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HEADQUARTERS

U. S. ARMY CHEMICAL CORPS RESEARCH AND DEVELOPMENT COMMAND

WASHINGTON 25, D. C.

HISTORICAL REPORT

1 APRIL 1958

to

30 JUNE 1958

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*[Handwritten signature]*

GLADYS P. SILBER  
Historian

Reports Control Symbol CmlC-7

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PART I

ADMINISTRATION

A. Mission and Responsibilities.

No change.

B. Acquisition of Physical Facilities.

No change.

C. Organization.

No change.

D. Development of Administrative Procedures.

Multiple address letter to CO's, USA BWL, CWL and CmlCPG, CMLRD-EX, 20 June 1958, Subject: Routing of Correspondence, directed that, effective immediately, all correspondence to higher headquarters be addressed to Headquarters, USA CmlC RDCOM rather than through the Headquarters, except when existing regulations or instructions of this and higher headquarters specify another routing.

Multiple address letter to BWL, CWL and CmlCPG, CMLRD-EX, 27 June 1958, same subject, amended above letter to provide exception with respect to all civilian personnel matters which will be forwarded to the Commanding Officer, USA CmlCRDCOM, Attn: CMLCM-C.

PART II

FISCAL

This portion will be submitted by the Chemical Corps Comptroller who renders comptroller support functions to this Headquarters.

PART III

PERSONNEL

A. Key Personnel.

Assignment and transfer of key personnel in Headquarters, U. S. Army Chemical Corps Research and Development Command are as follows:

<u>Effective Date</u>	<u>Name and Status</u>	<u>Authority</u>
3 April 1958	Mr. Louis Benjamin designated Chief, Development Division	Para 2, SO 32 Hq, USA CmlC RDCOM 4 Apr 58
17 April 1958	Colonel Ronald L. Martin, O19 428, CmlC, appointed Acting Deputy Commander	Para 1, SO 40, Hq, USA CmlC RDCOM 17 Apr 58
3 April 1958	Lt. Col. Lowell E. Thompson, O25252, CmlC, relieved from assignment to Process Dev Div and assigned to Long Range R&D Plans Office as Nuclear Effects Engineer, MOS 7330	Para 2, SO 40, Hq, USA CmlC RDCOM 17 Apr 58
19 May 1958	Lt. Col. Timothy C. Williams, O30 791, CmlC, designated as Acting IG, Hq, USA CmlC RDCOM, vice Col. Jack E. Babcock, O21 413, CmlC	Para 1, SO 52, Hq, USA CmlC RDCOM 19 May 58
23 June 1958	Captain Patricia L. Bouldin L388 (WAC), CmlC, assigned as Technical Liaison Officer	Para 1, SO 63, Hq, USA CmlC RDCOM 24 Jun 58
22 June 1958	Col. Jack E. Babcock, O21 413, CmlC, transferred from Hq, USA CmlCRDCOM to Hq, Armed Forces, Central Europe as Chief, Plans Div, Log & Admin, AFCENT	Para 63, SO 20, DA, 1958
2 June 1958	Colonel Ronald L. Martin, O19 428, CmlC, appointed as Deputy Commander, Hq, USA CmlC RDCOM (9703)	Para 1, SO 84 OCCmLO 2 Jun 58

B. PERSONNEL STRENGTH.  
Authorized  
Actual

Military  
12  
9

Civilian  
51  
49

PART IV

PLANS

A. Plans for Peacetime Establishment.

No change.

B. Mobilization Plans.

Chemical Corps Mobilization Research and Development Program No. 15, FY 1958, CMLRD-PD, issued 12 May 1958 (CmlC Control No. 1441-58-S)

C. Current Planning.

Plans are being formulated to conduct a policy conference at Cacapon State Park, West Virginia on 5, 6 and 7 November 1958. Purpose of conference is twofold:- (a) presentation and discussion of the U.S. Army CmlC Research and Development Command technical program to insure rapid dissemination and uniform understanding of our program; (b) an opportunity for USA CmlC RDCOM key personnel to meet and solve specific problems on an informal basis in order to obtain and promote greater mutual understanding. Attendance, in general, will be limited to commanders, deputies, directors, deputy directors and chiefs of technical divisions.

PART V

OPERATIONS

The major staff actions of Headquarters, U. S. Army Chemical Corps Research and Development Command are attached.

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- 1 April 1958  
(C)
- Letter to Chief Chemical Officer, CMLRD-PE, Subject: Bi-weekly Report of Significant Accomplishments (RCS-LOG 141), forwarding following items of information in accordance with letter, CMLWS, OCCm10, 21 Feb 56:- (a) Identification of Psychochemical Attack - A medical research group in the USA CWL has devised a test method which shows by means of a color gradation in a dye solution whether an individual has received a significant dose of a lysergic acid compound. Test provides a method for determining whether key personnel have been subjected, by enemy action, to psychochemicals of the lysergic acid type. (b) New Nerve Gas Decontaminating Apparatus:- Ability of U.S. military forces to successfully neutralize an enemy attack by the V-agent type of nerve gas or other persistent chemical agents will shortly be enhanced with a Portable Decontaminating Apparatus identified as the E17RL. Device, rather similar in appearance to carbon dioxide fire extinguisher, weighs 5 pounds and can be located in vehicles, trailers or field-type installations. Decontaminating solution is noncorrosive to metal surfaces, fabrics and plastic material. A carbon dioxide cartridge pressurizes system and solution can be sprayed over contaminated area. Design of device was completed by USA CWL and, after engineering test cycle and approval by USCONARC, item can be manufactured in quantity for general issue.
- 1 April 1958
- Letter to Chief of Naval Operations, CMLRD-D, Subject: Meteorological Support at Dugway Proving Ground, Request for, referring to CNO letter to CCm10, Op-583/jt Ser 106P58, 21 Feb 58, same subject, which requested information on feasibility of utilizing Signal Corps meteorological team station at USACm1CPG to provide RAWINSONDE data for the REGULUS II Program commencing 1 Sep 58 with equipment furnished by BuAer and installed in existing facilities at USACm1CPG. CmlC, in coordination with Signal Corps, considers it feasible and desirable to utilize SC capability at USACm1CPG and authorizes direct communication between CNO Missile Test Center and USACm1CPG in arranging details of desired support.
- 2 April 1958  
(UWS)  
(3514-57-S)  
(S)
- Letter to President, U.S. Army Chemical Corps Board, CMLRD-PD, Subject: Ideas for Long-Range Combat Development (U), referring to CCB letter, CMLEX-TD 302-(57), 27 Nov 57, same subject, with one inclosure (3352-57-S) and transmitting new ideas for long-range combat development, with a request that the CCB explore potential of first item and advise Hq, USA CmlCRDCOM as to its merit, as follows:- (1) Use of "Bull Goose" for BW Delivery - There is the possibility that the "Bull Goose" missile can be adapted to disseminate BW agent and therefore be used as a means to exploit the LAC concept. One hundred drones would cost less than one B-47 and could deliver 50,000 pounds of agent. (2) Drone Aircraft for Disseminating Liquid or Dry CW-BW Agents - Drones, controlled by radio from forward ground positions or by Army liaison type aircraft, equipped with wing mounted or integral

