DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
5183 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5424

REPLY TO
ATTENTION OF:

December 3, 2009

Office of the Chief Counsel

Mr. John Greenewald
[redacted]

Dear Mr. Greenewald:

This is the final response to your FOIA request dated March 13, 2009, for a copy of all documents pertaining to a 1977 incident that the U.S. Army had staged a mock biological attack on San Francisco, California. The Research, Development and Engineering Command located the record, *US Army Activity in the U.S. Biological Warfare Program, 1942-1977s, Volume 1*. 25 February 1977. I enclosed a redacted version of the record. Additionally, we located an excerpt from the book *Clouds of Secrecy, The Army's Germ Warfare Tests over Populated Areas,* written by Leonard A. Cole. Mr. Cole's book is available to the general public on the open market.

The redacted record was subject to FOIA exemption (b)(2) HIGH. Exemption (b)(2) HIGH protects substantial internal matters where disclosure would risk circumvention of a legal requirement. Additionally, the redacted information is sensitive to internal Army operations.

Mr. Brian May, Research, Development and Engineering Command's Freedom of Information Act Officer, conducted a brief search of the Defense Technical Information Center secure library and determined additional records may exist. If you seek additional information on this subject, I suggest you submit a Freedom of Information Act request with the Defense Technical Information Center using the title of the enclosed record. I provided the Defense Technical Information Center, Freedom of Information Act Office's website below.

http://www.dtic.mil/dtic/foia.html

If you consider this response to be an adverse action, you may administratively appeal, in writing, to the Secretary of the Army. However, prior to appealing directly to the Secretary of the Army, I must review the appeal. Therefore, any such appeal should be addressed to this office. We will review your appeal and forward your appeal to the Army Office of General Counsel, the designated Army Freedom of Information Act appellate authority.

Additionally, if you choose to appeal, the appeal must be received by the appellant authority (Army General Counsel), no later than **60 days** following receipt of this letter. Please send correspondence to the following address:

Brian A. May
RDECOM, ATTN AMSRD-CCF
5183 Blackhawk Road, E4435
Aberdeen Proving Ground, MD 21010-5424

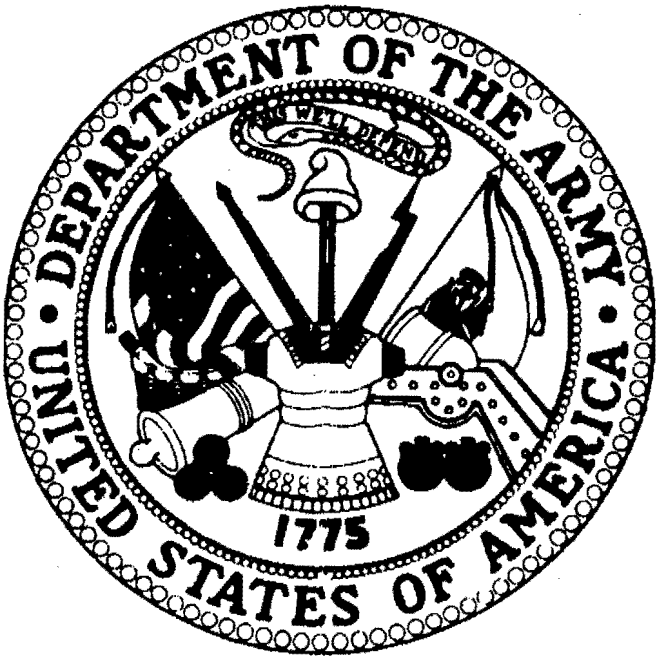
I did not assess fees for this request. Should you have any questions or concerns regarding the processing of your request, please contact Mr. Brian May at (410) 436-2289 or brian.may3@us.army.mil

Sincerely,

PATRICK R. SHELDON
Initial Denial Authority, RDECOM

Enclosure

[redacted]



US ARMY ACTIVITY IN THE U.S. BIOLOGICAL WARFARE PROGRAMS

VOLUME I

25 FEBRUARY 1977

Copy 11 of 60 copies.

[redacted]

[redacted]

U. S. ARMY ACTIVITIES

IN THE

UNITED STATES BIOLOGICAL WARFARE PROGRAMS

1942-1977

VOLUME 1

[redacted]

[redacted]

CONTENTS*

Volume I

* References are contained in Annex P, Volume 2 and Terms and Definitions are listed in Annex Q, Volume 2.

[redacted]

Purpose and Definition

(U) This report provides a comprehensive review of the U.S. Army's role in the Biological Warfare (BW) program so that Congress and other government officials can assess accurately BW issues which are being raised continually. It is also intended to serve as a basis for an unclassified public release. The report is limited to the BW technical program and the policies and governmental controls which guided the program.

(U) The acronym BW will be used throughout to connote biological weapons and defense programs. It also encompasses the terms "bacteriological" and "bacterial" which were used interchangeably in the early periods.

BW is defined as the use of microorganisms ("germs"), such as bacteria, fungi, viruses, rickettsiae, and substances (toxins) derived from living organisms (as distinguished from synthetic chemicals used as gases or poisons) to produce death or disease in humans, animals, or plants.

For BW purposes, the most effective and efficient route of entry of disease microorganisms into the human and animal body is normally by breathing into the lungs. For plants deposition on external surfaces is usually sufficient to cause infection.

[redacted]

Preface

In preparing a comprehensive review of the Army BW programs, it is crucial that the activities be portrayed in the context of the times and circumstances in which they occurred. For this reason, the events have been related to the appropriate period of national security activity. There is a tendency, in current times, to criticize quickly some onerous aspect of past work and the workers involved without discerning whether approved policies and appointed authorities caused the work to be done in support of properly constituted national objectives. In this review, a particular attempt has been made to assure that facts are presented dispassionately, neither succumbing to the entreaties of the defenders of BW programs nor being cowed by the shibboleths of hindsight analyses. It has been difficult, at times, to provide finite data as some of the detailed working papers have since been destroyed; however, much data is available and every attempt has been made to use primary documents or the most credible derivative data to be as accurate and objective as possible.

It is interesting to note that, from the outset, working on BW programs was understood to be "dirty" work. Nonetheless, it had to be done and the Army was ultimately selected to do it. In his memorandum to President Roosevelt on 29 April 1942, which initiated the United States BW program, Secretary of War Stimson pointed out:

> "... Biological Warfare is, of course, 'dirty business' but ... we must be prepared. And the matter must be handled with great discretion and ... great secrecy as well as great vigor. The immediate question is through what agency ... this should be started. ... Some scientists believe ... the War Department but the General Staff is of the opinion that a civilian agency is preferable .... Entrusting the matter to a civilian agency would help is preventing the public from being unduly exercised over any ideas that the War Department might be contemplating the use of this weapon offensively. To be sure, a knowledge of offensive possibilities will necessarily be developed because no proper defense can be prepared without a thorough study of means of offense. ... and reprisals by us are perhaps not beyond the bounds of possibility ..."

President Nixon's ban on BW weapons in November 1969 foreclosed United States reprisal in kind and we have destroyed our limited BW weapon stocks. But fundamentally, the BW situation has not changed much since President Roosevelt's day. As a matter of fact, it may be more vexing and frustrating because of the scientific advances in genetic engineering. These developments may be perceived as making potent BW strategic weapon systems feasible since genetic manipulation could provide the key to controlling BW agents with precision. A lack of assured control was the major factor which caused their rejection as militarily useful weapons. Additionally, the opprobrium associated with BW is intense and any association with the program is anathema. It is in this difficult and constrained environment that the Army continues to carry out the frightening responsibility for the national biological research program for defensive purposes.

