

**Research Results  
History of Chemical Warfare  
Materiel at PACAF Bases  
Installations in Alaska**



**HARTCROWSER**



Alaska District



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## ACRONYMS

AAC	Alaskan Air Command
AAF	Army Air Force
Air Force	United States Air Force
AC	Hydrogen Cyanide
AC&W	Aircraft control and warning
AFB	Air Force Base
BZ	Hallucinogenic Incapacitating Agent
CAIS	Chemical agent identification sets
CBR	Chemical, Biological, and Radiologic
CG	Phosgene
CK	Cyanogen Chloride
CONUS	Continental United States
Corps	U.S. Army Corps of Engineers
CWC	Chemical Weapons Convention
CWM	Chemical Warfare Materiel
CWS	Chemical Warfare Service
DEW	Distant early warning
DoD	Department of Defense
DS-2	Decontaminating Solution
EOD	Explosive Ordnance Disposal
FM	Field Manual
GB	Sarin (non-persistent nerve agent)
H	Mustard Gas
HD	Distilled Mustard Gas
HQ	Headquarters
HS	Sulfur
ID	Identification
L	Lewisite
mm	Millimeter
OPCW	Organization for the Prohibition of Chemical Weapons
PACAF	Pacific Air Forces
PS	Chloropicrin
TCO	Treaty Compliance Officer
TM	Technical Manual
VX	Persistent Nerve Agent
WWI	World War I
WWII	World War II
ZI	Zone of the Interior

# RESEARCH RESULTS HISTORY OF CHEMICAL WARFARE MATERIEL AT PACAF BASES INSTALLATIONS IN ALASKA

## EXECUTIVE SUMMARY

The unexpected discovery of chemical warfare training kits in a landfill at Ellsworth Air Force Base (AFB) has prompted the United States Air Force (Air Force) to perform a thorough review of historical documents to identify chemical warfare materiel (CWM) and toxic chemical agent storage, use, and disposal at Pacific Air Force (PACAF) installations. As part of this effort, Hart Crowser conducted historical research and compiled data pertaining to CWM at Air Force Bases located in Alaska, Hawaii, Wake Island, and Guam. This work was performed by Hart Crowser under contract with the U.S. Army Corps of Engineers (Corps), Alaska District (Contract DACA85-95-D-0010, Delivery Order 30).

This report summarizes the findings of research conducted by Hart Crowser and its subcontractor, History Associates, Inc., to determine the movement, use, and possible disposal of Air Force CWM and toxic chemical agents at installations in Alaska. Toxic chemical agents in bulk, as filler in munitions, or in training kits, which may have been buried or otherwise disposed of on Air Force property, are the focus of this research.

Throughout this report, reference is made to other Department of Defense (DoD) service agencies and their involvement with CWM in Alaska. Since World War II (WWII), the DoD service agencies have acted cooperatively in the procurement, handling, and transport of munitions, including CWM. To provide a more thorough understanding of the use and movement of CWM in Alaska, information on the activities of the other service agencies is included where it is believed that it will clarify the involvement, or lack of involvement, of the Air Force in Alaska. The research efforts for this project did not focus on the activities of service agencies other than the Air Force, and the findings of this report do not provide a comprehensive history of the activities of the other services.

Available documents indicate that the Air Force and its predecessor, the Army Air Force (AAF), have handled CWM and toxic chemical agents in Alaska from 1941 through at least 1954. The agents involved were exclusively mustard (H or HS) and lewisite (L). It appears that chemical training and the concurrent use of Chemical Agent Identification Sets (CAIS) began in 1941 and continued through at least the mid-1950s. Of the total reported quantities of CWM shipped to Air

Force installations in Alaska, located records can account for the disposal of approximately 66 percent of bulk toxic chemical agent supplies and 39 percent of munitions filled with toxic chemical agents. Based on our understanding of common practices for the period, it is likely that most of the unaccounted for CWM were either disposed of by ocean dumping, or transferred to another command. However, procedures indicate that for small amounts, such as what is contained in CAIS or single rounds of artillery, local burial was allowed. CAIS have been exhumed in two areas in Alaska, including Fort Wainwright and Fort Richardson. In addition, CAIS have washed ashore at Dutch Harbor likely representing material dumped at sea forty years earlier.

It is possible that CAIS were present and disposed of at Air Force bases throughout Alaska. From the orders and field manuals that we collected, it appears likely chemical defense training took place at every, or nearly every, base in Alaska during WWII, and such training involved the three types of CAIS available to the Army and the Army Air Force at that time. Furthermore, chemical warfare defense training by Alaska Air Command personnel continued into the 1950s. In 1969, the advent of the international Chemical Weapons Convention (CWC) process prohibited further use or deployment of toxic chemical agents by United States government agencies.

## 1.0 INTRODUCTION

The recent discovery of mustard gas training kits in a landfill at Ellsworth Air Force Base (AFB) has raised concerns over the ultimate disposal of United States Air Force (Air Force) chemical warfare materiel (CWM) and toxic chemical agents produced for defense and training efforts beginning in World War I (WWI) and continuing into the Vietnam era. This report summarizes the findings of two phases of research conducted by Hart Crowser and its subcontractor, History Associates, Inc., to determine the movement, use, and possible disposal of Air Force CWM and toxic chemical agents at installations in Alaska. Findings of the first phase of this project were reported by Hart Crowser in an interim report dated December 18, 1998 (Hart Crowser, 1998). Phase I activities were limited to review of historical documents and finding aids at national, Department of Defense (DoD), and Air Force repositories. The second project phase began in January 1999. Phase II activities entailed a detailed review of available documentation in repositories about Air Force CWM activities. This project was conducted by Hart Crowser for the U.S. Army Corps of Engineers (Corps) and Air Force under Contract No. DACA85-95-D-0010, Delivery Order No. 30.

To focus the research efforts, information was collected according to the following parameters. The research prioritized materials covering the period between approximately 1930 and 1970. In addition, an effort was made to focus on active Air Force sites and remote locations in Alaska. Finally, not all activities of the Chemical Warfare Service (CWS) and Chemical Corps were included in this scope of work. Only toxic chemical agents were considered, excluding other materiel such as incendiary bombs, smoke-producing devices, flame throwers, and biological warfare materiel. Agents referred to as "riot control agents," including tear gas, vomiting agents, and other incapacitating agents were also excluded from this scope of work. Enemy or captured foreign toxic chemical agents that may have been used, stored, or disposed of on Air Force installations are also outside the scope of work for this project, but will be discussed where relevant, as they may continue to present a hazard. Finally, also of major importance was research related to Chemical Agent Identification Sets (CAIS). Of course, information found outside of these parameters deemed useful for fulfilling project goals was not excluded.

This report begins with a background history of toxic chemical agent use over the period of interest. The next section lists the document repositories reviewed over the course of the project. The following sections provide project findings and an analysis of current CWM concerns at active Air Force installations in Alaska. Finally, the report concludes with a section for advice to commanders



on issues of concern and ways to manage these concerns at specific sites. Table 1 summarizes information on toxic chemical agent inventories and movements for Alaska over the period of interest. Table 2 summarizes information about the expected stability and degradation products of CWM in potential disposal contexts. Figures 1 through 7 provide historical photographs of CWM activities at Air Force installations and aerial photographs of installations in Alaska.

Appendix A provides a list of chemical warfare agents and their code names. Diagrams of the munitions and test kits known to have been used in the Pacific Region during the period of interest are included as Appendix B. Repository documents reviewed and copied during research for this project were catalogued by researcher initials and sequential document collected by that researcher (e.g., document identification (ID) = BOS-1, BOS-2, etc.). References are made throughout the text using this designation, with a list of documents compiled for this project provided in a Document Index in Appendix C. The Document Index is organized by document ID, with available repository and location information provided. A detailed account of document repository holdings and collections reviewed is included as Appendix D. Finally, Appendix E provides excerpts from the Chemical Weapons Convention (CWC) agreement relevant to old chemical weapons.

## **2.0 BACKGROUND**

### **2.1 Chemical Warfare Organizations**

Use of chemical warfare agents by the U.S. began during WWI in response to German initiation of chemical weapons. By June 1918, the War Department established the CWS. The CWS was responsible for all aspects of toxic chemical agent production and use. Public opposition to chemical warfare caused the Army to halt production of toxic chemical agents a few years after WWI. Instead, the CWS focused on defensive measures. In the late 1930s, production of toxic chemical warfare agents resumed with the threat of World War II (WWII). By 1943, U.S. policy was to prepare to respond in kind should the enemy initiate chemical warfare.

During WWII, there were two branches of the military under the War Department--the Army and the Navy. The Army contained three "Forces," the Army Air Force (AAF), the Army Service Force, and the Army Ground Force. The AAF was the predecessor to the Air Force; the CWS formed part of the Army Service Force; and infantry and other ground troops made up the Army Ground Force. In September 1947, the AAF became the Air Force, a separate

branch of the military under the Defense Department. The Army renamed the CWS the Chemical Corps in September 1946.

In 1969, the U.S. government entered into an international process to control the production and use of toxic chemical warfare agents through the CWC. The CWC was signed by the United States in 1997. Definitions and sections of the CWC relative to old chemical weapons are provided in Appendix E of this report.

## **2.2 Chemical Agents**

The first toxic chemical agents produced by the CWS during and immediately after WWI consisted primarily of the blistering agent mustard gas (H, HS, or HD) and choking agents chloropicrin (PS) and phosgene (CG). As previously noted, production of toxic chemical agents slowed after WWI in response to public sentiment against gas warfare. American involvement in WWII brought a rapid increase in the volume and types of toxic chemical agents produced (Brophy, 1959). After WWII, attention shifted from gas warfare to nuclear warfare and other types of chemical warfare, namely the use of incendiary products, such as napalm. Nerve agents of the G-series (non-persistent) and V-series (persistent) were also added to the stockpile.

This section describes the types and relative abundance of the most common toxic chemical agents produced from WWI through the Korean and Vietnamese conflicts. The U.S. ceased production of chemical agents in 1969 to comply with provisions of the CWC agreement.

- Mustard gas (H, HS, or HD), a persistent agent, was produced in the greatest quantities before and during WWII. It was used as a filler in ground chemical munitions to include mortar, shells, bombs, and land mines. It was also used by Air Forces to fill bombs and spray tanks to deliver mustard gas from airplanes. By 1944, the CWS decreased the production of H, as reserves became full (JGK-103).
- It does not appear that the CWS produced the choking agent PS in bulk after the 1920s. Reserves of PS, however, are noted in theater stocks well into the 1940s.
- The CWS made CG, a non-persistent agent, during WWI and recommenced production just prior to WWII. In 1943, the CWS began producing large 500- and 1,000-pound aerial bombs with CG filler. These bombs were not available to the theaters until 1944.

- The CWS produced lewisite (L), a persistent vesicant similar to mustard gas. In June 1943, CWS production schedules called for 30 percent of vesicant fillers to be L. By 1944, the CWS discontinued the production of L because it was found to be an unstable compound under wartime storage and use conditions (JGK-103). Surplus L is indicated in Pacific Theater stores as late as 1953 (GAH-9 and GAH-10).
- By 1943, the CWS was producing cyanide-containing weapons to include M78 500-pound bombs and M79 1,000-pound bombs with hydrogen cyanide (AC) and cyanogen chloride (CK). These bombs were not available to theaters in WWII until 1944.
- After WWII, the U.S. began developing and producing nerve agents. Sarin (GB), a non-persistent nerve agent initially developed by the Germans during WWII, and VX (a persistent nerve agent), discovered during the 1950s and put into production in 1961, were the most common additions to the arsenal.
- An incapacitating hallucinogenic chemical agent called BZ was created during the 1950s. It appears likely that this agent was experimental only.
- Beginning in the 1930s, CAIS were used by all branches of the military to prepare troops for the eventuality of gas warfare. CAIS contained a variety of chemical agents in small containers. Between the 1930s and the 1960s, more than 100,000 CAIS were produced.

During WWII, the U.S. policy was to prepare to respond in kind should the Axis powers initiate chemical warfare. Using pre-filled chemical bombs (such as the M70 and M47A2) and spray tanks, it was anticipated that the AAF would have carried out approximately 97 percent of the retaliation, mainly due to the speed with which air munitions could be dropped on the enemy and the longer time required to move ground munitions from rear to forward bases. As a result, AAF support personnel had to be trained to handle toxic chemical agents and to perform necessary decontamination operations.

Army ground forces would have employed chemical land mines, 4.2-inch mortar shells, and five different calibers of artillery shells. Based on interviews with officers of the CWS after WWII, it was believed that use of toxic chemical warfare by ground troops would not be a successful war strategy (EMB-240). It was felt that delivery would be most effective by the Air Force.

### **2.3 Chemical Agent Movement**

Supplies for AAF overseas units were a function of the Commanding General, Air Service Command (JCH-70). The commanding generals of the various AAF commands were tasked with supplying their respective units with the CWM allotted to their commands. In November 1944, the Director, Air Technical Service Command, assumed Air Service Command's administrative responsibilities for supplying toxic chemical ammunition, including the supply of "sets," which may be CAIS. An AAF base commander with excess ammunition that could not be used at his base within six months was to transfer the ammunition to a base in his command that could use it. If no other bases in his command could use the excess ammunition, the Air Technical Service Command would either ship the ammunition to another AAF command or approve its return to CWS jurisdiction. By 1947, AAF Air Materiel Command held administrative responsibility for allocating chemical warfare ammunition (JCH-69).

The flow of requisitions and materiel to overseas departments, battle war theaters, and separate bases originated at Zone of Interior (ZI) depots, moved to various ports of embarkation, and then were forwarded to overseas areas. The Chemical Section, Utah General Depot, served as the ZI supply depot for the Seattle, Portland, and San Francisco Ports of Embarkation, which primarily served the Pacific Theater.

The Chief, CWS, directed shipments of toxic chemical agents and munitions to overseas destinations in accordance with existing War Department policies. The chiefs of the supply arms and services designated depots to serve overseas theaters, stocked ZI depots to maintain overseas supplies, and advised port of embarkation chemical officers of movements from depots to ports. Port chemical officers received, temporarily stored, and forwarded CWS supplies to each theater. They also maintained records of CWS supplies on hand or in transit to overseas bases.

From 1941 to 1943, detachments of men from the available manpower at each depot or arsenal accompanied shipments of CWM to their final destinations. In 1943, the CWS created the Guard and Security Division as a separate field activity specially trained and equipped to accompany shipments of toxic chemical agents and munitions to their destinations (EMB-194 and JGK-116). During WWII, they would follow shipments from the depot, to the port of embarkation, into the theater to the point of storage, and back to their home stations. Once the delivery mission was complete, a full report of the delivery was required to be sent to the Chief of the CWS. Between 1943 and 1945, the Division tripled in size to meet the demands for CWM movement to Europe and

the Pacific Theater. After the war, the Guard and Security Division maintained its size and utilization to handle unexpended munitions overseas, including movement back to the U.S. or disposal on site. In 1947, this service became known as the 9710 Technical Service Unit, Chemical Corps, Technical Escort Detachment.

By 1966, each military service was responsible for providing its own technical escort service. The Army provided technical escort service for the Navy, Marine Corps, and Air Force for items produced by the Army or stored in Army installations in the continental United States (CONUS). Under this provision, Army technical escort units accompanied shipments from point of manufacture or storage location to an initial CONUS storage or specified point of entry into a theater of operations. As of 1966, the Army planned to terminate technical escort services for other military branches, except for shipments that would continue in Army custody at shipping destination. In 1967, Air Force regulations stated that Air Force Logistics Command would provide technical escort service to meet Air Force shipping requirements to, from, and within the CONUS, but that Pacific Air Forces (PACAF) would provide technical escort service within the Pacific Command (JCH-66 and JCH-72).

## **2.4 Chemical Agent Storage**

Bulk toxic chemical agents were handled by both the AAF and the Army ground forces (JGK-103). Toxic chemical agents for filling spray tanks, shells, and land mines were kept in storage containers near the front. The CWS typically transported and stored bulk toxic chemical agents in 170-gallon steel cylinders (frequently called "ton containers"). A 1940 War Department technical manual on the storage and shipment of dangerous chemicals recommended that all toxics be stored in unheated, well-ventilated buildings or under a shed. Failing the presence of a shelter, the manual recommended that containers be kept in open storage, resting horizontally on supports. Fifty-five gallon iron drums were also used, as were steel cylinders of sizes from 75 to 300 pounds. Bulk toxic chemical agents appear to have been stored in toxic gas yards, located as far as possible from inhabited areas. We found no information that would indicate that such storage practices were different at forward bases (JGK-49, JGK-50, and JGK-51).

Once CWM reached overseas bases, air chemical units were to service combat groups performing chemical missions. In addition to filling, delivering, and loading toxic chemical spray tanks and bombs for the AAF, the air chemical units' mission included operation of base chemical ammunition storage areas. Air chemical depot companies were also assigned to the AAF to handle bulk toxic chemical agents, airplane spray tanks, and chemical and incendiary bombs.

Aviation chemical maintenance companies, each consisting of a repair and a salvage platoon, maintained the serviceability of CWS equipment. Army ground forces used similar CWS depot, maintenance, and service units to perform chemical operations related to ground warfare (JGK-122).

## ***2.5 Chemical Warfare Materiel Disposal***

At the end of WWII, a large surplus of CWM and toxic chemical munitions remained in overseas areas. Remaining forces were left with an abundance of surplus war materiel of various types, including toxic chemical, much of which was in poor and deteriorating condition. The problem was exacerbated by the rapid return home of enlisted men. There was inadequate manpower, equipment, or storage to manage the materiel.

During the post-war period, the AAF was responsible for explosive ordnance at Air Force military installations, and the disposal of explosive ordnance in overseas and theater commands was to be defined by the commander concerned (JCH-51 to JCH-60). According to one Air Force regulation dated 1954, Air Materiel Command Headquarters was responsible for establishing the overall policies relating to the disposal of obsolete ammunition and furnished all Air Force commands with disposal instructions. However, the disposal of ordnance, including toxic chemical agents, not specifically assigned as a responsibility of the Air Force was to be the Army's responsibility as outlined in a 1959 Air Force regulation.

To dispose of toxic chemical agents, the Army recommended dumping at sea, burning, venting of non-persistent gases, burying, neutralization with chemicals, and field demolition. Sea disposal was both the recommended and preferred disposal method for leaking or unserviceable ammunition or bulk toxic chemical agent storage containers until the early 1960s. Land burial was to be used only for small quantities of chemical agents.

During most of the 1960s, burial at sea was to be used only when other disposal methods were not practical or feasible. In peacetime, ocean dumping could only be employed through guidance of the Commanding General, U.S. Army Materiel Command. During emergencies and war, however, ocean disposal was permitted in water at least 10 miles from shore and deeper than 1,000 fathoms without Army Materiel Command approval. In 1971, safety and environmental concerns prompted the DoD to ban ocean dumping practices. The Marine Protection, Research, and Sanctuaries Act of 1972 legally prohibited any further ocean disposal of toxic chemical munitions (JGK-50, JGK-51, JGK-54, and JGK-179).

Beginning in the 1960s, land burial was to be used strictly as a last resort and was not to be used during peacetime without Army Materiel Command approval. For burial, toxic chemical agents were to be under at least 3 feet of earth, and a warning sign was to be posted.

The disposal methods discussed above do not necessarily apply to CAIS. During WWII, the external containers were to be returned to a depot to be refilled, rather than being disposed of. No explicit disposal instructions or policies for CAIS or chemical training materiel were located during our research. One document indicates that, in the past, burial was one of the approved procedures for CAIS disposal (JGK-50). Between 1978 and 1980, the DoD consolidated and destroyed 21,458 CAIS, in an effort to dispose of all CAIS in its inventory (JGK-114 and KJN-19).

## **2.6 Chemical Defense and Training**

To defend against chemical warfare attack during WWII, AAF unit commanders had chemical specialists on hand to provide gas warfare defense training. The "chemical officer" was a CWS technical specialist assigned to the staff of high-level units. While these officers were CWS personnel, the "unit gas officers" or "gas non-commissioned officers" were AAF personnel designated by commanders of lower-level units to train troops in chemical defense.

The chemical training AAF personnel received primarily involved methods of protecting themselves against a chemical attack. The War Department's Field Manual (FM) 21-40, "Defense Against Chemical Attack," which served as a standard training manual, states that the individual soldier should be able to, among other things, identify a chemical agent in the field, know methods of decontaminating equipment and areas, and know how to make and enter a gas shelter (JGK-44).

To provide this training, gas officers used various CAIS. The exercise involving identification of chemical agents used with instructional identification gas sets (War gas identification set, instructional M1, or K951/K952) indoors and detonation gas identification sets (Set gas identification, detonation M1, or K951/K952) outdoors, while decontamination and gas shelter exercises could use toxic gas sets (Toxic gas set M1, or K941) (JGK-48). During the Korean conflict, new versions designated AN-M1A1 or K953/K954 replaced the M1 identification sets; and a new version designated M2/E11 or K942 replaced the M1 toxic gas set. These sets held numerous glass bottles with samples of various toxic chemical agents (U.S. Army, 1995). In our research, we also found references to the use of mustard gas-filled portable cylinders for decontamination training (JGK-50 and JGK-195).

### 3.0 ASSESSMENT OF INFORMATION SOURCES

The following document repositories were accessed over the course of the project. A detailed summary of the collections reviewed and information of interest for each repository is provided in Appendix D.

- U.S. Army Center of Military History, Fort McNair, District of Columbia;
- Army Military History Institute, Carlisle Barracks, Carlisle, Pennsylvania;
- Air Force History Support Office, Bolling AFB, Washington, District of Columbia;
- Air Force Historical Research Agency, Maxwell AFB, Montgomery, Alabama;
- Army Corps of Engineers Headquarters Archives, Fort Belvoir, Virginia;
- Edgewood Arsenal Technical Library, Edgewood Arsenal, Edgewood, Maryland;
- Soldier and Biological and Chemical Command History Office (formerly Chemical and Biological Defense Command), Edgewood Arsenal, Edgewood, Maryland;
- Chemical and Biological Information Analysis Center, Aberdeen Proving Ground, Edgewood, Maryland;
- Defense Technical Information Center, Fort Belvoir, Virginia;
- National Archives and Records Administration, College Park, Maryland;
- Washington National Records Center, Suitland, Maryland;
- National Personnel Records Center, St. Louis, Missouri;
- Federal Records Center, Pacific Region, Laguna Niguel, California;
- National Archives and Records Administration—Pacific Division, Laguna Niguel, California;
- Federal Records Center—Pacific Region, San Bruno, California;



- National Archives and Records Administration—Pacific Division, San Bruno, California;
- National Archives and Records Administration-Pacific Northwest Division, Seattle, Washington;
- Federal Records Center - Pacific Northwest Region, Seattle, Washington;
- National Archives and Records Administration - Alaska Division, Anchorage, Alaska.
- National Security Archive, Washington, District of Columbia;
- Command History Office, Elmendorf AFB, Anchorage, Alaska;
- Command History Office, Hickam AFB, Oahu, Hawaii;
- 15th Wing History Office, Hickam AFB, Oahu, Hawaii;
- Environmental Flight Library, Hickam AFB, Oahu, Hawaii; and
- Hamilton Library, Hawaii Collection, University of Hawaii, Oahu, Hawaii.

#### 4.0 PRESENTATION OF RESEARCH RESULTS

Based on research conducted for this project, the Air Force and its predecessor the AAF, handled toxic chemical munitions and bulk toxic chemical agents in Alaska from 1943 until at least 1954. The agents involved were exclusively H or HS and L. It appears that chemical training and the concurrent use of CAIS began in 1941 and continued at least through the mid-1950s. The following section provides a brief description of the military's presence in Alaska; an account of toxic chemical munitions and bulk toxic chemical movement, use, and storage in Alaska; information covering the bases specified in the scope of work; and an account of CAIS movement, use, and storage. The specific amounts, movement, and disposal of toxic chemicals are summarized in Table 1. Photographs showing Army handling, training, and use of CWM are provided on Figures 1 through 4.

#### **4.1 The Air Force in Alaska, 1930s-1960s**

Prior to WWII, U.S. military presence in Alaska was minimal. When America's earnest preparations for war began in the late 1930s, the military greatly increased its numbers in Alaska. Construction of Ladd Field (now Fort Wainwright) near Fairbanks, started in the summer of 1939. By 1940, the Army had begun building Fort Richardson near Anchorage and created Elmendorf Field on the same site. Copies of historical aerial photographs of the installations at Ladd Field and Elmendorf Field are included with this report on Figures 5 and 6, respectively.

Military units soon arrived. The first Air Corps unit, the 18th Pursuit Squadron, arrived in Alaska in February 1941. To represent the CWS and to direct chemical activities in Alaska, the first officer of the Alaskan Defense Command's Chemical Office reported to Fort Richardson on August 25, 1941 (JGK-55). The buildup of personnel further increased and the 11th Air Force was activated at Elmendorf Field in February 1942. The 11th Air Force served under the Alaska Defense Command, later renamed Alaskan Command.

In June 1942, the war came to Alaska as the Japanese bombed Dutch Harbor and occupied Kiska and Attu Islands in the Aleutians. To meet this threat, the AAF, along with other military units, established bases westward along the Aleutians. Construction began at Adak Island in August. The field headquarters of the 11th Air Force arrived on October 12, 1942. At Amchitka Island, the Army completed an air field in February 1943. Construction continued on the mainland, too, as Mile 26 (later renamed Eielson AFB) was established southeast of Fairbanks in 1943.

After American forces captured Attu and Kiska in May and August 1943, Army planners considered using the Aleutians as a staging base for an invasion of northern Japan, building an air field for B-29 bombers on Shemya (renamed Eareckson Air Force Station in 1993) and expanding the field on Amchitka Island. This plan was later dropped (Denfeld, 1992).

After the war, the 11th Air Force greatly reduced its presence, leaving Alaska with three squadrons of F-51s and temporary radar sites at Ladd AFB, Elmendorf AFB, King Salmon, Nome, and Gambell. The 11th Air Force became the Alaskan Air Command (AAC) in December 1945 (the AAC was redesignated the 11th Air Force in 1990), and the military forces in Alaska unified under the Alaskan Command in January 1947. The bases listed above, as well as Shemya AFB, transferred to the Air Force at its creation in September 1947. Elmendorf AFB served as the AAC's command and control center.

Prior to 1950, Elmendorf Field was part of Fort Richardson. After the Air Force became a separate service, the Army established the Fort Richardson garrison headquarters to the northeast, and the areas adjacent to Elmendorf Field became Elmendorf Air Force Base. For the purposes of this report, any mention of Fort Richardson prior to 1951 pertains to the property that included Elmendorf Field as well as the current Fort Richardson.

During the late 1940s, tensions with the Soviet Union increased. Fighters were assigned to King Salmon in 1948, and others to Marks AFB in Nome, which closed and shifted operations to Galena. To protect against the threat of Soviet bombers carrying nuclear weapons, the United States began increasing the number of radar sites (aircraft control and warning [AC&W] sites) throughout Alaska beginning in 1951. To facilitate communications, the White Alice communications system of tropospheric scatter and microwave radio repeater sites was constructed in the mid-1950s. In addition, the military built a Distant Early Warning (DEW) Line across northern Alaska and Canada beginning in 1954. A second Dew Line along the Aleutians was added during 1957-1959.

With the development of Soviet intercontinental ballistic missiles in the late 1950s and the decline of the bomber threat, the Air Force eliminated several AC&W facilities and closed the Aleutian DEW Line. Five of six fighter interceptor squadrons, activated during the 1950s, were inactivated and Ladd AFB was transferred to the Army in 1961, who renamed it Fort Wainwright. The demands of the Vietnam War further reduced military forces in Alaska.

#### ***4.2 Toxic Chemical Munitions at Air Force Sites in Alaska***

This section presents a general history of chemical warfare agents in Alaska, followed by conclusions drawn for the locations specified in the scope of work for this project.

Although CWS personnel began serving in Alaska in 1941, bulk toxic chemical agents and munitions arrived later, but appear to not have been stored initially at AAF bases. In January of 1942, the proposed plan for CWS troops was to establish twelve distribution points in addition to Elmendorf Field. At that time, two men each were sent to Annette, Yakutat, and Kodiak. On February 14, 1942, the Quartermaster General advised the Commanding General of the Alaskan Defense Command that, per his request, the Army Transport Service would "deliver ten tons mustard gas at Fort Greely, Kodiak (Fort Greely was originally located on Kodiak, and the Fort of the same name was not built near Delta Junction until the 1950s) and nine tons at Dutch Harbor," an Army Ground Forces and a Navy station, respectively (JGK-76). Furthermore, according to a monthly materiel status report for the Alaska Defense Command,

as of 15 April 1942 there were 6,960 75mm and 155mm HS shells, but no HS bombs in the theater (JGK-121). The 155mm howitzer batteries were stationed at Elmendorf, Kodiak, and Annette, and artillery batteries (caliber not mentioned) were stationed at Cold Bay, Unmak, and Port Heiden.

Probably as part of the preparation to retake Attu and Kiska, in September 1942, the Commanding General, Alaska Defense Command requested the shipment of vesicant agent and airplane spray tanks to stations of his command to permit prompt retaliation in event of enemy use of toxic materials (JCH-3). Chemical warfare supplies of various types were stocked at Fort Richardson. As the enemy was pushed westward, these supplies were shipped to forward supply points. These stocks included everything from gas masks to toxic chemical agents (JCH-5). Basically, the bombs and bulk agents followed the bomber groups west, so that offensive chemicals were immediately ready for retaliatory strikes.

By March 26, 1943, the command reported that "Chemical munitions now on hand or authorized are sufficient to carry on offensive chemical operations in the present situation." Bulk vesicants for use by the AAF as well as 100-pound M47A2 bombs appear to have begun to arrive in Alaska in late March or early April 1943. On April 1, 1943, a shipment of 1,500 M47A2, eleven ton-containers of L, and fifteen ton-containers of H arrived in Anchorage by way of Seward, Alaska, and the Seattle Port of Embarkation (JCH-2).

Other shipments must also have arrived because by May 7, 1943, CWS had shipped 140 tons of bulk H and L to the Alaskan Defense Command, and by August 1943, 10,000 M47A2 H-filled bombs had been shipped (JCH-4). The Army's goal for toxic chemical agent stocks for the AAF was to provide the Alaska Defense Command with "bulk chemicals in the proportion of 70 percent HS and 30 percent L, based on 60 M33 spray tanks and 1,200 M-10 spray tanks, at 3.75 missions per tank" (JGK-18). It was thought that L might be more effective in Alaska because of its low freezing point relative to the freezing point of H or HS, and was therefore more likely to be a liquid when dispersed (JGK-26).

To safely store these toxic chemicals and munitions, the Alaska Defense Command had to build storage facilities at bases throughout Alaska. Initially, the protection of chemical supplies was difficult because, "Warehouses were at a premium, and it was almost impossible to obtain them, making it necessary to store materials under canvas." Sometime before June 1943, the military built a magazine at an unspecified location at Fort Richardson to house toxic chemical munitions. In addition, toxic gas yards were established at the six Alaskan posts that stored bulk toxic gases (JGK-73). Although no maps were found identifying these yards, they were described as follows: "The theater stocks of chemical

agents are located in various toxic gas yards which in most instances are far removed from the other station and post activities" (JGK-75). Our research shows that various amounts of toxic chemical agents were stored at Elmendorf, Adak, Attu, Shemya, and Amchitka (see following table for exact amounts) (JGK-34). Ladd Army Air Field was later identified as having toxic chemical munitions, but it is not clear when they were first stocked there. The sixth and seventh yards may not have been associated with the AAF.

In January 1944, the stockpile of 100-pound H-filled bombs appears to have reached its zenith at 14,250 bombs in the Alaska theater. One history of chemical weapons in the Pacific also lists 5,000 L-filled M47A2 bombs on hand in November 1943, but no other source confirms their presence. There were also 85 tons of H and 1,375 tons of L in Alaska in January 1944 (KJN-11).

According to Ammunition Supply Reports for Oversea Commands filled out by the Alaskan Department, from June 1944 to November 1944 (the dates for which we have found copies of the report), the Alaskan Department had 91.5 tons of H and 1353.5 tons of L for the entire period (JGK-51, JGK-58, JGK-61, JGK-62, and JGK-70). These ammunition supply reports also show that some H was used in training, as well as some of the land mines. The reports show 6,300 pounds of H and 443 land mines expended in training. Handwritten notes updating "The Use of Gas in the Pacific Theaters" on April 30, 1945 (originally drafted in May 1944 for the Army Chief of Staff), indicate that 92 tons of H and 1,353 tons of L were in Alaska, as well as 5,602 100-pound H-filled bombs (KJN-11).

An inventory of toxic chemical agents held by the AAF bases as of April 1, 1945 (JGK-34) is summarized in the following table:

Base	M47A2 H-Filled Bombs	Bulk H in Tons	Bulk L in Tons
Attu (Casco)	3,285	40.54	1,157.91
Shemya	718	23.2	29.03
Amchitka	1,533	10.5	61.7
Adak	66	10.9	61.99
Elmendorf	None	1	1.2
Totals	5,602	86.14	1,311.8

A note on the table indicates that the bulk toxic chemical agents were for the use of either the Army Ground Forces or the AAF, as needed. It is not clear from the collected documents why the totals for bulk H and L are lower in this report than in the others (see above). While disposal, use, and shipment out of the

theater are possibilities, it is more likely that only bulk vesicants that were stored at AAF bases were included in the table, while other reports described bulk vesicants in the entire theater.

With the end of the war in September 1945, the attention of the Alaskan Department turned to how to handle the war materiel they had stockpiled. In September 1945, the Chemical Officer of the CWS Section of the 11th Air Force inspected the serviceability of H-filled bombs at Attu, Shemya, and Amchitka. As a result of his recommendation to the War Department (Headquarters, Washington, D.C.), the CWS Section of the 11th Air Force "was notified by Washington that destruction of all H-filled M47A2 bombs was authorized. A team venting all H-filled bombs was returned to its base and destruction of the bombs was accomplished by sinking them in the ocean"(JGK-90). As there is no further mention of M47A2 bombs, it is thought that they were also disposed of at that time.

While the disposal of M47A2 bombs appears to be fairly straightforward, it is not so with bulk toxic chemicals. On October 22, 1945, the CWS Assistant Chief for Field Operations informed the Alaskan Department Chemical Officer that several items were "surplus to CWS requirements" and were to be "disposed of in accordance with Technical Manual (TM) 38-420." The items included L, but not H (JGK-75). In review of TM 38-420 dated February 1946, no clear instructions were given for disposal of CWS items that contained toxic chemical agents. On February 10, 1946, the Army Service Forces granted the Commanding General, Alaskan Department, the authority to dump 95 tons of surplus H into the sea (JGK-81).

These orders soon changed. The CWS headquarters considered conducting cold weather tests of toxic chemical agent storage and believed that keeping the stocks where they were would not be hazardous. On May 14, 1946, CWS headquarters sent a message to the Commanding General, Alaskan Department that "Mustard and lewisite in your department previously directed to be disposed of by dumping at sea will be retained for presently planned cold weather surveillance tests" (JGK-81). It is not clear what was done with the ton-containers of vesicants at locations in Alaska, but by November 6, 1946, there were 71 containers of H and 897 containers of L at Attu Island and 2 tons of H and 4 tons of L at Adak (JGK-14).

