis. These problems were under consideration

248
(1) See above, pp. 24 - 26 for other details on the Army Stock Fund. (2) Walmsley and Staff interv, 20 Dec 58. (3) Statement, Dir of Sup Opns, MATCOM, to Hist Off, 20 Dec 58, sub: Command Position on the Army Stock Fund.

by the Department of Defense and the Bureau of the Budget at the end of the fiscal year.[249]

(U) A fiscal year 1958 event of importance in the supply area was the increased work at the Materiel Command National Inventory Control Point in the Interservice Supply Support program. As an adjunct of this program, which provides for the exchange of supply information and assets among the Armed Forces, and in further implementation of the centralization of supply responsibility in the Materiel Command, the Chief Chemical Officer transferred the functions of interchange of requirements, assets, and production data between the Chemical Corps and other Department of Defense agencies to the Materiel Command. Under the Interservice Supply Support program, the Chemical Corps acquired $625,000 worth of Air Force smoke pot and grenade assets in lieu of procurement. While this acquisition represented a commendable saving from the Department of Defense point of view, it tended to disrupt arsenal procurement planning with an important bearing on the retention of capability. It was expected, however, that future actions under the interservice program would provide for a better statement of chemical requirements by other Department of Defense agencies.[250]

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249 (1) Interv, Hist Off with [(b)(6)] Log Pl Div, OCCmlO, 21 Jan 59. (2) Briefing, [(b)(6)] 6 Nov 58.

250 (1) Briefing, [(b)(6)] 6 Nov 58. (2) AR 616-45, 30 Apr 56; AR 700-4, 21 Mar 57; AR 700-5, 18 Sep 57. (3) Quart Hist Rpt, Log Pl Div, OCCmlO, Jan - Mar 58.

Storage

(U) During fiscal year 1958, the Chemical Corps operated two branch depots, Eastern and Midwest, and one storage area at Rocky Mountain arsenal, and had staff supervision over chemical sections at Memphis, New Cumberland, and Utah General Depots, and maintained technical advisors for chemical storage at Navaho, Black Hills, and Tooele Ordnance Depots. Storage performance information is given in Table 5.[251]

[redacted] Fiscal year 1958 storage problems arose from operating on an austerity basis, but the Chemical Corps was able to adjust to this operation without major difficulty. The Chief Chemical Officer was principally concerned in this area with his lack of operating control over the storage and supply procedures at other than Chemical Corps installations, and he joined with the chiefs of several other technical services in protesting to the Deputy Chief of Staff for Logistics over a plan to place all storage responsibilities in the continental United States in a depot complex to be controlled by the Quartermaster General. In answer to this protest, the Deputy Chief of Staff for Logistics directed the technical services to develop an integrated depot supply plan. The technical services formed a committee under the chairmanship of Lt. Gen. Emerson L. Cummings, Chief of Ordnance, to evolve a plan which would give each technical service

251
Also see Quart Revs, Jul - Sep 57, p. 63; Oct - Dec 57, p. 60; Jan - Mar 58, p. 54; Apr - Jun 58, p. 60.

chief control consonant with his supply responsibilities; Mr. William Levitt, Supply Division, Materiel Command, was the Chemical Corps representative on the committee's working group. The plan, presented to Lt. Gen. Carter B. Magruder, Deputy Chief of Staff for Logistics, on 20 December 1957, provided for the redesignation of all depots, with some eliminations, as general depots, each under the administrative supervision of the service formerly having cognizance. Any service could then become a tenant in any depot by arranging to use the administrative and support services of the host service while retaining control of its own stocks and supply procedures. Thus, the economy of a centralized administrative responsibility in each depot could be realized along with the flexibility provided by the choice of a wide range of storage installations while maintaining the consistent relationship of responsibility and operating control throughout the supply process. General Magruder accepted this plan with minor modifications but held its implementation in abeyance pending the development of a comparable overseas plan. An overseas plan had not been developed by the end of the year. Should the continental United States plan be put into effect, the Chemical Corps would regain control of chemical supply operations in the present general depots and in the Ordnance depots where chemical materials are stored.[252]

252

(1) Interv, Hist Off with [redacted] (b)(6) Dir Sup Opns, MATCOM, 3 Feb 59. (2) Quart Hist Rpts, Log Pl Div, OCCml0, FY 58. (3) DF, LOG/Cl, Actng DCSLOG for Chiefs of Tech Svcs, 11 Sep 57, sub: Depot Supply Plan. (4) Extract Depot Supply Plan, prepared by Chiefs of Tech Svcs, 30 Nov 57, submitted to DCSLOG 20 Dec 57.