[redacted]

Chapter 1

Introductory Survey of United States Army Biological Warfare Programs (U)

World War II

(U) In the fall of 1941, opinions differed on the potential effectiveness of BW. Sufficient doubt existed so that reasonable prudence required that a serious evaluation be made as to the dangers of a possible attack. Secretary of War Henry L. Stimson therefore requested the National Academy of Sciences to appoint a committee to make a complete survey of the BW situation (two months prior to the attack on Pearl Harbor). After careful study, the committee concluded in February 1942 that BW was feasible and urged that appropriate steps be taken to reduce U.S. vulnerability to BW attack. Secretary Stimson then recommended to President Roosevelt the establishment of a civilian agency for this purpose. With approval by the President, the War Reserve Service (WRS) was formed in August of 1942 with George W. Merck of the Merck Company, a pharmaceutical firm, as Director. WRS was attached to the Federal Security Agency and served as a coordinating agency using the resources of existing government and private institutions to carry out the BW program. Scientific advice was received from a committee of prominent scientists set up by the National Academy of Sciences and the National Research Council. An exchange of information was also inaugurated with the United Kingdom and Canada.

(U) The first task undertaken by WRS was the development of defensive measures against possible BW attack. Its major achievement was the organization of a research and development program (R&D now referred to in the Department of Defense as research, development, test and evaluation, RDTE) to extend the paucity of knowledge about BW. [redacted] (b) (2) High

[redacted] (b) (2) High

[redacted]

Therefore, in November 1942, WRS requested the Chemical Warfare Service (CWS) of the Army (redesignated the Chemical Corps in 1946) to prepare to assume responsibility for a larger scale research and development program, including construction and operation of laboratories and pilot plants. Up until this time the Army had only been involved in the coordinating Committee activities of the WRS. The Army chose Camp Detrick, Frederick, Maryland, a small National Guard Airfield, as the site for new facilities and construction started in April 1943. WRS turned over to the Army CWS all operational projects but continued to exercise general supervision over the entire BW program.

(U) The Office of Strategic Services alerted the Joint Chiefs of Staff in December 1943 to indications that the Germans might be planning to use BW. The BW program was accordingly stepped up and, in June 1944, the complete program was transferred by direction of the President to the War Department. At the direction of the Secretary of War, the Chemical Warfare Service was made responsible for work on BW agents, for BW intelligence, and for BW defense. The Army Surgeon General was directed to cooperate with the CWS on matters of BW defense. The program continued as a joint effort with Navy and other Federal department participation. The R&D program was greatly accelerated with the addition of field testing facilities and a production plant. When the War Department assumed full responsibility, Secretary Stimson appointed Mr. Merck as a special consultant on BW. He also established the United States BW Committee in October 1944 with Mr. Merck as Chairman and with senior representatives from the military services.

(U) At its peak, the Special Projects Division of the Army CWS, which was the main element for carrying out the program, had 3,900 personnel, of which 2,800 were Army, nearly 1,000 Navy, and the remaining 100 civilian. The work was carried out at four installations: Camp Detrick was the parent research and pilot plant center; field testing facilities were set up in the summer of 1943 in Mississippi, another field testing area was established in Utah in 1944; and a production plant was constructed in Indiana in 1944. All work was conducted under the strictest secrecy.

(b) (2) High

(b) (2) High Its purpose was to develop, produce and stockpile a vaccine for the protection of cattle.

(U) During World War II, the policy of BW use implicity paralleled the policy for Chemical Warfare (CW); that is, retaliation only. While the United States had not ratified the Geneva Gas Protocol of 1925 which prohibited CW and BW, President Roosevelt and Prime Minister Churchill announced this policy in unilateral statements in the spring of 1942.

End of World War II

(U) At the end of World War II, the construction activities and the testing programs were terminated and the remainder of the activities gradually phased down to a research status. The production plant, Vigo Ordnance Works, constructed at Terre Haute, Indiana to provide a retaliatory capability using aerial bombs, ceased operation before infectious BW agents production began. Only a harmless simulant biological agent (Bacillus globigii or BG) was produced. The project was terminated and the plant was subsequently sold to

the Charles A. Pfizer and Company for commercial use.

(U) By the end of World War II, a wide variety of disease agents effective against man, animals, and plants had been studied and limited field testing conducted. Extensive work on safety measures to perform BW research and development had been necessary as no comprehensive procedures, methodologies or equipment had been available at the start. Even so, infections occurred. These were later reported publicly in the extensive War Department press release on BW in January 1946. The release was the first notification to the nation and the world of United States work in BW. It reported, in part, that:

> "In all work on biological warfare carried on in the United States, extreme care was taken to protect the participating personnel from infection. Many new techniques were devised to prevent infection and proved highly successful. Hospitals and dispensaries were maintained at all installations, staffed with both Army and Navy personnel and were equipped to treat accidental infections. As the result of the extraordinary precautions taken, there occurred only sixty cases of proven infection caused by accidental exposure to virulent biological warfare agents which required treatment. Fifty-two of these recovered completely; of the eight cases remaining, all are recovering satisfactorily. There were, in addition to the sixty proven cases, 159 accidental exposures to agents of unknown concentrations. All but one of these received prompt treatment and did not develop any infection. In one instance, the individual did not report exposure, developed the disease, but recovered after treatment."

(U) Although remarkable achievements were made, the potential of BW had by no means been completely measured; and Mr. Merck in his final report to the Secretary of War recommended that the program be continued on a sufficient scale to provide an adequate defense. A summary of accomplishments stated in the report are shown at Annex A.

[redacted]


(b) (2) High

[redacted]

Chapter 2

Research and Planning Years After World War II (1946-49) (U)

Responsibility and Authority

(U) When World War II ended, the CWS had as its major mission preparedness for CW and BW in the context of a policy of retaliation only. The BW program of the Chemical Corps was justified annually to Congress along with other Army programs. During the hearings in 1946 before the Subcommittee of the Committee on Appropriations, House of Representatives, on the Military Establishment Appropriations Bill for 1947, the Chief Chemical Officer discussed the BW program including the accomplishments applicable to public health and welfare and the potential effects of biological warfare. In the 1947 hearings to the same subcommittee, a question was raised as to why the Chemical Corps should be retained as a separate branch of the Army. General Waitt defended its retention on the basis of its past contributions and the future need for its technical military expertise. This issue was seriously debated in the Army at that time and was resolved in favor of continuing the separate Army Chemical Corps. A summary of the extent to which Congress was aware of the BW program is at Annex B.

(U) With the establishment of the Office of the Secretary of Defense (OSD) in 1947, overall technical direction of the BW R&D program was vested in the "Research and Development Board" of OSD which was constituted at the same time. The Board had a Committee on Chemical and Biological Warfare which carried out this responsibility. The Committee consisted of a full-time three man executive staff and eminent consultant members from science, industry and government.

[redacted]

(U) The authority channel of management control was from the Secretary of Defense through the War Department (renamed the Department of the Army) to the Chief Chemical Officer and on to Camp Detrick. Military command at Camp Detrick was limited to administration of the installation service and support activities; direction of the technical program in the laboratories was the assigned responsibility of the Technical Director. Both the Commanding Officer and Technical Director were under the Chief Chemical Officer.