Because weather conditions at the two islands were similar and because personnel were available at Adak, but not Attu, for surveillance of ton-containers, in November 1946, the Chemical Corps Chief approved the disposal of all but ten containers each of L and H. The remainder were to be kept at Adak for cold weather tests (JGK-82). Following those plans, from June 30 to July

15, 1947, members of the Army's Technical Escort Detachment took 61 containers of H and 887 containers of L about 12 miles from Chicagof Harbor, Attu Island, and threw them overboard. The remaining ten containers each of H and L were shipped to Adak, where they were painted and "placed in condition for an extended period of storage for later War Department surveillance tests" (JGK-13). No mention has been found of the final fate of the 2 tons of H and 4 tons of L stored on Adak Island in November 1946.

Two operations were conducted in 1947 and 1948, dubbed "Packrat" and "Packrat Junior." These were operations to classify, segregate, and prepare for shipment of surplus war materiel from the Aleutian Islands. What was in serviceable condition was shipped to the Alaska mainland or to CONUS, and unserviceable stocks were to be disposed of. In the 1948 operation, there were no chemical warfare stocks located at Amchitka, Attu, Fort Glenn, or Fort Randall. Shemya was initially reported as having 96 tons of CWS material. The estimate was later revised to 120 tons. In 1949, all shipments of ammunition from Shemya were cancelled, and permission was granted to effect local disposal. The message authorizing local disposal was sent on October 12, 1949 and included instruction that the munitions be dumped at least ten miles from shore, and at a minimum depth of 1,000 fathoms, for chemical munitions (JGK-138). Further indication that this disposal involved sea dumping was a report in the first quarter of 1950 indicating that disposal had been delayed due to high seas and adverse weather conditions (CSS-117).

The Alaskan Air Command's 39th Ammunition Supply Squadron, which was responsible for munitions at depots at Elmendorf, Ladd, and Eielson Air Force Bases, reported in early 1952 that their actual organization differed from their new table of organization and equipment partly because they did not have a toxic gas section "due to the fact that this depot does not have any gas in stock" (JGK-101). However, in 1954, there were still evidently 28 1-ton containers used for storing 27,540 pounds of H on Elmendorf. A memorandum was found comparing the options of returning them to CONUS, moving them to Ladd or Big Delta for storage, or disposing of them on site. The recommendation was to dispose of them at point of storage, but there was no actual decision indicated (GAH-12).

The most recent mention of toxic chemical agents in bulk or in munitions was a 1959 incident report from Explosive Ordnance Disposal (EOD) at Eielson mentioning the disposal of a toxic chemical mortar at that base (JGK-118). Other mentions of toxic chemical agents found in the research pertain to the Army, primarily at Fort Greely (near Delta Junction). Elmendorf AFB was used in 1978 as a transshipment point for CAIS found at Forts Richardson and Wainwright (KJN-19).

A summary of the Air Force sites specifically addressed in the scope of work follows.

### **Eielson Air Force Base**

Eielson (originally known as Mile 26) was established in 1943 as an auxiliary field for Ladd AFB. It was revamped in 1947 to house a very heavy bombardment group (CSS-101). During WWII, there is no record of chemical warfare activities taking place on Eielson. In fact, records show that the toxic chemical agents followed the enemy west. The fact that Ladd Army Air Field served as an Air Transport Command base during the war, and housed the logistics center for facilities north of the Alaska Range, and that fighter squadrons did not use bulk agents, makes it unlikely that Eielson would have stocked bulk toxic chemicals. By the time the bombardment group moved in, stocks of bulk toxic chemical were in the process of being disposed of, so buildup of this type of supply at Eielson is unlikely. The supply squadron at the base did report carrying 85 lines of chemical supplies in 1948, with no detail provided as to type (CSS-108). An EOD incident report in 1959 mentions disposal of a chemical mortar round (JGK-118). No record was found of a chemical mortar unit being assigned to Eielson; however, the incident report does seem to indicate that the ammunition supply point at Eielson had chemical mortars.

### **Ladd Army Air Field**

Ladd Army Air Field is not part of the scope for this project. However, because Ladd was the supply depot north of the Alaska Range, it is important to note that, according to the history, at some point between December 21, 1945 and December 31, 1947, an inspection of chemical supplies at Ladd revealed that "chemical bombs, incendiaries, and decontamination materials were all in a state of doubtful condition due to their [outdoor] storage and the fact that they had been subjected to extreme low temperatures during the previous winter." A later entry in the history states that large quantities of ammunition at Ladd "had to be condemned" (JGK-85). Remediation activities have not discovered any toxic chemical agents at Fort Wainwright, except for 30 CAIS kits recorded to have been buried, seven of which were unearthed near Birch Hill during the 1960s (KJN-19 and EMB-88).

Ladd Army Air Field was turned over to the Army in 1961, and is now a part of Fort Wainwright. Any remediation activities for this area are under the purview of the Army and, therefore, beyond the scope of this report.



### Elmendorf Air Force Base

Prior to 1950, Elmendorf Field was part of Fort Richardson. After the Air Force became a separate service, the Army established the Fort Richardson garrison headquarters to the northeast, and the areas adjacent to Elmendorf Field became Elmendorf Air Force Base. For the purposes of this report, any mention of Fort Richardson prior to 1951 pertains to the property that included Elmendorf Field as well as the current Fort Richardson.

Elmendorf was the major supply center from which toxic chemical materiel were sent as the materiel "followed the enemy west." Elmendorf certainly had a toxic gas yard during WWII. Record was found of a location of this yard in a memorandum of understanding between the Army and the Air Force, where it was agreed in May 1950 that the area known as the AC inert storage area, near the junction of Light Road and Hill Road, and approximately 9,000 feet north of Whitney Station, would continue to be used jointly by the Army and Air Force for storage of toxic chemicals and chemical munitions (CSS-99). In addition, the chemical supply section of the U.S. Army, Alaska, had the use of igloo No. B-8 in ammunition storage area "B" of Elmendorf for storage of toxic chemical ammunition, although because of lack of space some items had to be stored outside, see Figure 7 (EMB-81). It is not clear whether this arrangement continued after the completion of Fort Richardson in 1951 (JCH-28).

Chemical training performed at Elmendorf during WWII included spraying of equipment with dilute mustard to practice decontamination. There is also record that the detonation sets were used in the winter, with the troops returning to the detonation sites throughout the winter to observe that the H had not yet dissipated (JGK-4).

Mention was made of bulk toxic chemical at Elmendorf in 1954, specifically 28 tons of H gas. Although a study was conducted evaluating the most cost-effective means for dealing with the agent, no conclusion was shown (GAH-1). The recommendation was to dispose of it at the point of storage. At this time, sea dumping was still the preferred method of disposal (JGK-182). No record was found confirming that this chemical agent was actually dumped at sea.

The Poleline Road chemical disposal area, located on Fort Richardson, was active in approximately this time frame. To date, no large containers of toxic chemical agent have been found there, although CAIS have been found and removed (CSS-98). This site is presently under investigation by the Army at Fort Richardson.

Other than acting as a transshipment point for CAIS removed from Forts Richardson and Wainwright in the late 1970s, there is no further mention of toxic chemical agent use or storage at Elmendorf.

#### **Eareckson Air Force Station (Shemya)**

Eareckson AFS (called Shemya until 1993) was built in 1943 as a potential staging base for the anticipated invasion of northern Japan. The station was used during the Cold War as a weather station and an alternate field and refueling point. Numerous citations demonstrate that bulk H and L were stored there. During the Packrat and Packrat Junior operations, it appears CWS materiel was identified and removed. It may well have been combined with other vesicants from the Aleutians and disposed of at sea in the operations discussed above. In the Packrat Junior report (CSS-109), Shemya was initially reported as having 96 tons of CWS material. The estimate was later revised to 120 tons. In 1949, all shipments of ammunition from Shemya were cancelled, and permission was granted to effect local disposal. The message authorizing local disposal was sent on October 12, 1949, and included instruction that the munitions be dumped at least ten miles from shore, and at a minimum depth of 1,000 fathoms, for chemical munitions (JGK-138). Further indication that this disposal involved sea dumping was a report in the first quarter of 1950 indicated that disposal had been delayed due to high seas and adverse weather conditions (CSS-117).

#### **King Salmon (Naknek)**

Naknek started operation in 1942, with assignment of the 399th Squadron. The base was built as a staging field on the route to the Aleutians, a place to refuel aircraft, provide crew rest, and minor aircraft maintenance. There is no mention of Naknek having any toxic chemical agents during WWII. In fact, one report that includes the toxic chemical agent inventory for five Aleutian bases skips Naknek, although on the following page, where chemical equipment is inventoried, Naknek is included (JGK-34). This seems to indicate that bulk agents and chemical-filled bombs were not located there. The base did have both a chemical officer and a chemical section through the end of the war (JGK-55). One document was found showing that shipping toxic chemical agents to Naknek should be a "future consideration," along with several other stations, whereas the other Aleutian stations were on the list of planned recipients of these materials (EMB-239).

#### **Galena Air Force Station**

Galena was activated in September 1943, with a small supply section. With Ladd airfield only two hours away by air, Galena did not anticipate a need for large

stocks on hand. A small stock of ordnance supplies was located in a single warehouse. Chemical supplies were provided by Ladd (GAH-29). As there was no location set aside for storage of bulk toxic chemical agent or for storage of bombs, it is unlikely that these types of material were ever located at Galena.

Campion Air Station, eight miles from Galena, was a long range radar site operated from 1951 through 1983. Again, it is unlikely that bombs or bulk toxic chemical agents were stored here, because these items were not part of the mission requirements for the station.

CAIS kits and cylinders of mustard may have been used for training, but were not necessarily disposed of on site, as both could have been returned to Ladd for further use.

#### **White Alice, AC&W, and DEW Line Radar Sites**

The purpose of the bulk agents and munitions stored on Air Force sites in Alaska was for immediate retaliation by bomber squadrons in event of toxic chemical agents being used against the United States. It is unlikely that these other sites would have had bulk agents or other toxic chemical-filled munitions present. No record was found of artillery batteries at these sites that might have needed mortar or howitzer rounds.

### **4.3 Chemical Agent Identification Sets at Air Force Sites in Alaska**

Initially, the Alaska Defense Command had to store most of its chemical warfare supplies outside under canvas at Fort Richardson. Sometime before June 1943, a warehouse and depot were built at Fort Richardson where the depot section of the 97th Chemical Composite Company received various types of chemical warfare supplies from the Seattle Port of Embarkation and Prince Rupert, Canada. The depot section issued supplies as needed to each post, all of which had warehouses by June 1943 (JCH-5). Our research did not reveal the location of these warehouses.

Use of CAIS in Alaska most likely began with the training of "non-commissioned officers and gas officers" in September 1941, although the use of sets is not stated explicitly (JGK-55). The first indication of the use of detonation sets is an article in the February 1942 *Chemical Warfare Service News Letter*. Under the heading "Elmendorf" the article describes the effectiveness of detonation set demonstrations during cold weather: "By taking men to the same detonation holes at later dates the persistency of vesicants of weak solutions can be shown, as the odors remain very perceptible for an indefinite period disappearing only after long exposure to sun, wind and thawing" (JGK-4).

The CWS enlisted personnel in Alaska had to complete a 30-hour Non-commissioned Officer training course "in defense against chemical weapons." Officers were trained at the Alaska Defense Command Chemical Office in a variety of skills, including field exercises in decontamination. These schools trained 84 officers and 776 non-commissioned gas officers between June 1942 and June 1943 (JGK-73).

The officers and non-commissioned gas officers who graduated from these courses conducted gas protection classes for troops stationed at posts throughout Alaska. Chemical officers were stationed at posts with more than 1,500 troops, while non-commissioned gas officers served smaller posts. "The training of troops by these gas personnel is continually emphasized," asserted the Commanding General, Alaskan Department (JGK-79).

By March 1943, CWS personnel had conducted schools at most Alaskan posts "on individual protection and methods of decontamination as outlined in FM 21-40" (JGK-17). A memorandum issued by the 11th Air Force on January 30, 1945 required training of all individuals in defense against chemical attack "to bring each individual to the proficiency established in FM 21-40 and AAF Regulation 50-25 dated August 31, 1944" (JGK-34).

The War Department's FM 21-40, "Defense Against Chemical Attack," states that the individual soldier should be able to, among other things, a) identify a chemical agent in the field, b) know methods of decontaminating equipment and areas, and c) know how to make, enter, and determine the presence of gas in a gas shelter (JGK-44). AAF Regulation 50-25 dated June 27, 1942, included similar proficiency requirements (JGK-46). According to Technical Manual (TM) 3-305, "Use of Chemical Agents and Munitions in Training," June 2, 1944, the exercise involving identification of chemical agents used instructional identification gas sets indoors and detonation gas identification sets outdoors, while decontamination and gas shelter exercises could use toxic gas sets (JGK-48). Therefore, it appears likely that CAIS were used at all or nearly all posts in Alaska.

Around June 1943, authorization was given by the CWS to use H gas for training "to bring about more realistic training and to raise the confidence of troops in their ability to carry on in gas attacks" (EMB-15). At least by February 1945, and probably earlier, "On hand at all stations having commissioned CWS officers are Chemical Portable Cylinders filled with H. These cylinders were shipped to those stations for the prime purpose of being used to conduct demonstrations and exercises in decontamination with the use of the real agent." They were also to be incorporated into unit gas officer and non-

commissioned gas officer courses to familiarize chemical warfare detachments with handling H gas (JGK-71). In December 1945, CWS officers were stationed at Adak, Elmendorf, Camp Earle, Fort Mears, Fort Glenn, Kiska, Fort Greely (Kodiak), Shemya, Fort Randall, Fort Ray, Amchitka, Annette, Fort Raymond, Ladd, Naknek, Alexai Point, and Attu (JGK-55). H-filled chemical portable cylinders may have been present at those locations. An Army manual from 1957 listed 25-, 50-, 75-, 150-, and 300-pound capacity steel cylinders as chemical agent containers (JGK-50).

Beyond the regular training of troops in defense against gas attack, on June 2-4, 1943, CWS personnel conducted a large-scale demonstration of chemical warfare activities for the men stationed at Fort Richardson. The demonstration included the decontamination of areas and vehicles (JGK-55).

Supply requests were located for the months of January to June, and August 1944. The Alaska Depot ordered 36 detonation sets in January and February of that year. It also ordered three or four toxic gas sets per month for a total of 24 sets, as well as 320 gallons of H (80 gallons per month during January to April 1944) (JGK-69). Similar to other chemical warfare supplies, these items should have arrived at Fort Richardson from Seattle and then have been distributed to various bases. The detonation sets were authorized for distribution at the level of one per 200 personnel assigned, and the toxic gas sets were authorized at 5 per Chemical Company. It was the local Depot's job to keep track of whether units had the proper number on hand.

On October 22, 1945, the CWS Assistant Chief for Field Operations informed the Alaskan Department Chemical Officer that several items were "surplus to CWS requirements" and were to be "disposed of in accordance with TM 38-420." The items included "Set, gas, identification, instructional, M1," and "Set, gas, toxic, M1," but not the instructional detonation identification set. It was anticipated that most of the CWS materials that were not on the list would be returned to CONUS (JGK-75). TM 38-420, "Disposition of Excess and Surplus Property in Oversea Commands," for February 1946 does not clearly state what should be done with excess chemical sets (War Department, 1946).

The instructional detonation identification sets are also mentioned in July 1951. During an inspection of the Chemical Section of the Alaskan Depot at Elmendorf, the Chief of the Chemical Corps Liaison Office of the Research and Evaluation Division saw "175 sets, gas identification, detonation," at the depot. Many of the depot's items, possibly including the sets, were stored outside. The depot held not only the quantity of material normally assigned to it, but also "a fairly large amount of material" salvaged from Adak (EMB-1).

It is probable that the Alaskan Air Command continued to use chemical identification sets after 1951. In March 1953, for instance, twenty people from the 5010th Composite Wing at Ladd AFB participated in chemical-biological-radiological (CBR) training for a week at Eielson AFB. These people were to become instructors for personnel assigned to Ladd AFB (JGK-91). Again in December 1955 at Eielson AFB, eighteen students "representing all bases and permanently attached organizations" completed a 60-hour course in CBR training. Those that completed the course satisfactorily "were qualified to instruct squadron personnel in basic chemical, biological and radiological (CBR) warfare defense and to operate CBR equipment" (JGK-92). Whether CAIS were used in this training was not specifically stated. A 1951 Army lesson plan from the Chief of Army Field Forces was found, and it specifically included use of the Instructional Gas Identification Set. Documentation was not found to determine whether the Air Force was using similar lesson plans at the time.

As part of the Army's program to destroy CAIS, in 1978, the Army removed fifteen sets from Fort Richardson and four sets from Fort Wainwright for disposal (JGK-114).

## **5.0 EVALUATION OF POTENTIAL CWM CONCERNS**

### ***5.1 Chemical Munitions and Bulk Chemical Agents***

It appears fairly certain that the maximum quantity of bulk vesicants in the Alaskan theater during WWII was 92 tons of H and 1,353 tons of L (KJN-11). Illustrations of munitions indicated for Alaska installations are provided in Appendix B.

- Records of disposal were found for 66 percent of the ton-containers of H that were in Alaska during WWII (JGK-13).
- Records of disposal for 66 percent of the ton-containers of L were also found.
- Clear records were found documenting disposal of 39 percent of the M47A2 H-filled bombs in Alaska. In September 1945, they were collected from the bases that held them (apparently Attu, Shemya, Adak, and Amchitka) and dumped at sea (JGK-40).
- The Alaskan Air Command had 28 tons of bulk H still under its control in 1954. No record was found for disposal of this agent. The unaccounted for bulk toxic chemical agents may have been disposed of in some manner, or

transferred to another command. The records do not allow for a definite conclusion.

- There are no references to any toxic chemical agents besides H and L at Air Force installations in Alaska.
- 155mm howitzers were authorized up to 5 percent H-filled rounds, although no documentation located showed these rounds on hand at the bases with these guns. 155mm howitzer batteries were stationed at Elmendorf, Kodiak, and Annette, and artillery batteries (caliber not mentioned) were stationed at Cold Bay, Unmak, and Port Heiden.
- We have found no indication of toxic chemical munitions at Galena AFS, King Salmon AFS, or at any White Alice, AC&W, and DEW Line radar facilities.

## **5.2 Chemical Agent Identification Sets**

Illustrations of CAIS indicated for installations in Alaska are provided in Appendix B.

- Records indicate 36 detonation gas identification sets requested for Alaska in January and February 1944 as well as 24 toxic gas sets requested from January to August 1944 (less July) (JGK-69). However, many more sets probably entered Alaska because of the extent of the chemical defense training program during WWII and later.
- In 1951, the Chemical Section of the Alaskan Depot had 175 detonation gas identification sets on hand, some of which may have arrived from Adak (EMB-1).
- It is possible that CAIS were present at and possibly disposed of at all Air Force bases throughout Alaska. From the orders and field manuals collected, it appears likely that chemical defense training took place at every or nearly every base in Alaska during WWII and that such training could have involved the three types of CAIS available to the Army at that time: set, gas, toxic, M1; set, gas, identification, instructional, M1; and set, gas, identification, detonation, M1 (JGK-48). Furthermore, chemical defense training by Alaska Air Command personnel continued into the 1950s.
- H-filled chemical portable cylinders may have been at Adak, Ladd Field, Shemya, Elmendorf Field, Camp Earle, Attu, and Amchitka Island in February 1945 for training purposes. Chemical Officers were also stationed at Fort

Mears, Fort Glenn, Kiska, Fort Greely (Kodiak), Fort Randall, Fort Ray, Annette, Fort Raymond, Naknek, and Alexai Point, so there is a slight chance that these sites also had H-filled cylinders, although no record has been found of H being present on these sites. An Army manual from 1957 listed 25-, 50-, 75-, 150-, and 300-pound capacity steel cylinders as chemical agent containers (JGK-50).

- A potential disposal site for excess chemical agents from Elmendorf AFB is the Poleline Road chemical disposal area, presently under investigation by the Army.

## **6.0 ADVICE TO COMMANDERS**

This section is intended to provide commanders with general information regarding the potential for CWM concerns at Air Force sites, what to expect in the event that CWM is discovered, and to offer advice for addressing potential issues of concern.

In reviewing this section, it is important to remember that the CWC, to which the United States is a signatory, states that chemical munitions buried before 1977 do not have to be destroyed if they stay buried. There is no reason to search for them or remove them simply for the sake of removal, and leaving them in place is most often the safest course of action. However, groundwater contamination or remediation activities sometimes make it necessary to exhume old munitions or toxic chemical warfare materiel. Toxic chemical munitions are also inadvertently discovered from time to time and have to be removed for disposal.

### **6.1 Disposal Methods**

Throughout Alaska, there is evidence of sea dumping of toxic chemical warfare materiel. The items dumped were either containers (often one-ton containers), leaking munitions, to include bombs and projectiles, and CAIS kits.

Although no disposal records have been found showing that these agents or kits were intentionally landfilled, the CAIS kits may be found in pre-1970 landfills. One should be prepared for the possible occurrence of CAIS discovery when excavating a landfill of that era. The personnel performing the excavation should be familiarized with the kits, their hazards, and appropriate protection against them. "Empty" cylinders or containers formerly containing H also may be found in pre-1970 military landfills.



The third method of disposal of these items is return to the ZI. Although records have been found showing that CAIS kits and bulk agent have been returned to the ZI from most of these locations, the records do not necessarily show that all materiel present was shipped. In fact, leaking containers or munitions scheduled for retrograde were generally sea dumped, to decrease the chance of a shipboard incident.

## **6.2 Chemical-Containing Materiel**

Because the Army and Air Force were a common service until after WWII, and many AFBs were formerly Army posts, Army- and Air Force-specific items are discussed in this section. Munitions items known to have contained vesicants or nerve agents include:

- Bombs - H, HD, L;
- 1-ton tanks - H, HD, L;
- CAIS kits - H, CG;
- 105mm projectile - H, HD;
- 4.2-inch mortar round - HD, HT;
- 155mm projectile - H, HD; and
- Bulk containers.

Other artillery projectiles can potentially contain toxic chemical agents, as can bomblets from cluster bomb units; however, there is no record that either of these were stored in Alaska.

## **6.3 Chemical Agents**

The toxic chemical agents of concern from the WWII era in Alaska are primarily H, L, and CG (CG is only recorded to have been in the CAIS kits). Later, the nerve agents, primarily GB, GB2, and VX, were developed; however, the only record of these in Alaska involve use at test ranges such as the Gerstle River test range at Fort Greely, Alaska (now located near Delta Junction). Each test was closely monitored, and unexploded rounds located and disposed of. By this time, the cold war was in effect, and the nerve agents were heavily tracked and guarded for fear of Soviet capture. For this reason, the nerve agents are unlikely to be found in a landfill.

The rounds used for testing were shipped by air, so Elmendorf may have been a transshipment facility. The escort detachment records indicate that no incidents occurred involving nerve agents shipped to Alaska.

## 6.4 So What Do I Have To Worry About?

The primary concern on active AFBs is exhumation of live agent during remediation or other digging activities, or live agent washing up onto an adjacent beach. The forms that the chemical agents would be found in, from most likely to least likely are: the glass vials or bottles in the CAIS kits, cylinders containing or formerly containing H, artillery and mortar projectiles, 1-ton containers, 55-gallon drums, bombs, or spray tanks. Bombs and spray tanks are judged least likely to be encountered because they were usually stored empty, to be filled as needed.

Mustard is the primary agent of concern at either type of site for many reasons. Although it is not the most toxic agent, it is the most stable and persistent. Mustard used during WWI has been known to burn farmers in France even in this decade, after having been buried in their fields for 70 years. Mustard has also been pulled up from the sea floor by fishermen in the Baltic Sea, and by a Corps sea floor sampling episode near Pearl Harbor.

Mustard was present at many sites during WWII, and was not tracked or monitored as closely as the nerve agents used later. It is present in the CAIS kits, was known to have been used in dilute form in spray cylinders for training at Elmendorf, and this may have occurred at other Alaska bases. Ocean dumping is known to have been a disposal option for large quantities of it directly after the war. The H-containing vials in the CAIS kits can float if freed from their containers, and these vials may be found in old military landfills. Mustard is insoluble in water and, when exposed to water, it oxidizes to form a shell, protecting the agent itself from further oxidation. It is, therefore, unlikely to dilute or naturally attenuate.

A second chemical found in the CAIS kit is CG. It is highly volatile and tends to dissipate quickly. At the small quantities in which it is present in the kits, it is unlikely to cause harm unless directly inhaled. In a landfill remediation operation at Fort Wainwright, a kit was seen to release a puff of greenish smoke, likely CG.

The nerve agents, VX and G-series, were placed into the inventory during the Cold War. United States concerns over sabotage and theft of the agents meant that these agents were much more strictly controlled than the earlier vesicant, blood, and choking agents. They were stored in central locations in the CONUS, and, of all the locations in Alaska, were only known to have been stored at Fort Greely near Delta Junction.

Although ocean dumping was the preferred method of disposal for any chemical agent, small amounts of agent, such as what was found in a CAIS kit or a single

artillery round, were authorized to be land disposed. If one leaked and posed an immediate hazard, there were two courses of action that ammunition handlers were trained to undertake:

- Overpack it in a container with absorbent and ship it to a disposal facility, such as Johnston Atoll.
- Dig a hole, line it with decontaminating agent (a strong oxidizer), place the munition in the hole, cover it with more decontaminating agent, and close the hole (this method was taught in standard Army nuclear, chemical, and biological training as recently as 1983). If a site is found that matches this description, one should suspect that it contained a leaking chemical munition. The associated danger would be that the munition did not empty adequately for the chemical agent to fully react. Any agent that contacted the decontaminating material would have long since been rendered innocuous. Common decontamination materials were chlorine-based bleaches, such as sodium hypochlorite, caustic soda (sodium hydroxide), and decontaminating solution 2 (DS-2), which was diethylene triamine.

A summary of the expected stability or potential degradation products of the most common forms of CWM in exposed, buried, or submerged disposal contexts is presented in Table 2.

### **6.5 What Can I Do To Protect Workers on My Base?**

First, make sure this and other related reports stay in the active files. Records are too easily lost or disposed of over the years, and information is constantly being rediscovered.

Second, share this report with your Environmental and EOD personnel. The Environmental section is the most likely group to be exhuming old landfills, the most probable location for these items to be found. Make sure that the pictures and diagrams from this report are available to them. The metal shipping containers for the CAIS (frequently called "pigs") and H canisters may look very similar to non-threatening items to the uninformed. EOD will be called out whenever projectiles or bombs are found. If the technicians know there is a potential for a chemical hazard, they can look for distinguishing features before approaching the item.

Remember, both United States environmental laws and the International treaties to which we are party allow these items to be left in-place, as long as there is no harm to the environment from them. There is no reason to search for them or

remove them for the sake of removal, and leaving them in place is often the safest course of action.

Finally, should chemical weapons or related materials (e.g., CAIS) be found in the course of environmental remediation or other efforts, PACAF recommends that personnel follow the procedures below.

- Notify the on-base Treaty Compliance Officer (TCO) through the command post.
- Notify HQ PACAF Counter proliferation and Treaty Officer through the HQ PACAF command post (DSN 315-448-8500). This individual can be reached at DSN 315-449-4860 or 315-449-4861, for additional information.
- Suspected chemical weapons and related materials should not be removed and the site should not be further disturbed (except as necessary to ensure the safety of base populations and surrounding communities) until additional guidance is received. Any actions taken should be documented and the documents retained by the base TCO.
- HQ PACAF will coordinate with higher headquarters and the Organization for the Prohibition of Chemical Weapons (OPCW). The OPCW is an international body charged with overseeing implementation of the CWC. The OPCW may inspect the suspected materials and the site prior to disposal. In consultation with the OPCW, the U.S. Government will determine final disposition of the suspect materials. This is a matter of legislation and international treaty and violations could result in serious personal consequences and embarrassment to the U.S. Government.

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Table 1 - CWM Inventories and Movements for Air Force Sites in Alaska

Alaska, General - Bulk and Munitions

Date			Materiel		Quantity On Hand		Quantity Moving On Site		Arriving From	Quantity Moving Off Site		Destination	Notes	Data Source
Year	Month	Day	Chemical Agent	Form										
1942	4	15			None									JGK-31
1943	5	7	H & L	Bulk			140	tons						JGK-16
1943	8	13	H	M47A2 bombs			10,000	bombs						JCH-4
1943	11		L	M47A2 bombs	5,000	bombs								JGK-122
1944	1	1	H	M47A2 bombs	14,250	bombs								KJN-11
1944	1	1	H	Bulk	85	tons								KJN-11
1944	1	1	L	Bulk	1,375	tons								KJN-11
1944	6	30	M	Bulk	183,000	pounds								JGK-54
1944	6	30	L	Bulk	2,707,000	pounds								JGK-54
1944	6	30	H	Bulk			1,000	pounds					enroute, possibly intended for training use	JGK-54
1944	7	31	H	Bulk	183,000	pounds								JGK-57
1944	7	31	L	Bulk	2,707,000	pounds								JGK-57
1944	8	31	H	Bulk	183,000	pounds								JGK-62
1944	8	31	L	Bulk	2,707,000	pounds								JGK-62
1944	8	31	H	Bulk			500	pounds					enroute, possibly intended for training use	JGK-62
1944	9	30	H	Bulk	183,000	pounds								JGK-61
1944	9	30	L	Bulk	2,707,000	pounds								JGK-61
1944	9	30	H	Bulk			902	pounds					enroute, possibly intended for training use	JGK-61
1944	10	1	NP		none									KJN-11
1944	10	31	H	Bulk	183,000	pounds								JGK-60
1944	10	31	L	Bulk	2,707,000	pounds								JGK-60
1944	10	31	H	Bulk			902	pounds					enroute, possibly intended for training use	JGK-60
1944	11	30	H	Bulk	183,000	pounds								JGK-59
1944	11	30	L	Bulk	2,707,000	pounds								JGK-59
1944	12	11	H	Bulk			4,000	pounds					enroute	JGK-59

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Table 1 - CWM Inventories and Movements for Air Force Sites in Alaska

Alaska, General - Bulk and Munitions

Date			Materiel		Quantity On Hand		Quantity Moving On Site		Arriving From	Quantity Moving Off Site		Destination	Notes	Data Source
Year	Month	Day	Chemical Agent	Form										
1945	2	23	H	Cylinders	Unkown								available at all stations with CWS officers	JGK-71
1945	4	30	H	M47A2 bombs	5,602	bombs								KJN-11
1945	4	30	H	Bulk	92	tons								KJN-11
1945	4	30	L	Bulk	1,353	tons								KJN-11
1945	9		H	M47A2 bombs						5,602 ?	bombs	Ocean Dumping		JGK-90
1945	10	22	L	Bulk								Disposal per TM 38-420	date authorized, unclear whether actually disposed of	JGK-75
1946	2	12	H	Bulk						95	tons	Ocean Dumping	date authorized, unclear whether actually disposed of	JGK-81
1951	9		Unknown		None									JGK-88

Alaska, General-Training

Date			Materiel		Quantity On Hand		Quantity Moving On Site		Arriving From	Quantity Moving Off Site		Destination	Notes	Data Source
Year	Month	Day	Chemical Agent	Form										
1944	1	10	H	Bulk			80	gallons					date authorized	JGK-69
1944	1	10	CAIS	Set, gas, toxic, M1			3	sets					date authorized	JGK-69
1944	1	10	CAIS	Set, gas, identification, detonation, M1			18	sets					date authorized	JGK-69
1944	2	18	H	Bulk			80	gallons					date authorized	JGK-68
1944	2	18	CAIS	Set, gas, toxic, M1			3	sets					date authorized	JGK-68
1944	2	18	CAIS	Set, gas, identification, detonation, M1			18	sets					date authorized	JGK-68
1944	3	10	H	Bulk			80	gallons					date authorized	JGK-67
1944	3	10	CAIS	Set, gas, toxic, M1			3	sets					date authorized	JGK-67
1944	4	17	H	Bulk			902	pounds					date authorized	JGK-66
1944	4	17	CAIS	Set, gas, toxic, M1			3	sets					date authorized	JGK-66
1944	5	26	CAIS	Set, gas, toxic, M1			4	sets					date authorized	JGK-64
1944	6	19	CAIS	Set, gas, toxic, M1			4	sets					date authorized	JGK-65

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Table 1 - CWM Inventories and Movements for Air Force Sites in Alaska

Alaska, General-Training (Continued)

Date			Materiel		Quantity On Hand		Quantity Moving On Site		Arriving From	Quantity Moving Off Site		Destination	Notes	Data Source
Year	Month	Day	Chemical Agent	Form										
1944	8	12	CAIS	Set, gas, toxic, M1			4	sets					date authorized	JGK-63
1945	10	22	CAIS	Set, gas, identification, instructional, M1						unknown		Disposal per TM 38-420	date authorized, unclear whether actually disposed of	JGK-75
1945	10	22	CAIS	Set, gas, toxic, M1						unknown		Disposal per TM 38-420	date authorized, unclear whether actually disposed of	JGK-75

Elmendorf AFB/Fort Richardson

Date			Materiel		Quantity On Hand		Quantity Moving On Site		Arriving From	Quantity Moving Off Site		Destination	Notes	Data Source
Year	Month	Day	Chemical Agent	Form										
1943	3	31	H	M47A2 bombs			1,500	bombs	SPOE via Seward, AK					JCH-2
1943	3	31	lewisite	Bulk			11	tons	SPOE via Seward, AK					JCH-2
1943	3	31	H	Bulk	16		16	tons	SPOE via Seward, AK					JCH-2
1945	4	1	H	Bulk	1	ton								JGK-34
1945	4	1	lewisite	Bulk	1.2	tons								JGK-34

Elmendorf AFB/Fort Richardson-Training

Date			Materiel		Quantity On Hand		Quantity Moving On Site		Arriving From	Quantity Moving Off Site		Destination	Notes	Data Source
Year	Month	Day	Chemical Agent	Form										
1951	7		CAIS	Gas identification, detonation	175	sets							Some may have recently arrived from Adak	EMB-1

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Table 1 - CWM Inventories and Movements for Air Force Sites in Alaska

Adak Island

Year	Date		Materiel		Quantity On Hand		Quantity Moving On Site		Arriving From	Quantity Moving Off Site		Destination	Notes	Data Source
	Month	Day	Chemical Agent	Form										
1945	4	1	H	Bombs	66	bombs								JGK-34
1945	4	1	H	Bulk	10.9	tons								JGK-34
1945	4	1	L	Bulk	61.99	tons								JGK-34
1946	11		H	Bulk	2	tons							approximate amount	JGK-14
1946	11		L	Bulk	4	tons							approximate amount	JGK-14
1947	6 - 7		H	Bulk			10	tons	Attu					JGK-13
1947	6 - 7		L	Bulk			10	tons	Attu					JGK-13

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Table 2 - CWM Degradation Patterns