[redacted]

(U) Another development of potential importance within the Chemical Corps was the formal assignment of all storage control responsibilities to the Materiel Command. Although the Materiel Command previously exercised informal supervision of all Chemical Corps storage space, some non-depot space remained under the control of installation and activity commanders with the result that a common standard of utilization was not applied. In a regulation in preparation at the end of the fiscal year, the Chief Chemical Officer assigned the responsibilities for all storage space to the Commanding General, Chemical Corps Materiel Command. More effective space utilization was expected to result.[253]

(U) Progress was again made in fiscal year 1958 in elimination of dispersed locations of commercial chemicals. At the beginning of the year, chemicals were stored at twenty-one locations, and total value of stocks was $3,124,000; by the end of the year, there was storage in only eleven locations, and total value of stocks was $2,796,000. A total of thirty-one open-end contracts for the procurement of commercial items was awarded during the year.[254]

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253 (1) (b)(6) interv, 21 Jan 59. (2) Interv, Hist Off with (b)(6) (b)(6) Dir Sup Opns, MATCOM, 11 Feb 59. (3) CCR 743-1, 11 Jul 58.

254 (1) Quart Hist Rpts, MATCOM, FY 58. (2) Summary of Major Events and Problems, FY 57, pp. 138 - 39.

Maintenance

(U) Table 5 indicates the cost of maintenance and the value of material rebuilt. The measures for the supervision and control of maintenance instituted in the past several years proved to be a very effective in fiscal year 1958 even while operating under a reduced program.[255] The Chief Chemical Officer confirmed the Materiel Command responsibility for the technical supervision of all field maintenance activities during fiscal year 1958 while asserting the responsibility of installation commanders for the maintenance shops located within their commands. The Materiel Command, under this formal authority, was setting up schedules for the inspection and co-ordination of field maintenance activities. Results were not expected to be apparent until fiscal year 1959.[256]

Repair Parts

(U) The Deputy Chief of Staff for Logistics directed, in connection with his program to consolidate procurement facilities,[257] that the procurement function for Chemical Corps repair parts be transferred from the Chemical

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255 (1) Summary of Major Events and Problems, FY 57, pp. 153 - 54. (2) See Quart Revs, Jul - Sep 57, p. 64; Oct - Dec 57, p. 61; Jan - Mar 58, p. 55; Apr - Jun 58, p. 61 for further details on maintenance.

256 (1) (b)(6) interv, 21 Jan 59. (2) (b)(6) interv, 21 Jan 59. (3) CCR 750-4, 28 Feb 58.

257 See above, pp. 143, 145.

Parts Center, Memphis General Depot, to some other active procurement office. This responsibility was accordingly transferred to the U.S. Army Chemical Procurement District, New York, effective 2 January 1958. The Chemical Parts Center remained the National Inventory Control Point for repair parts.[258]

Property Disposal

(U) Chemical Corps excess and surplus property valued at approximately $57,649,000 was disposed of during fiscal year 1958. Of this total, material worth about $913,000 was donated while material worth approximately $2,835,000 was redistributed, and material valued at $8,566,000 was sold. Demilitarization, destruction and other miscellaneous disposals accounted for the remainder.[259]

(U) The Chemical Corps, under its Army-wide responsibility, disposed of a gross amount of approximately 140 tons of radioactive waste during fiscal year 1958. There were no major problems in radioactive waste disposal, but the program was under constant review by the Chemical Corps elements, Supply Division and Safety Office, Materiel Command, Technical Escort Unit, and Chemical Warfare Laboratories, collaborating in the activity. The goal

258
(1) Quart Hist Rpts, Log Pl Div, OCCmlO, Oct - Dec 57, Jan - Mar 58. (2) Quart Hist Rpt, MATCOM, Jan - Mar 58. (3) OCCmlO GO 1, 3 Jan 58.

259
(1) Statement, Dir Sup Opns, MATCOM, to Hist Off, 22 Jan 59. (2) See Quart Revs, Jul - Sep 57, pp. 65 - 66 and 114; Oct - Dec 57, pp. 62 - 63 and 109; Jan - Mar 58, pp. 56 - 57 and 105; Apr - Jun 58, pp. 62 - 63 and 113 for further details on property disposal.

of this review was to discover means of improving packaging and safety provisions while standardizing the operation and reducing the costs. There were no new plans sufficiently well formulated by the end of the fiscal year to predict a change in operations in the near future.[260]

(U) During fiscal year 1958, the Deputy Chief of Staff for Logistics made funds available for the disposal of the excess and obsolete toxic agent, lewisite, and for the disposal of deteriorating stocks of mustard gas. Since other methods of disposal had proved to be uneconomical, these disposals were effected by burial at sea, in ton containers in the Atlantic and in an obsolete liberty ship in the Pacific. Burial was at a depth greater than 2,200 fathoms in oceanographically "dead" areas where no strong currents exist. Smaller remaining stocks of excess mustard gas were to be disposed of by burning at Rocky Mountain arsenal and at the Black Hills Ordnance Depot. Installation personnel at Rocky Mountain arsenal rebuilt a furnace for the efficient and economical accomplishment of the operation, and at Black Hills a special rotary kiln was being developed.[261]

Quality Assurance

(U) The major event of FY 1958 in the Chemical Corps' administration

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260 (1) Briefing, (b)(6) 6 Nov 58. (2) Quart Hist Rpts, MATCOM, FY 58.