Scope of BW Program

(U) The BW work was primarily confined to Camp Detrick with a small number of contracts in universities and industry. Activities were concentrated on BW agent research and defensive aspects; some applied research on dissemination devices; the collation and digestion of the large scale R&D effort carried out during World War II; and the formation of sound research and development program frameworks. The research and development program is discussed in more detail in Annex C.

(C) In response to concerns about the vulnerability of the United States to covert attack, the Research and Development Board, OSD, requested its Committee on BW to consider the implications of BW in sabotage in extension of a study by a Special "Ad Hoc Panel on Sabotage." In October 1948, the Committee submitted a "Report on Special BW Operations" concluding that: BW was well adapted to subversive use; U.S. was particularly susceptible to attack by special BW operations which presented a grave danger and the BW R&D program was not authorized to meet the requirements to defend against special BW operations. The Committee provided a complete blueprint on goals, objectives, organization, and examples of projects. Their report is at Annex D. One of their defensive project examples was conduct of vulnerability tests on

[redacted]

" ... test ventilating systems, subway systems, and water supply systems with innocuous organisms ...". Offensively, they recommended starting a program to develop new agents and methods of dissemination suitable for special operations. These recommendations and their subsequent approval are the genesis of the open air vulnerability tests and covert R&D programs conducted by the Army, some of which were in support of the Central Intelligence Agency (CIA). As a result of a study recommendation in May 1949, a Special Operations (SO) Division was established at Camp Detrick, MD.

(U) While most of the BW R&D program concentrated on the antipersonnel aspects of BW, there were also smaller programs in antianimal and anticrop BW as outgrowths of the World War II effort. The antianimal program was closely linked to the antipersonnel program since certain diseases produced effects in humans and animals, and the scientific disciplines involved are identical or very similar. The anticrop R&D program differed significantly in that agricultural scientific disciplines were required. Additionally, the anticrop program at Camp Detrick also included R&D on chemical substances which could be used against plants for either defoliation or crop destruction. The latter was actually CW but was carried out at Camp Detrick as a matter of scientific economy. As with the antipersonnel R&D programs, the antianimal and anticrop activities were heavily research oriented during this period.

(U) From the end of World War II until 1950, no production was carried out for purpose of operational readiness and no facilities were available for such work. Laboratory scale research and pilot plant development proceeded as a natural extension of the research programs. New facilities for pathogenic BW agent pilot plant production were also planned during this period. (Annexes C and E)

[redacted]

Testing

(U) At the end of World War II, all the field test sites with the exception of Dugway Proving Ground, were abandoned and the primitive Granite Peak BW test site at Dugway Proving Ground, Utah was inactivated. Pathogenic agent testing at Camp Detrick was confined to closed laboratory size chambers and was directly related to agent evaluation and medical defensive aspects. In this period, no control experimentation on humans had yet been conducted at Camp Detrick even though such experimentation was an acceptable practice in the development of vaccines within the U.S. medical community. Small scale outdoor testing with two biological simulants (BG, a spore forming microorganism; Serratia marcescens, a vegetative organism commonly referred to as SM) and inert material such as talc, were conducted at Camp Detrick. These materials were considered to be totally harmless by scientific and medical experts. In 1949, construction of an enclosed one million liter test sphere (the largest in the world) was built at Camp Detrick and BW explosive munition tests with pathogens were started.

(S) At the request of the Chief of Naval Operations in 1949, the first open air sea tests with biological simulants were conducted in 1950 aboard U.S. naval ships in the Atlantic Ocean off Norfolk, VA. Simulant clouds were released to envelop ships so as to assess their vulnerability and to test prototype BW electronic detection devices. Annex F provides a chronological listing of the open air tests conducted and Annex G discusses some of the tests which have appeared in the news recently.

(U) Open air testing of infectious biological agents was considered essential to an ultimate understanding of BW potentialities because of the many unknown factors affecting the degradation of microorganisms in the atmosphere. However,

[redacted]

[redacted]

the primitive test experience in World War II, revealed that too little was known on how to assure absolute control of infectious organisms in the open air from a safety and environmental standpoint. Safety and medical aspects in BW R&D as well as testing were always of overwhelming concern; and adequate safety procedures and controls had to be operative prior to the initiation of any new R&D BW projects. Annex H summarizes the BW safety program.

Support to Other Government Agencies

(C) In addition to its internal BW technical work, the Army provided what was tantamount to "contract services," to other military services and government agencies since it had the most comprehensive and largest BW program. The mission of SO Division was to carry out research on potential methods of covert BW attack and also to assess the BW implications of the growing concern about sabotage in the cold war. (Annexes B and I) (b) (2) High

(b) (2) High

(b) (2) High These activities were investigated and recorded in the 1975 Report of the Hearings in September 1975 before the Senate Select Committee, chaired by Senator Church, to study Governmental Operations with Respect to Intelligence Activities and, therefore, will not be discussed in detail in this report.

Program and Policy Reviews

(C) The military significance of BW and the need for a BW program were constantly reviewed at the highest levels of OSD between 1948 and 1950. In July 1948, a comparative study of BW, CW and radiological warfare (RW), was made by the Research and Development Board at the request of the Joint Chiefs

[redacted]

of Staff (JCS). Subsequent studies were made periodically to evaluate comparative military aspects, time to accomplish R&D, system costs and technical feasibility. In March 1949, Secretary of Defense Forrestal established a committee under Dr. Caryl Haskins to report on the status of the BW program. The committee report in July 1949 indicated the precarious nature of the BW defense posture.

(U) The general United States policy for use of CBR warfare, i.e., only in retaliation against its use by an enemy, was reevaluated at the highest military and civilian levels in 1949. This culminated in February 1950 when President Truman approved continuation of the retaliation only policy.

(U) In October 1949, at the direction of Secretary of Defense Johnson, the Research and Development Board established an Ad Hoc Committee on CBR Warfare under Dr. Earl Stevenson to investigate all the technical and strategic aspects of the subject.

(C) In June 1950, after extensive research, the Committee submitted a report which indicated the following BW related recommendations:

1. That CBR weapons not be restricted by the retaliatory policy;

2. That engineering studies and designs of facilities for production of BW agents be completed as soon as possible;

3. That field tests of BW agents and munitions be carried out as soon as possible on a scale sufficient to determine the military worth of the agent-munition combinations, their offensive uses, means of defense against them and to secure definitive information on other problems inherent in BW;

4. Research programs on the defensive aspects of BW be materially expanded; and

5. A coordinated program be established to guide release of information on CBR warfare. (Note: Three other recommendations of the Stevenson Committee dealt solely with CW and RW.)

[redacted]

Chapter 3

Expansion of the BW Program During the Korean War (1950-53) (U)

Attainment of BW Retaliatory Capability

(U) At the onset of the Korean War on 25 June 1950, the Stevenson Report was under review by the Secretary of Defense. The Korean War spurred efforts to again develop a BW retaliatory capability based on the ominous threat of USSR involvement but there was reluctance to publicize the program. During Congressional budget hearings in 1950, the Army was questioned on the policy of " ...making public the work in the field of biological warfare which we are undertaking." Apparently in reaction to this challenge, Secretary of Defense Johnson, on 30 August 1950, stated that he wished to have no one lecturing or talking publicly about Bacteriological Warfare. "Witnesses before Congressional Committees ... will state that they are not authorized to discuss the matter under present conditions."