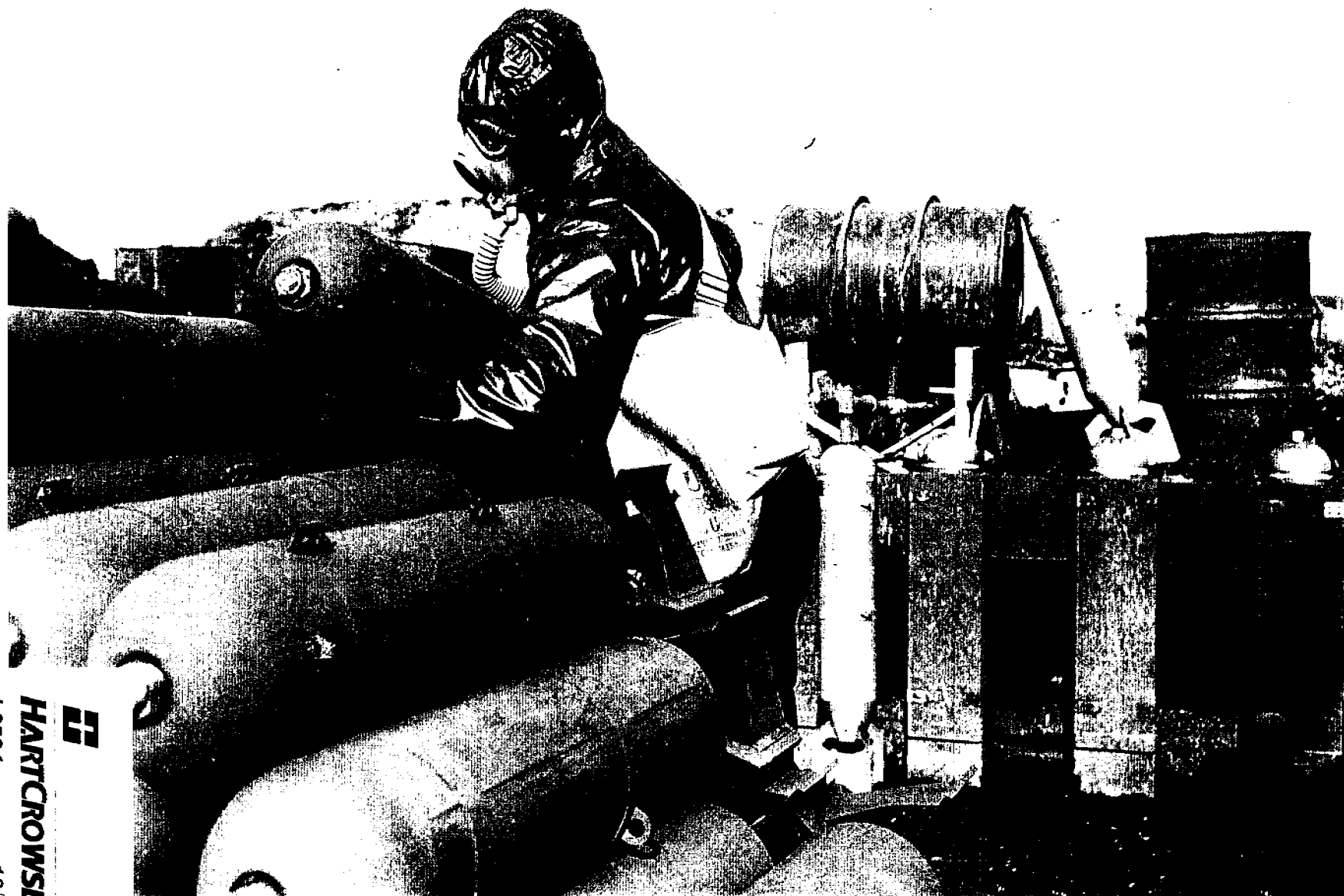
Common Name	Background/Description	Stability	Thermal Breakdown Products	Photolysis Breakdown Products	Hydrolysis Breakdown Products	Mobility
AC (Hydrogen Cyanide)	Colorless volatile gas. Miscible with water. Forms explosive mixtures with air.	Becomes unstable if not stabilized with acid, if product contains water, is heated, or comes in contact with basic materials.	CN	Resistant to direct photolysis	CN	Rapid volatilization. Very soluble in water.
CG (Phosgene)	Colorless gas, slightly soluble in water.	Thermally stable at room temp. Hydrolyzes on wet soil. Volatilizes and slowly hydrolyzes in water.	Toxic oxides of carbon, chloride, hydrochloric acid	Only photolyzes at high altitude.	Carbon dioxide, HCl	Volatilization. Slow hydrolysis on wet soil.
CK (Cyanogen Chloride)	Colorless liquid or gas. Soluble in water.	Hydrolyzes in water.	Chlorine, CN, nitrogen oxides	NA	Chlorine, CN, nitrogen oxides	Volatilization.
GA (Tabun)	Discovered in 1936 by a German. A liquid, slightly soluble in water, readily soluble in organic solvents.	Stable at temperatures less than 49 degrees C. Decomposes at higher temperatures. Hydrolyzes rapidly in basic solutions, catalyzed by metal ions.	HCN, CO, oxides of nitrogen, oxides of phosphorus.	No significant phototransformations in sunlight.	HCN, ethanol, dimethylamine, phosphoric acid, dimethylphosphoramidic acid, and dimethylphosphoramidic acid monoethyl ether.	Limited to volatilization. Hydrolyzes when wet.
GB (Sarin)	Discovered in Germany in 1939. Large quantities stockpiled in U.S. and Soviet Union. Water miscible liquid.	Stable to temperatures less than 49 degrees C. Hydrolyzes in water, hydrolyzes rapidly in basic solutions, catalyzed by metal ions.	NA	No significant phototransformations in sunlight.	HF, 2-propanol, methylphosphonic acid, 1-methylethyl ester	Limited to volatilization. Hydrolyzes when wet.
GD (Soman)	Discovered in Germany in 1944. Large stockpiles in Soviet Union. Liquid, limited solubility in water.	Thermally stable to temperatures less than 49 degrees C. Hydrolyzes in water, hydrolyzes rapidly in basic solutions, catalyzed by copper (II) complexes.	NA	No significant phototransformations in sunlight.	HF, methylphosphonic acid, 3,3-dimethyl-2-butanol, methylphosphonic acid, 1,2,2-trimethylpropyl ester	Limited to volatilization. Hydrolyzes when wet.
H (Mustard)	First used in 1917. Stockpiled in U.S. and Soviet Union. Viscous liquid with limited solubility in water.	Stable to temperatures less than 49 degrees C. Can persist in soil and under water for decades when sulfonium salts create a protective layer.	Stable to 49°	No significant phototransformations in sunlight.	HCl, thiodiglycol, Q[1,2-bis[(2-chloroethyl)thio]ethane, 1,2-dichloroethane, thioxane	Should not be mobile, if H were hydrated, hydrolysis of dissolved H is relatively fast.
L (Lewisite), arsenic based	Invented by U.S. end of WWI. Stockpiled by U.S. and German armies during WWII. Liquid.	Hydrolyzes quickly, especially in basic aqueous solutions. Breakdown products are also vesicants. Remains unchanged in sea water after 10 weeks.	Stable to 49°	No significant reactions	As, lewisite oxide, 2-chlorovinylarsenous acid, arsenous acid, acetylene	Not very mobile. Hydrolyzes rapidly, however breakdown products might persist, and may be mobile.

Table 2 - CWM Degradation Patterns

Common Name	Background/Description	Stability	Thermal Breakdown Products	Photolysis Breakdown Products	Hydrolysis Breakdown Products	Mobility
PS (Chloropicrin)	First prepared in 1848. Colorless liquid, insoluble in water.	Shock sensitive. Decomposes explosively at elevated temperatures.	Phosgene, nitrosyl chloride, chlorine, CO, nitrogen oxides	Phosgene, nitrosyl chloride	Photohydrolysis produces carbon dioxide, chloride, nitrates	Volatilizes rapidly in water. Slow hydrolysis.
VX (persistent nerve agent)	Discovered in 1952. Stockpiled in U.S. Liquid	Reversible reaction driven by heat or sunlight to corresponding phosphonothionates. Hydrolyzes in water, especially basic solutions. Breakdown catalyzed by copper and calcium ions.	Reversible photoionization	Reversible thermal ionization.	Ethanol, EA2192, methylphosphoric acid ethyl ester, diisopropylaminoethanol,  Stabalizers hydrolyze to n,n'-diisopropylurea and n,n'-dicyclohexylene	Should not be mobile, hydrolyzes in water.

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*Handling of Chemical Warfare Materiel - 1943*



8534\362C (corel)



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Figure 1

*Handling of Chemical Warfare Materiel - 1943*



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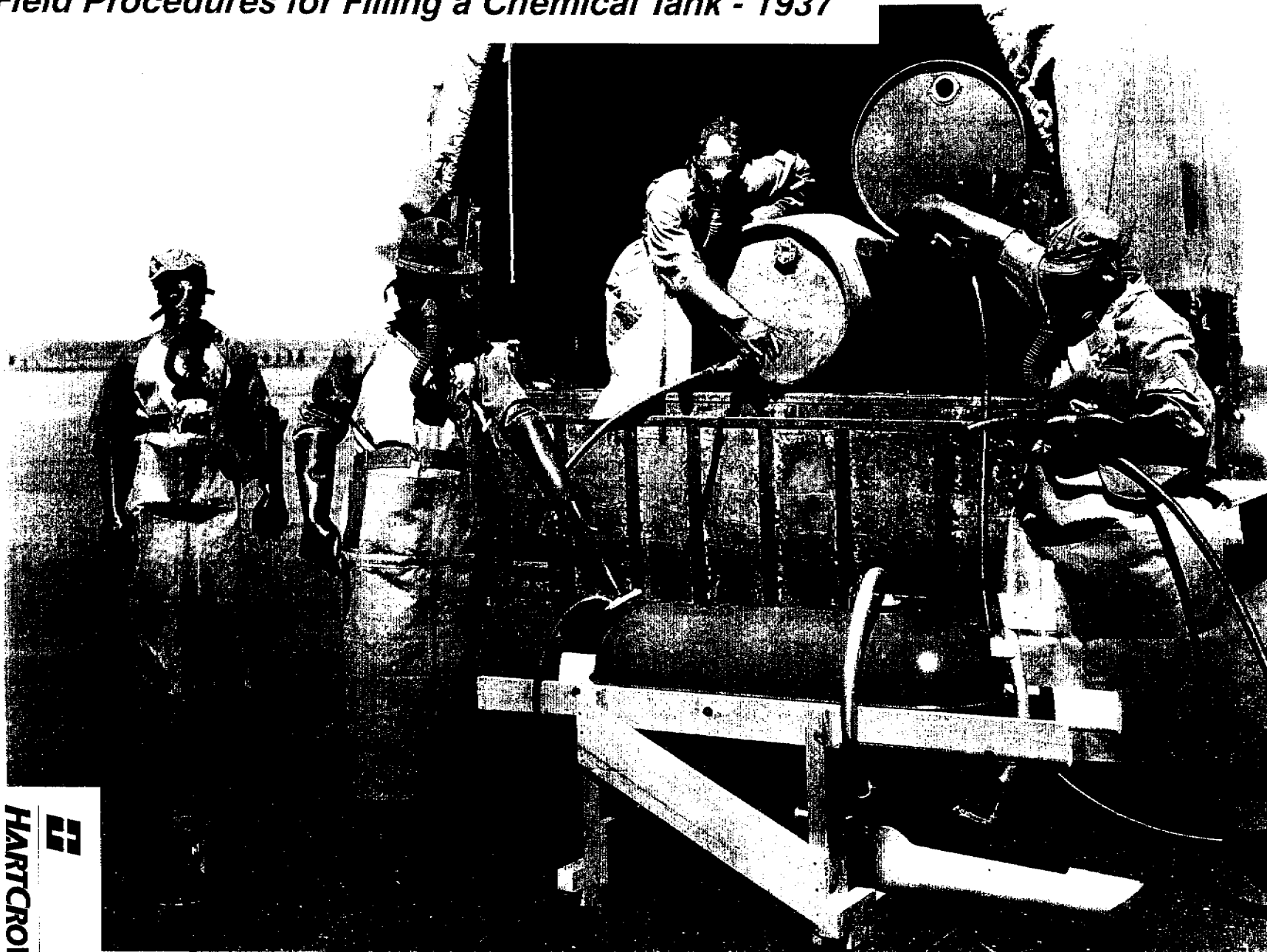
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Figure 2

*Field Procedures for Filling a Chemical Tank - 1937*



85341363C (corel)



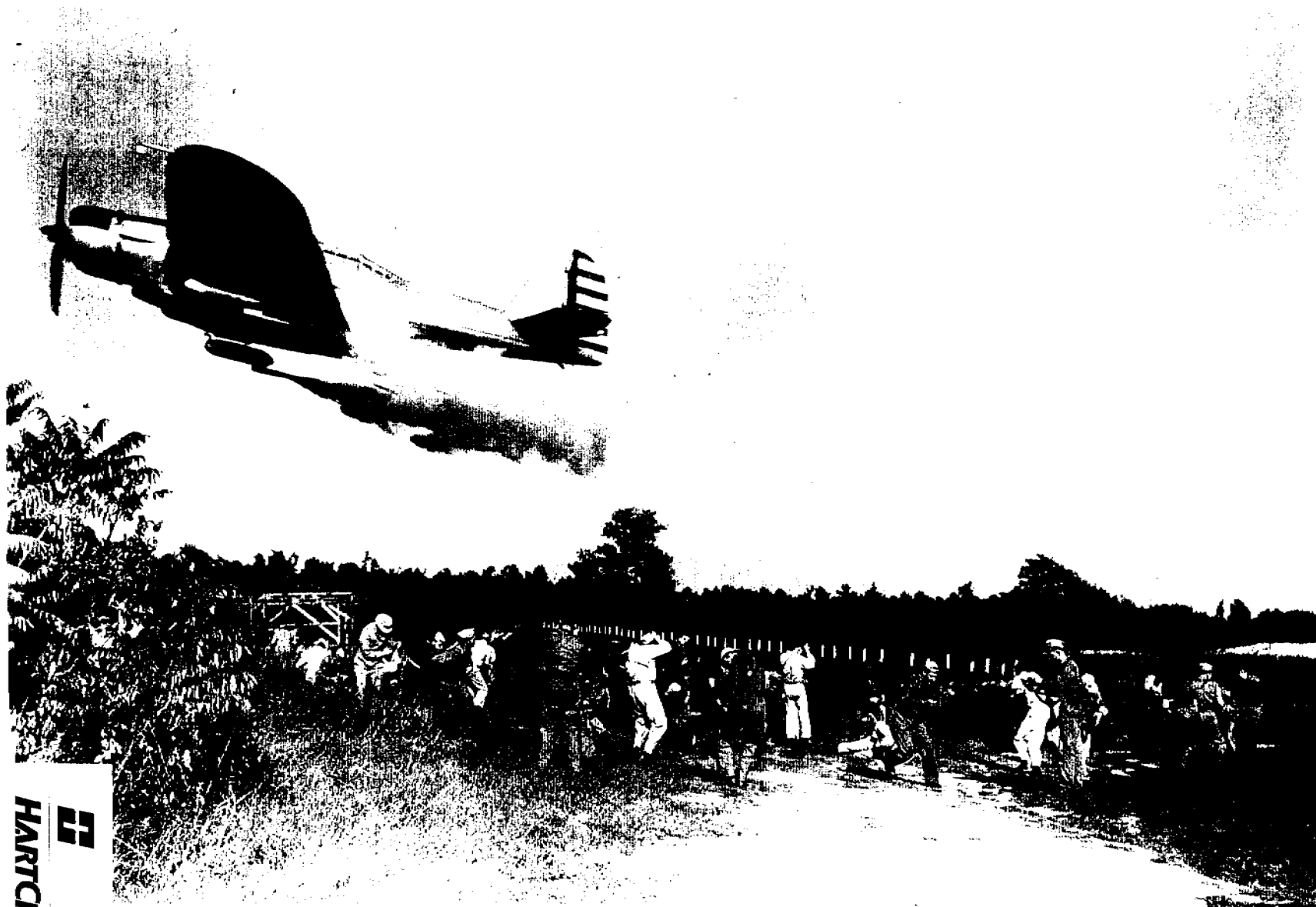
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Figure 3

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*Training by Simulated Aerial Gas Attack - 1941*



8534\ 364C (corel)



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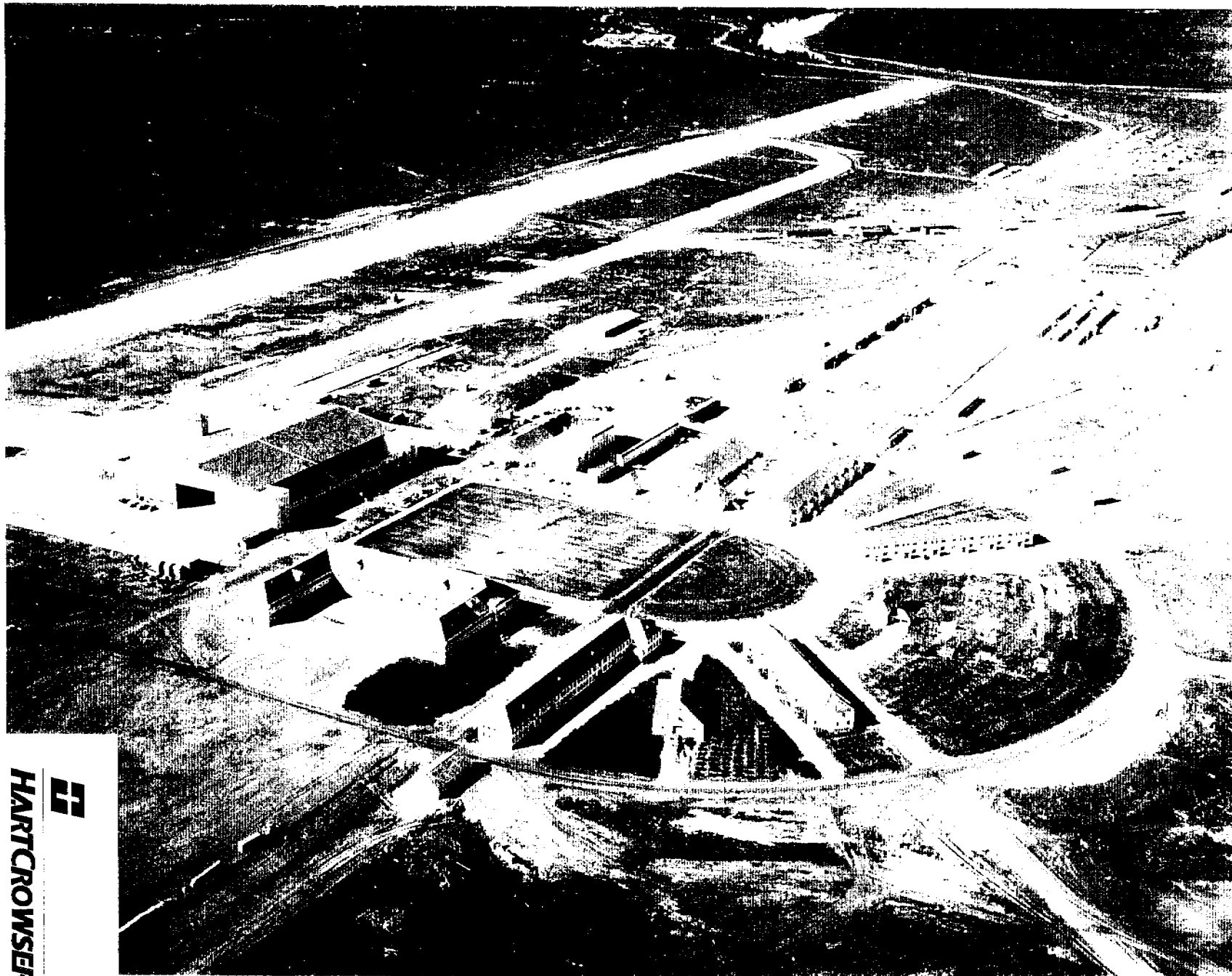
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Figure 4

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*Ladd Field - 1942*



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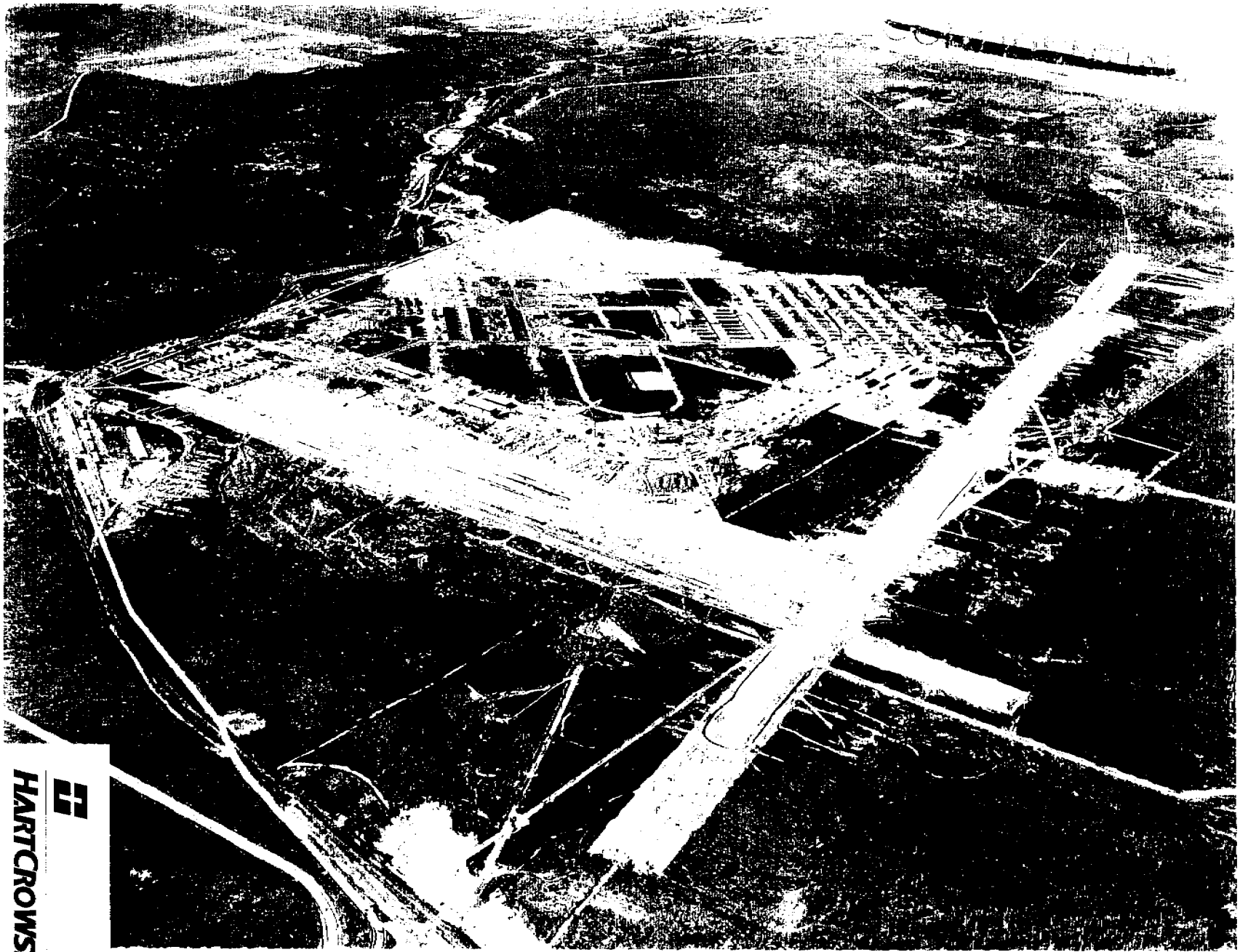
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Figure 5

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*Elmendorf Field - 1941*



8534\ 366C(corel)



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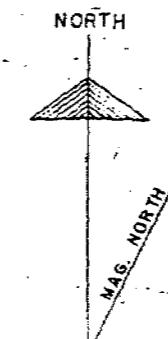
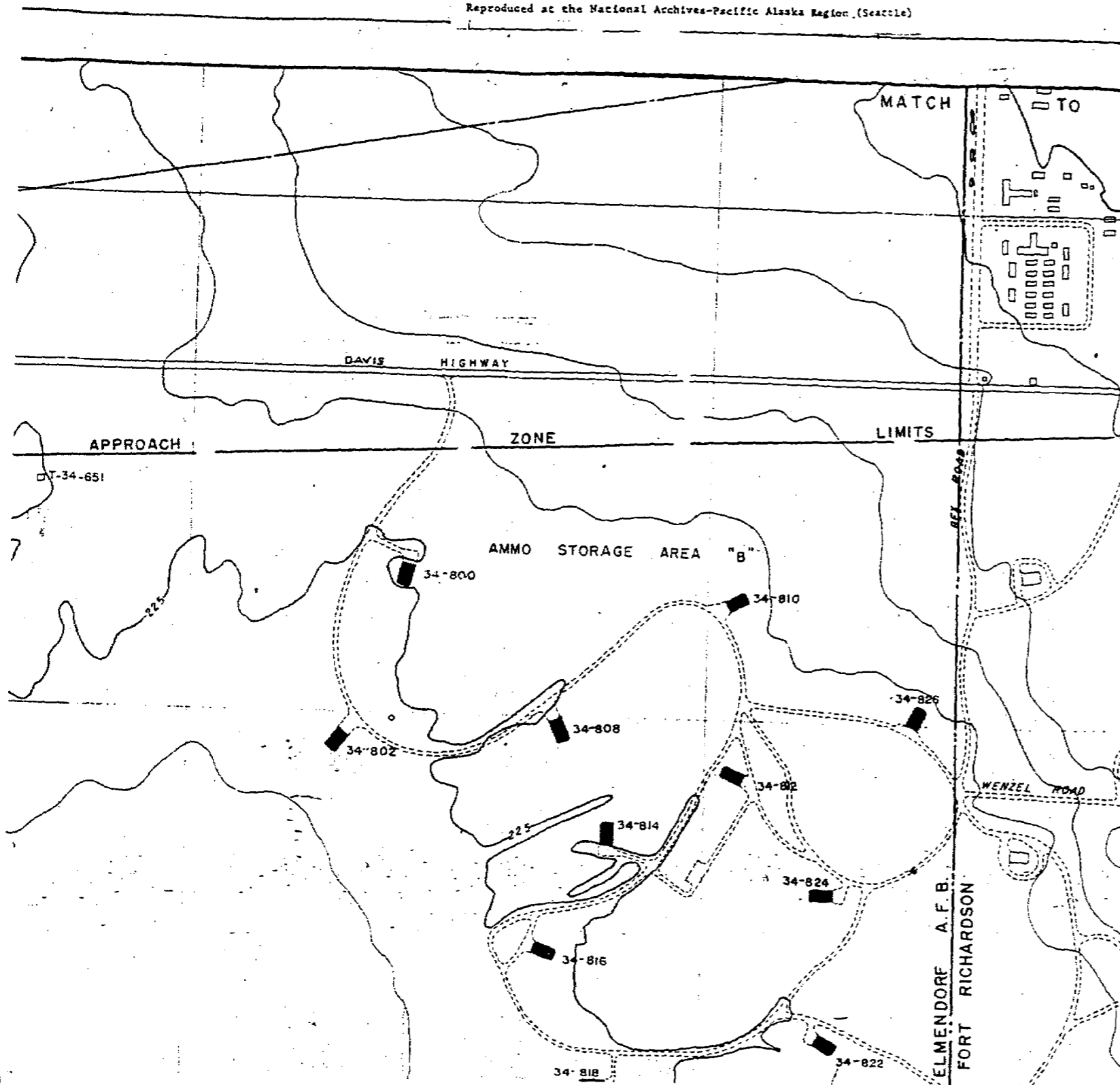
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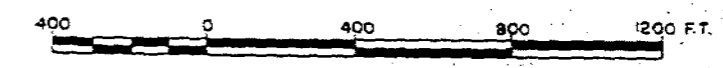
Figure 6

# Elmendorf Air Force Base, Ammunition Storage Area "B" (EMB-81)

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MAG. DECL.  
1956  
25°52'30"  
AVERAGE ANNUAL CHANGE  
1' 30" W.



GRAPHIC SCALE IN FEET

AIRFIELD ELEVATION ..... 242 FEET

REV	DATE	DESCRIPTION	INITIAL
REVISIONS			

DEPARTMENT OF THE AIR FORCE  
ASST CHIEF OF STAFF / INSTALLATIONS - WASHINGTON D.C.

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*RL 121*  
*Box 12*  
*11/10/98*

BASIC LAYOUT PLAN  
ELMENDORF AIR FORCE BASE  
ANCHORAGE, ALASKA

SCALE 1 INCH = 400'      DATE 1 JUL 62

SHEET 3 OF 8

HEM 2129100 8534A.cdr

**APPENDIX A  
CHEMICAL WARFARE CODES AND NAMES  
CHEMICAL AGENT IDENTIFICATION SETS**

APPENDIX A  
CHEMICAL WARFARE CODES AND NAMES

Chemical Code	Chemical Name 1	Chemical Name 2	Chemical Name 3	Type of Agent
AC	hydrogen cyanide	hydrocyanic acid	prussic acid	cyanogen agent
BZ	3-quinuclidinylbenzilate			psychotomometric agent
CA	brombenzylcyanide	bromobenzylcyanide		cyanogen agent
CC	cyanogen chloride			cyanogen agent
CG	phosgene	carbonyl chloride	carbonic dichloride	choking agent
CK	cyanogen chloride	4X		cyanogen agent
CL	chlorine			choking agent
CN	chloracetophenone	chloroacetophenone	tear gas	tear agent
CNS	CN <u>and</u> PS <u>and</u> chloroform			choking/tear agent
CS	ortho-chlorobenzylidene-malononitrile	tear gas		tear agent
DA	Clark I	diphenylchloroarsine	diphenylarsinous chloride	arsine agent
DC	Clark II	diphenylcyanoarsine	diphenylarsinous cyanide	arsine agent
DM	Adamsite	10-Chloro-5,10-dihydrophenarsazine		vomiting agent
DP	diphosgene	trichloromethyl chloroformate	Carbonochloric acid	choking agent
FS	fuming sulfuric acid	sulfur trioxide	trioxide-chlorosulfonic acid	choking agent
G	Tabun			nerve agent
GA	Tabun	dimethylphosphoramidocyanidic acid	O-ethyl dimethylamidophosphorylcyanide	nerve agent
GB	Sarin	isopropyl methylphosphonofluoridate	Zarin	nerve agent
GB-2	Sarin (binary form)	DF <u>and</u> OPA		nerve agent
GD	Soman	pinacolyl methylphosphonofluoridate	isopropyl methylphosphonofluoridic acid 1,2,2-trimethylpropyl ester	nerve agent

APPENDIX A  
CHEMICAL WARFARE CODES AND NAMES

Chemical Code	Chemical Name 1	Chemical Name 2	Chemical Name 3	Type of Agent
GD-2	Soman (binary form)	DF and pinacolylalcohol	DF and pinacolylalcohol	nerve agent
H	mustard gas	1,1'-thiobis[20chloroethane]	yperite, lost	blister agent
HCN	hydrogen cyanide			cyanogen agent
HD	distilled sulfur mustard	distilled mustard		blister agent
HL	H and L			blister agent
HN-1	nitrogen mustard	N-ethyl-2,2'di(chloroethyl)amine	ethyl-S, TL329, TL1149	blister agent
HN-2	nitrogen mustard	N-methyl-2,2'di(chloroethyl)amine	mechlorethanamine	blister agent
HN-3	nitrogen mustard	2,2',2"tri(chloroethyl)amine	nitrogen lost	blister agent
HS	sulfur mustard	2,2'-di(chloro-ethyl)-sulphide	s-lost, s-yperite	blister agent
HT	thickened mustard	mustard with T		blister agent
L	Lewisite	EA 1034	(2-chloroethenyl)arsonous dichloride	blister agent
PS	chloropicrin			choking agent
THD	thickened mustard			blister agent
V-gas	methylphosphonothioic acid,S-[2-(diethylamino)ethyl]O-2methylpropyl ester			nerve agent
VV	thickened mustard			blister agent
VX	methylphosphonothioic acid	O-ethyl 5-diisopropylaminomethyl methylphosphonothiolate	methylphosphonothioic acid,S-[2-[bis(1-methylethyl)amino]ethyl]O-ethyl ester	nerve agent
VX-2	QL and sulphur			nerve agent
Y-# or Y-alpha	mustard gas			blister agent

APPENDIX A  
CHEMICAL AGENT IDENTIFICATION SETS

Set ID	Identifier	Name	Synonyms	Old Stock Number	Navy X ID	Time Frame of Use	
						from:	to:
K941	M1	Toxic Gas Set		FSN 1365-219-8574		1938	1960
K942	M2/E11	Toxic Gas Set		FSN 1365-563-4146		1949	1955
K945	M72	Training Set, Chemical Agent Identification		FSN 1365-051-1807		1963	1975
K951	M1	War Gas Identification Set, Instructional	Set Gas Identification, Detonation	FSN 1365-025-3272		1930	1960
K952	M1	War Gas Identification Set, Instructional	Set Gas Identification, Detonation	FSN 1365-025-3783		1930	1960
K953	AN-M1A1	War Gas Identification Set, Instructional	Set Gas Identification, Detonation	FSN 1365-323-7728		1949	1955
K954	AN-M1A1	War Gas Identification Set, Instructional	Set Gas Identification, Detonation	FSN 1365-323-0735		1949	1955
K955	M1	Set, Gas Identification, Instructional (Navy)		FSN 1365-368-6154		1938	1950
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-038-5183	X302	1938	1955
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-608-5322	X545	1938	1955
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-608-5323	X546	1938	1955
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-608-5324	X547	1938	1955
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-608-5325	X548	1938	1955
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-608-5326	X549	1938	1955
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-608-5327	X550	1938	1955
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-608-5328	X551	1938	1955
Navy X	X	Replacement Set, Gas Identification, Instructional		FSN 1365-608-5329	X552	1938	1955

**APPENDIX B**  
**ILLUSTRATIONS OF TOXIC CHEMICAL MUNITIONS AND**  
**CHEMICAL AGENT IDENTIFICATION SETS**



B103

# Old Chemical Weapons Reference Guide

**PMDD**  
May 1998  
Program Manager for  
Chemical Demilitarization



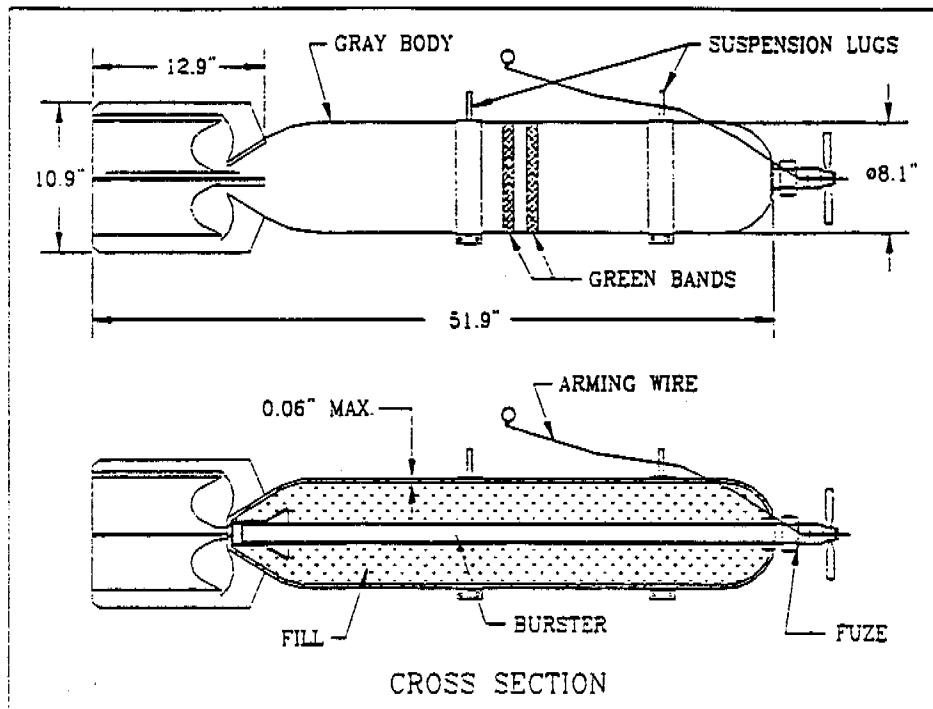
155mm  
Round

Stokes Mortar Round



E1 Bottle Rocket

## NOMENCLATURE: Bomb, Chemical, 100-Pound (H), M47 and M47A2



### Description:

The predecessor to this munition, the M47A1 bomb, consisted of a cylinder 8.10 inches in diameter and approximately 39.5 inches long, and was composed of 0.0625-inch sheet metal with a hemispherical nose closure and conical tail closure. The bomb was equipped with box-type stabilizing fins with a span of 10.9 inches. A burster well, which extended throughout the length of the bomb case, was screwed into the adapter in the nose of the bomb. The only difference between the M47A1 and the M47A2 is that the inside of the body is coated with oil (M47A2). In the M47A1, the interior of the body is coated with black acid-proof paint instead of oil.