261 (1 (b)(6) interv, 21 Jan 59. (2) Interv, Hist Off with (b)(6) (b)(6), Dir Sup Opns, MATCOM, 22 Jan 59. (3) Quart Hist Rpts, Log Pl Div, OCCml0, FY 58.

of quality assurance was the reorganization which divided functions in this field between Headquarters, MATCOM, and QATA, according to the classic distinction between staff and line. This action, which greatly reduced personnel requirements in the area of inspection overhead, while at the same time improving the efficiency of operations. is more fully discussed in the section, "Management and Organization," above.[262]

Contractor - Operated Inspection

(U) The Army's general policy of placing as much responsibility as possible upon contractors for pre-acceptance inspection of their products, and thereby proportionally reducing the Government's acceptance inspection workload, was one of several years' standing. Steps toward more effective implementation were taken in FY 1957,[263] but it was not until FY 1958 that a precise pattern for inspection responsibilities was prescribed. In December, 1957, DCSLOG directed the Technical Services to include in their specifications (or in their procurement contracts, where the item specifications used were not revised) explicit statements of the supplier's inspection responsibilities, down to the itemizing of the tests to be performed. The Government's role was to be confined to verification, based on review of the contractor's methods, equipment, and records, and such actual inspection

262 See above, pp. 140 - 42.

263 Compare Summary of Major Events and Problems, FY 1957, p. 158.

as conditions warranted. These requirements did not prohibit Government assistance to contractors when needed, and specifically excepted test procedures utilizing equipment not normally available to contractors.[264] A few weeks later DA prescribed by regulation that suppliers inspect their products to insure compliance with specifications before submitting them for acceptance. Maximum Government verification permitted would be those inspections required by the specifications. Four categories of verification were laid down, ranging from Type A, in which the maximum permissible inspection would have to be done by the Government, to Type D, in which the contractor (in such a case generally the operator of a Government plant, or the producer of a major complex item) would install and maintain a complete Government-prescribed inspection and quality control system.[265]

(U) The Chemical Corps promptly took action to meet its responsibilities under the new procedure. Regulations issued in January and February, 1958, placed upon MATCOM the general implementation of current inspection policies, and required ENCOM to revise specifications wherever necessary, to insure inclusion of specific inspection responsibilities.[266] A number of practical

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264 Log Dir 280-715, 9 Dec 57.

265 (1) Change 1 to AR 715-20, 2 Jan 58. (2) DOD Instruction 4155.10, 10 Feb 59.

266 (1) CCR 742-2, 15 Jan 58. (2) CCR 742-7, 3 Feb 58.

problems remained to be worked out. For one thing, the new emphasis on verification of the contractor's inspection systems and records required Chemical Corps inspectors trained to evaluate inspection methods and assist the contractors to develop them, as well as to inspect the items themselves. Furthermore, by far the greater number of Chemical Corps contractors are small enterprises, often limited in their inspection experience and capabilities. For a time, at least, it was expected that many of them would of necessity depend on extensive Government inspection to help them meet acceptance standards.[267]

Inspection Costs

(U) During the previous fiscal year major attention had been given to the problem of reducing the cost of procurement inspection per dollar of procurement expenditure. By the end of FY 1957, a reduction of one-third had been achieved, and it was surmised that the figure reached ($.024 per dollar) probably represented the minimum attainable in view of the declining level of procurement.[268] This proved to be the case in FY 1958. As procurement declined early in the year, the relative cost of procurement inspection rose slightly to about $.027 per dollar and there leveled off for the rest of the year notwithstanding a steady reduction in the number

267 (1) Interv, Hist Off with (b)(6) Dir QA, MATCOM, 27 Feb 59. (2) Interv, Hist Off with (b)(6) Log Pl Div, OCCml0, 23 Jan 59.

268 Summary of Major Events and Problems, FY 57, pp. 157 - 59.

of inspection personnel. This level was considered satisfactory, considering the inspection criteria and the basic workload conditions. FY 1958 figures were too early to reflect any significant savings in inspection costs resulting from the changes in procurement inspection policy discussed above. In any case, such savings, if they materialize, may be offset by increased contractor charges.[269]

Surveillance Inspection

(U) Efforts to secure common acceptance by all the Armed Services of Chemical Corps surveillance standards for inspection of Chemical Corps items held in storage proved to be unavailing, despite the promising start made in FY 1957.[270] Though the Air Force and the Navy consulted Chemical Corps standards in preparing their own procedures, they did not agree to formal adoption of them.[271] On the other hand, the Marine Corps did agree to formal use of Chemical Corps standards (as promulgated in Army Supply Bulletin 3-30) for Chemical Corps items under its control. A surveillance program on this basis was established by Marine Corps Order 8073.7, 29 January 1958. Marine Corps inspecting activities were to advise the Chemical Corps of their inspection data as it accumulated, for use in maintaining statistical studies of surveillance methods.[272]

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269 (1) Quart Rev, Apr - Jun 58, p. 53. (2) (b)(6) interv, 27 Feb 59.