(S) On 27 October 1950, Secretary of Defense George C. Marshall formally approved all but the first of the five Stevenson recommendations relative to BW and directed their implementation. (This action retained the basic U.S. retaliatory policy controlling BW development and employment.) The U.S. Army Chemical Corps assumed prime responsibility for carrying out the Stevenson recommendations. Even before the Secretary's formal approval of the report, the Army was authorized to construct a BW production facility at Pine Bluff Arsenal (PBA, near Pine Bluff Arkansas) in view of potential Soviet involvement in the Korean War and based on the requirement to obtain a BW retaliatory capability. Design of the facility was accelerated and gound was broken in February 1951. Also in February

[redacted]

1951, the JCS set a target date of July 1954 to achieve a retaliatory BW capability.

(S) The first limited BW retaliatory capability was achieved in 1951 when an anticrop aerial bomb was developed, tested and placed in production for the Air Force. The goal of the program was to provide a weapons system which could attack the cereal grain crops of the Soviet Union. Limited quantities of anti-wheat and anti-rye agents had been harvested and stockpiled from infected field production plots in the continental U.S. by July 1951. These field sites were carefully selected for safety and coordination with and approval by the U.S. Department of Agriculture. Unfilled bombs were procured and prepositioned by the Air Force overseas. The plan was, upon call, to airlift the agent filling to the overseas air base immediately prior to employment. This was necessary since anticrop agent shelf-life was limited to about a year.

Expanded Program

(C) The BW test program was also accelerated in this period. (Annex F) In late 1949, vulnerability tests with simulants were started in response to the Baldwin Committee report (See Annex D.) which pointed out the U.S. susceptibility to covert BW attack. The first large area vulnerability test was conducted in San Francisco Bay in September 1950 using the simulants BG, SM and fluorescent particles. (Annex G) Small scale pathogenic field testing at Dugway Proving Ground was resumed in 1950 after a five year lapse and expanded in 1951. (Annexes J and K) The first operational antianimal BW open air test was conducted successfully in July 1951 at Eglin Air Force Base, Florida, using hog cholera virus against pigs. In 1954, the antianimal BW program was discontinued because it was concluded that it lacked military worth. This is covered in more detail in Annex C.

 [redacted]

[redacted]

(U) In September 1951, the JCS assigned priorities to the Army for the development of specific BW agents. Also, the state of CBR readiness was reviewed by the Secretary of Defense Robert A. Lovett in November 1951 with the conclusion that a higher degree of readiness and more manpower was required in the development of CW and BW munitions. A directive to improve CBR readiness was issued to all elements of the Defense Department on 21 December 1951.

(C) In early 1952, the BW plant was 40 percent complete (Annex E). It was to cost $69 million and have a production capacity of 20,000 aerial clusters per month. Start of production was scheduled for October 1952 but did not begin until December 1953. On-stream production readiness for complete aerial clusters to meet estimated requirements was achieved in the spring of 1954. The final total cost of the plant was about $90 million.

(U) Major research facilities to support the expanded BW R&D program were constructed at Camp Detrick and in 1953 over $10 million worth of laboratory and pilot plant facilities were completed.

(U) With the expansion of the BW retaliatory program, there was also an increase in the defensive work, e.g., the research program in protection against BW was almost doubled in 1952. Much data were developed in personnel protection, decontamination, and immunization. Early detection research was started but progress was also because of the complexity of the technical problem.

(C) The preceding acceleration actions during the Korean War were, in part, caused by the concerns of the Commander-in-Chief, Far East. He became very apprehensive over the possibility of the enemy initiating CW and/or BW because of the intense propaganda campaign accusing the U.S. of using BW.

[redacted]

[redacted]

He advised OSD in June 1952 that the U.N. Forces should maintain retaliatory capabilities in CW and BW and pointed out that he had taken available defensive preparedness measures. In response, he was advised that a BW capability would not be available before January 1953.

Readiness

(U) In response to the December 1951 DOD Directive to improve CBR readiness, the Secretary of the Army established a committee under Dr. J. R. Killian, Jr., to evaluate Army efforts in CW and BW. The resulting Killian report indicated a need to improve management of the CW and BW effort by reorganizing to separate BW and CW elements on a vertical basis. The report was reviewed by a panel of General Officers under Major General K. D. Nichols. The panel supported the basic thrust of the Committee and proposed "Contractor-operation" of the BW program with a small government management staff for supervision, paralleling the AEC management approach. As a result, an Assistant Chief Chemical Officer for BW was appointed in the early fall of 1953 and the BW elements of the Chemical Corps were consolidated under him in October 1953. This action was taken preparatory to signing a contract with a civilian firm for program execution. In late December 1953, the selected bid offer was withdrawn while final negotiations were in progress. The BW program was then reorganized, and continued with government personnel.

(C) In June 1953, a month before the Korean War ended, Charles E. Wilson, Secretary of Defense, expressed concern to the Chairman of the JCS over the state of CBR readiness. He stated that each Service, singly or in combination, should be prepared to employ CBR weapons when directed. At

his request, a committee of the JCS surveyed the Services' capabilities and concluded that BW capabilities were, indeed, limited for a variety of reasons but primarily by knowledge gaps in the biological sciences.

[redacted]

Chapter 4

Cold War Years - Reorganization of Weapons and Defense Programs (1954-1958) (U)

Continuation of Technical Programs

(U) As previously described, by the end of the Korean War in July 1953, construction of the BW production plant at Pine Bluff Arsenal (PBA), was nearing completion. Production of hardware for antipersonnel BW agent cluster bombs began early in 1953 and by the end of the year had been delivered to PBA for filling to support Air Force requirements. In December, the plant entered the shakedown test phase with pathogenic organisms. It became operational in the spring of 1954 with the first production of Brucella suis (the causative agent of undulant fever). Large scale production of the lethal agent Pasteurella tularensis (tularemia) began a year later.

(U) The growth of BW R&D capabilities continued at Fort Detrick. Between August 1954 and July 1958, an additional $15.6 million worth of laboratory construction was completed. Safety continued to be of major concern, particularly where shipment of larger quantities of BW agent were contemplated. (Annex L) In January 1955, and continuing until December 1958, the vaccine research program at Fort Detrick was supplemented by a major contractual effort at Ohio State University Research Foundation. The program included the use of human volunteers. (Annex M)

Policy Revision

(S) A thorough review of the basic U.S. policy of "retaliation-only" with CBR warfare was precipitated in May 1954 by General Ridgeway, Chief of Staff of the Army. Based on experiences of the Korean War, General Ridgeway concluded that the policy was an obstacle to the U.S. armed forces achieving

[redacted]

a state of readiness against attack. The question was ultimately referred to a special board of the National Security Council (NSC) which concluded in August 1955 that no change in policy was required. In late October, the Secretary of Defense concurred in the finding of the NSC. Five months later, however, the NSC reversed their position based largely on intelligence relative to the Soviet military doctrine expressed by Marshal Zhukov in a speech to the 20th CPSU Congress on 20 February 1956 and repeated three days later by the Commander-in-Chief of the Soviet Navy. The Soviet pronouncements clearly stated the tenet that CW and BW weapons would be used for mass destruction in future wars. In March 1956, the President approved a revised BW/CW policy recommended by the NSC which stated that the U.S. will be prepared to use BW and CW in a general war to the extent that the effectiveness of its own military forces would be enhanced. The decision to use BW or CW would be made by the President. In May 1958, the new policy was extended to include limited war. This policy was reiterated by the NSC in August 1959.