7  
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type spraying systems could give Army an important capability for tactical use of toxic spray. Longer range drones would be useful for BW dissemination. Survey of existing drone type aircraft should be made to determine their suitability for this purpose. If negative, consideration should be given to developing a specialized spray drone for Army tactical use. (3) CW Agent Spray Tanks for Army Aircraft - It is believed that 60-gallon, wing-mounted spray tanks for disseminating insecticides from light aircraft have been developed by BuAer, D/N. Either these or similar type units should be developed for disseminating agent VX from Army aircraft. (4) Chemical Spray Missile - Ballistic missiles, because of their trajectories, are not adaptable to disseminating CW-BW agents as a constant altitude line source. Edo Corporation has submitted proposal for weapons system permitting high altitude, off target release that will approach target at a controlled glide angle, level out at a preset altitude and disseminate its agent in level flight. Due to the fact that warhead sizes required for efficient nuclear weapons are likely to be reduced, future of CmLC in area of missiles may well depend on development of a special BW-CW missile designed for optimum performance in disseminating toxic and infectious agents. An interim capability for disseminating BW-CW agents as an elevated, altitude controlled, line source may be possible through the adaptation of the Matador, Snark and Regulus missiles. Exploratory studies of this nature should be conducted. (5) LAC concept envisions off target delivery of BW agent. This concept simplifies delivery problems since non-combat, transport type aircraft could be utilized. Such usage has secondary advantage of freeing SAC aircraft with primary nuclear delivery responsibility from involvement in such missions; therefore, a BW-CW agent disseminator should be developed for use in suitable long range transport type aircraft. High agent payloads could be utilized because of inherent design of such aircraft. Two models should be available to accommodate either liquid slurries or dry particulates. (6) A toxic land mine of the "bounding betty" type should be developed to obtain maximal exploitation of the percutaneous effect of agent VX. Such a mine would have a mechanism incorporated to provide for ejection from the ground after activation and a low altitude burst to contaminate troops in the vicinity with toxic rain.

MEMO FOR RECORD - CCB letter of 27 Nov 57 stated that any ideas submitted would not be construed as official doctrine or plan of the DOD and therefore need not be coordinated with higher authority. The CCmlO agrees with this approach. (Action Officer - Hartmeyer)

8

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- 2 April 1958 Letter to CO, USA BWL, CMLRD-D, Subject: Decoy Missile BW  
(CWS) Delivery Systems (C), stating that the Department of the Air  
(986-58-S) Force Decoy Missile, the SM-73 (BULL GOOSE), is the first of  
such systems appearing to have a good potential for use as  
a BW delivery system and requesting USA BWL include a feasi-  
bility study on this subject in the FY 1959 program. DD 613  
project cards on this missile transmitted for information.
- 9 April 1958 Comment No. 1 to C/R&D, DA, Attn: Brig. Gen. T.J. Conway,  
Director of Research, CMLRD-P, Subject: Nominal Cost Research  
and Development Contract, referring to meeting of General Conway  
with Technical Services representatives on 20 Nov 57 for the  
purpose of bringing to the attention of the Technical Services  
the research experience and skills of Level Brothers which might  
be of interest to the Department of the Army. At this meeting,  
Dr. John L. Schwab, Deputy Commander for Scientific Activities,  
RDCOM, discussed with General Conway the Army view relative to  
utilization of nominal cost research and development contracts.  
It was indicated that DA policy is to enthusiastically endorse  
such arrangements. General Conway indicated that, while ap-  
proval of such contracts by DA is not required, his office would  
like to be notified when such arrangements are made. C-1 trans-  
mits copy of contract recently entered into by Chemical Corps  
with the U. S. Steel Corporation (Consolidated Western Steel  
Division) in the amount of \$1.00.
- 11 April 1958 Letter to Chief of Research and Development, DA, Attn: Director  
of Special Weapons, CMLRD-D, Subject: Missile "A" Steering Com-  
mittee, referring to Comment No. 1, CRD/I 3556 (SNF), to CCmlO,  
19 Mar 58, requesting CCmlO to designate a CmlC representative  
to subject committee. (CmlC Control No. 871-58-S) Letter desig-  
nates Mr. Louis Benjamin, GS-15, Physical Science Administrator,  
as CmlC representative.
- 14 April 1958 Letter to C/R&D, DA, CMLRD-PE, Subject: R&D Project Status  
Statement (Reports Control Symbol CSCRD-3(R1)), advising that  
no change has occurred in the Chemical Corps R&D Project Status  
for the past quarter. Entire project structure of USA BWL and  
USA CmlCPG was reorganized in compliance with DA instructions  
at the CCTC meeting of 27 March 1958, changes to be effective  
as of 1 July 1958.
- 15 April 1958 Comment No. 1 to CCmlO, Attn: DCCmlO/SA, CMLRD-P, Subject:  
Reorganization of the Department of Defense, referencing (a)  
multiple address memo, LOG/A(P), DCSLOG/PCO, 11 Apr 58, same  
subject; (b) Memo, LOG/A(P), DCSLOG/PCO, thru Assistant DCSLOG  
(P&B) for Acting DCSLOG, 11 Apr 58, Subject: Reorganization of  
the Defense Establishment, and (c) highlights of Secretary Mc-  
Elroy's Statement at Press Club Luncheon, 10 April 1958, re DOD  
Reorganization prepared by Policy Coordination Office, DCSLOG.  
Reference is also made to (a) comparison of Present Law and  
Proposed Law on Reorganization of the DOD and (b) Message from  
the President of the US to the Congress of the US transmitting  
Recommendations relative to our Entire Defense Establishment.