270 Summary of Major Events and Problems, FY 57, pp. 161 - 62.

271 (1) (b)(6) interv, 23 Jan 59. (2) Interv, Hist Off with Mr (b)(6) (b)(6) and (b)(6), Dir QA, MATCOM, 27 Feb 59.

272 (1) Quart Hist Rpt, MATCOM, Jan - Mar 58. (2) (b)(6) interv, 27 Feb 59.

Abbreviations

AAA	Antiaircraft Artillery
ACC	Army Chemical Center
ACCmlO for P&D	Assistant Chief Chemical Officer for Planning and Doctrine
ACSI	Assistant Chief of Staff for Intelligence, Department of the Army
Admin Div	Administration Division, Office of the Chief Chemical Officer
AIF	Army Industrial Fund
AR	Army Regulation
ASCP	Army Strategic Capabilities Plan
ASF	Army Stock Fund
ASOP	Army Strategic Operational Plan
AUS	Army of the United States
BSF	Budget Supported Force
Bul	Bulletin
BW	Biological Warfare
CBR	Chemical, Biological, Radiological
CCB	U.S. Army Chemical Corps Board
CCFRA	U.S. Army Chemical Corps Field Requirements Agency
CCIA	U.S. Army Chemical Corps Intelligency Agency
CCmlO	Chief Chemical Officer
CCTC	Chemical Corps Technical Committee
CCR	Chemical Corps Regulation
CDOG	Combat Development Objectives Guide
Cir	Circular
CK	Cyanogen Chloride
Class Sup	Classified Supplement
CmlC TNGCOM	U.S. Army Chemical Corps Training Command
CMLCD	Chemical Corps Combat Development Project
Cml Gp	Chemical Group
Cmt	Comment
CN	Chloracetophenone
C of Ord	Chief of Ordnance
Compt	Comptroller
CONUS	Continental United States
CPX	Command Post Exercise
CW	Chemical Warfare
CWL	Chemical Warfare Laboratories
DA	Department of the Army
DCCmlO for SA	Deputy Chief Chemical Officer for Scientific Activities
DCSLOG	Deputy Chief of Staff for Logistics, Department of the Army

DCSOPS	Deputy Chief of Staff for Operations, Department of the Army
DCSPER	Deputy Chief of Staff for Personnel, Department of the Army
Dep Cmdr	Deputy Commander
Dep Dir	Deputy Director
DF	Disposition Form
Dir Fac	Director/Directorate for Facilities (formerly Facilities Division), MATCOM
Dir IMP	Director/Directorate for Industrial Mobilization Planning (formerly IMP Div), MATCOM
Dir Indl Opns	Director/Directorate for Industrial Operations (formerly Industrial Div), MATCOM
Dir QA	Director/Directorate for Quality Assurance, MATCOM
Dir S&P	Director/Directorate for Supply and Procurement, MATCOM
Dir Sup Opns	Director/Directorate for Supply Operations (formerly Supply Division), MATCOM
Div	Division
DM	Adamsite
DOD	Department of Defense
EA	U.S. Army Chemical Arsenal, Edgewood
ECD	U.S. Army Chemical Depot, Eastern
ENCOM	U.S. Army Chemical Corps Engineering Command
ESPP	Enlisted Scientific and Professional Personnel
Exec O	Executive Officer
FM	Field Manual
FS	Sulfur trioxide--chlorosulfonic acid solution (a smoke)
FY	Fiscal Year
GB	A standard nerve gas
GO	General Orders
GOCO	Government Owned - Contractor Operated
GS	General Staff
H	Mustard Gas
HD	Distilled Mustard Gas
HHD	Headquarters and Headquarters Detachment
Hist Off	U.S. Army Chemical Corps Historical Office
HN, HN-1	Nitrogen Mustard Gas
HT	Mustard Gas-T Mixture
ICC	Interstate Commerce Commission
IMP Div	Industrial Mobilization Planning Division, MATCOM