Special Studies

(C) Also in May 1958, the JCS again reviewed the BW and CW situation at the request of Secretary Defense McElroy and concluded that progress on offensive BW and CW was slow because of budget limitations. Army offensive BW systems were under development and the Air Force had a limited capability. The JCS also concluded that, although there was a firm military requirement for CW and BW defense materiel, defensive capabilities were not effective because of technical difficulties. They recommended the Weapons Systems Evaluation Group (WSEG) perform a thorough study to determine joint capabilities of BW and CW in the context of the national policy.

(U) In July, two separate study groups commented formally on the potentialities of BW weapons systems. One study was made under contract with Booz-Allen

[redacted]

[redacted]

Applied Research, Inc., the other was sponsored by the Air Force and the National Academy of Sciences. The WSEG study also identified favorable and unfavorable aspects of BW.

(U) In December 1958, a BW/CW Symposium was convened by the Defense Science Board at the Headquarters of the Rand Corporation. This symposium examined the military and political impact of BW and resulted in recommendations that the Secretary of Defense acquaint the JCS of the results of the symposium, develop weapons requirements, increase the CW and BW research effort, develop weapons systems use doctrines, and attempt to gain public acceptance and support for BW and CW weapons systems.

(U) The Defense Science Board approved the conclusions and recommendations resulting from the symposium and forwarded them to Dr. Herbert F. York, Director of Defense Research and Engineering (DDR&E). Dr. York forwarded the recommendations to the JCS with the comment that he also accepted the report and would establish an Ad Hoc Committee on Biological and Chemical Warfare to prepare a research, development, test and evaluation program based on the recommendations.

[redacted]

[redacted]

Chapter 5

The Limited War Period - Expanded Research Development, Testing and Operational Readiness (1959-1962) (U)

Program Definition and Expansion

(C) In mid-1959, Dr. York briefed the Secretary of Defense on the potentialities of CW and BW and recommended a 5-fold expansion of the RDTE effort over a five year period. Secretary McElroy requested the JCS to review the recommendations and advise on the importance of expanding the CW/BW weapons program and to identify use doctrines. The response from the JCS concluded that--present retaliatory capabilities were out of date and needed modernization; a U.S. operational capability should be maintained to deter the Soviet Bloc from using the weapons; U.S. forces must be capable of operating in a toxic environment; an increased RDTE program directed to qualitative operational requirements was needed, and the Service Chiefs should be requested to identify qualitative operational requirements. By the end of 1959, the JCS requested the military services to develop operational requirements for CW and BW weapons systems and related defense equipment.

(U) In late October 1959, the Chief Chemical Officer was directed by the Chief of Army Research and Development to prepare an expanded five year program. Dr. York also revived the Army's anticrop program which had been phased out in 1957 because of the decreased interest of the Air Force, the prime user.

(S) By the end of 1959, the Chemical Corps mission reached a height of emphasis unprecedented since WWII. The military Services were submitting

[redacted]

requirements for BW munitions, which included dissemination means for selected agents in artillery, missiles, aircraft, drones, and other lesser weapon systems. (See Annex C, Research and Development.) To further the emphasis, Secretary of Defense McElroy set up a Biological and Chemical Defense Planning Board, personally headed up by Dr. York, DDR&E, to set up program priorities and objectives. The Board had eminent scientists, engineers, and R&D managers from industry, academia, and government. The Board, in their report of June 1960, recommended, inter alia, major emphasis in the BW retaliatory and defensive programs, with emphasis on basic and applied research in relation to end-item development. They also recommended increased emphasis to means of obtaining controlled temporary incapacitation (CTI) with biological (as well as chemical) agents. Dr. York approved the recommendations in August 1960 and the Services were directed to increase their funding to attain three BW/CW objectives:

"1. Establishment of a capability ... to operate successfully in a toxic environment which would include a defensive capability and a capability to initiate CW and BW in war, at the decision of the President.

"2. Development of an incapacitating agent munitions combination... .

"3. Boosting of U.S. posture in ... biological weapons ... to enhance U.S. military capabilities."

The cold war years of possible direct nuclear confrontation (U.S. vs USSR) had been ameliorated by the Korean War which had been fought with conventional weapons. In about the same period, the Soviet Union was beginning limited harassment tactics, e.g., the closing off of highway access to Berlin, resulting in the Berlin airlift. The advent of limited war and small scale

[redacted]

[redacted]

conflict evoked a need for weapons which could assist in controlling conflict with minimum casualties. Controlled temporary incapacitation, therefore, became an RDTE weapons objective and CW and BW weapons offered the most promising technical possibilities; and the BW program was shifted to emphasize incapacitation.

(S) In the summer of 1960, the National Security Council of the Eisenhower Administration revalidated the CW/BW national policy of "preparedness for use at the discretion of President" which had been revised from "retaliation only" in March 1958. The Council noted the accelerated preparation being made and requested the Secretary of Defense to incorporate the status of current and projected BW (and CW) programs in his annual report to the Council and the President.

(U) Congress became interested in CBR disarmament at about the same time and the Senate Subcommittee on Disarmament held hearings and published a report (See Annex B.). Stimulated by this initiative, the Department of Defense conducted extensive studies through 1961, concluding that for the "time periods 1962-65 and 1965-70 no single inspection procedure or combination of procedures available that would offer a high level of assurance against militarily significant violation of BW arms limitations;" and that "there was no inspection procedure that would insure against clandestine use of these weapons."

Project 112

(S) An immediate major Defense thrust of the Kennedy Administration was a reassessment of BW/CW. In May 1961, Secretary of Defense McNamara asked that, by June 1961, the JCS: evaluate the potentialities of BW/CW, considering all possible applications including use as an alternative to nuclear

[redacted]

[redacted]

weapons; prepare a costed plan for development of an adequate BW/CW deterrent capability to include appraisal of domestic and international political consequences. This project was Number 112 of about 150 which the new Defense leaders were emphasizing. The JCS, using primarily the August 1960 report of the Defense Biological Planning Board and an Army Chemical Corps special submission, sent their study to Secretary of Defense McNamara in early June, accepting the Board's basic findings and generally supported additional emphasis. They also accepted, for the first time, that BW weapon systems have strategic potential; and estimated that the cost for obtaining Secretary of Defense McNamara's complete spectrum BW/CW capability was about 4 billion dollars which included about $135 to $169 million a year for R&D and testing.

The Acceleration Plans (Project 112)

(S) Within OSD, the JCS study was referred to Dr. Harold Brown, the Director of Defense Research and Engineering (now the Secretary of Defense) for review prior to submission to Secretary McNamara. The DDRE made a finite review of the JCS recommendations. He scrutinized the JCS judgemental statements one by one and commented on them in detail. (Annex N) For example:

JCS statement - "Non-lethal B-C weapons present a potential alternative to nuclear weapons as area weapons for use where the enemy is embedded in a friendly background."

DDRE - "Concur, but feel that insufficient attention is being given to use of these and other types of application."

JCS statement - "B-C agents have sufficient potential to justify further research as well as development and testing as weapon systems to

[redacted]

[redacted]

determine their operational effectiveness in cold, limited or general war."

DDRE Comment - Strong concurrence with requirement for RDTE to determine operational effectiveness.