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Comment transmits fact sheet representing position of CmlC RDCOM.

- 18 Apr 58 1st Indorsement to Officer in Charge, Explosive Ordnance Disposal  
(C) Technical Center, U.S. Naval Powder Factory, Indian Head, Maryland,  
CMLRD-PE (11 Apr 58), Subject: "Proposal for Incendio-Chemical  
Destructor Investigation (U)," transmitting proposal submitted by  
USA CWL (Research Directorate) at the request of the Technical  
Center to formulate and design an incendiary unit containing a  
chemical component separately attached to destroy BW and CW muni-  
tions in the field.
- 18 Apr 58 Letter to Chief, Research and Development, DA, CMLRD-PE, Subject:  
(1163-58-S) Army Research and Development Quarterly Progress Report (RCS  
(UWS) CSCRD-8)(U), submitting report covering Third Quarter, Fiscal Year  
1958.
- 21 Apr 58 1st Indorsement to CCmlO, CMLRD-PD (3 Mar 58), Subject: Air Force  
(556-58-S) Offensive BW-CW Program (U), recommending consideration be given  
(UWS) to the following:- (a) An early reconvening of the DOD BW/CW Co-  
ordinating Committee for the purpose of reviewing the impact of the  
Air Force's withdrawal of funding from the CW and BW program and to  
determine a solution to this problem; (b) Continue appropriate  
portions of the Big Ben project as part of the Chemical Corps pro-  
gram; (c) The Air Force "exchange officers" formerly assigned for  
duty at EWL and CWL be replaced by one Air Force officer to be as-  
signed to Hq, USA CmlC RDCOM, and (d) The Chemical Corps Liaison  
Officer assigned to the Air Force Armament Center be reassigned to  
Hq, USAF to coordinate CmlC R&D and operations matters.
- Memo for Record - Basic letter from ARDC outlines implementation of  
their new funding policy towards developments of BW/CW items. The  
AF will not fund for development of any item until CmlC has proven  
feasibility of agent and method of dissemination and until AF has  
developed an Operational Support Requirement, at which time they  
will then fund for the rest of the development and testing. Letter  
stated that AF was freezing funds in all outstanding MIPR's except  
three.
- 21 Apr 58 Letter to C/R&D, DA; CG, USCONARC; TSG, CofE, CofT, CSO, CofO and  
(Conf) TQMG, CMLRD-L, Subject: Requirements and Objectives for Operation  
(UWS) WILLOW (U), submitting CmlC requirements and objectives for Operation  
WILLOW in accordance with R&D Directive Nr. 5, 17 Mar 58, and desig-  
nating Lt. Col. L.E. Thompson, Hq, USA CmlC RDCOM, Program Coordi-  
nator for the CmlC, vice Lt. Col. Charles Robbins, CmlC, relieved.
- 21 Apr 58 Comment No. 1, CMLRD-PE, Subject: Topics for Presentation at the  
(Conf) Technical Service Chief's Luncheons, the General Staff Council, and  
(UWS) the Army Policy Council, transmitting report of Logistics Topics  
for Formal Presentation for The Technical Service Chiefs' Luncheons.

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Memo for Record - Letter, CMLPC, 21 Mar 58, delegated responsibility to Chief, PCO, OCCm10, for submission to DCSLOG of the monthly CmlC report, subject: "Report of Logistics Topics for Formal Presentations" (RCS LOG-357) as required by Memorandum from the Deputy Chief of Staff for Logistics dated 4 March 1958, LOG/Al. Chief, PCO, verbally requested RDCOM (Colonel Essman) to submit suitable topics for report. Presentation on Psychochemicals by Dr. V. Sim at General Creasy's Commanders Conference on 17 April 1958 was considered appropriate for this report.

- 21 Apr 58 Letter to C/R&D, DA, CMLRD-PE, Subject: Third Quarter FY 1958  
(1184-58-S) Presentation to R&D Program Director on Program Execution by the  
(UWS) Technical Services (U), referencing multiple address Comment Nr. 1 from C/R&D, CRD/A 3050, 12 Mar 58, Subject: Quarterly Presentation to the R&D Program Director on Program Execution by the Technical Services (U), and transmitting narrative portion and related charts used at 14 April 1958 presentation.
- 23 Apr 58 Comment No. 1 to CCm10, Attn: Comptroller, CMLRD-PE, Subject:  
(1233-58-S) Publication Data--Review of Chemical Corps Programs, 3d Quarter,  
(UWS) FY 1958, submitting information for quarterly publication, classified supplement.
- 24 Apr 58 Letter to Chief of Ordnance, Attn: ORDTS, Subject: Non-Toxic  
Incendiary Warhead for HONEST JOHN Rocket (U), advising that, as per agreement reached in conference held in Pentagon on 21 April 58 regarding warheads for subject rocket, the CmlC has reconsidered development schedule presented to conference and submits following revised schedule:- (a) Development completed one year after funds are made available; (b) Initial production delivery six months after development provided funds are made available; (c) Estimated development cost - 500M, R&D funds and 500M, P&P,A funds; (d) Estimated unit cost in procurement - 6M. USA CWL are reinvestigating antipersonnel hazard of WP munitions as compared to HE munitions. CmlC recommends consideration be given to development of an incendiary warhead of the type presented and discussed at referenced conference.

MEMO FOR RECORD - At referenced conference, Mr. Kratzer, CWL, presented CmlC concept of an incendiary warhead for the HONEST JOHN Rocket. Picatinny Arsenal presented Ordnance Corps concept of a non-nuclear warhead for the HONEST JOHN. Objective of conference was to recommend suitable warheads for release with the M31A1 Rocket to NATO countries. Picatinny discounted feasibility of the chemical warhead due to lack of knowledge on personnel hazard of WP. It was agreed that CmlC should investigate further a hazard existing from exploding and burning WP. It was further agreed that CmlC would reconsider a time schedule presented to the meeting since it was desired to have the rocket system available to NATO countries much earlier than the schedule indicated development to be complete. Mr. Benjamin agreed to provide Ordnance (Mr. Beckman) with revised schedule for including in Ordnance Corps' reply to DA Staff on feasibility of releasing HONEST JOHN systems to NATO.