Indus Div	Industrial Division, MATCOM
Interv	Interview
LAC	Large Area Coverage
Log Dir	Logistics Directive, an official publication of the Office of the Deputy Chief of Staff for Logistics
Log Mgmt Bd	Logistics Management Board, MATCOM
Log Pl Div	Logistics Planning Division, Office of the Chief Chemical Officer
LOPAIR	Long Path Infrared (gas identification device)
MATCOM	U.S. Army Chemical Center and Chemical Corps Materiel Command (materiel activities)
MCA	Military Construction, Army
MCD	U.S. Army Chemical Depot, Midwest
MOS	Military Occupation Specialty
NICP	National Inventory Control Point
OACCmlO for P&D	Office of the Assistant Chief Chemical Officer for Planning and Doctrine
OAP	Ordnance Assembly Plant
OCCmlO	Office of the Chief Chemical Officer
ODM	Office of Defense Mobilization
Off	Office
O&M	Operation and Maintenance
PDW	Phosphate Development Works
PEMA	Procurement of Equipment and Missiles, Army
PIO	Public Information Office
PI and Prog Off	Plans and Program Office
POW	Prisoner of War
P&P,A	Production and Procurement, Army
Proc Div	Procurement Division, Office, Deputy Chief of Staff for Logistics
Prod Pl Br	Production Planning Branch, Logistics Planning Division, Office Chief Chemical Officer
Prog Coord Off	Program Coordinating Office, Office of the Chief Chemical Officer
Proj Rpt	Project Report
QATA	U.S. Army Chemical Corps Quality Assurance Technical Agency
Quart Act Rpts	Quarterly Activity Reports

Quart Hist Rpt	Quarterly Historical Report of Policy Operations and Events (RCS CmlC-7) required of Chemical Corps elements by CCR 870-1, 19 Jul 57.
QM	Quartermaster
Quart Rev	Quarterly Review of Chemical Corps Programs
RADC	Radiological Center
R&D	Research and Development
RDCOM	U.S. Army Chemical Corps Research and Development Command
ROCAD	Pentomic Armored Division
ROCID	Pentomic Infantry Division
ROTAD	Pentomic Airborne Division
ROTC	Reserve Officers' Training Corps
RSSU	Radiological Safety Support Unit
RW	Radiological Warfare
SETAF	Southern European Task Force
SO	Special Order
STRAC	Strategic Army Corps
STRAF	Strategic Army Force
TA	Table of Allowances
TAG	The Adjutant General
TC	Training Circular
TD	Table of Distribution
Tech Lib	Technical Library, Chemical Warfare Laboratories, ACC, Md.
Tech SVC	Technical Service
TI	Technical Intelligence
TM	Technical Manual
TOE	Table of Organization and Equipment
US ACC and MATCOM	Hqs, U.S. Army Chemical Center and Chemical Corps Materiel Command (administrative and installation activities)
USA Cml Ars, E	U.S. Army Chemical Arsenal, Edgewood
USA Cml Ars, PB	U.S. Army Chemical Arsenal, Pine Bluff
USA Cml Ars, RM	U.S. Army Chemical Arsenal, Rocky Mountain
USAF	United States Air Force
USCONARC	United States Continental Army Command
VX	A standard nerve gas

APPENDIX A

U.S. Army Chemical Corps Officer Assignments
as of June 1958

Office of the Chief Chemical Officer
OCCmlO Activities Located at Army Chemical Center, Md.
Field Activities
U.S. Army Chemical Center and Chemical Corps Materiel Command
    Procurement Districts
    Arsenals
    Depots
U.S. Army Chemical Corps Research and Development Command
U.S. Army Chemical Corps Engineering Command
U.S. Army Chemical Corps Training Command, Ft. McClellan, Ala.
Army Chemical Officers
Corps Chemical Officers
Division Chemical Officers
Overseas Theater Chemical Officers
Continental Army Command
Logistical Commands and Center
Special Weapons Project
Chemical Corps Units
    Groups
    Battalions
ROTC Instructors
Instructors at Non-Chemical Service Schools
Army Reserve Advisors
Miscellaneous Units - ZI
Miscellaneous Units - Overseas

OFFICE OF THE CHIEF CHEMICAL OFFICER

Chief Chemical Officer	Maj. Gen. William M. Creasy
Deputy Chief Chemical Officer	
Deputy Chief Chemical Officer for Scientific Activities	
Executive Director	
Assistant Chief Chemical Officer for Planning and Doctrine	
Executive Officer	
Assistant Executive Officer	
Chief, Administration Division	
Chief, Career Management Division	
Chief, Logistics Planning Division	
Comptroller of the Chemical Corps	
Legal Advisor	
Chief, Program Coordinating Office	

OCCMLO ACTIVITIES LOCATED AT ARMY CHI

Chemical Corps Inspector General	
Chemical Corps Provost Marshal	
Traffic Consultant	
Chief, Industrial Security	
Executive Director, Chemical Corps Advisory Council	
Chief, Chemical Corps Historical Office	(b)(6)
Executive Secretary, Chemical Corps Technical Committee	

FIELD ACTIVITIES

Commanding Officer, Chemical Corps Intelligence Agency, Washington, D.C.	
President, Chemical Corps Board, Army Chemical Center, Md.	
Commander, Chemical Corps Field Requirements Agency, Fort McClellan, Ala.	
Commander, Chemical Corps Operations Research Group, Army Chemical Center, Md.	
Chemical Corps Liaison Officer, Chemical Corps Liaison Office, Air Force Armament, Eglin Air Force Base, Fla. (discontinued 7 Apr 58)	
Chemical Corps Liaison Officer, Chemical Corps Liaison Office, Naval Rad Defense Lab, San Francisco, Calif.	
Chemical Corps Liaison Officer, Chemical Corps Liaison Office, White Sands Proving Ground, Las Cruces, N.M.	