The design of the M47A2 was refined by: (1) incorporating a vent plug near the nose to relieve gas pressure built up during storage, and (2) sharper threads on the fuze adapter to prevent leakage. Also, the tail fin was increased 3 inches to provide greater flight stability. Subsequent versions of this munition, the M47A3 and M47A4, were never stockpiled.

**NOMENCLATURE: Bomb, Chemical, 100-Pound (H), M47 and M47A2**

**Tabulated Data:**

**Length:** 48.9 to 51.9 inches (1242 to 1318 mm) overall, 39.5 inches (1003.3 mm) (body only)

*Note: The M47, M47 (smoke, gas, and incendiary), AN-M47A2 all were the same length. With subsequent changes, the welded fins were increased 3 inches in length to give greater stability in flight.*

**Diameter:** 8.1 inches (205.7 mm)

**Tail:** Length: 12.9 inches (328 mm)  
Width: 10.9 inches (277 mm)

Type of Fill	Fill Weight		Total Weight with Fill	
	Kilograms	Pounds	Kilograms	Pounds
Gasoline-rubber filled (contains about 6 gals. of incendiary oil)	unknown	unknown	31.78	70
Incendiary Mixture (IM)	18.61	41	27.69	61
Napalm (NP)	18.61	41	27.69	61
Mustard (H or HS)	29.5 - 33.2	65 - 74.75	43.0 - 44.5	94.5 - 99.2
Mustard (HD)	32.8	69.3	43.8	98.5
Plasticized White Phosphorus (PWP)	33.6	74	47.7	105
White Phosphorus (WP)	45.5	100	59.5	120.70 - 131

**Description of Fills:**

*An incendiary oil mixture (IM) is a thickened mixture using isobutyl methacrylate (polymer AE) having the following composition:*

Stearic Acid	3.0%
Isobutyl methacrylate polymer AE	5.0%
Calcium	2.0%
Gasoline	85.75%
Water	1.25%

*Napalm (NP) is a mixture of aluminum soap in which approximately 50% of the organic acids are derived from coconut, 25% from naphthenic acids and 25% from oleic acid. As small granular particles, it is stirred into gasoline results in a homogeneous gel.*

**NOMENCLATURE: Bomb, Chemical, 100-Pound (H), M47 and M47A2**

*Mustard (HS)* is chemically known as bis(2-chloroethyl)sulfide. It is an oily, amber colored persistent liquid agent. It is classified as a blister agent or vesicant. It is also an effective lachrymator and lung injurant. Its action is delayed with the onset of symptoms in about four to six hours after exposure. Mustard freezes at 14.45 degrees C (58 degrees F).

*Mustard (HD)* is mustard produced by the Levinstein process that was distilled by water washing. This distillation occurred during the 1940s to produce a purified mustard product.

*Plasticized White Phosphorus (PWP)* consists of granules of white phosphorus that are coated by GRS rubber, forming a homogenous mass of individual white phosphorus particles separated from each other by a rubber film. This rubbery mass, when dispersed, does not break up and, therefore, pillaring is less marked.

*White Phosphorus (WP)* is a solid that is used primarily for screening purposes. It also has been used against personnel and fortifications. It burns vigorously when exposed to air and creates a dense, white cloud.

Markings:

Type of Fill	Color Bands		Other	
	1 <sup>st</sup> Band	2 <sup>nd</sup> Band	Body Color	Stencil Markings
Gasoline-rubber filled (contains about 6 gals. of incendiary oil)	purple	none	gray	purple markings INCENDIARY
Incendiary Mixture (IM)	purple	none	gray	purple markings INCENDIARY
Napalm (NP)	purple	none	gray	purple markings INCENDIARY
Mustard (H or HS)	green	green	gray	green markings H, GAS
Mustard (HD)	green	green	gray	green markings HD, GAS
Plasticized White Phosphorus (PWP)	yellow	none	gray	yellow markings PWP, SMOKE
White Phosphorus (WP)	yellow	none	gray	yellow markings WP, SMOKE

**NOMENCLATURE: Bomb, Chemical, 100-Pound (H), M47 and M47A2**

Explosive Train:

Nose Fuze:

Model no.: AN-M126 and AN-M126A1(alternate)  
AN-M159 (preferred)

Overall length: 3.12 inches (79.2 mm) (AN-M126)

3.24 inches (82.3 mm) (AN-M159)

Total weight: 1.16 pounds (526.64 g) (AN-M126)  
0.65 pound (295.1 g) (AN-M159)

Other fuzes used: M108  
AN-M47

Vane:

Span (in inches): 3 inches (76.2 mm) (AN-M126)

3 inches (76.2 mm) (AN-M159)

Number: two

Booster Charge:

Model no.: unknown

Explosive type: small tetryl column with AN-M159 fuze

Explosive weight: unknown

Burster:

Model no.: M4

Diameter: 1.13 inches (28.7 mm)

Length: 37.94 inches (963.7 mm)

Explosive type: tetryl

Explosive weight: 1.5 pounds (681 g)

Explosive type: TNT

Explosive weight: 1.5 pounds (681 g)

## NOMENCLATURE: Bomb, Chemical, 100-Pound (H), M47 and M47A2

### Alternate Bursters:

Model no.: AN-M12  
Explosive type: 50% mixture of black powder and magnesium  
Explosive weight: unknown  
Model no.: AN-M13  
Explosive type: TNT and tetryl pellets at each end  
Explosive weight: unknown

### Engineering Data:

#### Construction:

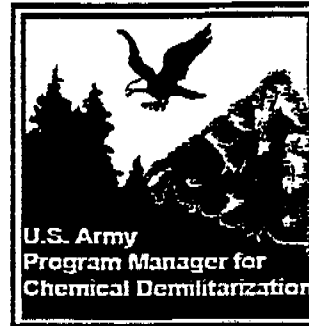
Material: sheet steel  
Wall thickness: 0.06 inch (1.52 mm) (M47A2); 0.03 inch (0.76 mm) (M47)  
Tail length: 10.9 inches wide by 12.9 inches long (276.9 by 327.66 mm)  
four vanes in truncated cone with box-type struts

### References:

1. Chief of the Bureau of Naval Weapons, Aircraft Bombs, Fuzes, and Associated Components, NAVWEPS OP 2216. (N.p.: n.p., August 1960) vol. 2.
2. Department of Defense, Military Handbook, Fuze Catalog Limited Standard, Obsolescent, Obsolete, Terminated, and Cancelled Fuzes, MIL-HDBK-146. (Washington, DC: Department of Defense, 1 October 1982), pp. 2-67, 2-68, 2-103, 2-104, 2-167, 2-168.
3. Headquarters, Department of the Army, Office of the Chief Chemical Officer, Chemical Corps Safety Directive No. 385-17, General Instructions for Disposal of Bulk Chemical Agents and Munitions, CML C SD-385-17. (Washington, DC: Department of the Army, n.d.), pp. 31 through 33.
4. Department of the Navy, U.S.N.B.D., United States Bombs and Fuzes, Pyrotechnics. (Washington, DC: Department of the Navy, 1 September 1945), pp. 92 and 93.
5. Chemical Corps Technical Committee Action, Item 19301. (Aberdeen Proving Ground, Edgewood Arsenal, MD: n.p., 10 December 1942), pp. 42 through 50.
6. NAVWEPS OP 2212 Vol. 1. Aircraft Bombs, Fuzes and Associated Equipment. (N.p.: n.p., n.d.), pp. 10-12 to 10-17.

**NOMENCLATURE: Bomb, Chemical, 100-Pound (H), M47 and M47A2**

7. Department of the Army, Employment and Characteristics of Air Chemical Munitions, FM 3-6. (N.p.: Department of the Army, October 1946), p. 46.
8. Department of the Navy, U.S.N.B.D., United States Bombs and Fuzes, Pyrotechnics, Land Mines, Firing Devices. (Washington, DC: Department of the Navy, 1 June 1944), pp. 92 and 93.
9. Chemical Corps Technical Committee Action Item 2085 (N.p.: n.p., 1 March 1950), pp. D-1 and D-3.
10. War Department Technical Manual, Ammunition Inspection Guide, TM 9-1904. 2 March 1941, pp. 671-676.
11. War Department. Chemical Warfare Service Field Manual: Tactics of Chemical Warfare, FM 3-5. July 20, 1942, pp. 8, 14.
12. Army Service Forces, Office of the Chief, Chemical Warfare Service, Report of Activities of the Technical Division During World War II. Washington, D.C., 1 January 1946.
13. Farmer, William C., LT. Col. (Ed.). Ordnance Field Guide. (Harrisburg, PA: Military Service Publishing Company, 1944), pp. 425, 426.
14. Chemical Warfare Service Field Manual, FM 3-5. X Appendix V. Chemical Warfare School, Edgewood, Maryland, June 1, 1942.
15. Departments of the Army and the Air Force. Chemical Bombs and Clusters, TM 3-400 TO 39B-15C-1. April 1953, pp 35-38 and 53-55.
16. EAI Corporation. Non-Destructive Evaluation (NDE) Munition Configuration Data Base Report (U), Volume 2. (Utah: U.S. Army Dugway Proving Ground, December 1994), p. A-6.



**U.S. Army  
Program Manager for  
Chemical Demilitarization**

**Chemical Agent Identification Sets (CAIS)  
Information Package**

**November 1995**



SET K941

TOXIC GAS SET, M1

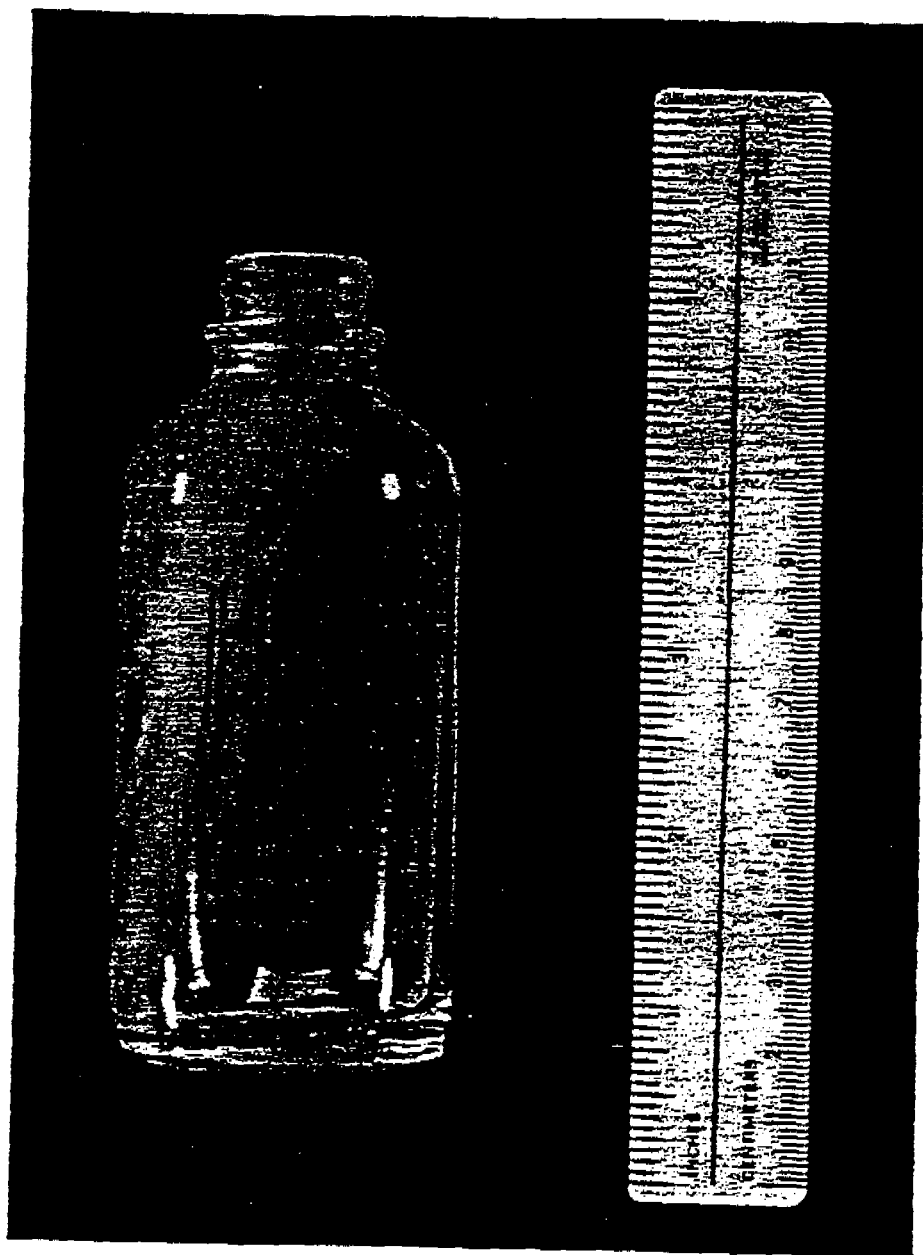
OLD STOCK NUMBER: FSN 1365-219-8574

TIME FRAME OF USE: WWII - LATER 1950s

The K941 CAIS contains 24 glass bottles, each containing  $3\frac{1}{2}$  ounces of mustard (H and HS) or distilled mustard (HD) for a total of 84 ounces (2.48 liters) per set (see figure 2).

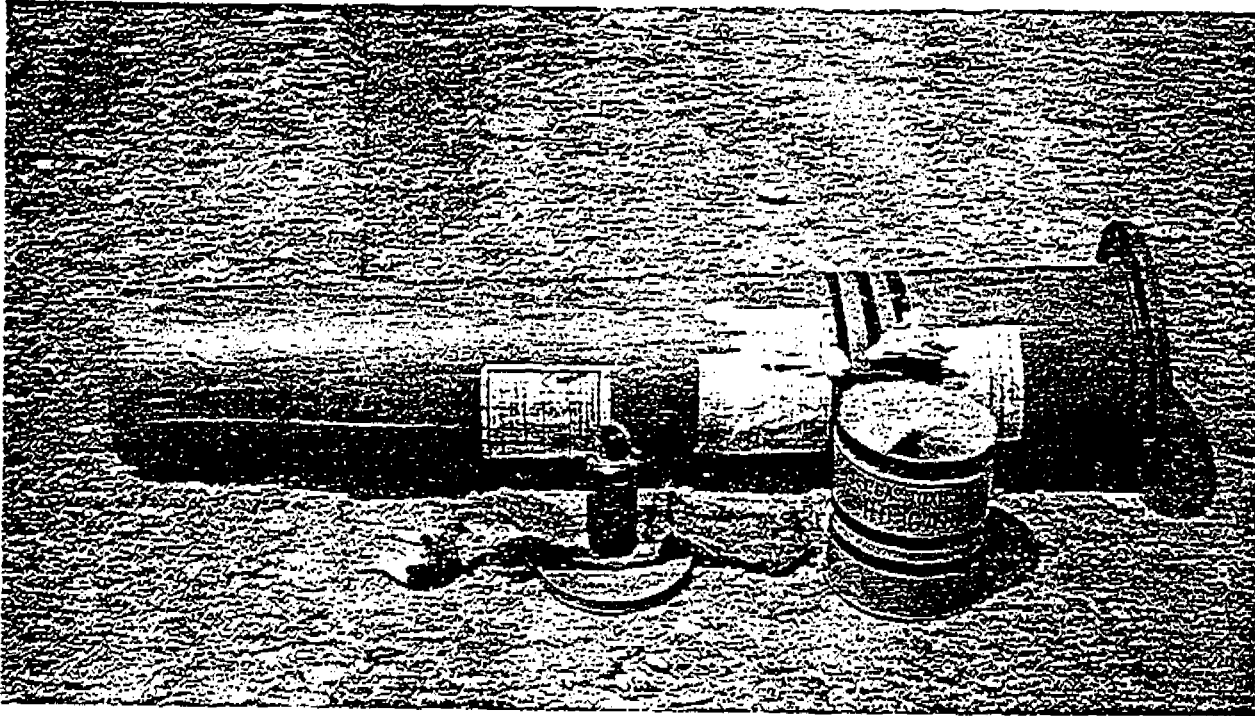
Bottles are round and have a small screw top. Heat resistant paint on the bottles indicates "H," "HS," "HD," or "TOXIC GAS SET, M1." Four bottles are packed in a one-half inch layer of sawdust within a sealed metal can. The cans are pressure sealed,  $6\frac{1}{4}$  inches high, and have a sardine-type key on the bottom. Six of these metal cans are fitted into a steel shipping cylinder that is  $6\frac{5}{8}$  inches in diameter, approximately 38 inches long, and 0.145 inch thick. The open end of this container is closed by a flanged end cover which is secured by eight bolts tightened over a  $\frac{1}{8}$  inch thick lead gasket (see figure 3).

In former WWII training areas, K941 shipping containers (also called pigs) or loose K941 bottles are frequently found buried. Loose bottles should be handled carefully by field personnel during recovery using appropriate protective measures as the plastic/bakelite tops on these bottles are prone to leak.



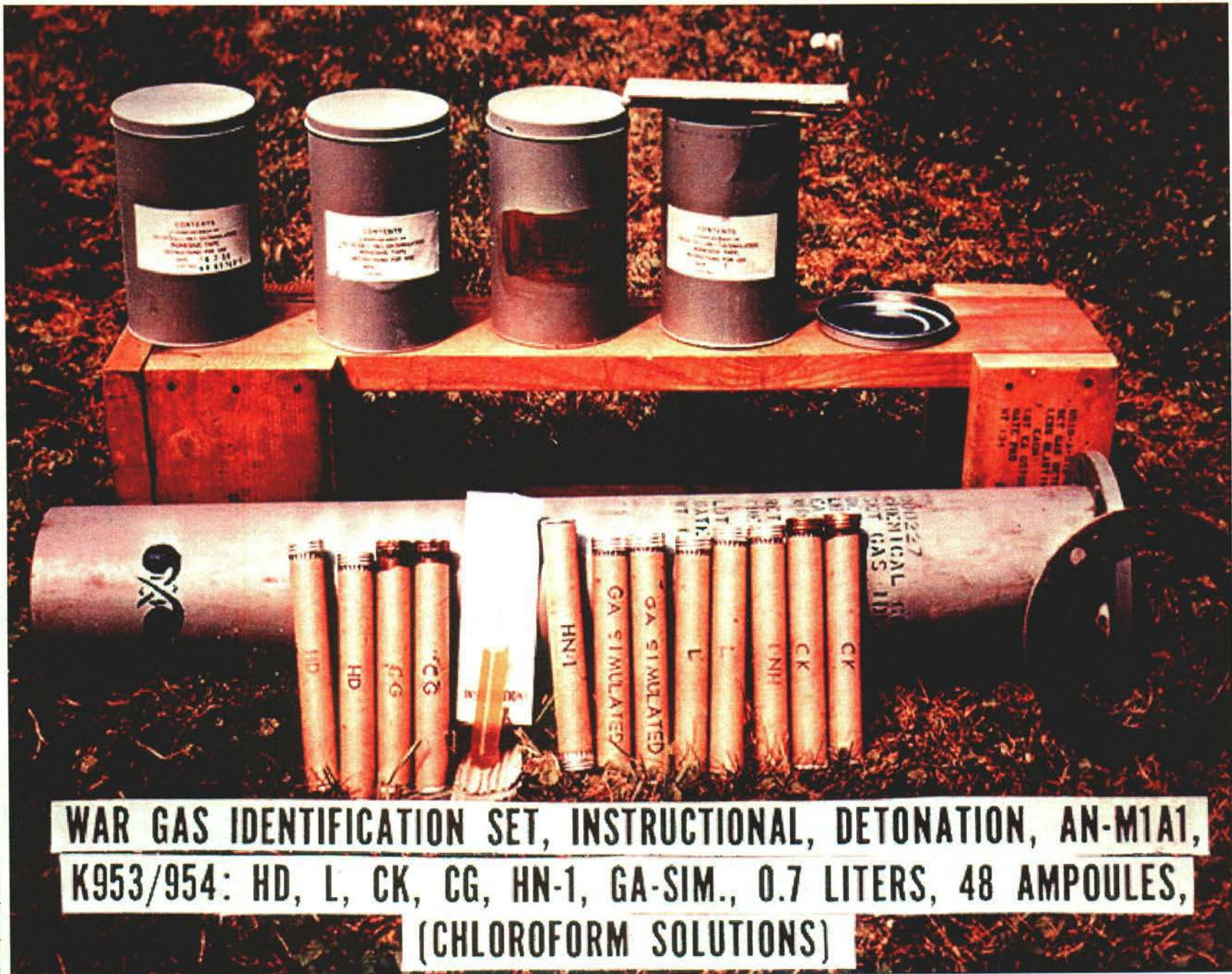
006-01366-202.jpg  
11/20/05

Figure 2. 3 1/2 Ounce Mustard Bottle



006-003/Volume, etc  
11/08/95

Figure 3. Toxic Gas Set, M1, K941: HD, 2.5 Liters, 24 Bottles



**WAR GAS IDENTIFICATION SET, INSTRUCTIONAL, DETONATION, AN-M1A1,  
K953/954: HD, L, CK, CG, HN-1, GA-SIM., 0.7 LITERS, 48 AMPOULES,  
(CHLOROFORM SOLUTIONS)**



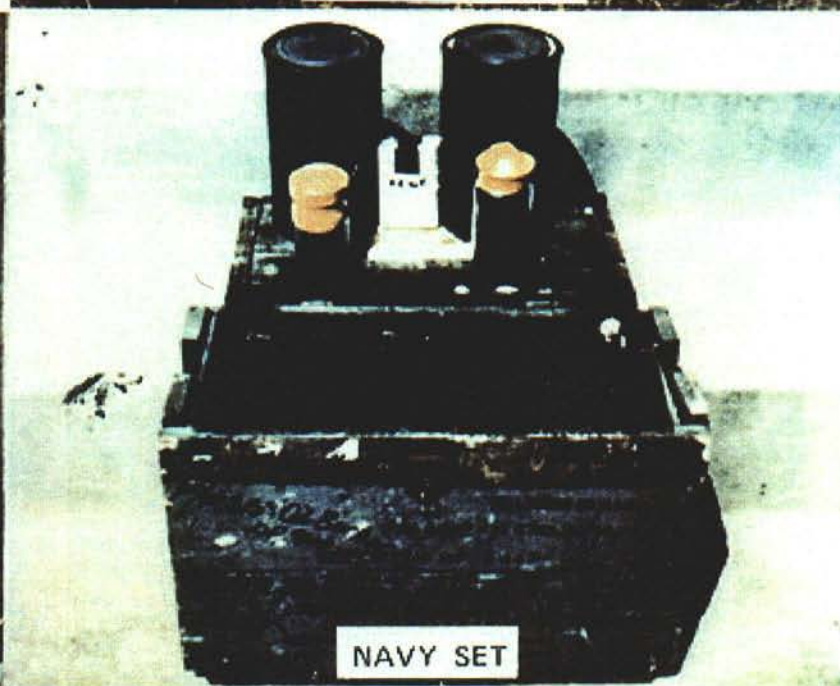
TOXIC GAS SET



WAR GAS ID SET



CHEMICAL AGENT  
IDENT & TRAINING SET  
(CAITS)



NAVY SET

## IDENTIFICATION AND TRAINING SETS



Corell/8534/trans3

TRAINING SET, CHEMICAL AGENT M72, CAITS, K945

Corel/8534/trans4



**TOXIC GAS SET, M1, K941: HD, 2.5 LITERS, 24 BOTTLES**

## Chemical Agent Containers



8534/Trans5 (core)



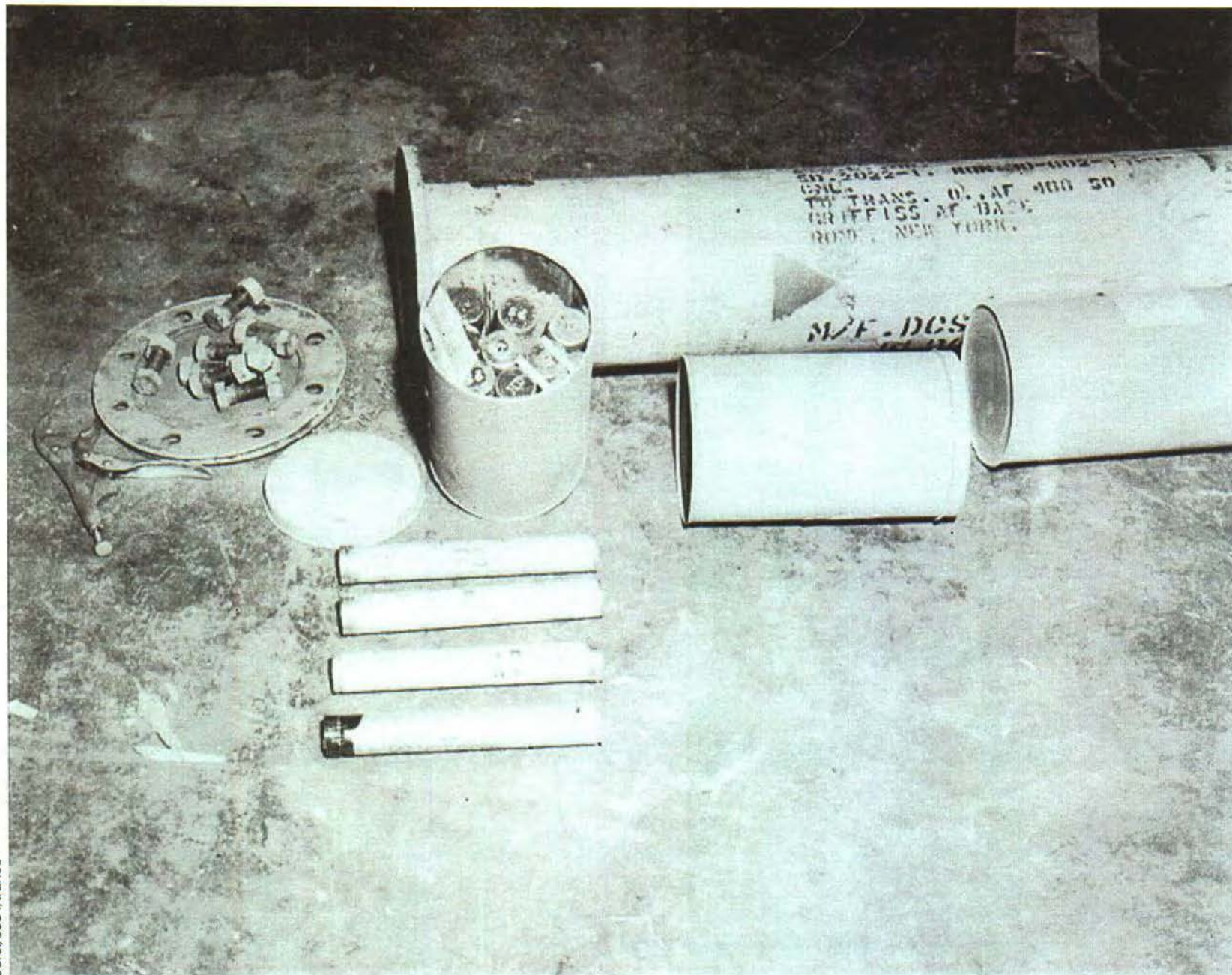


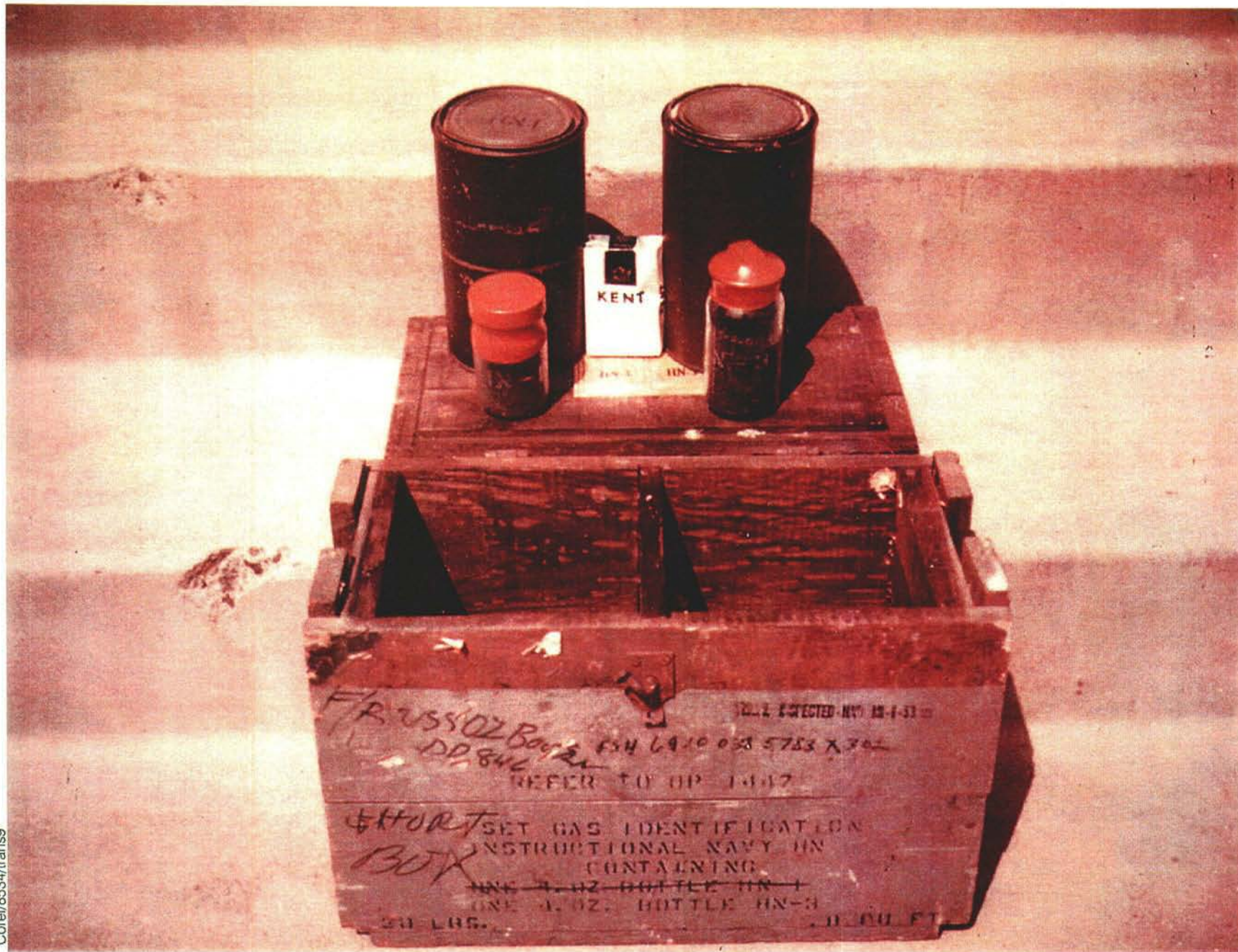
**TOXIC GAS, M2, K942:  
HD, 3.2 LITERS, 28 AMPOULES**

GAS IDENTIFICATION SET, INSTRUCTIONAL (NAVY),  
HN, X302: HN-1, HN-3, 0.05 LITERS, TWO BOTTLES (AGENT ON CHARCOAL)



## Chemical Agent Identification Sets





FRUSSOZ BOTTLE  
PP 842  
REFER TO OP 1007  
SET GAS IDENTIFICATION  
INSTRUCTIONAL NAVY IN  
CONTAINING  
ONE 1.0Z BOTTLE HN-1  
ONE 1.0Z BOTTLE HN-3  
20 LBS. 11.00 FT

U.S. GOVERNMENT PRINTING OFFICE: 1953 O - 5783 X 702

**APPENDIX C  
DOCUMENT INDEX**

*Document Index*

<i>Document ID</i>	<i>Title</i>	<i>Author</i>	<i>Date</i>	<i>Repository</i>	<i>Record Group</i>	<i>Collection</i>	<i>Location</i>
BOS 1	Quarterly Command Report - Period 1 January 1952 through 31 March 1952	Malcolm, Walter F., 1st Lt, TC	4/2/52	NARA-SB	338	NND 897574	Box 2, File: Command Report 8321st Army Unit, Honolulu Army Port First Quarter 1952
BOS 2	Quarterly Command Report - Period 1 April 1952 through 30 June 1952	Malcolm, Walter F., 1st Lt, TC	6/30/52	NARA-SB	338	NND 897574	Box 2, File: Command Report 8321st Army Unit, Honolulu Army Port Second Quarter 1952
BOS 3	Quarterly Command Report - Period 1 July 1952 through 30 September 1952	Malcolm, Walter F., 1st Lt, TC	9/23/52	NARA-SB	338	NND 897574	Box 2, File: Command Report 8321st Army Unit, Honolulu Army Port Third Quarter 1952
BOS 4	Quarterly Command Report - Period 1 October 1952 through 31 December 1952	NAv	12/31/52	NARA-SB	338	NND 897574	Box 2, File: Command Report 8321st Army Unit, Honolulu Army Port Fourth Quarter 1952
BOS 5	Quarterly Command Report - Period 1 January 1953 through 31 March 1953	NAv	3/31/53	NARA-SB	338	NND 897574	Box 2, File: Command Report 8321st Army Unit, Honolulu Army Port First Quarter 1953
BOS 6	Quarterly Command Report - Period 1 April 1953 through 30 June 1953	NAv	6/30/53	NARA-SB	338	NND 897574	Box 2, File: Command Report 8321st Army Unit, Honolulu Army Port Second Quarter 1953
BOS 7	Report of Army Manifested Cargo in Measurement Tons for the Month of November 1955	NAv	11/30/55	NARA-SB	338	NND 897574	Box 4; File: Port Historic and Operations Files
BOS 8	Report of Army Manifested Cargo in Measurement Tons for the Month of October 1955	NAv	10/31/55	NARA-SB	338	NND 897574	Box 4; File: Port Historic and Operations Files
BOS 9	Report of Army Manifested Cargo in Measurement Tons for the Month of September 1955	NAv	9/30/55	NARA-SB	338	NND 897574	Box 4; File: Port Historic and Operations Files
BOS 10	Report of Army Manifested Cargo in Measurement Tons for the Month of August 1955	NAv	8/31/55	NARA-SB	338	NND 897574	Box 4; File: Port Historic and Operations Files
BOS 11	Report of Army Manifested Cargo in Measurement Tons for the Month of July 1955	NAv	7/31/55	NARA-SB	338	NND 897574	Box 4; File: Port Historic and Operations Files
BOS 12	Report of Army Manifested Cargo in Measurement Tons for the Month of June 1955	NAv	6/30/55	NARA-SB	338	NND 897574	Box 4; File: Port Historic and Operations Files