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25 Apr 58 Letter to CO's, USA CWL and USA BWL, CMLRD-D, Subject: SERGEANT (1252-58-S) Steering Committee (U), advising that subject committee convened

(S) on 26 and 27 March at Redstone Arsenal to discuss entire missile system. Chemical warheads were assigned lowest priority and it was apparent that committee membership was completely unaware of potential offensive capability of the SERGEANT Missile with BW or CW Warheads.

(S) CmlC representatives in attendance discussed apparent lack of information and agreed it would be worthwhile for Corps to present to the committee the potential capability to be had through utilization of BW and CW warheads. CmlC Committee Member (Mr. Harley H. Hood) requested permission to have approximately 20-minute presentations made by BWL and CWL at next committee meeting to be held in June 1958.

(S) Letter requests Laboratories prepare technical presentations which will serve to acquaint committee membership with potential offensive capability of BW and CW warheads and suggests presentations be made by alternate observer members to the committee (CWL - Mr. Joseph P. Sansonetti; BWL - Mr. Robert W. Bingham).

25 Apr 58 Comment No. 3 to CGm10, Attn: DCGm10/SA, CMLRD-PE (18 Mar 58), Subject: Meeting of the Army Scientific Advisory Panel, 3-7 May 1958 (851-58-S) (U), submitting brief reports on topics of interest to be presented to the CBR Subpanel at subject meeting. Status reports were submitted on (1) VI Munitions Tests at DPG and (2) Plans for DPG. Plans have been initiated for the preparation of a documentary film on nerve gases which will require cooperative effort between Signal Corps and USA CmlC RDCOM personnel. A tentative completion date of 1 Nov 58 has been established.

28 Apr 58 Memo from Chief, Program Development and Coordination Branch, Plans and Programs Division, CMLRD-PD, to Deputy Commander for Scientific Activities, Subject: Disposition of ORO Report TM-367, advising that Lt. Col. Gaustad, OC/R&D (replacement for Col. Carlson) had informed him that his office had recommended that the Antifood Report (TM-367) not be distributed nor will it be referred to a panel for review. Although this recommendation was not completely staffed in OC/R&D, it was Lt. Col. Gaustad's opinion that above represents the position of OC/R&D.

28 Apr 58 Comment No. 1 to C/R&D, CMLRD-R, Subject: MWDP Project Proposals, (1084-58-S) FY 59, and Proposed Extensions to Current MWDP Projects (U), referencing multiple address Comment No. 1, CRD/B 4613, 9 April 1958, (CWS) with one inclosure (project proposal), and recommending that the U. S. support proposed new MWDP project "Field Behavior of Smoke and Chemical Agents (Norway)." Information on the influence of climatic and especially topographic factors on the behavior of smoke and gases will be very useful in the analysis of Operation IAC and in the calculation of munition expenditures for areas other than level open terrain.

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- 28 Apr 58 Letter through CO, USA CmlC ENCOM to Secretary, CmlC Technical  
(965-58-S) Committee, CMLRD-D, Subject: Type Classification of Wet UL (U),  
(S) proposing that agent Wet UL be type classified as a standard  
BW antipersonnel agent, and requesting that necessary action be  
taken. Letter transmits copy of summary report on the development  
of the agent.
- 28 Apr 58 Letter to C/R&D, CMLRD-L, Subject: Report on Current and Planned  
(UWS) Status of U.S. Army Chemical Corps Proving Ground, submitting study  
on the operations of the USA CmlCPG, including past test work, cur-  
rent operations, available facilities and the Chemical Corps plans  
for future utilization of the Proving Ground, and a summary of the  
problems connected with the Proving Ground, solutions to which are  
beyond the capabilities of the Chemical Corps.  
(Action Officer - Lt. Colonel Lowell E. Thompson)
- 30 Apr 58 Letter to CO's, USA CCPG, BWL and CWL, CMLRD-D, Subject: Flying  
Support for Department of the Army R&D Munitions Testing, referencing  
(a) multiple address letter, CMLRD-D, 9 Apr 58, Subject: "USAF Support  
at Aberdeen Proving Ground," with one inclosure, and (b) letter from  
Hq, ARDC, RDSTT, to CGm10, 18 Apr 58, above subject, with one in-  
closure. C/R&D, in inclosure to reference (a) advised CmlC that  
appropriate AF Commands (ARDC and TAC) would furnish R&D munitions test  
support to the Army as stated in a Hq, USAF directive. By reference  
(a), Hq, USA CmlC RDCOM requested that each addressee furnish its  
test support requirements directly to the appropriate AF Command.  
Reference (b) is forwarded for information and guidance, this be-  
ing ARDC's implementation of attached USAF directive. All cases  
involving funding disagreements and those requiring support beyond  
ARDC resources will be forwarded through Hq, USA CmlC RDCOM.
- 8 May 58 Letter to CO, USA CWL, CMLRD-D, Subject: USCONARC Approved Military  
(868-58-S) Characteristics for an Agent, Radar Screening (U) (CLS 4-5-103-2),  
(U) referencing (a) letter, ATDEV-5 400.114/3(S), from USCONARC to C/  
R&D, 7 Feb 58, same subject, with 1st Ind, CRD/D 1878, from C/R&D  
to CGm10, 18 Mar 58 (Inclosure 1); (b) C-1, CMLPD-GE, from ACCm10/  
P&D to RDCOM, 25 Mar 58, same subject (Inclosure 2), and (c) letter,  
CMLRD-CW-R(WR), from USA CWL to Hq, RDCOM, 30 Jan 58, subject:  
Radar Countermeasures (U), with one inclosure (CmlC Control No.  
349-58-S).
- (U) Military characteristics for subject agent have been approved by  
C/R&D (ref a) and have been forwarded to the Chairman, CCTC, for  
appropriate action (ref b).
- (S) Above action is authority for RDCOM to initiate development effort  
for subject material. For planning purposes, three operational re-  
quirements may be emphasized:- (a) large area, low-level screening  
of troops and armor against combat surveillance radar--combined  
radar, infrared, and visual screening will probably prove most  
effective; (b) screening of forward area mortar units against  
mortar locator radar--the feasibility of a chaff shell for pre-  
liminary mortar fire should be considered; (c) screening of guided

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missile batteries, such as HONEST JOHN and LITTLE JOHN, against enemy radar systems--the feasibility of high altitude chaff rockets should be considered.

(S) Radar screening agent, ELOR3, appears to meet required MC's. This agent should be pushed to type classification. Development effort is required on a new agent to meet desired MC's.