U. S. ARMY CHEMICAL CENTER AND CHEMICAL CORPS MATERIEL COMMAND

Commanding General, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . Brig. Gen. Harold Walmsley

Deputy Post Commander, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . (b)(6)

Deputy Post Commander (MATCOM), Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . (b)(6)

Executive Officer, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . (b)(6)

Director for Quality Assurance, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . (b)(6)

Director for Supply and Procurement, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . (b)(6)

Chief, Supply Division, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . (b)(6)

Chief, Industrial Division, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . (b)(6)

Chief, Industrial Mobilization Planning Division, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . (b)(6)

U.S. ARMY CHEMICAL CENTER AND CHEMICAL CORPS MATERIEL COMMAND (CONT'D)

Chief, Facilities Division, Hq, U.S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Md. . . . . .
Commanding Officer, U.S. Army Chemical Center Procurement Agency, Army Chemical Center, Md. . . . . .
Commanding Officer, U.S. Army Chemical Corps Technical Escort Unit, Army Chemical Center, Md. . . . . .
Commanding Officer, U.S. Army Chemical Corps Quality Assurance Technical Agency, Army Chemical Center, Md. . . . .
Commanding Officer, U.S. Army Chemical Corps Phosphate Development Works, P.O. Box 608, Sheffield, Ala. . . . . .

Procurement Districts

Commanding Officer, U.S. Army Chemical Procurement District, Chicago, Chicago, Ill. . . . . .
Commanding Officer, U.S. Army Chemical Procurement District, New York, New York, N.Y. . . . . .
Commanding Officer, U.S. Army Chemical Procurement District, San Francisco, San Francisco, Calif. . . . . .
Senior Field Liaison Representative, Atlanta, U.S. Army Chemical Corps Materiel Command, Atlanta, Ga.. . . . .
Field Liaison Representative, Boston, U.S. Army Chemical Corps Materiel Command, Boston, Mass. . . . . .
Senior Field Liaison Representative, Dallas, U.S. Army Chemical Corps Materiel Command, Dallas, Tex. . . . .

(b)(6)

Arsenals

Commanding Officer, U.S. Army Chemical Arsenal, Edgewood, Army Chemical Center, Md. . . . . .
Commanding Officer, U.S. Army Chemical Arsenal, Pine Bluff Arsenal, Arsenal, Ark. . . . . .
Commanding Officer, U.S. Army Chemical Arsenal, Rocky Mountain Arsenal, Denver, Colo. . . . . .

U.S. ARMY CHEMICAL CENTER AND CHEMICAL CORPS MATERIEL COMMAND (CONT'D)

Depots

Commanding Officer, U.S. Army Chemical Depot, Eastern, Army Chemical Center, Md. . . . . .
Director of Depot Operations, U.S. Army Chemical Arsenal, Pine Bluff Arsenal, Arsenal, Ark. . . . . .
Commanding Officer, U.S. Army Chemical Depot (Sampigny), APO 122, New York, N.Y. (7813) . . . . . .
Chemical Supply Officer, U.S. Army General Depot, USARPAC, APO 503, San Francisco, Calif. (8062). . . . . .
Chemical Supply Officer, U.S. Army General Depot, Memphis General Depot, Memphis, Tenn. . . . . .
Chemical Supply Officer, U.S. Army General Depot, New Cumberland General Depot, Penna. . . . . .
Chemical Supply Officer, U.S. Army Utah General Depot, Ogden, Utah . . . .
Chemical Supply Officer, U.S. Army General Depot (Bussac), APO 215, New York, N.Y. (7782) . . . . . .
Chemical Officer, Hq, USA Japan/United Nations Comd, 8th U.S. Army, APO 343, San Francisco, Calif. . . . .

(b)(6)

U. S. ARMY CHEMICAL CORPS RESEARCH AND DEVELOPMENT COMMAND

Commanding Officer, U.S. Army Chemical Corps Research and Development Command, Washington, D.C. . . . . .
Deputy Commander for Scientific Activities. . . . . .
Commanding Officer, U.S. Army Biological Laboratories, Fort Detrick, Md. . . . . .
Commander, U.S. Army Chemical Warfare Laboratories, Army Chemical Center, Md. . . . . .
Post Commander, U.S. Army Chemical Corps Proving Ground, Dugway Proving Ground. . . . . .