Overall, he strongly concurred in the JCS view that these weapons had great potential; however, he felt that they could be considered operational only in the most limited sense and that the task of measuring their impact accurately still had to be done. DDRE advised the Secretary of Defense that the data for a satisfactory evaluation did not exist.

To gain the data needed, Dr. Brown recommended that his office, in cooperation with the JCS, come up with three plans:

1. Short term plan covering use of present limited BW-CW capabilities,
2. Plan for use of available agents for a limited BW-CW offensive, and
3. A plan covering full BW-CW potential.

(S) Secretary McNamara accepted the JCS recommendations as modified by the DDRE. In July 1961, Brigadier General George S. Brown USAF, Military Assistant to the Secretary of Defense advised DDRE, JCS and the Services that the Secretary of Defense had reviewed the work of the DDRE and the JCS; and in mid-July 1961, a DOD task group titled, "Project 112 Working Group" was set up by the DDRE with the Joint Staff of the JCS and Service representatives. They then prepared a comprehensive plan for execution which was submitted in September 1961 to DDRE. The plan laid out precise tasks, target dates and assigned action. In taking a hard look at U.S. CBR capabilities, or lack of them, they put their precise observations on record in the plan. In BW, they pointed out that the entire U.S. antipersonnel operational capability rested with the Air Force, consisting of cluster bombs that could be filled with undulant fever bacteria at Pine Bluff Arsenal.

[redacted]

[redacted]

Further, they noted that the U.S. operational anticrop weapon system, established for the Air Force in 1951, had been scrapped in 1959. The lack of adequate field testing was also highlighted with the recommendation that a Joint Task Force (similar to the nuclear testing Joint Task Force) be established under JCS control, which would conduct service tests and have selected test sites outside the continental United States for long range and toxic tests not possible in the U.S.

(S) Three days after the report was received by Deputy Secretary of Defense Roswell L. Gilpatric, he directed immediate action on all BW recommendations by DDRE, JCS, and the Services, except for the development and procurement of an air deliverable strategic biological antipersonnel weapon system and a BW dissemination device for tactical aircraft. Overall, the decision would result in a huge increase in U.S. Army BW programs since the Army Chemical Corps was responsible for conducting BW agent research for all military Services.

Reorganization of Chemical Corps Functions

(U) The Army Chief Chemical Officer was notified by the Office of the Deputy Chief of Staff for Logistics (DCSLOG) on 14 November 1961, that he was responsible for carrying out the major portion of Army Project 112 actions. At this juncture, the Chief Chemical Officer was under the direct jurisdiction of the DCSLOG with technical channels to other General and Special Staff elements of the Army, notably the Army Chief of Research and Development where the primary Army focal point for Project 112 was located. The Assistant Chief Chemical Officer for BW (established in 1953) was short-lived and had been abolished in 1954 when the new Chief Chemical Officer realigned the Chemical Corps to the traditional functional approach.

[redacted]

[redacted]

With modest changes, it remained that way through 1961.

(U) In 1962, the Army had a major reorganization which abolished the Chiefs of Technical Services to include the Chief Chemical Officer. His technical operating functions were integrated into the newly formed Munitions Command of the Army Materiel Command. Selected non-technical staff functions were assigned to a new office within the Office of the Deputy Chief of Staff for Operations (DCSOPS), with the Chief Chemical Officer as its Director, initially with a staff of 70. This was dwindled in 1977 to about 10. Within the Munitions Command, the BW program subsequently was centered at Fort Detrick which had operational control of BW production activities at Pine Bluff Arsenal. In 1962, BW testing was assigned to a separate Testing and Evaluation Command.

Program Accomplishments

(C) The BW program in 1962 reflected the objectives established by Project 112. Operational requirements were received in August 1962 from Commanders of Unified and Specified Commands. The Air Force declared the M33 AB-1 (brucellosis) biological cluster bomb obsolete but established a requirement for development of a BW spray munition for the Tactical Air Command. Development of drone systems for dissemination of chemical and biological agents progressed to the point of procuring test hardware. An anticrop weapons system for the Air Force using wheat rust resumed in 1962 with the initial field production of agent. Requirements for biological dissemination devices were established by the U.S. Army Special Forces. The BW agents for these devices were to be produced at Pine Bluff Arsenal and $20.1 million was approved for modification and expansion of the production factilities. The development of vaccines for Q fever and Tularemia enabled development work on Q fever and tularemia to proceed to standardiza-

[redacted]

tion as BW agents. $2.3 million was authorized for procurement of broad spectrum antibiotics for BW casualties.

Deseret Test Center -- Extracontinental Testing

(S) In May 1962, as a result of Project 112, the Army, by JCS direction, activated a BW/CW extracontinental testing organization (Deseret Test Center) (DTC), at Fort Douglas, Salt Lake City, Utah. It was authorized 227 military and civilian personnel and was jointly staffed and supported by the Army, Navy, Air Force, and Marine Corps with representation from the U.S. Public Health Service. Its mission, organization, and functions were approved by the Secretary of Defense. DTC was to coordinate the requirements for, plan, conduct, and evaluate testing of biological (and chemical) weapons and defense systems at extracontinental test sites. While reporting through the Army Chief Chemical Officer and the Army Chief of Staff, DTC had to obtain approval of the JCS for conduct of tests, to include materiel, personnel, and funds. In addition, review and approval by OSD (DDR&E) and the President (President's Scientific Advisory Committee (PSAC)) were required. The Secretary of the Army also participated since he submitted the proposed test programs to the Secretary of Defense on a parallel basis with the Army Chief of Staff submissions to the JCS. For example, on 21 August 1962, Secretary of the Army Cyrus R. Vance provided recommendations with supporting detailed rationale for the first extracontinental tests, to include the release of live antipersonnel biological agents. When coupled with the response from Deputy Secretary of Defense Roswell Gilpatric approving only part of the tests, these documents demonstrate the extreme care taken to assure the ultimate in safety, the highest level of review and approval, and comprehensive government coordination. These reviews of proposed BW/CW tests focused on the need to place governmental

controls on any experiment that could have serious adverse effects on the environment; and precipitated President Kennedy's National Security Action Memorandum (NSAM) 235 on 17 April 1963 (Annex E). NSAM 235 required that the President give prior approval for any scientific or technological experiments which might have protracted effects on the physical or biological environment. OSD implemented the NSAM on 30 April 1963 by issuing DOD Instruction C-3200.7, titled, "Large Scale Scientific or Technological Experiments," signed by Dr. Harold Brown, which spelled out precise controlling procedures.

[redacted]

Chapter 6

Adaptation of the BW Program to Counterinsurgencies

The Vietnam War Years (1963-68) (U)

Technical Programs

(U) Throughout the Vietnam War, the BW program was guided essentially by the requirements delineated in Project 112.

(S) The overall emphasis in Defense programs during this period was on supporting the Vietnam War and the BW program was limited accordingly. The primary offensive BW efforts were directed to the acquisition of BW dissemination devices for Special Forces and meeting production requirements of antipersonnel and anticrop agents that might be generated by the Army and Air Force. Production facilities at Pine Bluff Arsenal were completed and between 1964 and 1967 the plant produced six different BW agents. Various types of BW munition hardware were delivered to Pine Bluff Arsenal, filled, and stored there. These munitions were never shipped anywhere else except for test purposes. Production of wheat rust anticrop agent accelerated in 1963 and the stockpile goal for the Air Force was achieved by the end of 1964. Because of the relatively short storage life, production of the agent continued until August 1969. Rice blast cultivating methods, originally developed at Fort Detrick, were subsequently refined under contract with Chas. A. Pfizer and Co. beginning in 1963. The agent was subsequently produced by Pfizer, and was delivered to Fort Detrick at the termination of the contract in June 1966.