(U) Letter requests that a development program in accordance with above suggestions and referenced MC's be prepared and forwarded to Hq, RDCOM by 1 Jun 58.

12 May 58 Letter to CO, USA CWL, CMLRD-D, Subject: White Phosphorous as an  
(C) Antipersonnel Agent, stating that consideration is being given to providing M31A1 HONEST JOHN Rockets to NATO countries; however, currently available warheads and those under development cannot be released to these countries because of existing agreements. Ordnance Corps, in coordination with CmlC, was requested to furnish C/R&D with proposals on how best to fulfill requirement in time frame permitted. CmlC proposed use of existing HONEST JOHN E19 Warhead and E130R1 Bomblet, WP filled. This proposal was lightly considered due to inability to properly define the personnel hazard to be expected from exploding WP munitions. Letter requests CWL to examine existing data and furnish comments on hazard to personnel from exploding WP.

16 May 58 Letter to CO, CWL, CMLRD-D, Subject: Development of VX Chemical  
(FOUO) Shell (U), inclosing copy of Comment No. 1, CRD/D 5875, 5 May 58, to Chief of Ordnance and Chief Chemical Officer directing that effort be stopped on the 8-inch V Shell and that the 155 effort be directed toward the improved shell.

Letter requests CWL coordinate with Picatinny Arsenal on expediting development of an improved 155mm shell for Agent VX. OCO has informally approved direct coordination. Letter also requests that effort with M121, 155mm GB Shell toward a VX capability continue as currently planned, and that action be terminated on development of a VX capability for the 8-Inch Howitzer Shell, funds for this work to be reprogrammed into the improved 155mm effort.

19 May 58 Letter to CO's USA BWL and CWL, CMLRD-D, Subject: SERGEANT Missile  
(1464-58-S) Flights with Chemical Corps Warheads (C), advising that CmlC is  
(S) allotted two SERGEANT flights in late October 1958. Contingent on this allotment is the promise that CmlC will have warheads, ready for flight, delivered to Picatinny Arsenal by 1 August 1958. One flight will be allotted to each BWL and CWL. In the best interest to the CmlC, should any doubt arise over flyability of either warhead, it is desired to withdraw flight rather than jeopardize the successful flight of expensive missile and bring undue embarrassment to the Corps.

14

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19 May 58 1st Indorsement to CO, USA CWL, CMLRD (12 May 58), Subject: Modifi-  
(1253-58-S) cation of the Portable Flame Thrower, requesting preparation of a  
(UWS) feasibility study on "protection to the flame thrower operator" as  
outlined in attached Memo for Record, CRD/A 5333, 23 Apr 58, Subject:  
Quarterly Presentation to the R&D Program Director on Program Execu-  
tion by the Technical Services (3d Qutr FY 58), and, further, to con-  
sider any other means CWL might care to suggest. Study will recommend  
method of choice and include proposed MC's and estimates of time and  
cost for accomplishment. Revision to current MC's for portable flame  
thrower will be withheld pending approval of above study.

19 May 58 Letter to CO's, USA BWL and USA CWL, CMLRD, Subject: Logistics Di-  
rective No. 25-715, Implementation of, inclosing subject directive  
for implementation. This directive states that Chief of Engineers  
is developing family of engines between 1/2 to 20 hp. CmlC must  
show by engineering studies where these standard engines cannot be  
used.

Letter requests that responsibility for the specific actions required  
of the CO, USA CmlC RDCOM under paragraph 5 of the directive be as-  
sumed as follows:- (a) CO, USA BWL and CO, USA CWL for actions re-  
quired under para 5a(1) and assist the CG, USACC and CmlCMATCOM for  
actions required under paras 5a(2) through 5a(4); (b) CO, USA BWL and  
CO, USA CWL assist the CO, USA CmlCENCOM for actions required under  
para 5a(5).

Letter further requests Hq, RDCOM be advised by BWL and CWL whenever  
engineering studies clearly demonstrate that the MC's of current and  
future R&D projects which incorporate engines in the prescribed horse-  
power range preclude application of small military standard engines.

19 May 58 Letter to CCmlO, Attn: ACCmlO/P&D, CMLRD-D, Subject: Tactical and  
(1154-58-S) Strategic Employment of Toxic Chemical Munitions Systems (U), stating  
(S) that Hq, RDCOM has been advised through liaison visits to ARDC that  
DAF is receptive to an expansion of the AF requirements for a CW  
capability, this statement based on an opinion expressed by ARDC  
personnel who suggested that a broader use of CW would be favorably  
considered provided that a feasibility study was presented which  
would establish CW superiority to other systems for specific pur-  
poses.

(S) Further, ARDC representatives stated that rather than attempt to  
make CW competitive with special weapons in area effects, attention  
should be directed toward offering DAF a weapons system which could  
uniquely perform a better job than any other system. Emphasis  
should be placed on neutralizing special targets, such as a forward  
air base with its support elements (an area 2 1/2 by 4 miles). To this  
end, a CmlC study was suggested by ARDC in which typical targets  
are selected and the operational tactics to be employed with the  
V-agent munitions systems are developed. Study should also recommend  
best method of delivery of the agent, the number of aircraft re-  
quired, their operational altitude and speed, etc.

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(S) Letter suggests that a study be prepared and provided the DAF for the tactical and strategic employment of toxic chemical munitions. Operational characteristics and approximate phase-out dates for suggested aircraft are presented in attached table. Hq, RDCOM will provide technical assistance as required in preparation of the study.

20 May 58 Letter to CCmLO, CMLRD-R, Subject: Additional Use of Volunteers  
(UWS) in Research, inclosing draft of Disposition Form from CCmLO to TSG requesting concurrence and/or comments on attached proposed plan for the use of volunteers in studies with the indicated agents. Following coordination with TSG, it is recommended that approval be requested from the Secretary of the Army for RDCOM to use volunteers in studies as outlined in the proposed plan.

Memo for Record - CWL proposes the use of volunteers, and requests permission for use of volunteers with V-agents. Previously, permission has been granted for use of volunteers with agents of similar structure.