(b)(6)

U.S. ARMY CHEMICAL CORPS ENGINEERING COMMAND

Commanding Officer, U.S. Army Chemical Corps Engineering Command, Army Chemical Center, Md. . . . . (b)(6)

Deputy for Engineering, U.S. Army Chemical Corps Engineering Command, Army Chemical Center, Md. . . . . (b)(6)

U.S. ARMY CHEMICAL CORPS TRAINING COMMAND

Commanding Officer, U.S. Army Chemical Corps Training Command . . . . . (b)(6)
Deputy Commander, U.S. Army Chemical Corps Training Command . . . . . (b)(6)
Commandant, U.S. Army Chemical Corps School . . . . . (b)(6)
Commanding Officer, U.S. Army 1st Radiological Safety Support Unit . . . . (b)(6)
Commanding Officer, U.S. Army Chemical Corps School Support Battalion . . . . . (b)(6)

ARMY CHEMICAL OFFICERS

Hq, First U.S. Army, Governors Island New York . . . . . (b)(6)
Hq, Second U.S. Army, Fort George G. Meade, Md. . . . . (b)(6)
Hq, Third U.S. Army, Fort McPherson, Ga. . . . (b)(6)
Hq, Fourth U.S. Army, Fort Sam Houston, Tex. (b)(6)
Hq, Fifth U.S.Army, Chicago, Ill. . . . . (b)(6)
Hq. Sixth U.S.Army, Presidio of San Francisco, Calif. . . . . (b)(6)
Hq, Military District of Washington, U.S. Army . . . . . (b)(6)
Hq, Seventh U.S. Army, APO 46, New York, N.Y.. (b)(6)
Hq, Eighth U.S. Army, APO 301, San Francisco, Calif. . . . . (b)(6)

CORPS CHEMICAL OFFICERS

Hq, I Corps, USAFFE, APO 358, San Francisco, Calif. . . . . (b)(6)
Hq, III Corps, Fort Hood, Texas. . . . . (b)(6)
Hq, V Corps, USAREUR, APO 79, New York, N.Y. . (b)(6)
Hq, VII Corps, USAREUR, APO 107, New York, N.Y. . . . . (b)(6)
Hq, XVIII Airborne Corps, Fort Bragg, N.C. . . (b)(6)

DIVISION CHEMICAL OFFICERS

1st Cavalry Division, 8th USA Rear, APO 24, San Francisco, Calif. . . . . (b)(6)
1st Infantry Division, Fort Riley, Kan. . .
2d Infantry Division, USARAL, APO 949, Seattle, Wash. . . . . .
3d Armored Division, USAREUR, APO 39, New York, N.Y. . . . . .
3d Infantry Division, USAREUR, APO 36, New York, N.Y. . . . . .
4th Armored Division, USAREUR, APO 326, New York, N.Y. . . . . .
4th Infantry Division, Ft. Lewis, Wash. . .
7th Infantry Division, USAFFE, APO 7, San Francisco, Calif. . . . . .
8th Infantry Division, USAREUR, APO 111, New York, N.Y. . . . . .
10th Infantry Division, Ft. Benning, Ga. . .
11th Airborne Division, USAREUR, APO 112, New York, N.Y. . . . . .
25th Infantry Division, USARPAC, APO 957, San Francisco, Calif. (8290). . . . . .
82d Airborne Division, Ft. Bragg, N.C. . . .
101st Airborne Division, Ft. Campbell, Ky.

OVERSEAS THEATER CHEMICAL OFFICERS

Hq, USAREUR, APO 403, New York, N.Y. . . . . (b)(6)
Hq, USARCARIB, APO 834, New Orleans, La. . . .
Hq, USARPAC, APO 958, San Francisco, Calif. (8250) . . . . . .
Hq, USARAL, APO 949, Seattle, Wash. (8367) . .
Hq, U.S. Army Southern European Task Force, APO 168, New York, N.Y. (7600). . . . .
RYIS, U.S. Army Ordnance Group, USARPAC, APO 331, San Francisco, Calif. (8040) .
USA Hq ComZ, USAREUR, APO 58, New York, N.Y. (7966) . . . . . .

CONTINENTAL ARMY COMMAN

Hq, CONARC (7100), Ft. Monroe, Va. . . . . .

CONTINENTAL ARMY COMMAND (CONT'D)

U.S. Army Armor Board (7102), Ft.Knox, Ky. . .
U.S. Army Infantry Board (7103),
Fort Benning, Ga. . . . . .

(b)(6)

LOGISTICAL COMMANDS AND CENTER

Chemical Officer, Hq, 1st Logistical
Command, Ft. Bragg, N.C. . . . . .
Chemical Officer, Hq, 2d Logistical
Command, Ft. Polk, La. . . . . .
Chemical Officer, U.S. Army Logistical
Management Center, Ft. Lee, Va. . . .

SPECIAL WEAPONS PROJECT

Hq, Armed Forces Special Weapons
Project (8451), Washington, D.C. . .
Hq, Special Weapons Field Command
(8452), Sandia Base, Albuquerque,
N. Mex. . . . . .

CHEMICAL CORPS UNITS

Groups

Commanding Officer, 81st Chemical
Group, Ft. Bragg, N.C. . . . . .
Commanding Officer, 100th Chemical
Group (ComZ), Ft. McClellan, Ala. . . .