<i>Document ID</i>	<i>Title</i>	<i>Author</i>	<i>Date</i>	<i>Repository</i>	<i>Record Group</i>	<i>Collection</i>	<i>Location</i>
BOS 13	Report of Army Manifested Cargo in Measurement Tons for the Month of May 1955	NAv	5/31/55	NARA-SB	338	NND 897574	Box 4; File: Port Historic and Operations Files
BOS 14	Memorandum to: Group Operations Officer, Luke Field, T.H.	Johnston, Paul H., 2nd Lieut., Air Corps, Post Gas Officer	8/25/33	NARA-SB	18	NA	Box No. 1; File: 1933 Miscellaneous Memorandums, File under No. 300.9
BOS 15	Fourth Observation Squadron, Luke Field, T.H.	Ofsthun, 2nd Lieut., Air Corps, Operations Officer	7/10/33	NARA-SB	18	NA	Box No. 1; File: 1933 Miscellaneous Memorandums, File under No. 300.9
BOS 16	Fourth Observation Squadron, Luke Field, T.H.	Weyland, 1st Lieut., A.C., Commanding	8/15/33	NARA-SB	18	NA	Box No. 1; File: 1933 Miscellaneous Operations Memorandums, File under No. 300.7
BOS 17	Fourth Observation Squadron, Luke Field, T.H.	Weyland, 1st Lieut., A.C., Commanding	10/14/33	NARA-SB	18	NA	Box No. 1; File: 1933 Miscellaneous Operations Memorandums, File under No. 300.7
BOS 18	Training Memorandum Number 49	Melville, Phillips, Captain, Air Corps, Operations Officer	9/1/33	NARA-SB	18	NA	File: 1933 Training Memorandums File under 300.10
BOS 19	Memorandum to: Commanding Officer	Melville, Phillips, Captain, Air Corps, Operations Officer	11/7/33	NARA-SB	18	NA	Box 1 File: 1933 Miscellaneous Memorandums, Luke Field, File under No. 300.12
BOS 20	Operations Memorandum 63	Melville, Phillips, Captain, Air Corps, Operations Officer	12/11/33	NARA-SB	18	NA	Box 1; File: 1933 Operations Memorandums, File under No. 300.6
BOS 21	Training Program Number 4	Carroll, James B., Captain, Air Corps, Operations Officer	5/7/33	NARA-SB	18	NA	Box 1; File: 319.1
BOS 22	Training Program Number 3	NAv	10/14/32	NARA-SB	18	NA	Box 1; File: Yearly Training Program and Correspondence 1932-1933
BOS 23	8310th General Orders Record	NAv	12/24/54	NARA-SB	338	NA	Location: 2152E; Box 15; File: 8310th AU General Orders (Record)
BOS 24	SOP for Administrative Office	Zidar, James J., Capt. CmIC, Commanding	12/23/54	NARA-SB	338	NA	Location: 2152E; File: 8310th AU Administrative Memo (Record) 1954
BOS 25	SOP for Alerts (Chemical Platoon)	Zidar, James J., Capt. CmIC, Commanding	11/22/54	NARA-SB	338	NA	Location: 2152E; File: 8310th AU Administrative Memo (Record) 1954

<i>Document ID</i>	<i>Title</i>	<i>Author</i>	<i>Date</i>	<i>Repository</i>	<i>Record Group</i>	<i>Collection</i>	<i>Location</i>
BOS 26	Administrative Memorandum Number 5; SOP for Training Division	Zidar, James J., Capt. CmIC, Adjutant	1/7/55	NARA-SB	338	NA	Location 2152E; File: Publication Record Set 8310th AU Administrative Memorandums (1955)
BOS 27	Administrative Memorandum Number 18; SOP for Inventory of Chemical Items	Zidar, James J., Capt. CmIC, Adjutant	1/20/55	NARA-SB	338	NA	Location 2152E; File: Publication Record Set 8310th AU Administrative Memorandums (1955)
BOS 28	Untitles	NAV	10/1/54	NARA-SB	338	NA	Location 2152E; Box 15; File: Organization Planning Files 1954
BOS 29	Designation of Land Areas, Hilo Hawaii Naval Air Station	NAV	4/5/46	NARA-SB	270	Real Property Disposal Case Files	Box 36; File: General Lyman Field (AKA Hilo Military Reservation) W-Hawaii-16
BOS 30	Hickam Field, As Acquired by Order of Condemnation	Department of Engineer Office, HHD Fort Shafter	9/27/46	NARA-SB	291	ANNS 121-90-001; Real Property Disposal Files 1961-64	Box 12; File: Hawaii 436A Hickam Air Force Base, Moana Loa, Oahu, Hawaii
CSS 1	Air Forces in Alaska Part II Buildup to Dutch Harbor - June 1940	Cloe, John Haile	4/1/86	Elmendorf	NA	History Office	Cabinet 4, drawer 2
CSS 2	Big Delta AF Aux. Field	NAV	1949	Elmendorf	NA	History Office	Cabinet 7, Drawer 1
CSS 3	Atka Air Force Auxilliary Field	NAV	6/1/49	Elmendorf	NA	History Office	Cabinet 7, Drawer 1
CSS 4	History of Amchitka Air Base 11/42 to 6/44	Owens, Len G.	NAV	Elmendorf	NA	History Office	Cabinet 7, Drawer 1
CSS 5	Building Alaska with the US Army 1867-1958	NAV	12/31/58	Elmendorf	NA	History Office	Cabinet 4, Drawer 2
CSS 6	Fort Glenn Project	Unknown	NAV	Elmendorf	NA	History Office	Cabinet 7, Drawer 1
CSS 7	Detailed Report to Accompany "Stage 4" of Master Plans for Station Able, AK	NAV	4/15/48	Elmendorf	NA	History Office	Cabinet 7, Drawer 1
CSS 8	Project Summary Sheet for DERP-FUDS9CW Project #F10AK00550 Attu Island	NAV	1/6/93	Elmendorf	NA	History Office	FUDS Files
CSS 9	Amchitka	NAV	NAV	Elmendorf	NA	History Office	FUDS Files
CSS 10	Aniak Airport	Unknown	NAV	Elmendorf	NA	History Office	FUDS Files
CSS 11	What You Should Do If You Accidentally Encounter Old Chemical Warfare Material	NAV	NAV	Elmendorf	NA	History Office	FUDS Files



<i>Document ID</i>	<i>Title</i>	<i>Author</i>	<i>Date</i>	<i>Repository</i>	<i>Record Group</i>	<i>Collection</i>	<i>Location</i>
CSS 12	FEAF Annual History - 1948	NAv	1948	Hickam	NA	PACAF Command History	Annual Histories
CSS 13	FEAF Semi-Annual History	NAv	1949	Hickam	NA	PACAF Command History	Annual Histories
CSS 14	Chemical Warfare Service: Chemicals in Combat	Kleber, Brooks E. & Birdsell, Dale	1966	Hickam	NA	PACAF Command History	US Army in WWII
CSS 15	History Far East Air Forces: 1 July-31 December, 1949	NAv	5/1/50	Hickam	NA	PACAF Command History	Annual Histories
CSS 16	History Far East Air Forces: 1 January-30 June, 1950	NAv	1950	Hickam	NA	PACAF Command History	Annual Histories
CSS 17	History Far East Air Forces: 25 June-31 December, 1950	NAv	1950	Hickam	NA	PACAF Command History	Annual Histories
CSS 18	History Far East Air Forces: 1 January-30 June, 1951	NAv	1951	Hickam	NA	PACAF Command History	Annual Histories
CSS 19	History Far East Air Forces: July 1-December 31, 1951	NAv	1951	Hickam	NA	PACAF Command History	Annual Histories
CSS 20	History Far East Air Forces: January 1-June 30, 1951	NAv	1951	Hickam	NA	PACAF Command History	Annual Histories
CSS 21	History Far East Air Forces: 1 July-31 December, 1952	NAv	1952	Hickam	NA	PACAF Command History	Annual Histories
CSS 22	The Chemical Warfare Service: From Laboratory to Field	Brophy, Leo P.; Miles, Wyndham D.; Cochrane, Rexmond C.	1959	Hickam	NA	PACAF Command History	US Army in WWII, Technical Services
CSS 23	Untitled	NAv	1944	Hickam	NA	PACAF Command History	Wing History

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CSS 24	Index - Maps, Chart, Plans, Over-Sized Photographs	Unknown	several	Hickam	NA	PACAF Command History	Wing History
CSS 25	Wake Island - Concrete Dugout Hot Locker	NAv	1953	Hickam	NA	PACAF Command History	Wing History
CSS 26	Wake island CAA Facilities	NAv	5/4/51	Hickam	NA	PACAF Command History	Wing History
CSS 27	Bellows AFB/AFS 941-248-G and 941-251-G	NAv	1949	Hickam	NA	PACAF Command History	Wing History
CSS 28	Draft Environmental Assessment: Transfer and Reuse of Wake Island Airfield	NAv	6/94	Hickam	NA	PACAF Command History	Wing History
CSS 29	Oahu, Hawaii Trip May 31 - June 11, 1979	Grobmeier, A.H.	1979	Hickam	NA	PACAF Command History	Wing History
CSS 30	Island of Oahu, Makalapa Crater, Salt Lake, Red Hill	NAv	1934	Hickam	NA	PACAF Command History	Wing History
CSS 31	Untitled	NAv	1984	Hickam	NA	PACAF Command History	Wing History
CSS 32	Redesignation of Airfields	Travis, Robert F. B.G.	4/14/48	Hickam	NA	PACAF Command History	Wing History
CSS 33	Early History of Wheeler AFB	Jordan, Kaye A.	2/1/78	Hickam	NA	PACAF Command History	Wing History
CSS 34	Kaena Point Satellite Tracking Station	Unknown	2/15/80	Hickam	NA	PACAF Command History	Wing History
CSS 35	Kaala Air Force Station	Unknown	8/15/95	Hickam	NA	PACAF Command History	Wing History

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CSS 36	Draft: No Further Action Decision for Kaala Air Force Station - Installation Restoration Program	Okazaki, Rober M.	7/23/90	Hickam	NA	PACAF Command History	Wing History
CSS 37	Bonham AFB	Unknown	3/31/94	Hickam	NA	PACAF Command History	Wing History
CSS 38	Real Estate Historical Review - Bonham AFB/Barking Sands	NAv		Hickam	NA	PACAF Command History	Wing History
CSS 39	Photograph 941-407-G: Ammo Stg 235	NAv	8/1/49	Hickam	NA	PACAF Command History	Wing History
CSS 40	Bonham Air Force Base - Underground Structures	NAv	3/4/55	Hickam	NA	PACAF Command History	Wing History
CSS 41	History of the Ordnance Section: 17th Base HQ and Air Base Sq (Special), APO 951	NAv	4/1/44	Hickam	NA	PACAF Command History	Wing History
CSS 42	Kaukonahua Communications Annex	Unknown	2/17/93	Hickam	NA	PACAF Command History	Wing History
CSS 43	Kaukonahua Storage Annex	Cook, William J., Col	8/31/66	Hickam	NA	PACAF Command History	Wing History
CSS 44	Kokee Air Force Station	NAv	8/15/95	Hickam	NA	PACAF Command History	Wing History
CSS 45	Kokee Air Force Station: Basic Layout Plan	NAv	3/27/62	Hickam	NA	PACAF Command History	Wing History
CSS 46	Review of No Further Action Decision Documents, Kokee AFS, Kauai, HI	NAv	7/18/90	Hickam	NA	PACAF Command History	Wing History
CSS 47	News Release USAF	NAv	10/15/71	Hickam	NA	PACAF Command History	Wing History

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CSS 48	Land Management Plan - Bellows AFB	NAv	1966	Hickam	NA	PACAF Command History	Wing History
CSS 49	History of Bellows Air Force Station	NAv	NAv	Hickam	NA	PACAF Command History	Wing History
CSS 50	Unit History: 17th Base HQ & AB SQ (SP)	Sealy, Kenny H.	5/25/44	Hickam	NA	PACAF Command History	Wing History
CSS 51	Draft IRP: Phase I - Records Search, Hickam AFB	Hirota, Sam O.	7/83	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 52	Informal Technical Information Report for Site SS23	NAv	6/30/98	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 53	Final Management Action Plan (MAP) - Hickam AFB, Oahu	NAv	12/94	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 54	Final Management Action Plan - Kaena Point Satellite Tracking Station, Oahu	NAv	12/94	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 55	Final Management Action Plan - Kaala AFS, Oahu	NAv	11/96	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 56	Final Installation Restoration Program: Phase I - Records Search Wheeler Army Air Field	Hirota, Sam O.	7/83	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 57	Management Action Plan - Wake Island Air Field	NAv	11/96	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 58	Final Management Action Plan - Punamano Air Force Station	NAv	11/96	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 59	Final Management Action Plan - Kokee Air Force Station, Kauai	NAv	11/96	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 60	Final Management Action Plan - Palehua Air Force Sofar Observatory Research Site (RSC), Oahu	NAv	11/96	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 61	Final Management Action Plan - Wheeler Army Air Field, Oahu	NAv	11/96	Hickam	NA	15 AB Wing	15 CES/CEV

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CSS 62	Final Installation Restoration Program Phase I Initial Assessment/Records Search - Kaala AFS	NAv	2/87	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 63	Draft Site Characterization for Risk Screening on Past Hazardous Waste Sites and Development of a Relative Risk Ranking Approach 15 AB Wing Multi-Bases	NAv	7/94	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 64	Historical Review-Engineering Evaluation/Cost Analysis for Operable Unit 1 (Sites LF01, DP17, SD22, DP06) Bellows AFS	NAv	9/25/98	Hickam	NA	15 AB Wing	15 CES/CEV
CSS 65	Explosive Dumping Areas Established	Unknown	1/25/46	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 66	Tons of Poison Gas Here To Be Shipped to Coast	Unknown	5/22/47	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 67	Mystery Gas on Wake	Lund, Kaye	4/26/68	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 68	Kaneohe Marine Dies from Unknown Fumes	Unknown	5/11/68	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 69	Atoll Research Bulletin #122: Marine Toxins from the Pacific II. The Contamination of Wake Island Lagoon	NAv	3/30/69	Hickam	NA	15th Wing History Office	15th Wing Environmental Records
CSS 70	Inouye Will Fight Any Isle Nerve Gas Tests	Unknown	7/2/69	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 71	No Answer on Nerve Gas Here	Hoyt, Richard	7/28/69	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 72	The Silent Weapons - Germs and Gas	Harvey, Steve	8/18/69	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue

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CSS 73	State May Cancel Army Lease	Boswell, Douglas	9/17/69	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 74	The Background of Gas Tests	Unknown	9/17/69	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 75	3 Burned by Toxic Chemical	Turner, Charles	9/10/76	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 76	Chemical Warfare Kits Removed from Oahu	Unknown	1/17/78	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 77	Censored Book on Chem-Arms Transit Released	Berg, Jim	8/22/90	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 78	Military Moves Chemical Agents	Unknown	1/16/78	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 79	Diving Interest Map of Wake Island	Transano, Vincent A., Ph.D.	9/9/97	Hickam	NA	15th Wing History Office	15th Wing Environmental Records
CSS 80	Histories of the Ordnance Section - 11th AF	NAv	3/17/45	Elmendorf	NA	History Office	Reel ??, Frame 1004
CSS 81	Histories of CWS Section - 11th AF: 1 July, 1944 to 31 March, 1945	NAv	1945	Elmendorf	NA	History of CWS Section	Reel ??, Frame 1060
CSS 82	Army Will Move Isle Toxic Agents	Nelson, Lyle	4/21/77	UH Hamilton	NA	Honolulu Advertiser/Star Bulletin	Morgue
CSS 83	Installation Restoration Program	Unknown	NAv	Hickam	NA	15th Wing History Office	Wheeler File
CSS 84	Untitled	Godman		NARA-AK	270	Box 34	W-TA-28, Fort Morrow, Alaska Real Property Disposal Advice
CSS 85	Annette Army Air Field	Legal Division, PLE	3/19/47	NARA-AK	270	Box 35	Metlakatla, Alaska Annette Army Air Field Disposal Data
CSS 86	Yakutat, Alaska - Airbase - Project Location & General Layout	USACOE	1945	NARA-AK	270	Real Property Disposal Case Files, 1944 to 1949	Yakutat, Alaska Yakutat Airfield and Garrison Site

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CSS 87	Real Property Action Report	NAV	11/26/48	NARA-AK	270	Real Property Disposal Case Files, 1944 to 1949	Yakutat, Alaska Yakutat Airfield and Garrison Site
CSS 88	Declaration of Surplus Real Property	War Department, Corps of Engineers	1/10/47	NARA-AK	270	Real Property Disposal Case Files, 1944 to 1949	St. Paul Island Airfield and Garrison Site
CSS 89	Real Property Classification	NAV	3/7/47	NARA-AK	270	Real Property Disposal Case Files, 1944 to 1949	Glacier Bay National Monument, Alaska
CSS 90	Status of Army Organizations	Starr, E.F, HQ, Alaska General Depot	6/1/49	NARA-AK	92	Alaska General Depot, General Orders: 1948 to 1954	Correspondence Files, General Orders 1948 to 1951
CSS 91	Depot Commander's Briefing	Roberts, George, Chemical Supply Officer	11/14/55	NARA-AK	92	Alaska General Depot, Fort Richardson, AK, General Orders 1948 to 1954	File 337: Correspondence (general) 1955
CSS 92	Yakutat Landing Field Alaska, Layout Plan	District Engineer, Seattle	3/5/46	NARA-AK	270	Box 33, Map Folder 2	Yakutat, Alaska Yakutat Airfield and Garrison Site
CSS 93	Yakutat Landing Field, Alaska Layout Plan	District Engineer, Seattle	3/5/46	NARA-AK	370	Box 33, Map Folder	Yakutat, Alaska Yakutat Airfield and Garrison Site
CSS 94	Fort Morrow, Alaska Airfield and Garrison Site, Project Location and General Layout	Engineer Office, Anchorage	Nav	NARA-AK	270	Box 34, Map Folder	Port Heiden, Alaska Fort Morrow Classification and Maps
CSS 95	Annette, Alaska Airfield and Garrison Site Plot Plan	Alaskan Dept, Engineer Office	1/1/46	NARA-AK	270	Box 35, Map Folder	Annette Island Airfield and Garrison Site, Declaration of Surplus Real Estate
CSS 96	St. Paul Island, Alaska Airfield and Garrison Site Project Location and General Layout	US Engineer Office, Anchorage, Alaska	2/9/43	NARA-AK	270	Box 22, Map Folder	St. Paul Island, Alaska Air Field and Garrison Site Classified and Surplus Data
CSS 97	Yakutat Landing Field, Alaska Layout Plan	District Engineer, Seattle	1943	NARA-AK	270	Box 33, Map Folder	Yakutat, Alaska Yakutat Airfield and Garrison Site
CSS 98	Interview with Army Environmental Personnel, Fort Richardson, AK	Steen, Cathy	8/3/99	Fort Richardson	NA	NA	DPW, Environmental

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CSS 99	Joint Agreement on Division of Responsibilities in the Operation of Separate Army and Air Force Installations at Fort Richardson and Elmendorf Air Force Base	Army, HQ	5/26/50	NPRC	018	57-A-3023	Box 1 of 1, File 400.4
CSS 100	Chemical Warfare Training	Lowey, James G., Major, USAF	4/21/49	NPRC	342	53-A-3003	Box 5 of 7, File 353
CSS 101	Briefing by Chief, Operations and Training Division, Alaskan Air Command	Adjutant General	1947	NPRC	018	57-B-3023	Box 1 of 1, File: Alaskan Air Command, Adjutant General's Office
CSS 102	Operation of Station and Accomplishment of Mission	HQ, US Troops	4/25/47	NPRC	018	57-B-3023	Box 1 of 1, File: Alaskan Air Command, Adjutant General's Office, 1947
CSS 103	Inactivation of Dutch Harbor	Conway, Harold J.	7/25/47	NPRC	018	57-B-3023	Box 1 of 1, File: Alaskan Air Command, Adjutant General's Office, 1947
CSS 104	Disbandment	HQ, Fort Mears	5/24/47	NPRC	018	57-B-3023	Box 1 of 1, File: Alaskan Air Command, Adjutant General's Office, 1947
CSS 105	Implementation of Wing Base Plan	HQ Alaskan Air Command	2/17/48	NPRC	018	57-A-3023	Box 1 of 1, File: Alaskan Air Command, Adjutant General's Office, 1947
CSS 106	All Organizations and Units, Fort Richardson, Alaska	NAv	2/1/48	NPRC	018	57-A-3023	Box 1 of 1, File: Alaskan Air Command, Adjutant General's Office, 1947
CSS 107	Untitled	NAv	8/28/47	NPRC	018	57-A-3023	Box 1 of 1, File: Alaskan Air Command, Adjutant General's Office, 1947
CSS 108	Information on Re-Organization of Supply Squadrons	Buelow, Albert G., Major, USAF	6/29/48	NPRC	018	57-A-3023	Box 1 of 1, File: 322, Organization of Tactical Units
CSS 109	Final Report Phase I Packrat Junior: Findings and Recommendations	Paderat Jr. Team	4/9/48	NPRC	018	57-A-3023	Box 1 of 1, File: Final Report Packrat Jr.
CSS 110	Amchitka POL Dump Photos	Paderat Jr. Team	4/9/48	NPRC	018	57-A-3023	Box 1 of 1, File: Final Report Phase I Packrat Jr.
CSS 111	Notes on Otter Point and Umnak Island	HQ, Alaska Defense Command	7/5/41	NPRC	018	57-D-3023	Box 1 of 1, File 600 Umnak
CSS 112	Building List, Umnak Garrison	War Department	12/16/41	NPRC	018	57-D-3023	Box 1 of 1, File 600 Umnak



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CSS 113	Estimated Troops and Facilities for Otter Point	NAv	NAv	NPRC	018	57-D-3023	Box 1 of 1, File 600 Umnak
CSS 114	Instructions for Preparation of Reports for Nome Garrison	War Department	12/3/42	NPRC	018	57-D-3023	Box 1 of 1, File 600 Umnak
CSS 115	Program for Training Air Force Reserve Officers on Inactive Duty Status	HQ, FEAF	10/13/50	NPRC	342	55-H-5005	Box 14 of 24, File 353 Training
CSS 116	Untitled	Alaskan Air Command	1950	NPRC	342	55-D-6050	Box 1 of 1, File: Command Summary 3rd Quarter Report 1950
CSS 117	Untitled	Alaskan Air Command	1950	NPRC	342	55-D-6050	Box 1 of 1, File: Command Summary, 4th Quarter Report 1950
CSS 118	Untitled	Alaskan Air Command	1950	NPRC	05	36-11-7-3	Box 1 of 1, File Alaskan Air Command, Budget Estimates 1950
CSS 119	Logistical Support of Far East Air Force by the Japan Logistical Command	NAv	6/1/51	NPRC	342	55-A-4096	Box 15 of 22, File 400.4
CSS 120	Weekly Progress Report	HQ, Alaskan Air Command	12/17/48	NPRC	018	57-A-3023	Box 1 of 1, File Alaskan Air Command, Adjutant General's Office, 1948,
CSS 121	Untitled	HQ, 5th Air Force	1/18/51	NPRC	342	55-A-4096	Box 15 of 22, File 400.312
CSS 122	Untitled	HQ, FEAF	10/1/51	NPRC	342	55-A-4096	Box 19 of 22, File 470
CSS 123	Untitled	CG, FEAF Tokyo	6/28/51	NPRC	342	55-A-4096	Box 19 of 22, File 470
CSS 124	Untitled	Gaffney, Major, USAF	2/8/51	NPRC	342	59-A-3040	Box 5 of 43, File 1951 GQS AAC Decimal Letters
CSS 125	Kit, Chemical Agent Detector, E16	General Headquarters, Far East Command	11/17/51	NPRC	342	55-I-5005	Box 26 of 36, File 470
CSS 126	Untitled	HQ, FEAF	11/17/51	NPRC	342	55-I-5005	Box 26 of 36, File 470
CSS 127	Unit Gas Officer and Unit Non-Commissioned Officer School	HQ, 57th Fighter Wing	9/8/49	NPRC	342	53-A-3003	Box 5 of 7, File 352.11
CSS 128	Passive Defense of Air Force Installations	NAv	1/1/52	NPRC	342	59-A-3040	Box 30 of 43, File: Training 2 Ground Defense Training
CSS 129	Annex Number L to Administrative Plan #1, Chemical and Radiological Defense	NAv	NAv	NPRC	342	55-D-6050	Box 1 of 1, File: Administrative Plan I-50, Annex L

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CSS 130	Alaskan Air Command Global Warfare Estimated Requirements, New Construction	Alaskan Air Command	9/18/50	NPRC	342	55-A-6050	Box 1 of 1, File: 400 Supplies and Service Equipment
CSS 131	Untitled	COMGEN FEAF	5/31/49	NPRC	342	51-A-4078	Box 7 of 9, File: 601
CSS 132	Training of Unit Gas Personnel	HQ, FEAF	11/1/50	NPRC	342	55-H-5005	Box 14 of 24, 353 - Training
EMB 1	Memorandum: Report of visit to Alaska	Allen, William J., Colonel, Chemical Corps	8/3/51	CBDCOM/HO	NA	Unclassified	File: Trip report by Cnl William Allen to AK
EMB 2	Letter: Description of a Chemical Troop training exercise	Unmacht, George, Colonel, CWS	12/11/42	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 3	Letter: Level of CWS materiel in Hawaii	Unmacht, George, Colonel, CWS	1/27/45	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 4	Letter: Stockage of Chemical Munitions	Waitt, Alden, Brigadier General, CWS	2/17/45	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 5	Summary of Activities of CWS in POA under the direction of Col. Geo. F. Unmacht	Unmacht, George, Colonel, CWS	2/19/45	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 6	Letter: CWS service elements in the Pacific after WWII	Waitt, Alden, Brigadier General, CWS	10/29/45	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 7	Letter: Distribution of Hawaiian CWS History	Waitt, Alden, Brigadier General, CWS	2/27/46	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 8	Letter: Storage of CWS materiels prior to use in nuclear weapons testing	Unmacht, George, Colonel, CWS	3/8/46	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 9	Letter: Photographs of Chemical Warfare Depot at Schofield Barracks	Unmacht, George, Colonel, CWS	3/1/46	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 10	Letter: Storage of CWS materiel after WWII in Hawaii	Unmacht, George, Colonel, CWS	6/24/46	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 11	Untitled	Unmacht, George, Colonel, CWS	10/6/46	CBDCOM/HO	NA	Unclassified	MIDPAC Files, MIDPAC Personal Letters, 11/42-10/46
EMB 12	Untitled	Dunlop, Robert H., Brigadier General, Adjutant General	8/26/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2

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EMB 13	Untitled	Erlandson, G. G., Captain, Adjutant General	9/15/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2
EMB 14	Use of Gas in Pacific Theaters	Unknown	1944	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation", drawer 2
EMB 15	Theater Plans for Chemical Warfare	Waitt, Alden, Brigadier General, CWS	6/26/43	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2
EMB 16	Conference with General Richardson	Waitt, Alden, Brigadier General, CWS	11/14/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2
EMB 17	Tab A: Chemical Warfare Estimate: Axis, Japan, and United Nations	Office of the Chief, CWS	5/8/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2
EMB 18	Air Transport Command	Unknown	8/10/43	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2
EMB 19	Data on Containers Filled with H	Unmacht, George, Colonel, CWS	4/27/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2
EMB 20	Study of Development of Toxic Gas with Relation to Possible Use in Asiatic Theater	Waitt, Alden, Brigadier General, CWS	NAV	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Use of Gas in the Pacific Theater
EMB 21	U.S. Policy and International Relations on Gas Warfare	Unknown	NAV	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Use of Gas in the Pacific Theater
EMB 22	The Use of Gas in the Pacific Theater	Heller, Preston, Colonel, CWS	5/26/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Use of Gas in the Pacific Theater
EMB 23	Untitled	Unmacht, George, Colonel, CWS	12/31/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Development of the Units in the POA
EMB 24	Escaping Irritant Gas Plagues Wake Employees	Miyachi, George	1957	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Wake Island Newspaper - Escaping Irritant Gas
EMB 25	CWS Units in Pacific Areas	Unknown	9/1/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: CWS Units in the Pacific, 1 Sept., 1945

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EMB 26	Tropical Weather Operations Participated in by Chemical Combat Units During World War II	Denlinger, M.L., Major Cml. C.	NAv	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Tropical Weather Operations Participated in by Chemical Combat Units During World War II
EMB 27	Untitled	Unknown	6/10/43	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Stocks of Chemical in POA and MIDPAC, 10 June, 1943
EMB 28	Theater Plans for Chemical Warfare	Joint Chiefs of Staff	6/13/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Theater Plans for CW in the Pacific, 1945
EMB 29	Theater Plans for Chemical Warfare	Chief of Staff, US Army	1945	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Theater Plans for CW in the Pacific, 1945
EMB 30	Availability and Production of Chemical Munitions	Chief of Staff, US Army	6/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Theater Plans for CW in the Pacific, 1945
EMB 31	Testing of H Filled Munitions	Neville, William G., Major, CWS	9/22/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, MIDPAC Personal Letters (from July 1945 on)
EMB 32	Untitled	CG, South Pacific Base Command	10/14/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Notes on Disposition of Materials - SWPA, 1945
EMB 33	Untitled	CINC, Army Forces Pacific	10/04/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Notes on Disposition of Materials - SWPA, 1945
EMB 34	Untitled	CINC, Army Forces, Pacific Administration	10/13/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Notes on Disposition of Materials - SWPA, 1945
EMB 35	Deployment CWS Troops in Middle Pacific	Unmacht, George, Colonel, CWS	4/1/46	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: CWS Troop Deployment/Middle Pacific 1946
EMB 36	Participation in the Final Phase of the Pacific War	United States Army Forces, Middle Pacific	1945	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Participation in the Final Phase of the Pacific War..., 1945
EMB 37	Untitled	CINCAF, Pacific	8/31/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Excess Munitions in the Area of the SWPA, 1945

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EMB 38	Report on Trip of BG A.H. Waitt and Lt. Col. J.K. Javitts to POA and SWPA	Waitt, Alden, Brigadier General, CWS	12/15/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Overseas Report/SWPA, SPA, CPA, 1944
EMB 39	Supply Support in the Pacific (tentative outline)	Unknown	8/10/50	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Tentative Outline Supply Support in the Pacific, 1943-44
EMB 40	Chemical Units in Pacific Theaters	Unknown	NAv	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Trip report B.G. Waitt and Lt. Javitz to POA and SWPA, 1944
EMB 41	Report on Trip to SWPA, SPA and CPA	Unknown	NAv	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 2, File: Trip report on SWPA, SPA and CPA, undated
EMB 42	A War Zone Familiarization Manual for the POA	Assistant Chief of Air Staff, Training	1/1/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: War Zone Familiarization, POA - 1945
EMB 43	Computation for Allowances for Overseas Bases	Ditto, B.C., BG, CWS	3/28/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Report of Authorization Allowances of Equipment and Supplies for Overseas Command - 1945
EMB 44	Report of Authorized Allowances of Equipment and Supplies for Overseas Command - Hawaii	OC-CWS, Planning Branch, Supply Division	3/1/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Report of Authorization Allowances of Equipment and Supplies for Overseas Command - 1945
EMB 45	Report of Authorized Allowances of Equipment and Supplies for Overseas Command - Central Pacific Minus Hawaii	OC-CWS, Planning Branch, Supply Division	3/1/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Report of Authorization Allowances of Equipment and Supplies for Overseas Command - 1945
EMB 46	Computation of Allowances for Overseas Bases	War Department	3/22/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Report of Authorization Allowances of Equipment and Supplies for Overseas Command - 1945
EMB 47	Capabilities of Implementing a Decision to Initiate Retaliatory Chemical Warfare Against the Japanese	Hull, J.E., Major General, War Department	12/14/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Chemical Warfare Theater Plan - United States Forces, POA 1943-45

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EMB 48	Trip POA & SWPA	Waite, Alden, Brigadier General, CWS	11/30/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Trip to POA & SWPA, General Montgomery, 1944
EMB 49	Deployment CWS Troops in POA	Unmacht, George, Colonel, CWS	3/2/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Deployment of CWS Units in POA, March 1945
EMB 50	Critical Items Report: Pacific Ocean Area	Ditto, B.C., BG, CWS	6/25/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: POA Critical Item Report, 1945
EMB 51	Day of Supply for Ammunition (POA)	Ulio, J.A., Major General	9/8/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Readiness Plans, POA, 1945
EMB 52	Answers to Questions by Col. Javits at Conference	Unknown	10/3/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Readiness Plans, POA, 1945
EMB 53	Untitled	Unmacht, George, Colonel, CWS	6/1/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Readiness Plans, POA, 1945
EMB 54	Untitled	Unmacht, George, Colonel, CWS	1945	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Readiness Plans, POA, 1945
EMB 55	Appendix B: Storages of Gas-Filled Bombs	Unknown	3/16/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Readiness Plans, POA, 1945
EMB 56	Organization of Chemical Warfare Service in POA	NAv	NAv	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Organization and Function of Forces in the POA and SWPA, 1942-1945
EMB 57	Major & Selected Subordinate Commands	NAv	1/1/46	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 3, File: Organization and Function of Forces in the POA and SWPA, 1942-1945
EMB 58	Navy Logistics	Unknown	NAv	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 1, File: Central Pacific Area/Theater Plans for Chemical Warfare, 1943-1944

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EMB 59	Supply Toxics Policy - POA	Waite, Alden, Brigadier General, CWS	11/21/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 1, File: Central Pacific Area/Theater Plans for Chemical Warfare, 1943-1944
EMB 60	Pacific Ocean Area Air Plans for the Retaliatory Use of Chemical Warfare against the Japanese	Heller, Preston B., Colonel, CWS	8/3/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 1, File: Central Pacific Area/Theater Plans for Chemical Warfare, 1943-1944
EMB 61	Theater Plans for Chemical Warfare	Unmacht, George, Colonel, CWS	7/8/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 1, File: Central Pacific Area/Theater Plans for Chemical Warfare, 1943-1944
EMB 62	Deployment CWS Troops in POA	Waite, Alden, Brigadier General, CWS	11/4/44	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 1, File: Central Pacific Area/Theater Plans for Chemical Warfare, 1943-1944
EMB 63	Theatre Plans for Chemical Warfare	Unmacht, George, Colonel, CWS	8/17/43	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 1, File: Central Pacific Area/Theater Plans for Chemical Warfare, 1943-1944
EMB 64	Observation Report/Lt. Col. Drennon	Drennon, Lt. Col., CWS	8/1/45	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 1, File: Observation Report/Colonel Drennon, AFWESPAC, AFMIDPAC, POA, 1945
EMB 65	Untitled	Gillet, Norman D., Lt. Col., CWS	2/6/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 66	Chemical Requirements, Hawaiian Department	Youngman, John P., Major, CWS	2/17/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 67	Monthly Material Status Report - Copper (Hawaii)	Gillet, Norman D., Lt. Col., CWS	12/9/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 68	Monthly Material Status Report - Hawaiian Department	Statistics Branch, War Department	8/15/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 69	Untitled	Gillet, Norman D., Lt. Col., CWS	8/14/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 70	Requisition	Unmacht, George, Colonel, CWS	8/14/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 71	Untitled	Shepherd, Earl L., Captain, CWS	8/4/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942