20 May 58 Letter to C/R&D, Attn: Surface-to-Surface Missile Branch, CMLRD-D,  
(C) Subject: HONEST JOHN Rocket M31A1, Requirement for (U), referencing (a) letter, CMLRD-D, to C/R&D, 10 Jul 57, "Requirement for HONEST JOHN Test Flights with Chemical Warheads (CmLC Control No. 1979-57-S); (b) Comment No. 1, CRD/I 58(S), from C/R&D to RDCOM, 9 Jan 58, "Requirement for HONEST JOHN Test Flights with Chemical Warheads (CmLC Control No. 72-58-S), and (c) 1st Indorsement, CRD/I 1664 (S), from C/R&D to RDCOM, 7 Apr 58, "Optimum LITTLE JOHN and Improved HONEST JOHN Warhead Programs."

Reference (a) requested allocation of 11 additional M31A1 Rockets in FY 1959 to complete HONEST JOHN Program; reference (b) approved CmLC request and directed Chief of Ordnance to make rockets available; reference (c) established policy regarding supply of rockets and missiles to the Chemical Corps.

Recent physical inventory reveals number of M31A1 Rockets from prior year allotments to CmLC is minus 4 of the required number. This is explained as having expended rockets in firing demonstrations to VIP visitors at White Sands PG; however, authenticity cannot be verified. In addition, two chemical warhead flights were lost on 10 April 1958 due to unsuccessful rocket flights. Two additional flights are desired with M31A1 rockets for initial tests in the XM50 warhead test program.

Letter requests that an additional 8 M31A1 HONEST JOHN rockets be furnished CmLC without reimbursement as follows:-

4 (Physical inventory shortage)	- 3 to USA CmLC PG, DPG, by 1 Aug 58
	1 to WS PG by 1 Oct 58
2 (Unsuccessful flights)	- 2 to WS PG as soon as practicable
2 (XM50 Program)	- 2 to WS PG as soon as practicable

16  
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23 May 58  
(1543-58-S)  
(S)

Letter to CO, USA CWL, CMLRD-R, Subject: NUTCRACKER - DAVY CROCKETT Test Operations (U), advising that test of NUTCRACKER warhead for DAVY CROCKETT battlefield delivery system is currently scheduled for August 1958 and that the CmlC has been given full responsibility for thermal and nuclear radiation measurements to be made in DOD effects programs. Due to high priority placed on this test by DA and its potential significance to future combat operations, high priority will be assigned to CWL test programs involved.

26 May 58

Comment No. 1 to DCSLOG, CMLRD-D, Subject: Coordinated U.S. Position for 17-19 June 1958 Meeting of the NATO Group of Experts on Equipment for Protection Against Chemical Warfare, referring to meeting held in The Pentagon on 15 May 58 to formulate subject position and forwarding 10 copies of the coordinated position for transmission to U.S. Regional Organization.

26 May 58  
(1569-58-S)  
(S)

Letter to CCmlO, Attn: ACCmlO/P&D, CMLRD-D, Subject: Proposed Military Characteristics for Toxic Ammunition (U), referring to Form 15, CMLPD-CE, OCCmlO, 8 Apr 58, same subject, and commenting on proposed MC's as submitted by USCONARC in 3 Apr 58 letter. Letter suggests that CONARC be requested to initially consider two munitions (a) the mine, antipersonnel, T48EL - a directional antipersonnel mine under development by the Ordnance Corps and (b) a warhead for the HONEST JOHN Rocket - with a delay in lethality production as initial end item requirements.

29 May 58  
(C)

Letter to Chief, Bureau of Ordnance Department of the Navy, CMLRD-D, Subject: Final Engineering Tests for Navy Munitions, transmitting status of authorized funding on Navy munitions for which final engineering tests remain to be conducted at USA CmlCPG. CmlC has an adequate balance of non-expendable funds which are required to complete in full the Navy munitions program prior to release to procurement. It is recommended that balances of \$42,387.91 and \$46,000.00 for MIPR 57-172-ORD and 190-57, respectively, be withdrawn; further, that a new MIPR be issued to USA CmlCPG in amount of \$88,387.91 to complete dissemination and evaluation testing remaining to be done on the 5"/54 GB Navy Projectile.

29 May 58  
(1607-58-S)  
(S)

Letter to CO, USA CmlCPG, CMLRD-R, Subject: NUTCRACKER - DAVY CROCKETT Test Operation (U), advising that test of the NUTCRACKER warhead for the DAVY CROCKETT battlefield delivery system is currently scheduled for August 1958 and that the Chemical Corps has been requested to furnish the micrometeorological support required for the prediction of fallout from this device. CmlCPG is requested to investigate furnishing this support to test operation and to submit a proposed plan of operations and budget for the operation with the assumption of the Pacific Proving Ground location at Eniwetok or Bikini.

3 Jun 58  
(1637-58-S)  
(S)

Letter to CCmlO, Attn: ACCmlO/P&D, CMLRD-PD, Subject: Use Concepts for Entomological BW (C), advising that RDCOM has accumulated sufficient information which clearly establishes the technical feasibility of entomological BW and requesting information pertaining to use

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concepts for entomological BW required for proper orientation of the future R&D program in this area.

- 5 Jun 58 Letter to CO, USA CWL, CMLRD-D, Subject: Collective Protection for Guided Missile Vans, referencing attached copy of Comment No. 1, CRD/I 4503 (U), from C/R&D, DA, to CCm10, 29 May 58, same subject, and advising that, since requirement for collective protection for the SERGEANT system has been withdrawn, no work on this item will be accomplished.
- 9 Jun 58 Memo for CO, USA CmlC RDCOM, CMLRD-PE, Subject: Documentary Film on CW Effects, stating that the CCm10 has been requested by the C/R&D to produce a film on above subject. Members of the Army Scientific Advisory Council CBR Subpanel initiated and are greatly interested in this request. Dr. Wm. H. Martin, Director of Research and Development, attended meetings of this group where this subject was discussed and also indicated a great interest in proposal. In an effort to satisfy this requirement and finance cost of film, estimated at \$85,000, this Headquarters requested emergency funds. This request has been disapproved by the C/R&D; however, C/R&D is endeavoring to obtain emergency funds through DCSLOG from DCSOPS. Informal information received indicates that no emergency funds will be issued; therefore, it appears that it will be necessary to finance the cost of the film from the FY 1959 Chemical Corps R&D Program. Recommendation is made that, since this film would undoubtedly strengthen position of the CmlC, it should be given top priority and completed as soon as possible; FY 1959 CmlC R&D funds should be reprogrammed at beginning of FY 1959 to cover cost of production.
- 9 Jun 58 Multiple address letter to CO's, USA BWL, CWL, and CCFG, CMLRD-PD, Conf (U) Subject: Implementation of Recommendations of 12th Tripartite Conference, referencing Final Report of the Twelfth Tripartite Conference on Toxicological Warfare, 9 - 20 Sep 57, and the recommendations contained therein, and R&D Annex to the USA CmlC Operating Program for FY 1959 (R&D Annex). Letter outlines implementing action to be taken on referenced recommendations.
- 11 Jun 58 Letter to CO, USA CWL, CMLRD-D, Subject: Collective Protection for (C) Guided Missile Vans, referencing (a) letter, CMLRD-D, Hq, RDCOM, thru CCm10 to C/R&D, 25 Mar 58, same subject, with 1st Indorsement which limited collective protection effort on the field Army version of NIKE-HERCULES to the battery, radar and launching control vans; (b) letter, CRD/C 7044, from C/R&D to CCm10, 29 May 58, same subject, stating a requirement for collective protection on the CONUS version of NIKE-HERCULES for the battery, radar and launching control vans, and (c) 3d Indorsement, CMLRD-D, to CWL, 7 Feb 58, same subject, and requesting that study requested by reference (c) include both field and CONUS versions of NIKE-HERCULES.
- 13 Jun 58 Letter to CCm10, Attn: ACCm10/P&D, CMLRD-PD, Subject: Implementation of Recommendations of 12th Tripartite Conference Report, referencing