Chemical Herbicides

(U) Based on the special scientific advisory efforts of the OSD Advanced Research Projects Agency to South Vietnam and supported by special funds

[redacted]

provided by them, the United States Army and Air Force were requested to conduct chemical herbicide spray experiments in South Vietnam. The purpose was to determine their operational suitability for defoliation of jungle vegetation to prevent ambush along key travel routes, and for destruction of field crops grown by the insurgents in remote areas. The technical work on the herbicides and dissemination devices was done by Fort Detrick personnel and the US Air Force provided aircraft and pilot support. These actions were not BW but some confusion resulted because Fort Detrick carried out the RDTE activities as a part of their overall scientific program. Subsequent U.S. introduction of herbicides operationally in 1963 and rapid increase in their use until termination in 1970, resulted in North Vietnamese accusations that the U.S. was using CW and even BW. The impact of these actions on the U.S. ban of BW in 1969 are treated in detail in Chapter 7.

Incapacitating BW Agents

(S) As the frustrations of the Vietnam War mounted, the full spectrum of weapon systems was gradually assessed for possible application. Initially, in 1962, when President Kennedy authorized a major increase in military advisors to South Vietnam, there was essentially no interest in applying any form of BW there. As the war progressed to the point of active U.S. military unit participation shortly after the Gulf of Tonkin incident in August 1964, OSD interest in BW incapacitating agents began to increase. Specifically, RDTE on enterotoxins from bacteria of the Staphylococcus group, which causes severe short term incapacitation (known as food or ptomaine poisoning), progressed to the point where development of weapon systems appeared feasible. As a result, work on this potential agent was accelerated. Enterotoxins are not living microorganisms and are not contagious in any way. They are complex chemical substances produced by microorganisms which can not be synthesized

[redacted]

[redacted]

chemically; and were included in the Fort Detrick BW program as a matter of scientific economy, much like the chemical herbicides were part of the BW anticrop program. Staphylococcal enterotoxins were particularly attractive as agents because much less enterotoxin is required to produce incapacitation as compared to standard CW agents. President Nixon's statement in November 1969 did not specifically ban biological toxins and extensive discussion ensued on whether to include toxins in the U.S. declaration. The inclusion of toxins in the ban occurred in February 1970 and all Staphylococcal enterotoxin work stopped. The details of R&D, production, human volunteer testing, and field testing are in Annexes C, E, F and L.

(S) Some BW incapacitating agents, such as Q fever and VEE, were also developed but did not have as much to offer because of the concern about possible spread, the lack of sufficient assurance of predictable effects on the target population, and a lack of adequate knowledge about their long term effects on the environment. Other associated programs were also carried out and are described in the annexes listed above. However, there was never any serious consideration given to their use in the Vietnam War although hypothetical analyses were made to assess their potential for use against North Vietnam.

Defensive Programs

(S) Defensive BW developments in this period emphasized rapid detection systems, extension of available vaccines and improved therapy and prophylaxis. Also, a test was conducted to determine the vulnerability of personnel in an urban subway system to covert BW attack. A series of trials were conducted in three major north-south subway lines in mid-Manhattan, New York City, in June 1966. A harmless simulant biological agent (BG) was disseminated within the subway tubes and from the street into subway stations. Conversion of

[redacted]

[redacted]

the simulant data to equivalent data for pathogenic agents indicated that similar covert attacks with a pathogenic agent during peak traffic periods could be expected to expose large numbers of people to infectious doses. With the need for increasing money to support the U.S. Army's increased involvement in the Vietnam War and the mounting efforts in the United Nations (UN) to achieve some type of disarmament agreement in CW/BW, the funding support of Army BW programs gradually dropped from $38 million in FY 66 to $31 million in FY 69 when President Nixon banned U.S. BW weapons. In FY 73, when the Army biological defense program had stabilized, the amount had dropped to $11.8 million.

[redacted]

[redacted]

Chapter 7

Disarmament and Phase Down (1969-72) (U)

Presidential Ban of BW

(U) On 25 November 1969, President Nixon announced a major policy decision on the United States chemical and biological warfare program. With respect to CW, he renounced the first use of lethal and incapacitating chemicals and he stated that he would resubmit the Geneva Protocol to the U.S. Senate for ratification. With regard to the BW program, President Nixon renounced the use of lethal bacteriological (biological) agents and weapons and all other methods of biological warfare, and he directed the Defense Department to make recommendations for the disposal of existing BW weapons. He further stated that the U.S. would confine its biological research to defensive measures such as immunization and safety measures. Questions remained, however, on whether the policy applied to biological toxins. On 14 February 1970, a White House announcement extended the policy to biological toxins regardless of their means of production.

(C) The Presidential announcement culminated a major review of U.S. policy concerning chemical and biological warfare by the National Security Council in March 1969. However, as indicated in Chapter 6, the origin of the policy in part dates from criticism of U.S. application of chemical herbicides and riot control agents in the Vietnam War beginning in the mid-60's. In addition, studies of a coordinated U.S. policy on BW and CW were initiated by the Defense Department and the State Department at the request of the Director of the Arms Control and Disarmament Agency (ACDA) in October 1963. These studies continued into 1965. On 5 December 1966, the General Assembly of the United Nations passed a resolution for all States to observe the principles of the Geneva

[redacted]

Protocol of 1925. On 10 December 1966, Mr. D. F. Hornig, Special Assistant to the President for Science and Technology, recommended to President Johnson that the United States announce a policy of "no first use" of biological weapons but no action was taken.

United Nations Disarmament Efforts

(U) International attention on chemical warfare was heightened in January 1967 by the reported use of toxic material in the Yemen Civil War. The effectiveness of the Geneva Protocol was questioned and there was considerable debate at the United Nations on the necessity to develop new instruments to extend the Geneva Protocol. A case was made by the United Kingdom to separate BW and CW to facilitate disarmament progress in this area. In 1968, the Eighteen-Nation Committee on Disarmament (ENCD) recommended that the Secretary General appoint a group of experts to examine the dangers to mankind represented by employment of CW and BW. The group was subsequently appointed following a UN General Assembly resolution to this effect on 20 December 1968. They met in February, April and June and submitted their report to the Secretary General of the UN in late June 1969. In July 1969, the Secretary General accepted the report and urged a halt to the development, production and stockpiling of all CW and BW agents and proposed elimination from the stockpile. He also appealed to all States to accede to the Geneva Protocol and to apply its provisions to all chemical and biological warfare agents. In November 1969, the World Health Organization submitted a separate report to the UN on the health aspects of chemical and biological weapons. Both reports emphasized the unpredictability, risk in, and lack of control of BW in a major military employment. At the UN, there was general agreement that no new instrument other than the Geneva Protocol was needed to preclude the use of CB weapons

[redacted]

[redacted]

but that a new agreement would be needed to prohibit their development, production, and stockpiling.