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EMB 72	Monthly Material Status Report - Hawaiian Department	Statistics Branch, War Department	7/15/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 73	Untitled	Unmacht, George, Colonel, CWS	7/2/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 74	Requisition	Unmacht, George, Colonel, CWS	6/28/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 75	Monthly Material Status Report - Hawaiian Department	Statistics Branch, CWS	6/15/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 76	Monthly Material Status Report - Hawaiian Department	Statistics Branch, CWS	5/15/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 77	Status of Chemical Warfare Equipment in Hawaii	Gillet, Norman D., Lt. Col., CWS	5/27/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 78	Shipments - Shipping Orders	Youngman, John P., Lt. Col., CWS	5/24/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 79	Monthly Material Status Report - Hawaiian Department	Statistics Branch, War Department	4/25/42	CBDCOM/HO	NA	Unclassified	Cabinet "Pacific Theater of Operation" Drawer 5, File: Middle Pacific, 1942
EMB 80	Eielson Air Force Base - Railroad R/W Site	ACOE	10/05/49	NARA-MD	121	NA	Box 12
EMB 81	Basic Layout Plan - Elmendorf Air Force Base	Department of the Air Force	7/1/62	NARA-MD	121	NA	Box 12
EMB 82	Middleton Island Air Force Field	Department of the Army	1/23/54	NARA-MD	291	NA	Box 142
EMB 83	Middleton Island, Alaska, Real Estate Plan	Federal Aviation Agency	8/8/60	NARA-MD	291	NA	Box 142
EMB 84	History of the 20th Air Force	Unknown	NAv	NPRC	NA	Unclassified	NA
EMB 85	History of the US Army Air Forces in the Pacific - FEAF	Unknown	NAv	NPRC	NA	Unclassified	NA
EMB 86	US Troops, Eielson AFB	Unknown	NAv	NPRC	NA	Unclassified	NA
EMB 87	Army Air Base, Bellows Field, T.H.	Unknown	NAv	NPRC	NA	Unclassified	NA
EMB 88	Coordinating Draft Survey and Analysis Report - 2nd Edition	Project Manager	8/9/95	COMNAVBASE Seattle	NA	NA	NA
EMB 89	Assignment of Site for CWS Plant and Laboratory	McMillin, Lt. Col., CWS	4/25/42	NARA-MD	338	Box G-672	File 2065
EMB 90	Aliamanu Military Reservation	NAv	1/31/40	NARA-MD	338	Box G-672	File 2000



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EMB 91	Table of Underground Storage Requirements	NAv	3/4/37	NARA-MD	338	Box G-672	File 2012
EMB 92	Housing and Storage Requirements, Chemical Ammunition	NAv	2/3/37	NARA-MD	338	Box G-672	File 2012
EMB 93	Technical Advice Reference Underground Storage Project	Shekerjian, Haig, CWS	4/12/37	NARA-MD	338	Box G-672	Folder 2012
EMB 94	Untitled	Copthorne, W.A.	9/3/37	NARA-MD	338	Box G-672	File: 2012
EMB 95	Funds for Underground Storage of Chemical Munitions	Copthorne, WA	11/22/37	NARA-MD	338	Box G-672	Folder 2012
EMB 96	Maintenance and Repair of Underground Chemical Storage Facilities at Schofield Barracks	CWS	10/21/38	NARA-MD	338	Box G-672	Folder 2012
EMB 97	Hawaiian Air Depot: Buildings, Utilities, and Appurences	NAv	3/1/42	NARA-MD	338	Box G-672	File 2039
EMB 98	Bellows Field: Airports and Camps	NAv	4/1/41	NARA-MD	338	Box G-672	File 2058
EMB 99	Schofield Barracks, T.H.: Progress Map, Chemical Storage Project	NAv	4/30/38	NARA-MD	338	Box G-672	File 2012.1
EMB 100	Motor Repair Depot	NAv	1/1/42	NARA-MD	338	Box G-672	File 2039
EMB 101	Status of Ground Ammunition Emergency Reserve in Marianus	Kraker, G.P, Chief of Staff, Commander Forward Area, Central Pacific	3/31/45	NARA-MD	338	Box G-346	File 471.86
EMB 102	Marking of Unused Engineer Explosives	Commanding General, Army Air Force, Mid Pac	8/13/45	NARA-MD	338	Box G-346	File 471.86
EMB 103	Destruction of Instantaneous Blasting Fuse	Fleming, Robert J.	5/29/41	NARA-MD	338	Box G-346	File 471.86
EMB 104	Notes on Underwater Demolition	Dundore, M.W.	NAv	NARA-MD	338	Box G-346	File 471.86
EMB 105	Dumping Ground for Explosives, Ammunition, and Chemicals	CC, US Pacific Fleet	7/9/45	NARA-MD	338	Box G-346	File 471.86
EMB 106	Returned Ammunition and Explosives from Overseas Theaters	Ordnance Department	5/9/44	NARA-MD	338	Box G-346	File: 471.0
EMB 107	Ammunition Status Report - USAF in Central Pacific Area	NAv	12/1/43	NARA-MD	338	Box G-346	File 471.0

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EMB 108	Ammunition Status - Central Pacific Area	CG, CPA	2/1/44	NARA-MD	338	Box G-346	File 471.0
EMB 109	USARPAC Chemical Corps School	Smith, LS	3/31/50	NARA-MD	338	Box 1	File: Hawaiian Unit History
EMB 110	Calendar of Events (Reports Control Symbol)	Hawaiian Chemical Depot	2/20/50	NARA-MD	338	Box 1	Hawaiian Chemical Depot, Unit History 1949-50
EMB 111	Calendar of Events (Reports Control Symbol)	Hawaiian Chemical Depot	2/3/50	NARA-MD	338	Box 1	Hawaiian Chemical Depot, Unit History 1949-50
EMB 112	Unit History	Hawaiian Chemical Depot	1/18/50	NARA-MD	338	Box 1	Hawaiian Chemical Depot, Unit History 1949-50
EMB 113	Calendar of Events (Reports Control Symbol)	Hawaiian Chemical Depot	1/18/50	NARA-MD	338	Box 1	Hawaiian Chemical Depot, Unit History 1949-50
EMB 114	Final Progress Map: Chemical Storage Project, Schofield Barracks, TH	NAV	6/25/38	NARA-MD	338	Box G-672	Folder 2012.1
EMB 115	Use of CN, CN-DM, and DM Munitions	ACOE	4/1/43	NARA-MD	338	Box G-345	File 470.6
EMB 116	Survey of the Chemical Warfare Service Impregnation Plant, Building 363, Schofield Barracks	Mawhinney	4/1/44	NARA-MD	338	Box G-345	Folder 470.6
EMB 117	Location of Temporary Magazines at Wheeler Field	McDole, OM, Assistant Adjutant General	11/7/41	NARA-MD	338	Box G-312	File: Projects "H"
EMB 118	Location of Magazines for Temporary Construction at Wheeler Field TH	Department Commander	8/8/41	NARA-MD	338	Box G-312	File: Projects "H"
EMB 119	Hickam Field Bomb Storage	NAV	NAV	NARA-MD	338	Box G-312	File: Projects "H"
EMB 120	Magazines for Storage of Explosives	Short, Walter C	6/19/41	NARA-MD	338	Box G-312	File: Projects "H"
EMB 121	Location of Seven Small Arms Storage Magazines	McDole, OM, Assistant Adjutant General	10/8/41	NARA-MD	338	Box G-312	File: Projects "H"
EMB 122	Location of Bomb Storage Magazines at Hickam Field	Wyman, Theodore, Jr.	9/5/41	NARA-MD	338	Box G-629	File 633
EMB 123	Ammunition Storage, Hickam AFB	USACOE	10/2/40	NARA-MD	338	Box G-629	File 633
EMB 124	Additional Ammunition Storage Space, Hawaiian Department	Major General, Adjutant General	10/7/40	NARA-MD	338	Box G-629	File 633

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EMB 125	Project Estimate for Additional Ammunition Storage Space, Hickam Field	Adjutant General	11/5/40	NARA-MD	338	Box G-629	File 633
EMB 126	Project Estimate for Additional Ammunition Storage Space, Hickam Field	Baroll, Ordnance Department	7/30/40	NARA-MD	338	Box G-629	File 633
EMB 127	Storage Magazines for 4.2 inch Chemical Shell	Short, Walter C.	4/28/41	NARA-MD	338	Box G-421	File 633/8
EMB 128	Transfer of Completed Fortification Works	Bermel, PE, Major	4/17/39	NARA-MD	338	Box G-421	File 633/8
EMB 129	Housing and Storage Requirements Hawaiian Defense Project	NAV	10/23/37	NARA-MD	338	Box G-421	File 633/8
EMB 130	Untitled	Copthorne, WA	9/3/37	NARA-MD	338	Box G-421	File 633/8
EMB 131	Chemical Storage Project, Schofield Barracks	Ross, LT	8/24/37	NARA-MD	338	Box G-421	File 633/8
EMB 132	Untitled	Conley	9/1/37	NARA-MD	338	Box G-421	File: 633/8
EMB 133	Housing and Storage Requirements. Chem. Am.	A.G. C.W.S.	4/29/37	NARA-MD	338	Box G-421	File 633/8
EMB 134	Ammunition Storage projects, Overseas Departments	Dist. Engr.	3/29/40	NARA-MD	338	Box G-421	File 633/12
EMB 135	Construction of Magazines	Air Officer	6/30/41	NARA-MD	338	Box G-413	File 633
EMB 136	Space Allocation to Air Corp on Bomb-proof Ammunition Storage project, Schofield Barracks, T.H.	Air Officer	4/29/41	NARA-MD	338	Box G-413	File 633
EMB 137	Hawaiian Chemical Warfare Depot Schofield Barracks, T.H.	McMillin, J.M., Lt. Col. CSW Commanding	5/1/42	NARA-MD	338	Box G-413	File 633
EMB 138	Construction of Magazine	Cml	8/7/43	NARA-MD	338	Box G-413	File 633
EMB 139	Chemical Warfare Magazine Project	G-4	6/25/42	NARA-MD	338	Box G-413	File 633
EMB 140	Completion of Magazines	McMillin, J.M., Major, C.W.S., Commanding	1/17/42	NARA-MD	338	Box G-413	File 633

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EMB 142	O.C.E. Transfer Form	Garnett, R.R., Lt. Col., Corps of Engineers, Assistant	7/10/45	NARA-MD	338	Box G-337	File 440
EMB 143	Comparative Efficiency Report on Vehicles Hawaiian Department Service Forces	Waters, W.A., 2nd Lt. AGD, Asst. AG.	6/8/43	NARA-MD	338	Box: G-337	File: 451
EMB 144	Comparative Efficiency Report on Vehicles Hawaiian Department Service Forces	Waters, W.A.	5/8/43	NARA-MD	338	Box: G-337	File: 451
EMB 145	Chemical Warehouse, Hickam Field	Engr.	11/3/41	NARA-MD	338	Box: G-358	File: 600.12
EMB 146	Hickam AFB, Misc. Maps, WWII Era	NAv	NAv	NARA-MD	338	Box: G-358	File: 600.12
EMB 147	Work Order No. #6HF-51	Lee, Edwin C.M., Capt., C.E., Asst. Engineer	7/8/45	NARA-MD	338	Box: G-355	File: 600.12
EMB 148	Gas Filling Station, Oahu, T.H.	Wood, W.A., Jr., Captain, Corps of Engineers, Assistant Department Engineer	3/12/34	NARA-MD	338	Box: G-420	File: 633/5
EMB 149	Memorandum to Colonel Herman	R.J.F., Jr.	8/19/41	NARA-MD	338	Box: G-420	File: 633/7
EMB 150	Project Estimate for Additional Ammunition Storage Space, Hawaiian Department	Dick, Wm. W., Adjutant General	10/14/40	NARA-MD	338	Box: G-420	File: 633/7
EMB 151	Report of Ammunition Storage Requirements, Hawaiian Department	Olsmith, Vernon G., Colonel, (Inf), G.S.C., A.C. of S., G-4, Chairman	7/15/39	NARA-MD	338	Box: G-420	File: 633/7
EMB 152	Proposed Location of New Igloo Type Magazines at Hickam Field	Dpartment Engineer Office H.H.F. Ft. Shafter	7/28/39	NARA-MD	338	Box: G-420	File:633/7
EMB 153	Relocation of Depots	Hettrick, H.L., Captain, Field Artillery, Adjutant	9/6/44	NARA-MD	338	Box: G-479	File: 681
EMB 154	Expansion of 13th Replacement Depot	G-3	2/6/44	NARA-MD	338	Box: G-479	File:681

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EMB 155	Job Order No. C-26.1, Warehouses for Hawaiian Air Depot on East Range, Schofield Barracks, T.H.	Nunes, R.E., Captain, A.G.D., Adjutant	2/1/43	NARA-MD	338	Box: G-479	File: 681
EMB 156	Resumption of Construction on Work Order #XC-382	Whisner, E.B., Colonel, Infantry Commanding	8/8/44	NARA-MD	338	Box: G-479	File: no label
EMB 157	Supply Dispersion	Flood, Wm. J., Colonel, Ait Corps, Commanding	4/4/42	NARA-MD	338	Box: G-479	File: no label
EMB 158	N.C.O. Apartment Building, 9 Units, Hickam Field, T.H.	Hunt, John A.	12/14/39	NARA-MD	338	Box: G-359	File: 600-12
EMB 159	Chemical Warehouse, Hickam Field	Const. [...]elon	4/7/42	NARA-MD	338	Box: G-359	File: 600.12
EMB 160	Joint Army and Navy Board Report, July 1942, Aviation Shore Facilities, Main Hawaiian Group	NAv	7/22/42	NARA-MD	338	Box: F-640	File: 686
EMB 161	Construction of Storage Magazines	Dept. Engr.	4/25/42	NARA-MD	338	Box: G-629	File: 633
EMB 162	Bomb Storage Magazines. Bellows Field, T.H.	Brown, Desloge, Captain, Corps of Engineers, Assistant Department Engineer	3/17/42	NARA-MD	338	Box: G-629	File: 633
EMB 163	Ammunition Storage Magazines for Hawaii	Wyman, Theodore, Jr., Colonel, Corps of Engineers, District Engineer	2/28/42	NARA-MD	338	Box: G-629	File: 633
EMB 164	Acquirement of Area for Storage of Ammunition	Brown, Desloge, Captain, Corps of Engineers, Assistant Department Engineer	3/21/42	NARA-MD	338	Box: G-629	File: 601
EMB 165	Acquirement of Area for Storage of Ammunition	Brown, Desloge, Captain, Corps of Engineers, Assistant Department Engineer	3/18/42	NARA-MD	338	Box: G-629	File: 601

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EMB 166	Transmittal of Drawings	Clarke, Harold, Chief of Military Engineering Subdivision	3/25/42	NARA-MD	338	Box: G-629	File: 601
EMB 167	Transmittal of Drawings	Clarke, Harold, Chief of Military Engineering Subdivision	4/10/42	NARA-MD	338	Box: G-629	File: 601
EMB 168	Landing Field at Ala Wai Golf Course	Emmons, Lt. General	1/19/42	NARA-MD	338	Box: G-638	File: 686
EMB 169	Pursuit Landing Field, Waialae Golf Course, Wilupe, Oahu, T.H.	Farthing, W.E., Colonel, Air Corps, Commanding	1/4/42	NARA-MD	338	Box: G-637	File: Waialae Gulch
EMB 170	Dates of Completion of Air Corps Projects	Jones, Charles B., Chief, Operations Div., Sr. Engineer (Civil)	3/4/42	NARA-MD	338	Box: G-637	File: Waialeale Gulch
EMB 171	Waielei Gulch Installation	Herman, Fred W., Lt. Colonel, Corps of Engineers, Assistant Department Engineer	4/9/42	NARA-MD	338	Box: G-637	File: Burns
EMB 172	Office of the Engineer, Seventh Air Force (various maps)	Office of the Engineer, Seventh Air Force	11/23/42	NARA-MD	338	Box: G-638	File: 686
EMB 173	Construction at Burns Field, Kauai, T.H.	Short, Walter, C., Lt. General, U.S. Army, Commanding	6/17/41	NARA-MD	637	Box: G-637	File: Burns
EMB 174	Airfields	Hyman, Theodore, Jr., Lt. Col., Corps of Engineers, District Engineer	6/11/41	NARA-MD	338	Box: G-637	File: Burns
EMB 175	Landing Field at Kualoa	Wyman, Theodore, Jr., Colonel, Corps of Engineers, District Engineer	1/29/42	NARA-MD	338	Box: G-638	File: 686

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EMB 176	Construction at Bellows Field, T.H.	Short, Walter C., Lt. General, U.S. Army, Commanding	4/5/41	NARA-MD	338	Box: G-638	File: 686
EMB 177	Construction of Mokuleia Air Field	Emmons, Lt. General	5/11/42	NARA-MD	338	Box: G-639	File: 686
EMB 178	Construction at Morse Field, Hawaii	Short, Walter C., Lt. General, U.S. Army, Commanding	5/2/41	NARA-MD	338	Box: G-640	File: 686
EMB 179	SECRET RADIO [...] Total Asphalt available on Hawaii	C.C./SO	2/9/42	NARA-MD	338	Box: G-639	File: 686
EMB 180	Additional Airodrome, Hawaiian Department	Short, Walter C., Lt. General, U.S. Army, Commanding	4/14/41	NARA-MD	338	Box: G-640	File: 686
EMB 181	Drawings or Blueprints of Air Fields	Owen, A.W., Major, A.G.D., Adjutant	4/10/42	NARA-MD	338	Box: G-640	File: 686
EMB 182	Dates of Completion of Air Corps Projects	Jones, Charles B., Chief, Operations Div., Sr. Engineer (Civil)	3/4/42	NARA-MD	338	Box: G-640	File: 686
EMB 183	Kipapa Field [and] Wheeler Field	Office of the Air Force Engineer	NAV	NARA-MD	338	Box: G-640	File: 686
EMB 184	Transmittal of Prints	Lyman, A.K.B., Colonel, Corps of Engineers, Department Engineer	6/12/42	NARA-MD	338	Box: G-640	File: 686
EMB 185	Necessity for Good Gas Discipline Particularly in the Army Air Forces	Johnson, Davenport, Maj. Gen., Commanding General, Second Air Force	4/43	SBCCOM/HO	NA	NA	shelves
EMB 186	Shipment of Chemical Munitions from Hawaii	Chemical Corps Journal	10/47	SBCCOM/HO	NA	NA	shelves
EMB 187	The Chemical Corps in Alaska	White, Lt. Col. Claude W., and Capt. Eugene E. Monk	10/52	SBCCOM/HO	NA	NA	NA

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EMB 188	The Storage and Handling of Chemical Munitions in ...	Unknown	NAv	SBCCOM/HO	NA	NA	NA
EMB 189	Untitled	NAv	NAv	SBCCOM/HO	NA	Photo Files A1932-A1937, A3720-A3724, 5984, 6157-6159	NA
EMB 190	Report on Shipment of Classified Munitions	Church, Henry C., Major, CWS, Guard and Security	1/10/46	SBCCOM/HO	NA	Folder: "9710 Technical Service Unit Guard & Security, 12/27/45-6/28/46 Rep: Shipment of Classified Chem. Mun.	NA
EMB 191	Report on Shipment of Classified Chemical Munitions	Muth, 2nd Lt., CWS, Guard and Security Division	3/6/46	SBCCOM/HO	NA	Folder: "9710 Technical Service Unit Guard & Security 12/27/4-6/28/46 Report: Shipment of Classified Chem. Mun.	NA
EMB 192	Report on Shipment of Classified Chemical Munitions	Wilson, Roger L., Cpl., CWS, Guard and Security Div.	6/3/46	SBCCOM/HO	NA	Folder: "9710 Technical Service Unit Guard & Security 12/27/45-6/28/46 Rep: Shipment of Classified Chem. Munitions"	NA



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EMB 193	Report on Shipment of Classified Chemical Munitions	Gleason, Jerry F., 1st Lt., CWS, Guard and Security Div.	6/28/46	SBCCOM/HO	NA	Folder: "9710 Technical Service Guard & Security 12/27/45- 6/28/46 Rep: " Shipment of Classified Chem. Mun."	NA
EMB 194	U.S. Army Technical Escort Unit, Edgewood Arsenal, Maryland, History	Bauer, PFC John P., Jr., and PFC Pierre E. Peltier	12/54	SBCCOM/HO	NA	NA	NA
EMB 195	History of CWS Activities at Ports of Embarkation	Hemleben, Sylvester John, Ph.D.	6/27/47	SBCCOM/HO	NA	NA	shelves
EMB 196	Photo Album	Becque, J.H., 1st Lt., Chemical Warfare Service	8/26/33	SBCCOM/HO	NA	SBC History	NA
EMB 197	Special Action Report Forager Operation	CG. 3rd Marine Div.	8/21/44	SBCCOM/HO	NA	Pacific Drawers	File: Sp. Action Report, Forager Op., Guam 1944
EMB 198	Abstract of General Waitt's Letter of 4/19/43	Unknown	4/19/43	SBCCOM/HO	NA	Pacific Drawers	File: Chemical Item Information 1943
EMB 199	353 Chemical Warfare, File #1, ORB, 3rd Ar, C 126, dr 2.	Hadd, George A., Colonel, A.C.D., Adjutant General	NAV	SBCCOM/HO	NA	Pacific Drawers	File: Chemical Item Information, 1943
EMB 200	Gaseous Cargo	NAV	1/8/78		NA	NA	NA
EMB 201	Untitled	CG, 21st Bomber Command, Guam	3/25/45	SBCCOM/HO	NA	Pacific Drawers	File: 870-5A Mariana, Misc. Data
EMB 202	Paraphrase of Incoming Message Secret "IVI" 381.3 Guam - Sec.	CG, 21st Bomber Command, Guam	3/15/45	SBCCOM/HO	NA	Pacific Drawers	File: 870-5A Mariana, Misc. Data
EMB 203	Paraphrase of Incoming Message Secret "IVI" Priority	Headquarters 20th Air Force, Guam	8/31/45	SBCCOM/HO	NA	Pacific Drawers	File: 870-5A Mariana, Misc. Data
EMB 204	Paraphrase of Incoming Message Secret	CONGENUSASTAF	8/25/45	SBCCOM/HO	NA	Pacific Drawers	File: 870-5A, Marianas Misc. Data
EMB 205	Part 3 - XXIV Corps, Section VI - - Chemical Warfare Officer	Richardson, Lt. Gen. R.C.	9/44	SBCCOM/HO	NA	Pacific Drawers	File: 870-5A, Marianas, Misc. Data

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EMB 206	Inventory Missions "Trip Report Data" 1/57 to 12/81	NAV	1/5/81	SBCCOM/HO	NA	Technical Escort Collection	NA
EMB 207	Wheeler Field Layout Plan	Davis, J.R.	11/30/39	NARA-MD	338	Entry 43101, Box G-363	Folder: 600.12 Airfields, Wheeler; attached to Hickam Field General Plan File no. F-17/5 March 5, 1941
EMB 208	Transmittal of Print	Ross, Thomas G., Associate Engineer, 13th Field Area	7/14/42	NARA-MD	338	Records of the U.S. Army Commands, 1942-; Entry 43124; Box: G-638	Folder: 686 (686 Kahuku-Oahu-Airfield Construction) attached to Confidential Map, Kahuku Army Base 7-10-42
EMB 209	None	Unknown	NAV	NARA-MD	338	Entry 43101, Box G-363	Folder: 600.12 Airfields, Wheeler
EMB 210	Priority for Shipment of Troops	Unknown	NAV	NARA-MD	338	Records of U.S. Army Commands, 1942- ; Entry 43101; Box: G-328	Folder: 401
EMB 211	Supply of Overseas Bases	O'Leary, A., Adjutant General	10/10/42	NARA-MD	338	Records of U. S. Army Commands, 1942-; Entry : 43101; Box: G-328	Folder 401
EMB 212	Increased Stocks of Essential Equipment, Central Pacific Area	Styer, Major General, Adjutant General	11/11/43	NARA-MD	338	Records of U.S. Army Commands, 1942-; Entry: 43101; Box G-328	Folder: 401
EMB 213	Critical Items Report	Layton, E.B., Lt. Colonel, GSC, Actg. ACofS	8/9/45	NARA-MD	338	Records of U.S. Army Commands, 1942-; Entry: 43101; Box: G-328	Folder: 400.8

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EMB 214	Adjustments in Critical Items Report	Hoglund, R.	6/21/45	NARA-MD	338	Records of U.S. Army Commands, 1942-; Entry 43101; Box; G-328	Folder: 400.8
EMB 215	United States Pacific Fleet and Pacific Ocean Areas Headquarters of the Commander in Chief	Commander in Chief, U.S. Pacific Fleet and Pacific Ocean Areas	1/19/44	NARA-MD	338	Records of U.S. Army Commands, 1942-; Entry: 43101; Box: G-328	Folder: 400.8
EMB 216	Determination and Disposal of Surplus Property in the Pacific Theater	Fitch, B.M., Brigadier General, U.S. Army, Adjutant General	9/10/45	NARA-MD	338	Records of U.S. Army Commands, 1942-; Entry: 43101; Box: G-328	Folder: 400.703
EMB 217	Routine	Washington, D.C.	10/23/45	NARA-MD	338	Records of U.S. Army Commands, 1942-; Entry: 43101; Box: G-328	Folder: 400.703
EMB 218	Endicott-Memorandum Supplement #2	Endicott, H. Wendell, Acting Central Field Commissioner, Pacific Area	12/17/45	NARA-MD	218	Records of U.S. Army Commands, 1942-; Entry: 43101; Box: G-328	Folder: 400.703
EMB 219	Kahuku Army Air Base, Location of Protective Bunkers	47th Engr. Regt. (G.S.) Hawaiian Dept.	7/10/42	NARA-MD	338	Entry 43124; Box G-638	Folder: 686 (686 Kahuku-Oahu-Airfield Construction) Attached to memo. July 14, 1942, from Thomas G. Ross, Associate Engineer, to Dept. Engineer, re: Transmittal of Print
EMB 220	Island of Maui	Department Engineer Office, H.H.D. Fort Shafter, T.H.	1/28/42	NARA-MD	338	Entry: 43124; Box G-629	Folder 633 (633 Ammunition Storage-Hawaii)

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EMB 221	Island of Oahu	Department of Engineer Office H.H.D. Ft. Shafter	8/1939	NARA-MD	338	Entry 43124; Box: G-638	Folder: 686 (686 Kualoa-Airfield Construction)
EMB 222	Ammunition Storage Project, Hickam Field, Access Railroad and Highway, General Layout and Vicinity Map	U.S. Engineer Office, Honolulu, T.H.	11/7/41	NARA-MD	338	Entry 43124; Box G-629	Folder: 633 (633 Ammunition Storage, Hickam Field)
EMB 223	Untitled	Unknown	NAv	NARA-MD	338	Entry: 43124; Box G-629	Folder: 633 (633 Ammunition Storage - Hawaii)
EMB 224	General Plan, Chemical Storage Project, Schofield Barracks, T.H.	U.S. Engineer Office, Honolulu, T.H.	1/9/39	NARA-MD	338	Entry 43101; Box: G-421	Folder: 633/8
EMB 225	Traingin Map of East Range	Topographical Section, Third Engineers	4/15/40	NARA-MD	338	Entry: 43101; Box G-479	Folder: untitled
EMB 226	Ammunition Storage Project, Hickam Field, Access Railroad and Highway, Schematic Layout of Extensions	Air Corps Construction Hawaiian Department	9/41	NARA-MD	338	Entry 43124; Box G-629	Folder: 633 (633 Ammunition Storage Hickam Field)
EMB 227	Kualua Landing Field Location	Engineering Section 804th Engineer Battalion Aviation Separate	12/31/40	NARA-MD	338	Entry 43124; Box: G-638	Folder: 686 (686- Kualua Airfield Construction)
EMB 228	Temporary Buildings and Facilities, Hickam Field, General Plan	Air Corps Construction, Hawaiian Department	3/5/41	NARA-MD	338	Entry: 43101; Box: G-363	Folder: 600.12 Airfields Wheeler; attached to map - Wheeler Field Layout Plan INC#2- Wheeler Field, "VOID"
EMB 229	Buildings, Utilities and Appurtenances U.S.E.D. Camp, Flood Gate, Wheeler Field, T.H., Sanitary Sewer & Sewage Treatment Plant, Layout Plan & Profiles	War Emergency Construction USAFICPA	12/16/43	NARA-MD	338	Entry 43101; Box G-363	Folder: 600.12 Airfields, Wheeler
EMB 230	Temporary Buildings and Facilities, Hickam Field, General Plan	Air Corps Construction, Hawaiian Department	3/5/41	NARA-MD	338	Entry 43101; Box: G-358	Folder: 600.12 Airfields, Hickam
EMB 231	Proposed Location of Additional Magazines at Chemical Amm. Depot	Department Engineer Office H.H.D. Ft. Shafter	4/41	NARA-MD	338	Entry 43101; Box G-421	Folder: 633/8

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EMB 232	Island of Oahu (Quartermaster Supply Areas)	Department Engineer Office H.H.D. Ft. Shafter	1/39	NARA-MD	338	Entry 43101; Box: G-479	Folder: 681
EMB 234	Topographical Map of Wheeler Field, T.H.	NAV	NAV	NARA-MD	338	Entry: 43124; Box: G-637	Folder: 686 Wheeler Field
EMB 235	Magazine Area Typical Plan for Air Corps Combat Group	War Department Office of the Chief of the Air Corps, Building and Grounds Division	4/2/41	NARA-MD	338	Entry: 43124; Box G-629	Folder: 633
EMB 236	Magazine Area (Typical Layout Plan) for Ordnance Facilities for Training & Operations and War Reserve Strategic Storage	War Department, Office of the Chief of the Air Corps, Buildings and Grounds Division	4/4/41	NARA-MD	338	Entry: 43124; Box: G-629	Folder: 633
EMB 237	Island of Kauai, Location of Ammunition Storage Tunnels	U.S. Engineer Office, Honolulu, T.H.	4/1941	NARA-MD	338	Entry: 43101; Box: G-413	Folder: 633 Magazines
EMB 238	Morse Field, Showing Proposed Taxiing and Runway Areas	Constructing Quartermaster, Hawaiian Department	1/22/41	NARA-MD	338	Entry: 43124; Box: G-637	Folder: 686 John Rodgers Airfield Construction
EMB 239	Untitled	Ciolfi, Kathy	NAV	SBCCOM/HO	NA	NA	NA
EMB 240	Interview with Major General Alden H. Waitt, US Army, Retired	Birdsell, Dale	5/13/61	SBCCOM/HO	NA	NA	Interviews Binder
EMB 241	Interview with Captain Arne E. Rosquist, Formerly CO & Detachment Commander, 112th Chemical Processing Co.	Brophy, Kleber, Birdsell, Wing	4/7/53	SBCCOM/HO	NA	NA	Interviews Binder
EMB 242	Interview with Captain Duncan F. Black, CWS, Former Commanding Officer, 273rd Chemical Service Platoon	Pritchard, Paul W.	1/30/46	SBCCOM/HO	NA	NA	Interviews Binder
EMB 243	Interview with LTC Carl V. Burke	Pritchard, Paul	1/28/46	SBCCOM/HO	NA	NA	Interviews Binder
EMB 244	Interview with Colonel Robert N. Gray, CMIC, USAR and Colonel Burton D. Willis, CMIC, USAR	Pritchard, Paul W.	6/12/50	SBCCOM/HO	NA	NA	Interviews Binder

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EMB 245	Interview with Lt. Colonel Alfred J. Green	Kleber, Birdsell, and Davis	9/15/59	SBCCOM/HO	NA	NA	Interviews Binder
EMB 246	Deadline Set for Guam Gas Cleanup	Brooks, Donovan	7/27/99	NA	NA		
EMB 247	Team on Guam Looks for More Hazardous Materials	Brooks, Donovan	7/28/99	NA	NA		
GAH 1	Memorandum for Record, Disposition of Toxic Chemicals	Speer, Ira, Distribution Officer	7/21/54	NARA-MD	175	Entry 1A, Box: 220	F: 470.6...1954
GAH 2	Annual General Inspection of the U.S. Army Chemical Corps Historical Office, Army Chemical Center, Maryland	Office of the Chemical Corps Inspector General, Building 70, Army Chemical Center, Maryland	7/15/57	NARA-MD	175	Entry 7, Rec. of the Office of Chief Chemical Officer, Box 12	Folder: 250/54 - Inspection Files (FY 58) AGI Cml C Historical Office - COFF
GAH 3	Memorandum for Record: Agreement - Technical Escort Service for Shipment of Air Force BW-CW Munitions	Cunliffe, Louis E., Lt. Colonel, USAF, Materiel and Services Branch, BW-CW Division, Asst. for Atomic Energy, DCS/O	7/31/53	NARA-MD	341	Entry 199, Box: 6 1953	F: 479 BW-CW Munitions
GAH 4	Memorandum for Colonel Seller, Gas Masks	Legg, Paul A., Major, USAF, Materiel and Services Branch, BW-CW Division, Asst. for Atomic Energy, DCS/O	11/17/53	NARA-MD	341	Entry 199, Box 6 1953	F: 470.72 App. For Protection
GAH 5	Top Secret Security Information Routine	FEALOGFOR FEAMCOM AB JAPAN	7/31/53	NARA-MD	341	Entry 199, Box 2 1953	F: AFOAT - BWTS 53/246 thru 298A
GAH 6	Memorandum for Record, (Secret) FEAF Stockpiling of CW Munitions	Bodine, Francis S., Lt. Colonel, USAF, Chief, Tactics & Techniques Sec, Plans & Operations Br., BW-CW Division, AFOAT	8/20/53	NARA-MD	341	Entry 199, Box 2 1953	F: AFOAT - BWTS 53/246 thru 298A
GAH 7	Principles Affecting Government Support of Transportation from the United States to Alaska	Noyes, Col. John R.	12/1/47	NARA-MD	341	Entry 427, Box 32	F: 334 Development of Alaska (Transportation Subcommittee)