(a) D/F from ADCCm10/SA, 11 Apr 58, CMLWS, same subject; (b) conference 23 May 58 among Lt. Col. Cerar and Mr. Sills, OACCm10/P&D, and Captain Kinne and Mr. Trussell, Hq, RDCOM, and telephone conversation 29 May 58 between Dr. Bushey, OADCCm10/SA, and Mr. Trussell. Letter requests that responsibility for implementation of certain specific recommendations under radiological defense indicated in reference (a) be revised as outlined.

17 Jun 58  
(C)

Memorandum for Dr. Schwab, Deputy Commander for Scientific Activities, Hq, USA Cm1C RDCOM, CMLRD-PE, Subject: Establishment of a Chemical Corps RDCOM Film Program, transmitting proposed film program and recommending (a) field installations be informed of establishment of a Headquarters Film Committee to coordinate RDCOM film program; (b) a central coordinating film center be established at BWL with delegated staff responsibilities for the supervision and production, where necessary, of film reports to meet specific additional requirements of Hq, RDCOM; (c) Commander, BWL, be authorized and delegated to accomplish these objectives; (d) decision be made immediately concerning funding of R&D film on "Nerve Gases vs. HE", and (e) use be made of USDA professional film facilities so as to finish two CWL films at present considered unsatisfactory: V-Agent and K-Agent. High priority films for Hq requirements are: (a) an ARDC-type annual newsreel of the RDCOM program; (b) incapacitating BW-CW agent development; (c) nuclear defense program, and (d) CBR testing. Following films are considered to have highest priority at installations indicated:

BWL	CWL	DPG
LAC	V-Agents	Nerve Gases vs. HE
Entomological	K-Agents	V-Testing Program
Vectors	Munitions Program	

19 Jun 58  
(C)

Letter to Chief, Research and Development, DA, CMLRD-L, Subject: Equipment for Radioactive Test Facility, requesting that, in the event of a moratorium on nuclear testing, the Chemical Corps be furnished the following amounts of the Operation TRUMPET money for the following purposes, in order of priority:

- a. \$225,000 for a Cockroft-Walton type particle accelerator to be installed at Army Chemical Center, Maryland.
- b. \$600,000 for a flash-type nuclear reactor, exact type and details to be determined, to be installed at Army Chemical Center, Maryland.
- c. \$300,000 for purchase of radioactive isotopes to expand the radioactive test facility at Dugway Proving Ground at an accelerated rate.
- d. \$1,000,000 for a flash-type nuclear reactor, probably of tower shielding type, to be installed at Dugway Proving Ground.

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20 Jun 58  
(C)

Letter to CO, USA CmlC Proving Ground, CMLRD-PD, Subject: Facility Requirements for Dugway Proving Ground (U), advising of following additional testing requirements presently being considered for the CmlC PG:

- a. Nuclear Program - Revised CmlC nuclear mission and the possibility of a moratorium on nuclear tests may generate requirements for simulating fallout and controlled contaminated areas from one to ten square miles and for a means of providing neutron and gamma-neutron irradiation.
- b. Instrumented Missile Test Range - Missile program is receiving major emphasis in the CmlC. Areas available at DPG appear particularly suitable as an instrumented missile test range for CmlC flights as well as missile tests to be conducted by other DOD elements.
- c. BW Agent Testing - Planned programs on such highly infectious agents as LE and insect vector disseminating systems require consideration with respect to testing facilities.
- d. CW Agents Testing - The persistence of agents currently being tested and those in the research program may present facility and terrain problems for adequate testing which require planning for the future.

Letter requests advice as to requirements for additional land, facilities and equipment as well as any other recommendations deemed advisable for future testing.

20 Jun 58  
(C)

Letter to CO, USA CWL, CMLRD-D, Subject: Development of VX Chemical Shell (U), referencing letter, CMLRD-D, 16 May 58, same subject, directing termination of all development action on the 8" Howitzer VX shell. C/R&D on 16 Jun 58 rescinded directive of 5 May 58 and authorized resumption of development. Hq, RDCOM has taken steps to reinstate procurement actions necessary to obtain test items. CWL will resume development in accordance with previously established program. First "Change Order to the R&D Annex, CmlC Operating Program" should reflect this revision.

20 Jun 58  
(C)

Letter to CO, USA CmlCPG, Subject: Development of VX Chemical Shell, CMLRD-D, referencing letter, CMLC-DU-GTO, 4 Apr 58, Subject: Military Characteristics for V-Agent Munitions, with 1st Ind, CMLRD-D, 13 May 58. 1st Ind. directed termination of all work on the 8" Howitzer VX Shell. On 16 Jun 58, Hq, RDCOM received instructions from C/R&D rescinding above order and authorizing completion of development for the 8" round. CmlCPG is directed to resume test program as originally planned.