(U) The UK continued to push for a separation of CW and BW and on 10 July 1969, they submitted to the Conference of the Committee on Disarmament (CCD)* a draft Convention for the prohibition of the development, production and stockpiling of bacteriological (biological) and toxin weapons. (The UK draft was revised to include toxins at the suggestion of the U.S. and was resubmitted on 18 August 1970.) The USSR submitted a competing disarmament Convention encompassing CW and BW to the UN General Assembly in September 1969. It was in this framework of international debate that President Nixon made his preemptive announcement of unilateral BW disarmament by the United States.

United States Demilitarization Program

(U) In preparation for the President's announcement, the Department of the Army in August 1969, was directed to immediately cease all production of toxins and biological agents and filling of dissemination devices. Guidelines for BW demilitarization plans were formulated and plans were initiated for disposal of all antipersonnel agents and munitions at Pine Bluff Arsenal and all anti-crop material at Fort Detrick, Rocky Mountain Arsenal and Beale Air Force Base. The plans emphasized operational safety and control, total accountability for all materiel, and absolute verification of destruction by independent observers. The plans were reviewed extensively by Army experts and by U.S. Departments of Health, Education and Welfare; Interior; Agriculture; the Environmental Protection Agency; and appropriate state and local officials. Accompanying environmental impact statements were filed with the President's Council on Environmental Quality.

*On 26 Aug 1969, the Eighteen Nation Committee on Disarmament was renamed "The Committee on Disarmament (CD)" to reflect expansion of its membership. The name of the conference was changed accordingly.

[redacted]

[redacted]

(U) Total destruction of service antipersonnel BW stocks and munitions was accomplished between 10 May 1971 and 1 May 1972. The facilities at Pine Bluff Arsenal were completely decontaminated and turned over to the Food and Drug Administration to become the National Center for Toxicological Research. Total destruction of service anticrop agents and decontamination of facilities at the three storage points was accomplished between 19 April 1971 and 15 February 1973.

(U) The offensive BW experimental program was also terminated in 1970 with a complete inventory of all BW materiel at Fort Detrick and Dugway Proving Ground and destruction of all items except those essential to defensive BW research. The BW production facilities were decontaminated and assigned to the Army Health Services Command pending formal transfer to the National Cancer Institute. Action should be completed in 1977. Finally, BW defense program management and operations were transferred to Edgewood Arsenal. Details of the BW demilitarization program are contained in Annex O.

Biological Warfare Convention and Geneva Protocol

(U) In March 1971, while the U.S. BW demilitarization program was in progress, the East and West stalemate regarding separation of BW and CW weapons was broken and a mutually acceptable draft convention applied to BW alone was submitted to the General Assembly. The convention was approved by the Assembly in December, signed in Washington, London, and Moscow on 10 April 1972. Ratification by the U.S. Senate was delayed by their consideration of the Geneva Protocol and the question of adding herbicides and riot control agents to the definition of CW agents.

(U) The question was resolved by President Ford in the latter part of 1974 when the Administration renounced as a matter of policy the first use of

[redacted]

[redacted]

of riot control agents and herbicides in war except under specific conditions of defense to save lives. The Senate approved both the Protocol and the Convention on 16 December 1974 and President Ford signed documents of ratification on 22 January 1975.

Chapter 8

The Biological Defense Research Program (1973-77)

Program Realignment

Since the President's ban on offensive BW in November 1969 (extended by the ban on biological toxins in February 1970), the Army has confined its BW technical program to demilitarization and to defensive development involving physical protection and medical procedures. The demilitarization programs have been discussed in the previous chapter and elaborated in Annex O.

On 1 April 1972, Fort Detrick was transferred from the U.S. Army Materiel Command (AMC) to the Office of The Surgeon General. As a result of the shift in ownership of Fort Detrick, the Analytical Science Office and the Biological Defense Materiel Division were transferred from Fort Detrick to Edgewood Arsenal, Maryland. On 1 July 1973, Fort Detrick and the U.S. Army Garrison was reassigned to the U.S. Army Health Services Command also under The Surgeon General. Civilian personnel, equipment and facilities of the Plant Sciences Directorate of Ft Detrick were transferred to the U.S. Department of Agriculture to continue the work on defense technology against crop disease.

The U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)* located at Fort Detrick is the center of the Army's program on the medical aspects of BW defense. The physical defense program is conducted by the Biological Defense Group, with approximately forty personnel, assigned to the Directorate of Development and Engineering at Edgewood Arsenal. Field test support of the Edgewood Arsenal effort is provided by Dugway Proving Ground. Under an RDTE Project (Technical Assessment of Foreign Biological Threat), Dugway Proving Ground has the mission of examining the U.S. and its Armed Forces' vulnerability to biological attack. This function is

*Approximately 461 assigned personnel.

assigned to a total of seven analysts in the Studies Division who examine available intelligence reports, current laboratory research, and results of vulnerability testing with an overall assessment of these activities. Vulnerability assessments normally involve study and evaluation rather than laboratory R&D; however, simulant tests may be conducted when additional basic data is required.

Funding for the total RDTE effort has varied from $10.2 million in FY 73 to $14.4 million in FY 76. Most of the funds (approximately 65% of $14.1 million in FY 77) have been applied to The Surgeon General's medical defense programs.

Physical Defense Program

The Biological Defense Group has responsibility for basic research and development of biological detection and alarm devices, development of high volume aerosol sampling and collection equipment, as well as development and evaluation of devices, systems, methods, and protocols for physical protection and decontamination. The major thrust of the physical defense program during the 1972 to 1976 time frame has been towards the end item development of a Biological Detection and Warning System for the field Army. It is scheduled for final acceptance testing in 1980 and for production in 1981.

The current program for basic research on biological detection has emphasized studies on remote detection concepts. This research has consisted of theoretical analyses of the feasibility for detecting microbiological aerosol clouds in the atmosphere area scanning methods. No experimental studies have yet been conducted.

The hardware development program was accompanied and supported by an active program of system analysis to provide a logical basis for the

establishment of performance characteristics for the proposed systems. Studies included threat analysis, target analysis, field alarm array studies and the impact of detector arrays on casualty reduction, system logic studies, and related concept of use studies leading to a better definition of system requirements. Coupled with the detector development was the parallel development of a large volume field sampler which would be triggered by an alarm to collect a sample.

Exploratory development of biological agent decontamination continued throughout the 1972-77 period. A contract package was prepared for the exploratory development of a decontamination system for biological contaminated personnel, equipment, and enclosures. This would be a four year technical effort planned for FY77 through FY80.

Basic research in this area is directed at evaluating the concept of decontaminating microbiological aerosols with a counter-aerosol of a chemical disinfectant such as lactic acid.

In the area of physical protection, peripheral leakage tests on two new mask prototypes will be completed, and evaluation of the leakage characteristics and performance of individual and collective protection equipment under development for the Army will be continued.

Medical Research Program

The objective of the medical research program is the development of an effective, integrated medical defense against biological weapons and highly infectious agents. New and classical techniques in virology, immunology, and pathology are employed to develop methods for the early diagnosis, prevention and/or treatment of biological agent casualties, and rapid laboratory identification of BW agents as well as other extremely infectious diseases of importance in military operations. A major effort of research

is the development, production and stockpiling of vaccines that can be used by US military troops deployed anywhere in the world against known and potential BW agents. The only national resource for vaccine development of any magnitude for the US Armed Services, Merrill National Laboratories, is utilized for mass production of candidate vaccines. This multifaceted program utilizes the most efficient methods and technology for prevention and treatment, aerosol immunization, diagnosis, and vaccine production for BW agents and other militarily important highly infectious diseases.