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GAH 8	Outgoing Classified Message	Williams, Major, HQ USAF AFOAG	8/31/50	NARA-MD	341	Entry 427 Box 38	F: 563.8 cargo and freight (water)
GAH 9	Report of Assets of Toxic Agents	Bourque, David F., Acting Chief, Supply Division	10/19/53	NARA-MD	175	Entry 1B, Box 258	F: 1576-1600
GAH 10	Report of Assets of Toxic Agents	Bourque, David F., Acting Chief, Supply Division	7/24/53	NARA-MD	175	Entry 1A, Box 208	F: 301-325
GAH 11	Outgoing Clear Message	Frake, Lt. Col., CSGLD/D5 Dept. of Army Wash, DC,	3/27/50	NARA-MD	175	Entry 18, Box 74	F: 400.7 ---
GAH 12	Disposition of Empty Shipping Containers	Morris, Raymond C., Lt. Colonel, CmIC, CmIC Property Disposal Officer	4/14/55	NARA-MD	175	Entry- General Correspondence, Station Series, Box 11	F: Alaskan General Depot thru Deseret Cml Depot 1955
GAH 13	AMC-Chemical Corps Agreement for operations and Control of Technical Escort System of Air Force BW-CW Munitions	McDaniel, E.R., Assistant, Materials Division	5/4/55	NARA-MD	175	Entry- General Correspondence, Misc. Series, 1955-59, Box 9	F: 161 Air Mat Command 1955
GAH 14	Biological and Chemical Warfare	Wilson, R.C., Major General, USAF, Assistant DCS/O for Atomic Energy	7/17/51	NARA-MD	341	Entry 10; Box 10	F: 360.10 Chemical and Biological Warfare
GAH 15	Packaging and Packing for Air Freight	Unknown	NAv	NARA-MD	341	Entry 410; Box 154	F: AAF Air Transport Command #1
GAH 16	Standing Operating Procedure for Station Supply	Tracy, O.A., Major, INF, Adjutant	1/30/50	NARA-MD	338	Entry: History; Box: 136	F: Schofield Bks - Circulars
GAH 17	Refuse and Garbage Collection and Disposal	Tracy, O.A., Major, INF, Adjutant	2/7/50	NARA-MD	338	Entry: History; Box 136	F: Schofield Bks - Circulars 1950
GAH 18	Revision of Section II, Circular 2; Revision of Section V, Circular 3; Awards and Suggestions	Tracy, O.A., Major, INF, Adjutant	2/17/50	NARA-MD	338	Entry: History; Box: 136	F: Schofield Bks - Circulars 1950
GAH 19	Disposal of Trash and Garbage	Cubbison, D.C., Lt. Col., GSC, Chief of Staff	7/27/49	NARA-MD	338	Entry: History; Box: 136	F: Schofield Bks - Circulars 1949

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GAH 20	Untitled	Unknown	1949	NARA-MD	338	Entry: History; Box 136	F: Schofield Bks - Circulars 1949
GAH 21	Air Priorities for Shipments to Alaska	Hull, George R., Major, Air Corps, Acctg. Asst. Adj. General	2/5/47	NARA-MD	341	Entry: 2; Box 65	Folder: 42201-42300
GAH 22	Rescinding of Directive	Hood, [remainder unreadable]	8/1/46	NARA-MD	341	Entry: 2 Chief of Staff Coressp; Box: 53, 1946	Folder: 26201 to 26300
GAH 23	Chemical Corps Depot Maintenance Manual	Chemical Corps	6/1955	NARA-MD	175	Entry 7; Box 19	Folder: Chemical Corps Misc., Publications - 1955 and prior years
GAH 24	Daily Activity Report for: Air Chemical Officer	Montgomery, E., Brig. Gen., Air Chemical Officer	3/6/46	Bolling	NA	NA	File: A1066 [10-11]
GAH 25	Daily Activity Report for: Air Chemical Officer	Montgomery, E., Brig. Gen., Air Chemical Officer	11/28/44	Bolling	NA	NA	File A1065 124.30 [1762]
GAH 26	Daily Activity Report For: Air Chemical Officer	Montgomery, E., Brig. Gen., Air Chemical Officer	11/13/44	Bolling	NA	NA	File A1065 124.30 [1738-1739]
GAH 27	Daily Activity Report For: Air Chemical Officer	Montgomery, E., Brig. Gen., Air Chemical Officer	2/9/45	Bolling	NA	NA	File A1065 (124.30)
GAH 28	Daily Activity Report For: Air Chemical Officer	Montgomery, E., Brig. Gen., Air Chemical Officer	9/12/45	Bolling	NA	NA	File 1065A (124.30) [2146-2147]
GAH 29	Headquarters, 1468th AAF Base Unit Alaskan Division Air Transport Command, Past Historical Report June 1942-March 1944	NAV	NAV	Bolling	NA	NA	Film A0178 BU-1468-HI
GAH 30	Daily Activity Report For: Air Chemical Officer	Montgomery, E., Brig. Gen., Air Chemical Officer	8/31/45	Bolling	NA	NA	Film A1065 (124.30)
GAH 31	History of Shemya Air Base Shemya, Alaska 1 January 1945 to 31 January 1945	Wineman, Walter R., 1st Lt., Air Corps, Base Historical Officer	NAV	Bolling	NA	NA	0083 (A0081)



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GAH 32	History of 5001st Wing Ladd Air Force Base, Alaska	Landis, Edward D., Captain, USAF, Historical Officer	2/49	Bolling	NA	NA	Film 0060 (A0058) [302-304]
GAH 33	History of Headquarters, 5001st Composite Wing Ladd Air Force Base, Alaska 1 July to 30 September 1949	Fee, Carl, Captain, USAF, Historical Officer	NAv	Bolling	NA	NA	Film 0060 (A0058) [495-498]
GAH 34	History of Eielson Air Force Base Alaska 1 April 1948 to 30 June 1948	Proctor, Raymond L., 1st Lt., USAF Historical Officer	NAv	Bolling	NA	NA	Film 0043 (A0041)
GAH 35	Air Technical Supply History March 1947	Easley, Oliver J., Capt., AC	NAv	Bolling	NA	NA	Film 0101 (A0098) (Alaska)
GAH 36	Daily Diary For: Air Chemical Officer	Doxey, Thomas A., Jr., Colonel, C.W.S., Deputy Air Chemical Officer	7/9/43	Bolling	NA	NA	Film A 1065 (124.30) [1445]
GAH 37	Daily Activity Report For: Air Chemical Officer	Montgomery, E., Brig. Gen., Air Chemical Officer	8/25/45	Bolling	NA	NA	Film A1065 (124.30)
GAH 38	History of the 890th Chemical Company (Air Operations) APO #942, c/o Postmaster, Seattle, Washington	McDermott, Robert F., 2d Lt., CWS, Historical Officer	5/31/44	Bolling	NA	NA	AO 195
GAH 39	Historical Data of 890th Chemical Company Air Operations, 314th Bombardment Wing	NAv	6/30/45	Bolling	NA	NA	A0195
GAH 40	Historical Data, Narrative History Documents of 887th Chemical Company, Air Operations	NAv	8/31/45	Bolling	NA	NA	A0195
GAH 41	Chemical Section, Det. 17th Base HQs and Air Base Sq	NAv	1944	Bolling	NA	NA	270-7, Frame 29
GAH 42	Unit History of Air Corps Section, Detachment 17th Base HQ & Air Base Sqdn.	Zeltzer, Allen M.	11/30/43	Bolling	NA	NA	270-6, Frame 629
GAH 43	History of Wheeler Field, Year 1946	NAv	1946	Bolling	NA	NA	0094 (A0092)
GAH 44	Historical Data, 752nd Chemical Depot Company, AAF Tactical Center	NAv	NAv	Bolling	NA	NA	A0188

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GAH 45	Narrative History of 802nd Chemical Company, Air Operations	NAv	8/1/45	Bolling	NA	NA	A0190
JCH 1	Letter: chemical stockpiles in Alaska	Lt Col Claude W. White	10/20/51	CBDCOM/HO	NA	Unclassified	file:location file, Alaska: Folder: 870-5A Memo: Ref to Chemical Storage in Alaska, 10/51
JCH 2	Memo: Record of events on shipment of chemicals from Arkansas to Seward, Alaska	Koresdoski, Frank, 2nd Lt CWS	4/16/43	CBDCOM/HO	NA	Unclassified	file:location file, Alaska: Folder 870-5A Rec of events on shipment of class chemicals to Alaska, 1943
JCH 3	Form: Toxic agents for Alaska Defense Command	Romanczuk, 1st Lt J.A., Asst AG.	9/28/42	CBDCOM/HO	NA	Unclassified	File: location file, Alaska: Folder 870-5A Alaska, 1930s-1940s
JCH 4	Theatre Plans for Chemical Warfare Report (Tab H): Fragments of report found in file. No folder	Commanding General, Western Defense Command	8/13/43	CBDCOM/HO	NA	Unclassified	File: location file, Alaska: Folder 870-5A Alaska, 1930s-1940s
JCH 5	Chemical Warfare Activities, Fort Richardson, Alaska, October 1945	NAv	10/1/45	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder "Chemical Warfare Activities in Alaska (Ft. Richardson) 10/45"
JCH 7	Disposal of CWS Toxic Ammunition	Johnson, Ralph, CWS	11/8/45	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Disposal Operations, 1945"
JCH 8	Storage & Surveillance of H-Filled Bombs	Waite, General	11/21/44	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "PAO Releases"
JCH 9	Untitled	Freeman, James W., Ordnance Department	7/6/44	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "PAO Releases"
JCH 10	Untitled	Unmacht, Chemical Officer, AFMIDPAC	NAv	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "870-5A Oahu"
JCH 11	Status of Major Projects in the Hawaiian Department	Black, H. M., Major, Chemical Warfare Service	1/8/37	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Status of Major Projects--Hawaiian Department, 1931-1942"
JCH 12	Supply Status of Chemical Warfare Equipment	NAv	1/31/45	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Status of Major Projects--Hawaiian Department 1931-1942"
JCH 13	Hawaiian Defense Project	NAv	NAv	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Status of Major Projects--Hawaiian Department 1931-1942"

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JCH 14	Chemical Warfare Hawaiian Defense/Reserves, Hawaiian Defense Project, Revision 1931	NAV	9/1/31	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Status of Major Projects--Hawaiian Department 1931-1942"
JCH 15	Defense Reserves, Hawaiian Defense Project, Revision 1935	NAV	4/1/35	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Status of Major Projects--Hawaiian Department 1931-1942"
JCH 16	Status Report, Chemical Warfare Defense Reserves, Hawaiian Department	Rudelius, EA, Asst Adjutant General	3/6/40	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Status of Major Projects--Hawaiian Department 1940-1940"
JCH 17	Chemical Warfare Hawaiian, Defense Reserves, Hawaiian Defense Project, Revision 1935	NAV	6/30/35	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Status of Major Projects--Hawaiian Department 30 June 1935"
JCH 18	Island of Oahu	Department Engineer Office HHD Fort Shafter	8/1/39	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Hawaiian Department"
JCH 19	Untitled	Department Engineer Office HHD Fort Shafter	1/25/42	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Hawaiian Department"
JCH 20	Island of Hawaii	Department Engineer Office HHD Fort Shafter	1/5/42	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Hawaiian Dept"
JCH 21	Island of Maui	Department Engineer Office, HHD Fort Shafter	1/28/42	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Hawaiian Dept"
JCH 22	Mustard Gas for Mercury and Copper	Montgomery, E, CWS	1/6/42	CBDCOM/HO	NA	Unclassified	Location Files, Hawaii; Folder "Gas Readiness Hawaii 1940s"
JCH 23	Supply Available Equipment	Army Service Forces, Plans	8/6/43	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Hawaiian Department"
JCH 24	Status Report, Chemical Warfare Defense Reserves, Hawaiian Department	NAV	1/1/39	CBDCOM/HO	NA	Unclassified	Location Files, Hawaii; Folder "Status Report CWS Hawaiian Dept 1/1/39"
JCH 25	Defense Reserve of Mustard Gas for Hawaiian Department	Conley, ET, Adjutant General	3/23/38	CBDCOM/HO	NA	Unclassified	Location File, Hawaii; Folder "Status Report Hawaiian Defense Project 1 April 1937"
JCH 26	Theater Plans for Chemical Warfare	NAV	1/7/43	CBDCOM/HO	NA	unclassified	Location Files, Hawaii; Folder "Theater Plans for POA Hawaii, 1943"

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JCH 28	History of the Chemical Section, USARAL, 1949	USARAL	1950	CBDCOM/HO	NA	Unclassified	Reference Area
JCH 29	Untitled	CG Allied Air Forces, POA, Administrative Hickam Field, TH	4/26/45	CBDCOM/HO	NA	Unclassified	File: Hawaii, Folder: 870-5A Hawaiian Dept.
JCH 30	Untitled	NAv	1945	NARA-MD	342	Still Photographs	See individual photographs
JCH 31	Untitled	NAv	varied	NARA-MD	342	Still Photos	See individual photos
JCH 32	Interview with Colonel Harold J. Baum, Chemical Officer, Eighth Air Force	Merry, Major	12/5/45	CBDCOM/HO	NA	NA	Interviews Binder
JCH 33	Interview with Colonel William A. Cophorne, US Army	Birdsell, Dale	4/26/61	SBCCOM/HO	NA	Interviews Binder	NA
JCH 34	Chemical, Biological, and Radiological Agent Safety Standards	Witt, Hugh E., Deputy for Supply and Maintenance	5/20/66	WNRC	NA	77-71A-2803	Box 12; Folder "941-66"
JCH 35	Report of Soils Investigation for Ammunition Storage Igloos at Eielson Air Force Base Alaska	Alaska District Corps of Engineers	12/52	WNRC	NA	77-A55-323	Box 23; Folder "412.3 Eielson Airfield"
JCH 36	Untitled	Williamson, W.J., Brigadier General, Chief, Traffic Control Division	5/19/45	WNRC	NA	336-A47-236	Box 337; Folder: "551.2 (Gas I.D. Set, Detonation, M1)"
JCH 37	Gas Identification Set, Detonation	Kendrick, H.R., Lt. Colonel, T.C., Assistant	10/24/44	WNRC	NA	336-A47-236	Box 337; Folder: "551.2 (Gas I.D. Set, Detonation, M1)"
JCH 38	Freight Classification of Set, Accessories, Gas Identification, Detonation	Boyd, H.M., Lt. Colonel, TC, Assistant	8/17/43	WNRC	NA	336-A47-236	Box 337; Folder: "551.2 (Gas I.D. Set, Detonation, M1)"
JCH 39	Section 22 Quotation No. 298 and Amendment No. 1, Ratings on Compressed Gases	Boyd, R.M., Lt. Colonel, TC, Assistant	4/26/44	WNRC	NA	336-A47-236	Box 337; Folder: "551.2 (Gas I.D. Set, Detonation, M1)"
JCH 40	Ammunition Storage and Handling Facilities, Eielson Air Force Base, Alaska	Brown, F.S., Chief, Engineering Division	7/8/52	WNRC	NA	77-A55-323	Box 23; Folder: "633 Eielson Airfield, Alaska"

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JCH 41	Basic Layout Plan, Elmendorf, A.F.B., Alaska	U.S. Army Engineering District, Alaska	11/14/63	WNRC	NA	342-79-0096	Box 5; Folder: "Lat & Long of Bomb Shelter Elmendorf"
JCH 42	Base Plan, King Salmon Airport, King Salmon, Alaska	U.S. Army Engineer District, Alaska	1/1/64	WNRC	NA	342-79-0096	Box 5; Folder: "Lat & Long of Bomb Shelter Elmendorf"
JCH 43	Air Base Group, 11th Air Force, A.D.C.	Ferson, O.S., Colonel, Air Corps, Director, War Organization & Movement	5/12/42	NARA-MD	18	300A	Box 888
JCH 44	Brief of Report on Inspection Trip to Ladd Field and Elmendorf Field	Hill, Edmund W., Colonel, Air Corps, The Air Inspector	10/28/41	NARA-MD	18	300A	Box 887; F: Alaska 300-A (1st Folder)
JCH 45	Combat Expenditures for 11th Air Force	Miller, J.G., 2nd Lieut., A.G.D., Asst. Adjutant General	5/5/43	NARA-MD	18	300A	Box 889; F: (no title first fldr in box . . . 240A Pay and Allowances
JCH 46	Commaning General, Army Air Forces, Washington, D.C.	Crossley, A.W., Lt. Colonel, C.W.S., Ass't Chief, Industrial Division	7/10/42	NARA-MD	175	28	Box 16; F: 470.6 Army Air Forces
JCH 47	Chief, Chemical Warfare Service, Washington, D.C.	Montgomery, E., Colonel, C.W.S., Air Chemical Officer	7/3/43	NARA-MD	175	28	Box 16; F: 470.6 Army Air Forces
JCH 48	Untitled	Gillet, Norman D., Colonel, C.W.S., Assistant	7/21/43	NARA-MD	175	28	Box 16; F: 470.6 Army Air Forces
JCH 49	Symbols for Chemical Warfare Agents	Fisher, Geo. J.B., Colonel, CWS, Chief, Training Division	7/27/43	NARA-MD	175	28	Box 16; F: 470.6 Army Air Forces
JCH 50	AAF Requirements for Bomb, Chemical, HS of M1 Filler, 115-lb., M70 Bomb, Chemical, 100-lb., HS Filter, M47A2	Kuhn, H.A., Colonel, C.W.S., Chief, Control Division	3/31/43	NARA-MD	175	28	Box 16; F: 471.6 Army Air Forces

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JCH 51	Yearly Requirements of Large Bombs, Non-Persistent Agent Fillings	Montgomery, E., Brig. General, U.S. Army, Air Chemical Officer	9/16/46	NARA-MD	175	28	Box 16; F: 471.6 Army Air Forces
JCH 52	Land Plane Facilities, Kodiak, Alaska	Curtis, Edward P., Major, Air Corps, Secretary of the Air Staff	10/13/41	NARA-MD	18	300A	Box 894; F: Alaska Air Bases 686-B
JCH 53	Office of the Chief of the Chemical Warfare Service	NAV	8/15/44	NARA-MD	336	Records of the Chief of Transportation Entry 1	Box 23; Folder: "Army Service Forces Organization, HQ, Army Services, 15 August 1944 M301"
JCH 54	Seattle Port of Embarkation	Denson, Eley P., Brigadier General U.S., Commanding	NAV	NARA-MD	336	1	Box 14; Folder "Seattle Port of Embarkation"
JCH 55	Untitled	Sarles, Duane Y., Lt. Col., C.W.S.	11/11/44	NARA-MD	336	47A69	Box 315; Folder: "471.6 Seattle"
JCH 56	AAF Regulation No. 50-25, Chemical Warfare Training	Eaker, Ira C., Lt. Gen., U.S. Army, Deputy Commander, Army Air Forces	6/5/47	NARA-MD	341	Air Force Collection of Obsolete Publications Entry 36E (microfilm)	Box 15, Roll 16 (45-30 to 53-10, 29 Jun '50)
JCH 57	AAF Regulation No. 50-25, Chemical Warfare Training	Giles, Barney M., Lt. Gen., U.S. Army, Chief of Air Staff	8/31/44	NARA-MD	341	Air Force Collection of Obsolete Publications Entry 36E (microfilm)	Box 15, Roll 16 (45-30 to 53-10, 29 Jun '50)
JCH 58	Passive Defense of Air Bases Against Biological and Chemical Attack	Department of the Air Force	1/56	NARA-MD	341	36E	Box 5; Reel 97
JCH 59	Storage and Supply Activities, Responsibilities for Technical Escort of Dangerous Materials	Department of the Army, the Navy, and the Air Force	8/8/72	NARA-MD	341	36E	17, Reel 8-78
JCH 60	Explosives, Disposal by Dumping at Sea	Bradley, Omar N., Chief of Staff, U.S. Army	5/5/49	NARA-MD	341	36E	Box 15, Reel 20

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JCH 61	Conducting and Reporting on Chemical Munitions Capability Inspections	Ryan, John D., General, USAF Chief of Staff	11/2/70	NARA-MD	341	36E	Box 17, Reel 7-78
JCH 63	Disposition of Obsolete, Unserviceable, and Dangerous Ammunition and Explosive Material	Twining, N.F., Chief of Staff, United States Air Force	5/13/55	NARA-MD	341	36E	Box 16, Reel 24, Archives I
JCH 64	Chemical Warfare Ammunition Training Allowances	Giles, Barney M., Lt. Gen., U.S. Army, Deputy Commander, Army Air Forces and Chief of Air Staff	2/28/45	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 16
JCH 65	Disposition of Obsolete and Unserviceable Ammunition, Components, and Explosives	Vandenberg, Hoyt S., Chief of Staff, U.S. Air Force	4/2/51	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 18
JCH 66	Army Air Force Ordnance Maintenance and Inspection	Stratemeyer, George E., Major General, U.S. Army, Chief of the Air Staff	4/21/43	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 18
JCH 67	Overseas Air Force Depots	Vandenberg, Hoyt S., Chief of Staff, U.S. Air Force	10/8/52	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 18
JCH 68	Supply of Equipment to Operational Training Units and Combat Crews Training Stations	Giles, Barney M., Lt. Gen., U.S. Army, Deputy Commander, Army Air Force and Chief of Air Staff	2/1/45	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 18
JCH 69	Supply of Chemical Corps Ammunition	Vandenburg, Hoyt S., Lt. Gen. U.S. Army, Acting Deputy Commander, Army Air Force	8/15/47	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 18

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JCH 70	Chemical Warfare Service Supplies and Equipment	Giles, Barney M., Major General, U.S. Army, Chief of Air Staff	11/12/43	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 18
JCH 71	Stock Levels within Zone of Interior	Giles, Barney M., Major General, U.S. Army, Chief of Air Staff	10/20/44	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 18
JCH 72	Installation Planning and Development	Department of the Air Force	10/10/51	NARA-MD	341	Air Force Collection of Obsolete Publications	Microfilm: Air Force Regs., Box 15, Roll 18
JCH 73	Section 29: Chemical Munitions, of the Army Ordnance Safety Manual	US Government	9/4/51	NARA-MD	287	Publications of the Federal Government	D105.612, Box D. 1423
JGK 1	World War II Code Names	Cioffi, Kathy	NAv	CBDCOM/HO	NA	Unclassified	Binder, "Chemical Warfare Sites"
JGK 2	Untitled	Unknown	12/11/44	CBDCOM/HO	NA	Unclassified	Binder, "Chemical Warfare Sites"
JGK 3	Untitled	Unknown	11/8/45	CBDCOM/HO	NA	Unclassified	Binder, "Chemical Warfare Sites"
JGK 4	Chemical Warfare Service News Letter	NAv	2/1/42	CBDCOM/HO	NA	Unclassified	Bookshelf
JGK 5	War Department Training Circular 20	NAv	4/26/45	CBDCOM/HO	NA	Unclassified	Bookshelf
JGK 6	Untitled	Waitt, Alden, Brigadier General, CWS	9/13/48	CBDCOM/HO	NA	Unclassified	Folder: "Special Projects H-Filled Munitions 1944"
JGK 7	Untitled	Smith, Ronald Q.	9/25/44	CBDCOM/HO	NA	Unclassified	Folder: Special Projects H-Filled Munitions 1944
JGK 8	Untitled	Weapons Branch, Field Req. Div.	6/13/44	CBDCOM/HO	NA	Unclassified	Folder: Special Projects H-Filled Munitions 1944
JGK 9	Untitled	Waitt, Alden, Brigadier General, CWS	2/24/44	CBDCOM/HO	NA	Unclassified	Folder: Special Projects H-Filled Munitions 1944
JGK 10	Test of Chemical Warfare Munitions Filled H	Waitt, Alden, Brigadier General, CWS	9/20/44	CBDCOM/HO	NA	Unclassified	Folder: Special Projects H-Filled Munitions 1944



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JGK 11	Test of Chemical Warfare Munitions, H Filled	Waitt, Alden, Brigadier General, CWS	5/30/44	CBDCOM/HO	NA	Unclassified	Folder: Special Projects H-filled Munitions 1944
JGK 12	Untitled	HQ 11th AF, Fort Richardson	12/2/43	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: none
JGK 13	Untitled	Richards, Oliver, Asst. Adj. Gen., Alaska Hq.	9/5/47	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: 870-5a Disposal of Toxic Agents, Attu, Alaska
JGK 14	Untitled	Hq. Alaskan Dept., Fort Richardson	11/2/46	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: 870-5a Disposal of Toxic Agents, Attu, Alaska
JGK 15	Untitled	Richards, Oliver, Asst. Adj. Gen., Alaskan Dept. Hq.	3/11/47	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: 870-5a Disposal of Toxic Agents, Attu, Alaska
JGK 16	Untitled	Waitt, Alden, Brigadier General, CWS	5/7/43	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder: 870-5A Theater Plans for Chemical Warfare Alaska 1943
JGK 17	Theater Plans for Chemical Warfare (Alaskan Defense Command)	Hull, J.E., Chief of Staff; and George Peploe, Chief, Materiel Section	4/6/43	CBDCOM/HO	NA	Unclassified	File: Location File, Alaska; Folder: 870-5A Theater Plans for Chemical Warfare Alaska 1943
JGK 18	Untitled	Ulio, J.A., Adjutant General	8/22/43	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: 870-5a Theater Plans for Chemical Warfare Alaska 1943
JGK 19	Untitled	Walding, Malcolm, Chemical Officer, Alaska Dept.	1/1/45	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: 870-5a Roster of CWS Officer Personnel in Alaska 1 Jan 1945
JGK 20	Theater Plans for Chemical Warfare (Alaskan Defense Command)	Handy, Thos. T., Asst. Chief of Staff	8/9/43	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: 870-5A theater Plans for Chemical Warfare Alaska 1943
JGK 21	H-Filled 4.2-Inch Chemical Mortar Shell now in Theater Storage	Waitt, Alden, Brigadier General, CWS	11/25/44	CBDCOM/HO	NA	Unclassified	Folder: Special Projects H-Filled Munitions 1944
JGK 22	Implementation of Theater Plans for Gas Warfare	Hull, J.E., Acting Asst. Chief of Staff	8/13/43	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: 870-5a Theater Plans for Chemical Warfare Alaska 1943

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JGK 23	Theater Plans for Chemical Warfare	Jensen, Lester, Adjutant General	1/18/44	CBDCOM/HO	NA	Unclassified	File: Location Files, Alaska; Folder: 870-5a Theater Plan for Chemical Warfare Alaska 1943
JGK 24	Implementation of Theater Plans for Gas Warfare (Alaska Defense Command)	Ullo, J.A., Adjutant General	9/11/43	CBDCOM/HO	NA	Unclassified	File: Location File, Alaska; Folder: 870-5a theater Plans for Chemical Warfare Alaska 1943
JGK 25	Theater Plans for Chemical Warfare (Alaska Defense Command)	Adjutant General	8/13/43	CBDCOM/HO	NA	Unclassified	File: Location File, Alaska; Folder: 870-5a Theater Plans for Chemical Warfare Alaska
JGK 26	Untitled	Gillet, Norman, Colonel, CWS	8/30/43	CBDCOM/HO	NA	Unclassified	File: Location File, Alaska; Folder: 870-5a Theater Plans for Chemical Warfare Alaska
JGK 27	Toxic Agents for Alaska Defense Command	Lutes, LeR., Asst. Chief of Staff for Operations, Services of Supply (WD)	2/6/43	CBDCOM/HO	NA	Unclassified	File: Location File, Alaska; Folder: 870-5a Theater Plans for Chemical Warfare Alaska
JGK 28	Enemy situation	Heath, John, Chemical Officer, Alaska Department	11/19/43	CBDCOM/HO	NA	Unclassified	File: Location File, Alaska; Folder: 870-5a History of CWS in Alaska Laboratory Analysis of Japanese Equipment
JGK 29	History of CWS in Alaska	NAv	12/15/43	CBDCOM/HO	NA	Unclassified	File: Location File, Alaska; Folder: 870-5a History of CWS in Alaska Laboratory Analysis of Japanese Equipment
JGK 30	Narrative History of 802nd Chemical Company, Air Operations, 314th Bombardment Wing, 20th Air Force	Air Force	9/3/45	Bolling	NA	NA	Reel A0190
JGK 31	History of the 5001st Composite Wing, January-March 1952	Air Force	5/1/1952	Maxwell	NA	NA	NA
JGK 32	15th Air Base Wing History April-June 1974	15th Air Base Wing	04/74-06/74	Maxwell	NA	NA	K-WG-15-HI
JGK 33	History of Chemical Warfare (Aviation) in Alaska, 1 July 1941 to 1 July 1944	Chemical Officer	6/27/44	Maxwell	NA	NA	480.805
JGK 34	History of CWS Section--Eleventh Air Force, Adak, Alaska, 1 July 1944 through 31 March 1945	CWS	01/06/45	Maxwell	NA	NA	480.805

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JGK 35	History of CWS Section--Eleventh Air Force, Adak, Alaska, 1 April 1945 through 31 May 1945	CWS	06/45	Maxwell	NA	NA	480.805
JGK 36	History of CWS Section--Eleventh Air Force, Adak, Alaska, 1 June 1945 through 31 July 1945	CWS	08/1945	Maxwell	NA	NA	480.805
JGK 37	History of the 15th Air Base Wing, 1 January - 30 June 1977	Jordan, Kaye	12/23/77	Maxwell	NA	NA	K-WG-15-HI
JGK 38	History of the 1500th Air Base Wing, 1 January - 31 March 1955	Peterson, Helen D.	4/1/55	Maxwell	NA	NA	NA
JGK 39	Seventh Air Force Memo 43-64	Seventh Air Force	9/20/43	Maxwell	NA	NA	740.186 1943
JGK 40	Seventh Air Force Memo 42-73, Chemical Warfare Training	Seventh Air Force	10/17/42	Maxwell	NA	NA	740.186 1942
JGK 41	Seventh Air Force Memo 44-30, Chemical Warfare Training	Seventh Air Force	11/5/44	Maxwell	NA	NA	740.186 1944
JGK 42	WD Field Manual FM 3-75, Chemical Company, Air Operations	War Department	7/1/46	Air University Library	NA	NA	Document Room stacks, "FM 3-6, 1946, etc."
JGK 43	Air Force Regulation 50-22, Ammunition Training Allowances	Air Force	7/1/51	Air University Library	NA	NA	Document Room stack, "AF Regulations 45-45 thru 67-70 vol. 6, series 3, 1953"
JGK 44	FM 21-40, Basic Field Manual, Defense Against Chemical Attack	War Department	1/1/42	Air University Library	NA	NA	Document Room stacks, "Field Manuals, 4-102, etc."
JGK 45	AAF Regulation 65-70, Chemical Warfare Service Supplies and Equipment	Army Air Forces	11/12/43	Air University Library	NA	NA	Document Room stacks, "AAF Regulations 65-63 thru 80-4, vol. 14"
JGK 46	AAF Regulation 50-25, Chemical Warfare Training	Army Air Forces	7/27/42	Air University Library	NA	NA	Document Room stacks, "AAF Regulations 40-1 thru 50-34, vol. 11"
JGK 47	AFM 355-2, Armed Forces Doctrine for Chemical and Biological Weapons Employment and Defense	NAv	4/1/64	Air University Library	NA	NA	Documents Room stacks, "AF Manuals vol. 189"
JGK 48	War Department Technical Manual, TM 3-305, Use of Chemical Agents and Munitions in Testing	War Department	6/2/44	AMHI	NA	NA	Basement Hallway
JGK 49	War Department Technical Manual TM 3-250, Storage and Shipment of Dangerous Chemicals	NAv	12/5/40	AMHI	NA	NA	Basement Hallway

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JGK 50	Army Technical Manual TM 3-250, Storage, Shipment, and Handling of Chemical Agents and Hazardous Chemicals	Army	2/1/57	AMHI	NA	NA	Basement Hallway
JGK 51	Army Technical Manual TM 3-250, Storage, Shipment, and Handling of Chemical Agents and Hazardous Chemicals	Army	8/1/63	AMHI	NA	NA	Basement Hallway
JGK 52	Army Technical Manual TM 3-250, Storage, Shipment, Handling, and Disposal of Chemical Agents and Hazardous Chemicals	Army	3/1/69	AMHI	NA	NA	Basement Hallway
JGK 53	Army Special Regulation SR 75-70-10, Air Force Regulation AFR 68-3, Explosives, Disposal by Dumping at Sea	Army, Air Force	5/5/49	AMHI	NA	NA	Basement Hallway
JGK 54	War Department Technical Bulletin TB CW 22, Nonpersistent Gas Bombs: Handling, Shipping, and Storage	War Department	4/6/45	AMHI	NA	NA	Basement, Room 15, Box "TB CML-30 - TB CW 34"
JGK 55	History of CWS in Alaska	NAV	12/15/43	CBDCOM/HO	NA	Unclassified	Location Files, Alaska, Folder: "General NPA 419.3"
JGK 56	M6 Propellant	Waitt, Alden H., Asst Chief of CWS for Field Operations	9/1/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Historical Data Sheets Alaska 1940s"
JGK 57	Ammunition Supply Report (DDL-84)	Ditto, H.C., Assitant Chief, CWS for Materiel	8/11/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaska Dept."
JGK 58	Ammunition Supply Report (DDL-84)	Ditto, R.C., Assistant Chief, CWS for Materiel	7/24/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 59	Ammunition Supply Report (DDL-84)	Ditto, RC, Asst Chief of CWS for Materiel	12/16/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 60	Ammunition Supply Report (DDL-84)	Ditto, RC, Asst. Chief CWS for Materiel	11/14/98	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."