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20 Jun 58

Memorandum for Chiefs, Research Division, Development Division, and Plans and Programs Division from Deputy Commander for Scientific Activities, CMLRD-PE, Subject: Problems for General Trudeau's Attention, stating that CCmLO recently indicated he felt General Trudeau would be willing to help C<sub>m</sub>LC on major problems through personal action, if such problems were brought to his attention. For this purpose, Lt. Col. W.G. Willmann, ODCCmLO/SA, has been designated as a central point for submission of appropriate problems on a continuing basis. Memo requests that, when problems arise where we may properly request General Trudeau's personal assistance in their resolution, a letter be prepared for General Creasy's signature and forwarded to DC/SA.

23 Jun 58

Letter to CO, USA BWL, Attn: Director of Procurement and Property, CMLRD-PD, Subject: Establishment of Contract for BW/CW Study (U), requesting that a contract be established to perform services described in inclosure, work to be performed to be carried out under Project No. 4-04-14-021 entitled BW Munitions Research. Short title of proposed contract is "BW/CW Study." It is essential that contract negotiations be completed before 1 July 1958 and that the contractor commence work on proposed study on 1 July. Contract study will be conducted in two concurrent phases, with Phase I having highest priority. Government's Technical Representatives (Project Officers) will be:- Phase I - BW/CW Study - DOD, Dr. Harland N. Worthley, OSD, R&D; Phase II - BW/CW Study - CML, Mr. Roy M. Acker, CmlC RDCOM, Plans and Programs Division. Funds in amount of \$100,000 have been furnished to BWL for contract obligation purposes. Negotiations for the proposed contract will be limited to the University of Pennsylvania for the following reason:- "The Institute of Cooperative Research of the University of Pennsylvania is believed to be uniquely qualified to perform the desired study because it has available the services of personnel formerly with an Air Force project who are highly competent in the field and already possess the necessary top secret security clearances."

23 Jun 58  
(FOUO)

Letter to CO's, USA BWL, USA CWL and USA CmlCPG, CMLRD-L, Subject: "Future Requirements for Atomic Weapons Effects Test Facilities," transmitting, for information and guidance, Comment No. 1 from the C/R&D, CRD/G 7922, 17 Jun 58, to CCmLO and requesting information regarding paragraph 4 of C-1 as it pertains to each installation.

Memo for Record - This letter is to compile information required by C/R&D for an inventory of Army capability to continue nuclear testing in event of a moratorium on atomic weapons tests. Although not so stated, it involves a sum of \$18,000,000 now programmed for Operation TRUMPET in the event nuclear weapons testing is suspended prior to Operation TRUMPET.

21

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23 Jun 58

Letter to CO, USA CWL, CMLRD-P, Subject: Development of Medical Services Items, referring to letter, CMLRD-CW-DSA, 4 Feb 58, same subject, and stating that policy of Hq, USA CmlC RDCOM is that the development of an item for another technical service which has the assigned logistics responsibility (including R&D) for that item will be conducted by the CmlC only upon request of that technical service together with the provision of necessary funds to conduct work. In any future work to be performed for the Army Medical Service in accordance with above, CmlC will act as a contractor. Prior to initiation of work, development plan will be prepared in collaboration with personnel designated by AMS and appropriate CmlC personnel as required. Any problems unresolved through normal working level and questions of policy will be forwarded to Hq, RDCOM for resolution. In those areas where CmlC has responsibility for R&D and in which AMS has an interest, normal development procedure will be followed. Any problems on items presently under development which are responsibility of AMS or in which AMS has an interest and which cannot be resolved at installation level should be brought to attention of Hq, RDCOM. This matter has been discussed with concerned OTSG personnel who concur in this procedure and consider it unnecessary to obtain any formal agreement between the CCmlO and TSG at this time.

Memo for Record - Mr. S. Richard Walton, Plans and Programs Division, and Mr. Irving Cort, Development Division, Hq, RDCOM, discussed this entire problem with representatives of TSG on 12 Jan 58 (Colonel Timmerman, Major Downing and Dr. Stull).

26 Jun 58

Letter to CO, USA BWL, Attn: Director of Procurement and Property, CMLRD-PD, Subject: Establishment of Contract for Survey of Test Practices, requesting contract be established to perform services described in inclosure, Work to be performed under proposed contract will be carried out under research and development project 4-98-05-027 entitled "BW Assessment." Short title for proposed contract study is "Survey of Test Practices." Proposed contract should begin no later than 1 August 1958 and be completed on or about 31 January 1959. Government's Technical Representative (Project Officer) will be Dr. John L. Schwab, Deputy Commander for Scientific Activities, USA CmlC RDCOM. Contract will cost approximately \$55,000. Letter, CMLRD-FM, 18 June 1958, Subject: FY 1958 CmlC Research and Development Program 15, provides funds in amount of \$51,000 for contract obligation purposes. If additional funds are required, they will be provided by Hq, CmlC RDCOM from FY 1959 funds.

Memo for Record - Prospective contractor is General Analysis Corporation, 11753 Wilshire Boulevard, Los Angeles 25, California. Lt. Col. Ransom, OC/R&D advised of this proposal.

26 Jun 58  
(UWS)

Letter to Secretary, Chemical Corps Technical Committee, CMLRD-D, Subject: Establishment of Sub-Project 4-11-05-015-05, Decontamination Measures for Protection Against Biological Warfare Research and Development Hazards (U), requesting CCTC action be taken to

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revise CCTC Item 3402 approved 27 March 1958 as follows:- (a) establish subject subproject in FY 59 BW R&D Program (project data sheet inclosed), and (b) make all necessary changes to reflect above.

27 Jun 58  
(C)

Letter to C/R&D, CMLRD-P, Subject: K Agents (U), from Chief Chemical Officer confirming conversation of 7 June 1958 advising that one of the aspects of our chemical warfare research program which has begun to show real promise is that of the K agents, not only for battlefield employment but also for covert use. Effort in this area to date has been minimal due to budgetary limitations and the pressures of other high priority programs. Inclosed funding summary reflects current effort and what are considered as realistic future requirements in this area. Approximately \$800,000 have been requested in GmlC FY 1959 Supplemental R&D Budget Execution Plan which CCmlO feels is the added level required for FY 59 to attain a capability in this area. Letter urgently recommends C/R&D's approval of these supplementary funds for this program.

30 Jun 58

Letter to CO, USA BWL, CMLRD-PE, Subject: Moving Picture Film of North American Spray Trials, requesting necessary arrangements be made for the production of a moving picture film of the North American Spray Trials to be conducted at DPG beginning about 13 July 1958.

23  
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