(b)(6)

Battalions

Commanding Officer, 1st Chemical
Battalion (Svc), Ft. McClellan, Ala. .
Commanding Officer, 2d Chemical
Battalion (SG), Dugway Proving
Ground, Dugway, Utah. . . . . .
Commanding Officer, 4th Chemical
Battalion (SG), USAREUR, APO 28,
New York, N.Y. . . . . .
Commanding Officer, 5th Chemical
Battalion (SG), Ft. Bragg, N.C. . . . . .
Commanding Officer, 83d Chemical
Battalion (Svc), Ft.McClellan, Ala. . . .
Commanding Officer, 85th Chemical
Battalion (Svc), USAREUR, APO 34,
New York, N.Y. . . . . .
Commanding Officer, 218th Chemical
Battalion (Svc), Ft. McClellan, Ala. . .

ROTC INSTRUCTORS

Massachusetts Institute of Technology (1371), Cambridge, Mass.
Canisius College (1242), Buffalo, N.Y.
St. Peter's College (1372), Jersey City, N.J.
Ohio State University (2306) Columbus, Ohio
University of Delaware (2152) Newark, Del.
Georgia Institute of Technology (3340) Atlanta, Ga.

Texas A&M College (4365), College Station, Tex.
University of Oklahoma (4357) Norman, Okla.
Purdue University (5301), Lafayette, Ind.

Loyola University (4342), New Orleans, La.
Michigan State University (5301), East Lansing, Mich.
Idaho State College (6501), Pocatello, Idaho.
University of California (6513-01), Davis, Calif.

(b)(6)

INSTRUCTORS AT NON-CHEMICAL SERVICE SCHOOLS

2168 U.S. Army Armor School, Armor Center, Ky.

2162 U.S. Army War College, Carlisle Barracks, Penna.
3449 The Infantry School, Infantry Center, Ga.

4054 Air Defense School, Ft. Bliss, Tex.
5025 Command & General Staff College, Ft. Leavenworth, Kan.

8696 Naval Damage Control School, Treasure Island, San Francisco, Calif
8658 Industrial College of the Armed Forces, Ft. Lesley J. McNair, Washington, D.C.

(b)(6)

INSTRUCTORS AT NON-CHEMICAL SERVICE SCHOOLS (CONT'D)

8660 United States Military Academy, West Point, N.Y. . . . . (b)(6)

9829 The Engineer School, Fort Belvoir, Va. . . . . (b)(6)

4050 Artillery GM School, Artillery GM Center, Okla. . . . . (b)(6)

ARMY RESERVE ADVISORS

1372 Hqs Southern New York Sector, New York, N.Y. . . . . (b)(6)

5302 Hqs Northern Illinois Sector, Chicago, Ill. . . . . (b)(6)

1371 Hqs Rhode Island Sector, Providence, R.I. . . . . (b)(6)

MISCELLANEOUS UNITS - ZI

Office of the Secretary of Defense (8475) Washington, D.C. . . . . (b)(6)

Office of the Comptroller of the Army (8528), Washington, D.C. . . . . (b)(6)

Office of the Chief of Information (8529), Washington, D.C. . . . . (b)(6)

Office, Assistant Chief of Staff, Intelligence (8533), Washington, D.C.. (b)(6)

Office, Deputy Chief of Staff for Military Operations (8534), Washington, D.C. . . . . (b)(6)

Office, Deputy Chief of Staff for Logistics (8535), Washington, D.C. . . . (b)(6)

MISCELLANEOUS UNITS - ZI (CONT'D)

Office of the Inspector General (8539), Washington, D.C. . . . . .

Office, Chief of Research and Development (8556), Washington, D.C. .

Support Group (8706), The Pentagon, Washington, D.C. . . . . .

Department of Health, Education and Welfare (8730), Washington, D.C. . .

Army Research Office, USA (8667), Arlington Hall Station, Arlington, Va

Office of Selective Service (8755), Providence, R.I. . . . . .

QM Food & Container Institute for the Armed Forces (9111-01), Chicago, Ill.

(b)(6)

MISCELLANEOUS UNITS - OVERSEAS

Hq, US Pacific Command (7238), FPO 17, San Francisco, Calif. . . . . .

Army Sec, MAAG, Japan (7242), APO 500, San Francisco, Calif. . . . . .

Detachment 2, USA Elm Allied Forces, Southern Europe (8651), Navy FPO 510, New York, N.Y. . . . . .

U.S. Arm Elm SHAPE (8651), APO 55, New York, N.Y. . . . . .

Hq, USA ComZ EUR, USAREUR, APO 58, New York, N.Y. -- Deputy Chief of Staff, Comd Div. . . . . .

U.S. Army Standardization Group (8669), Ottawa, Canada -- R&D Coordinator. .

Army Attache System (8580), Paris, France, APO 230, New York, N.Y. . .

U.S. Army Standardization Group (8670), FPO, New York, N.Y. -- U.S. Tech Representative for CmlC . . . . . .

(b)(6)

App. A