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JGK 61	Ammunition Supply Report (DDL-84)	Ditto, RC, Asst. Chief CWS for Materiel	10/16/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 62	Ammunition Supply Report (DDL-84)	Ditto, RC, Asst. Chief CWS for Materiel	9/16/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 63	Untitled	Gillet, Norman D, Colonel, CWS	8/12/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 64	CW Ammunition Training	Sarles, Duane Y., Lt. Col., CWS	5/26/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 65	Chemical Warfare Training Ammunition Requirements	Commanding General, Alaskan Department	6/10/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 66	Chemical Warfare Training Ammunition Requirements	Walker, NR, Asst. Exec, Office of the Director of Military Training, ASF	4/10/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 67	Chemical Warfare Training Ammunition Requirements	Walker, NR, Asst. Exec., Office of the Director of Military Training, ASF	3/10/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 68	Chemical Warfare Training Ammunition Requirements	Walker, NR, Asst. Exec., Office of the Director of Military Training, ASF	2/18/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 69	Chemical Warfare Training Ammunition	Commanding General, Alaskan Department	1/10/44	CBDCOM/HO	NA	Unclassified	Location File, Alaska; Folder: "Ammunition Supply Report, Alaskan Dept."
JGK 70	Roster of CWS Personnel, Alaska	Walding, Malcolm M., Chemical Office, Alaskan Department	3/1/45	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder "Alaskan Department--roster of CWS Officer Personnel Alaska, 1945"
JGK 71	Alaskan Department Chemical Newsletter (February)	Chemical Officer, Alaskan Department	2/23/45	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder "General NPA 419.3"
JGK 73	Chemical Warfare Service Activities in Alaska	Heath, John R., Chemical Officer	6/8/43	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder "General NPA 419.3"

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JGK 74	Alaskan Department Chemical Letter (December)	Walding, Malcolm L., Chemical Officer, Alaskan Department	12/15/44	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder "General NPA 419.3"
JGK 75	Disposition of Toxic Agents and Munitions	Waitt, Aiden H., Asst Chief, CWS for Field Operation	10/22/45	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder, "CWS 314.7 Misc Theater Files, Alaskan Department"
JGK 76	Supply--Alaska--Toxics	Buckner, CG	2/8/42	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder, "CWS 314.7 Misc Theater Files, Alaskan Department"
JGK 77	Implementation of Theater Plans for Gas Warfare	Ulio, J.A., Adjutant General	9/11/43	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder "870-5A Memo: Subj: Implementation of Theater Plans for Gas Warfare Sep 1943"
JGK 78	Report of Operations on Attu	NAV	6/25/43	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder "570-5A Attu"
JGK 79	Gas Readiness Alaska	Commanding General, Alaskan Department	6/30/44	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder, Unlabelled
JGK 80	History of Kiska Operation	NAV	10/12/43	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder, Unlabelled
JGK 81	Untitled	Barker, Colonel, CWS	4/25/46	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder "CWS 314.7 Misc Theater Files, Alaskan Department"
JGK 82	Toxic Storage Situation in Alaska	MacArthur, John C., Chemical Corps	11/19/46	CBDCOM/HO	NA	Unclassified	Location Files, Alaska; Folder, "Toxic Storage Situation in Alaska 1946"
JGK 83	Chemical Warfare Service Training	Waitt, Aiden R., Asst. Chief CWS for Field Operations	3/1/44	CBDCOM/HO	NA	Unclassified	Location Files, Hawaii; Folder "Hawaii"
JGK 84	15th Air Base Wing History, January - March 1974	Jordan, Kaye, Historian	6/20/74	Maxwell	NA	NA	K-WG-15-HI
JGK 85	History, Alaskan Air Command, 21 December 1945 - 31 December 1947	Maxwell, Charles	1948	Maxwell	NA	NA	484.01
JGK 86	History of the Alaskan Air Command, 1 January 1949 - 31 December 1949	Fanster, Homer	12/1/50	Maxwell	NA	NA	484.01

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JGK 87	An Outline History of the 11th Air Force from 15 January 1942 to 31 December 1943	Fogle, Jean	12/31/43	Maxwell	NA	NA	480.01
JGK 88	History of the Alaskan Air Command	Chert, Ira	NAv	Maxwell	NA	NA	484.01
JGK 89	Theater Plans for Chemical Warfare, Central Pacific Area	Waitt, Alden, Asst. Chief of CWS for Field Operations	4/14/44	CBDCOM/HO	NA	Unclassified	Location Files, Hawaii; Folder "Hawaii"
JGK 90	History of CWS Section--Eleventh Air Force, Adak, Alaska, 1 August 1945 through 30 September 1945	Metzger, George E.	10/15/45	Maxwell	NA	NA	480.805
JGK 91	History of the 5010th Composite Wing, 1 January 1953 - 30 June 1953	Wendle, D.E.	10/1/53	Maxwell	NA	NA	K-AAFLD-EIELSON-HI
JGK 92	History of the 5010th Air Base Wing 1 July 1955 - 31 December 1955	Orr, John K.	4/1/56	Maxwell	NA	NA	K-AAFLD-EIELSON-HI
JGK 93	History of the VI Air Service Area Command, Army Air Forces, Pacific Ocean Area	NAv	2/27/45	Maxwell	NA	NA	723.202
JGK 94	VI Air Service Area Command History, Vol. II/VI Air Service Area Command Memorandum 50-6	NAv	11/21/44	Maxwell	NA	NA	723.202
JGK 95	History of VI Air Service Area Command, AAFPOA, November 1944	NAv	12/1/44	Maxwell	NA	NA	723.202
JGK 96	History of VI Air Service Area Command, AAFPOA, December 1944	NAv	1/28/45	Maxwell	NA	NA	723.202 Dec. 1944
JGK 97	History of VI Air Service Area Command, AAFPOA, February 1945	NAv	3/28/45	Maxwell	NA	NA	723.202
JGK 98	History, Alaska Air Force Depot, Elmendorf AFB, Alaska, 1 July 1954 through 25 January 1954	NAv	1/55	Maxwell	NA	NA	K-AD-ALASKA-HI
JGK 99	History, Alaska Air Force Depot, 1 July - 31 December 1953	NAv	4/54	Maxwell	NA	NA	K-AD-ALASKA-HI
JGK 100	History of the 39th Ammunition Supply Squadron, 1 November - 31 December 1951	Wickizer, A.F.	1/1/52	Maxwell	NA	NA	K-SQ-AM-39-HI

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JGK 101	History of the 39th Ammunition Supply Squadron, Depot, Elmendorf AFB, 1 January 1952 - 31 March 1952	Wickizer, A.F.	4/1/52	Maxwell	NA	NA	K-SQ-AM-39-HI
JGK 102	History of the 39th Ammunition Supply Squadron, Depot, Elmendorf AFB, 1 April 1952 - 30 June 1952	Lefevre, L.E.	7/1/52	Maxwell	NA	NA	K-SQ-AM-39-HI
JGK 103	History of the Chemical Warfare Service in World War II, Volume VI, Readiness for Gas Warfare in the Theaters of Operation	Baldwin, Ben R, et al.	6/1/47	ACMH	NA	NA	4-7.1 BA v. 6
JGK 104	Master Plan, Wheeler Air Force Base, Oahu, Hawaii	Directorate of Civil Engineering DCS/PBR	3/3/70	Maxwell	NA	NA	K-WG-15-HI, 15th ABW, Jan-Mar 1974
JGK 105	Master Plan, Wake Air Force Station, Wake Island	Directorate of Civil Engineering DCS/PBR	NAv	Maxwell	NA	NA	K-WG-15-HI, History, 15th ABW, Jan-Mar 1974
JGK 106	Master Plan, Hickam Air Force Base, Oahu, Hawaii	Directorate of Civil Engineering DCS/P&R	5/1/72	Maxwell	NA	NA	K-WG-15-HI, History, 15th ABW, Jan-Mar 1974
JGK 107	Layout map of Wheeler Field	Constructing Quartermaster, Hawaiian Department	1/16/41	Maxwell	NA	Corps of Engineers	Folder "Wheeler Field"
JGK 108	General Layout Map of Hickam Field	Air Corps Construction	8/30/1946	Maxwell	NA	Corps of Engineers	Folder "Hickam Field"
JGK 109	Gas Warfare: The Chemical Weapon, Its Use, and Protection Against It	Waitt, Alden	1942	Air University Library	NA	NA	623.4516 W145g
JGK 110	Harvest of Death: Chemical Warfare in Vietnam and Cambodia	Neilands, J.B., et al.	1972	Air University Library	NA	NA	959.7 H339
JGK 111	Untitled	NAv	1940	Maxwell	NA	Corps of Engineers	Folder "Ladd"
JGK 112	Untitled	Army Corps of Engineers	3/5/42	Maxwell	NA	Corps of Engineers	Folder "Ladd"



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JGK 113	Defense Department Plans Disposal of Chemical Sets	Associated Press	4/26/77	CBDCOM/HO	NA	Unclassified	Technical Escort Files; Folder "Rocky Mountain Arsenal" Attachment to OPLAN SETCON I--Movement After Action Report, Vol. 1
JGK 114	OPLAN SETCON I, Operation of Central Movement Coordination Center, Implementation Plan	NAv	1/5/78	CBDCOM/HO	NA	Unclassified	Technical Escort Files; Folder "Rocky Mountain Arsenal," OPLAN SETCON I--Movement After Action Report, Vol. 1
JGK 115	History of the Chemical Warfare Service in World War II, Vol. IV, Chemical Warfare Service Supply Program, Part 4, Storage and Maintenance	Brophy, Leo, et al.	3/1/47	ACMH	NA	General	4-7.1 BA v. 4, pt. 4
JGK 116	History of the Chemical Warfare Service in World War II, Volume IV, Chemical Warfare Service Supply Program, Part 5, Distribution	Hemleben, Sylvester, et al.	3/1/47	ACMH	NA	General	4-7.1 BA v. 4, pt. 5
JGK 117	History of the Alaskan Air Command, 1 January 1977 - 31 December 1977, Volume I of XV	NAv	1/1/78	Maxwell	NA	NA	K484.01
JGK 118	Narrative History 14th Aviation Depot Squadron (SAC) Fifteenth Air Force, 1-31 January 1959	Miller, Edward L.	2/1/59	Maxwell	NA	NA	K-SQN-AVN-14-HI, Jan. 1959
JGK 119	History of the 702nd Chemical Maintenance Company (Aviation)	NAv		Bolling	NA	NA	CML-702-HI, Reel A0187
JGK 120	Untitled	Porter, Supervisor, Field Division, CWS	NAv	CBDCOM/HO	NA	Unclassified	Location Files, Alaska. File: 870-5A Correspondence Related to Supply Issues, Alaska WWII Years
JGK 121	Monthly Materiel Status Report	Alaska Defense Command	4/15/42	CBDCOM/HO	NA	Unclassified	Location Files, Alaska. File: 870-5A Correspondence Related to Supply Issues, Alaska WWII Years
JGK 122	History of Chemical Warfare Service in WWII - Readiness for Gas Warfare in Theater of Operations	Unknown	NAv	CBDCOM/HO	NA	Unclassified	Not Provided
JGK 123	Monthly Histories of Wheeler Field - 1945	NAv	1945	Bolling	NA	NA	Reel 0093 (A0091)
JGK 124	757th Chemical Depot Co Avn Unit History	NAv	5/28/44	Bolling	NA	NA	Reel A0189

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JGK 125	Preliminary Master Plan - Eielson AFB	NAv	NAv	Maxwell	NA	AFHRA	unspecified
JGK 126	Untitled	Un	12/7/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 127	Untitled	NAv	12/2/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 128	Report of Inspection of Ammunition Area	Tisdale, W.M., Colonel, Ord Dept, Ordnance Officer	12/12/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 129	Report of Inspection of Ammunition Area	Tisdale, W.M., Colonel, Ord Dept, Ordnance Officer	12/10/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 130	Hazardous Ammunition Storage Condition	Ebbitt, J.M., Captain, AGD, Asst. Adj. Gen.	12/17/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 131	Monthly Base Chemical Report	Nichols, T.B., Major, USAF	5/4/50	NPRC	NA	342-51H-4004	Box 3; Folder: 319.1 Chemicals
JGK 132	Base Chemical Report, RCS: FEAF-SUP-E4	Maxwell, George S., Major, USAF, Asst Adjutant General	8/7/50	NPRC	NA	342-51H-4004	Box 3; Folder: 319.1 Chemicals
JGK 133	ABC Defense	Frink, Earl E., Major, USAF, Asst Adj General	6/30/50	NPRC	NA	342-51H-4004	Box 5; Folder: 353 Training Jan-Dec [1950]
JGK 134	Ground Defense Training	Stucker, Leroy C., WOJG, USAF, Asst Adj General	11/22/50	NPRC	NA	342-51H-4004	Box 5; Folder: 353 Training Jan-Dec [1950]
JGK 135	Daily Diary	Gaughan, John P., 1st Lt, USAF; Director	10/18/50	NPRC	NA	342-55C-6050	Box 1/1; Folder: 1950 Draft Daily; Diwy 169 thru 190 book V, (AAC)
JGK 136	Apparatus for Protection	McCormack, A.W., Captain, USAF, Asst Adj Gen	10/10/52	NPRC	NA	342-57B-5078	Box 2/2; Folder: 470 Ammunition Thru 474 Small Arms 1 Jan - 31 Dec 1952
JGK 137	Daily Diary; Headquarters Alaskan Air Command, Fort Richardson, APO 942, US Army	NAv	1/3/49	NPRC	NA	342-55B-6050	Box 1/1 Drafts Daily Diary 1949 #1 thru 46 1 Jan - 28 Feb
JGK 138	Untitled	Brogger, J.J., AAMDC Col.	10/12/49	NPRC	NA	342-55B-6050	Box 1/1; "Confidential Message for Retirement, Outgoing - 1950 AAC"

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JGK 139	Chemical Warfare Status and Activity Report	Stewart, Charles N., Captain, AGD, Asst Adj Gen	3/4/46	NPRC	NA	342-50A-4040	Box 1; Folder 319.1 Reports-Misc.
JGK 140	Ammunition Stocks Reprot	Mason, V.A., Major, Air Corps, Actg Asst Adj Gen	5/29/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 141	Logistics for Supply and Shipment of Air Force Ammunition	Bonnewitz, H.P., Colonel, ASC, Adjutant General	10/14/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 142	Status of Ammunition Stocks Report	Rymkiewicz, Peter S., 1st Lt. Ord. Dept., Asst Ordnance Officer	7/31/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 143	Status of Ammunition Stocks Report	Weldon, William C., 1st Lt	7/22/46	NPRC	NA	342-50A-4040	Box 2 of 2; Folder: 471 Ammunition
JGK 144	Ammunition Condition Reports	Walters, Ernest L., Lt Col USAF, Adjutant General	6/11/49	NPRC	NA	342-53A-3003	Box 6; Folder: 471 Ammunition, General, Ammunition Reports
JGK 145	Untitled	Brogger, J.J., AAMES COL	1949	NPRC	NA	342-53A-3003	Box 6; Folder: 471 Ammunition, General, Ammunition Reports
JGK 146	Untitled	Brogger, J.J., AAMES COL	1949	NPRC	NA	342-53A-3003	Box 6; Folder: 471 Ammunition, General, Ammunition Reports
JGK 147	Reclassification of Certain Chemical Corps Items	Arnette, John W., Captain, USAF, Asst, Air Adjutant General	8/24/50	NPRC	NA	342-59A-3040	Box 3; Folder: Hq AAC-Decimal letters June-August 50
JGK 148	Ammunition Disposal Mission at Attu	Buelow, Albert G., Lt. Col USAF, Asst. Adjutant General	3/28/50	NPRC	NA	342-57A-3040	Box 2; Folder: 471 Ammunition, General, Ammunition Reports
JGK 149	Chemical, Biological and Radiological Defense Training	Connor, George R., Colonel AGC; Acting Adjutant General	4/30/51	NPRC	NA	342-55A-4096	Box 9; Folder:353
JGK 150	Chemical, Biological and Radiological Defense Training	Warden, C.C.B., Colonel, AGC, Adjutant General	8/31/51	NPRC	NA	342-55A-4096	Box 9; Folder:353

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JGK 151	Utilization of Radiological Defense Kits	Coverly, E.D., Major, USAF, Asst Adj Gen	8/31/51	NPRC	NA	342-55A-4096	Box 9; Folder:353
JGK 152	Disposition of Unserviceable and Obsolete Chemical Ammunition and Ammunition Components	McMAhon, Colonel, USAF, Chief, Material Section, Supply Division	8/2/50	NPRC	NA	432-55H-5005	Box 20; Folder: 471 Ammunition
JGK 153	Standard Nomenclature List of Chemical Nonexpendable Items	[Illegible]	1/5/50	NPRC	NA	432-55H-5005	Box 20; Folder: 470 Ammunition, Armament
JGK 154	Requirements Survey for Non- Headquarters USAF Regulated Training Devices	Farris, S.A., Major, USAF, Actg Director, Operations & Training Directorate	3/28/56	NPRC	NA	342-60A-3044	Box 5; Folder: TNG Military Training (Unclassified) 1956 Jan thru Dec
JGK 155	Report of Base Chemical Activities	Rash, John F., Major, USAF, Adjutant General	6/5/50	NPRC	NA	342-51H-4004	Box 3; Folder 319.1 Chemicals
JGK 156	Ammunition Stockage Report	Klenzing, H.A., CWO, USAF, Adjutant	9/8/49	NPRC	NA	342-55E-6050	Box 1/1; Folder: Correspondence 1951
JGK 157	Individual Protective Measures Against Chemical, Biological and Radiological Warfare	Webster, [unreadable]; Major, AGC, Asst Adjutant Gen	11/5/51	NPRC	NA	342-55I-5005	Box 16; Folder: 353 Training
JGK 158	Memorandum of Understanding on Disposal of Chemical Warfare Agents and Munitions	Brill, Jay H., Colonel, USAF, Military Assistant	12/2/69	WNRC	NA	77-72A-5328	Carton #23; F: Chemical & Biological Weapons Defense (1022-69)
JGK 159	Memorandum of Understanding on Disposal of Chemical Warfare Agents and Munitions	Cummings, A.H., Captaln, U.S. Navy, Executive Assistant and Naval Aide	6/12/69	WNRC	NA	77-72A-5328	Carton #23; F: Chemical & Biological Weapons Defense (1022-69)
JGK 160	Memorandum for Major James, SAFOIX	Hilbert, Philip F., Deputy Under Secretary (International Affairs)	5/6/69	WNRC	NA	77-72A-5328	Carton #23; F: Chemical & Biological Weapons Defense (1022-69)

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JGK 161	Second Annual Report Investigation of Airfield Construction in Arctic and Subarctic Regions	Corps of Engineers, St. Paul, Minnesota	3/47	WNRC	77	70A1116	Box No. 8
JGK 162	Design Analysis for Pavement Rehabilitation for Runway, Taxiways, & Apron Galena Air Force Base	Alaska District Corps of Engineers	12/13/54	WNRC	77	70A1116	Carton No. 14
JGK 163	Military Construction Project Data	NAV	11/17/75	WNRC	NA	340-79-007	Box No: 1; F: Anderson AFB, Guam (023-76)
JGK 164	Conference Notes on Dumping of Lewisite and Mustard Gas - West Coast	NAV	3/1/58	WNRC	NA	336-61A-1558	Box No. 31; F: Cargo Movement Gen File/Dumping at Sea
JGK 165	Untitled	NAV	5/18/58	WNRC	NA	336-61A-1558	Box No. 31; F: Cargo Movement Gen File/Dumping at Sea
JGK 166	Statement Before the Department of Defense Subcommittee	Yount, Paul F., Major General, Chief of Transportation	NAV	WNRC	NA	336-61A-1558	Box No. 24; F: Sea Accounts, FY 58 Budget to Congress 1/22/57
JGK 167	Ladd Air Force Base, Storm Drainage	J. Gordon Turnbull, Inc.; Consulting Engineers	12/15/54	WNRC	NA	77-71A-1973	Carton No. 18
JGK 168	Ladd Air Force Base, Fairbanks Alaska, Basic Layout Plan	J. Gordon Turnbull, Inc.; Consulting Engineers	1/25/56	WNRC	NA	341-68A-0874	Box 2; "Ladd AFB, Alaska #2021 Outgrants 4-1-7"
JGK 169	Construct Runway Radar Reflectors, Site Plan & Vicinity Map, King Salmon Airport, Alaska	Office of the Civil Engineer	9/23/65	WNRC	NA	342-79-0096	Box 2 "King Salmon Radar Reflectors FY 66-80" Drawing number 65E071
JGK 170	Ladd Field Plot Plan	Office of the Installation Officer L.A.F.B.	4/13/51	WNRC	NA	341-68A-0874	Box 1; "Ladd AFB, Alaska #2021 Correspondence 4-1-3"
JGK 171	Repair Airfield, Shemya Air Force Base, Alaska, \$2,632,600	Keegan, Richard J., Acting Assistant Secretary of the Air Force	3/12/	WNRC	NA	340-79-007	Box 4; "203-76 Shemya AFB, Alaska
JGK 172	Military Construction Project Data	NAV	7/16/76	WNRC	NA	340-79-007	Box 4; "203-76 Shemya AFB, Alaska
JGK 173	Military Construction Project Data	NAV	10/31/75	WNRC	NA	340-79-007	Box No: 1; F: Anderson AFB, Guam (023-76)

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JGK 174	Master Plan, Airfield Lighting, Communication and NAVAID Systems, Galena Airport, Galena, Alaska	Department of the Air Force	1/1/64	WNRC	NA	342-79-0096	Box #4; F: Galena Land Dextrcription, FY 67-42
JGK 175	Base Control Plan, Elmendorf AFB Alaska	5040th Civil Engineering Group, Survey Section	12/12/62	WNRC	NA	NA	NA
JGK 176	Military Construction Project Data	NAV	7/16/76	WNRC	NA	NA	NA
JGK 177	Summary of Major Events and Problems, United States Army Chemical Corps (U), Fiscal Year 1959	U.S. Army Chemical Corps Historical Office, SrmY Chemical Center, Maryland	1/60	NSA	NA	Chemical & Biological Warfare Collection	Box 3
JGK 178	Summary of Major Events and Problems, United States Army Chemical Corps (U), Fiscal Years 1961-1962	U.S. Army Chemical Corps Historical Office, SrmY Chemical Center, Maryland	6/62	NSA	NA	Chemical & Biological Warfare Collection	Box 3
JGK 179	Chemical and Biological Warfare: Issues and Developments During 1971	Congressional Research Service, Library of Congress	NAv	NSA	NA	Chemical & Biological Warfare Collection	Box 3
JGK 180	History of the Chemical Warfare Service in World War II, (1 July 1940 - 15 August 1945)	Cochrane, Raymond C., U.S. Army, Chemical Corps, Office of the Chief, Historical Section, Plans, Training and Intelligence Division	11/47	NSA	NA	Chemical & Biological Warfare Collection	Box 7
JGK 181	Summary of Major Events and Problems, United States Army Chemical Corps (U), Fiscal Year 1960	U.S. Army Chemical Corps Historical Office, SrmY Chemical Center, Maryland	4/61	NSA	NA	Chemical & Biological Warfare Collection	Box 3
JGK 182	Summary of Major Events and Problems, United States Army Chemical Corps (U), Fiscal Year 1958	U.S. Army Chemical Corps Historical Office, SrmY Chemical Center, Maryland	3/59	NSA	NA	Chemical & Biological Warfare Collection	Box 7

<i>Document ID</i>	<i>Title</i>	<i>Author</i>	<i>Date</i>	<i>Repository</i>	<i>Record Group</i>	<i>Collection</i>	<i>Location</i>
JGK 183	Untitled	Kotler, R.F., U.S. GAO, Office of the Comptroller	9/2/75	NSA	NA	Chemical & Biological Warfare Collection	Unnumbered Box, Folder: 1946-1949
JGK 184	Untitled	U.S. Department of the Army	5/6/80	NSA	NA	Chemical & Biological Warfare Collection	Unnumbered Box, Folder: 1946-1949
JGK 185	Statements of Policy and Directives on Biological Warfare	Joint Strategic Plans Committee	5/27/52	NSA	NA	Chemical & Biological Warfare Collection	Box 2; Folder: UK Archives
JGK 186	Statements of Policy and Directives on Biological Warfare	Joint Strategic Plans Committee	6/11/52	NSA	NA	Chemical & Biological Warfare Collection	Box 2; Folder: UK Archives
JGK 187	JCS 1837/35	Chief of Naval Operations	6/26/52	NSA	NA	Chemical & Biological Warfare Collection	Box 2; Folder: UK Archives
JGK 188	Overseas Deployment of Toxic Agents	Chief of Staff, U.S. Air Force	NAV	NSA	NA	Chemical & Biological Warfare Collection	Box 2; Folder: UK Archives
JGK 189	Enclosure "B"	CINCFE TOKYO JAPAN	10/15/52	NSA	NA	Chemical & Biological Warfare Collection	Box 2; Folder: CW & Terrorism
JGK 190	Enclosure "A". Draft, Overseas Deployment of Toxic Chemical Agents	NAV	NAV	NSA	NA	Chemical & Biological Warfare Collection	Box 2; Folder: CW & Terrorism
JGK 191	Untitled	CINCPAC	9/8/45	CBDCOM/HO	Unclassified	Hawaii	File: 870-5A Disposition of Material in Hawaii
JGK 192	Training: Ammunition Allowances for Unit Training	USAF	4/2/58	Maxwell	NA	Air Force Regulations	40-1 through 55-102, Volume 4, Series 12, 1960
JGK 193	Supply and Maintenance: Supply of Chemical Warfare Training Ammunition	USAF	11/14/44	Maxwell	NA	Air Force Regulations	65-66 through 80-4, Volume 14

<i>Document ID</i>	<i>Title</i>	<i>Author</i>	<i>Date</i>	<i>Repository</i>	<i>Record Group</i>	<i>Collection</i>	<i>Location</i>
JGK 194	Training: Chemical Warfare Training	USAF	9/1/45	Maxwell	NA	Air Force Regulations	40-1 through 50-34, Volume 11
JGK 195	Training: Chemical Warfare Ammunition Training Allowances	USAF	8/14/44	Maxwell	NA	Air Force Regulations	40-1 through 50-34, Volume 11
JGK 196	Untitled	USAF	12/28/43	Maxwell	NA	US War Department Circulars	Volume 7, 1943
JGK 197	Qualification in Arms and Ammunition Training Allowances	War Department	12/30/43	Maxwell	NA	Air Force Regulations	711-45-1 through 940-10-15
KJN 1	History of Chemical Section, U.S. Army Forces Middle Pacific, Volume 1	Army	9/2/45	CBDCOM/HO	NA	Unclassified	310-2E Reference Publication
KJN 2	History of Chemical Section, U.S. Army Forces Middle Pacific, Volume 2	Army	9/2/45	CBDCOM/HO	NA	Unclassified	310-2E Reference Publication
KJN 3	History of Chemical Section, U.S. Army Forces Middle Pacific, Volume 4	Army	9/2/45	CBDCOM/HO	NA	Unclassified	310-2E Reference Publication
KJN 4	History of Chemical Section, U.S. Army Forces Middle Pacific, Volume 5	Army	9/2/45	CBDCOM/HO	NA	Unclassified	310-2E Reference Publication
KJN 5	Untitled	CG, Far East Air Forces	8/4/45	CBDCOM/HO	NA	Unclassified	file: Notes on Toxics in the Pacific Theaters, 1940s
KJN 6	Untitled	CG, Allied Air Force, POA	3/27/45	CBDCOM/HO	NA	Unclassified	file: Notes on Toxics in the Pacific Theaters, 1940s
KJN 7	Untitled	CINCAF, Pacific	9/28/45	CBDCOM/HO	NA	Unclassified	file: Notes on Toxics in the Pacific Theaters, 1940s
KJN 8	Untitled	CG, USAF, POA	2/16/45	CBDCOM/HO	NA	Unclassified	file: Notes on Toxics in the Pacific Theaters, 1940s
KJN 9	Untitled	CG, USAF POA	4/12/45	CBDCOM/HO	NA	Unclassified	file: Notes on Toxics in the Pacific Theaters, 1940s
KJN 10	Untitled	CINCAF, Pacific	9/26/45	CBDCOM/HO	NA	Unclassified	file: Notes on Toxics in the Pacific Theaters, 1940s
KJN 11	The Use of Gas in the Pacific Theaters	Commanding General, Army Service Forces	5/20/44	CBDCOM/HO	NA	Unclassified	file: Notes on Toxics in the Pacific Theaters, 1940s



<i>Document ID</i>	<i>Title</i>	<i>Author</i>	<i>Date</i>	<i>Repository</i>	<i>Record Group</i>	<i>Collection</i>	<i>Location</i>
KJN 12	Preliminary Report on Situation in Pacific Ocean and Southwest Pacific Areas	Waltt, Alden, Brigadier General, CWS	11/25/44	CBDCOM/HO	NA	Unclassified	file: Preliminary Report POA and SWPA 24 Sep-21 Nov 1944, Based on BG Waitt and LtC Javitz
KJN 13	Untitled	Wright, Jesse F., Capt. CWS	11/8/44	CBDCOM/HO	NA	Unclassified	file: Chemical Units Assigned in the POA and SWPA, 1945
KJN 14	Untitled	Javits, J.K.	12/12/44	CBDCOM/HO	NA	Unclassified	file: Chemical Units Assigned in the POA and SWPA, 1945
KJN 15	Deployment of CWS Troops in Middle Pacific	Oahu Chemical Warfare Service	5/2/46	CBDCOM/HO	NA	Unclassified	file: Chemical Units Assigned in the POA and SWPA, 1945
KJN 16	History of Chemical Warfare Units	Unmacht, George F., Colonel, CWS	9/26/45	CBDCOM/HO	NA	Unclassified	file: Chemical Units Assigned in the POA and SWPA, 1945
KJN 17	Unit Histories of Chemical Warfare Units	Unmacht, George F., Colonel, CWS	1/19/45	CBDCOM/HO	NA	Unclassified	file: Chemical Units Assigned in the POA and SWPA, 1945
KJN 18	Deployment CWS Troops in Middle Pacific	Unmacht, George F., Colonel, CWS	9/5/45	CBDCOM/HO	NA	Unclassified	file: Chemical Units Assigned in the POA and SWPA, 1945
KJN 19	Summary Report: Chemical Weapons Exposure Study Task Force	NAv	4/29/96	CBDCOM/HO	NA	Unclassified	Cathy Cioffi
KJN 20	Pacific Theater	Unknown	NAv	CBDCOM/HO	NA	Unclassified	Cathy Cioffi

*Document Index*

<i>Repository</i>	<i>Repository Description</i>
ACMH	Army Center for Military History - Washington, D.C.
AMHI	Army Military History Institute - Carlisle, Pennsylvania
Bolling	Bolling Air Force Base - Washington, D.C.
CBDCOM/HO	Chemical and Biological Defense Command/Historical Office - Edgewood Arsenal, MD
Elmendorf	Elmendorf Air Force Base - Anchorage, Alaska
Hickam	Hickam Air Force Base - Oahu, Hawaii
Maxwell	Maxwell Air Force Base - Montgomery, Alabama
NARA-AK	National Archives and Records Administration - Anchorage, Alaska
NARA-MD	National Archives and Records Administration - College Park, Maryland
NARA-SB	National Archives and Records Administration - San Bruno, California
NPRC	National Personnel Records Center - Saint Louis, Missouri
NSA	National Security Archives - Washington, D.C.
SBCCOM/HO	Soldier Biological & Chemical Command/Historical Office - Edgewood Arsenal, MD
UH Hamilton	University of Hawaii, Hamilton
WNRC	Washington National Records Center - Suitland, Maryland

NAv = Not available; NA = Not applicable

**APPENDIX D  
REPOSITORY HOLDINGS**

## APPENDIX D REPOSITORY HOLDINGS

The following document repositories were accessed during Phase I activities and researched during Phase II.

**U.S. Army Center of Military History**  
**103 Third Avenue**  
**Fort McNair, DC 20319-5058**

The majority of the Army Center for Military History's holdings consist of draft histories of the Army's activities from its creation to the present. Most histories are from the WWII era. These histories form the basis of numerous published works, although not all of the drafts made their way into published form. In conducting a search of the Center's holdings, we reviewed the card catalogue. Based on the findings there, we examined a number of draft histories concerning chemical activities from WWII.

We copied draft sections of *History of the Chemical Warfare Service in World War II*, which provided background information on activities, storage, and distribution of chemical warfare supplies. The section of greatest value was Volume IV, "Readiness for Gas Warfare in the Theaters of Operation." It describes training and handling procedures for chemical agents throughout Alaska during WWII, as well as total amounts shipped to the Pacific. The two other draft sections of the history that we copied concern supply and storage.

**Army Military History Institute**  
**22 Ashburn Drive**  
**Carlisle Barracks**  
**Carlisle, PA 17013-5008**

The Institute is the Army's central repository for historical materials on Army and military affairs. We investigated secondary sources on military topics, bound unit histories, classified materials, and an extensive collection of Army manuals and regulations.

We reviewed the computerized database of the Institute's secondary sources, which cover a broad range of military topics. After identifying books that appeared to be of interest, we retrieved those materials, and examined the stacks around them. We also looked at the bound histories of chemical units, but found nothing of pertinence in them.

From this search, the only item copied was an historical overview and inventory of the White Alice facilities in Alaska written for the Army Corps of Engineers, Alaska, that described where the sources for the study came from. Other materials reviewed included histories of the Air Force in Alaska, maps of Air Force facilities (Alaska facilities were not included), histories of Air Force bases, and Army storage operations during WWII.

We also searched the classified collection. The classified materials are indexed in a card catalogue by title, organization, and subject. The collection contains Cold War-era War College lectures, as well as reports and studies by the military. Based on our search through the card catalogue, we requested four documents. One we did not have authorization to review; the other three proved to be irrelevant to the project.

Along the basement hallway and in back rooms were found Army regulations, manuals, and other publications from the early 20th century to the 1990s arranged by document type and number. From this collection we searched for materials to which we had references from previous research and also scanned sections that pertained to the Chemical Warfare Service and the Chemical Corps. We found and copied Army Technical Manuals, Regulations, and Bulletins from the 1940s through the 1960s that describe how to handle, store, ship, and dispose of chemical agents. This includes a WWII-era manual on chemical warfare training practices.

The Military History Institute provided nothing directly relevant to chemical agents in Air Force bases in Alaska. The manuals and regulations, however, allowed us to better understand the procedures that were either recommended or required for handling chemical agents.

**Air Force History Support Office  
Bolling Air Force Base  
Washington, DC**

The Office of Air Force History contains classified and unclassified collections of microfilmed histories of Air Force units and bases from the 1940s to the 1990s. The histories are annual, semi-annual, or monthly summaries of activities conducted by the various Air Force units, written shortly after the events and often including supporting documents. The collection at Bolling AFB largely duplicates the collection of original histories at the Air Force Historical Research Agency at Maxwell AFB. The histories are kept in two series—the first is arranged by decimal number, the second by a subject code for each unit.

To determine which histories might be pertinent, we examined the microfilmed card index file as well as the electronic database of more recent additions to the collection. Based on that research, we compiled a prioritized list of potentially relevant histories.

At Bolling AFB, we reviewed unclassified histories of several WWII-Era Chemical units. From these histories we found descriptions of their activities handling chemical munitions. The "History of CWS Section—Eleventh Air Force, Adak, Alaska," for July 1944-March 1945 includes a table of amounts and types of chemical agents stored at Army Air Force facilities in Alaska on April 1, 1945.

**Air Force Historical Research Agency  
Maxwell Air Force Base  
Montgomery, AL 36112-5000**

This facility holds the original copies of Air Force unit histories from the 1940s to the 1990s, as well as a collection of Army Corps of Engineers records pertaining to the construction of air fields before and during WWII.

We examined the Army Corps of Engineers construction files by reviewing a list of folder titles and ordering the folders that held documents for the sites of interest to the projects. The contents were disappointing, though, as there were only a few maps and most of the correspondence concerned procurement and plans for building barracks and hangars. It is possible that the Army Corps of Engineers correspondence concerning munitions storage facilities is in a classified collection elsewhere.

To search the Air Force histories, we used the list that we compiled at Bolling AFB to determine which histories we would review at Maxwell AFB. Unlike Bolling AFB, Maxwell AFB can accommodate researchers who need to examine classified materials. Therefore, we concentrated on reviewing the classified histories concerning the Air Force bases or Air Force units we believed to be potentially relevant to the project. Unclassified materials were reviewed at Bolling AFB.

The subjects of histories we reviewed include: Alaskan Air Command, 11th Air Force, Alaskan Air Force Depot, Ladd Air Force Base, Shemya Air Force Base, Eielson Air Force Base, 5040 Air Base Squadron, 5010 Air Base Squadron (Eielson), 39th Ammunition Supply Squadron, 925th Engineer Aviation Group, 5001 Composite Wing, 5010 Air Base Wing, 5039 Air Base Wing, and 14th Aviation Depot Squadron for time periods ranging from the 1940s to the 1970s.

Maxwell AFB proved to be an essential source of information about the Air Force's involvement with chemical agents, second only to the SBCCOM History Office at Edgewood Arsenal. The histories provide information on storage facilities, chemical movement, and training activities.

**Army Corps of Engineers Headquarters Archives  
Fort Belvoir, VA**

The archives has collected a variety of Army Corps of Engineers-related materials for the use of the staff historians. We had the archivist search through the available finding aids for materials relevant to the project. She located several folders from the Real Estate files that pertained to Alaska. Upon reviewing these items we found that they were not pertinent. We also checked the stacks for histories of engineering units that served during WWII. Again, we found nothing pertinent. The archives does not include any "as built" drawings for items of interest in Alaska. We did, however, locate and obtain a copy of *History of the Alaska District, United States Army Corps of Engineers, 1946-1974*, which provides general descriptions of military construction programs during the post-war era.

**Edgewood Arsenal Technical Library  
Edgewood Arsenal  
Edgewood, MD 21010**

The Edgewood Arsenal Technical Library contains thousands of technical reports concerning chemical agents and protective devices. We inquired about visiting the library to review its holdings. Ed Gier of the Technical Library conducted a search of the database of the library's holdings and found no potentially relevant documents that are not also available through the Defense Technical Information Center. After we discussed Mr. Geir's findings with Colt Denfeld of the Army Corps of Engineers, Alaska, Mr. Denfeld decided that a visit to the library would be unnecessary.

**Soldier and Biological and Chemical Command History Office  
Edgewood Arsenal  
Edgewood, MD 21010**

The History Office of the Army's Soldier and Biological and Chemical Command (SBCCOM) (formerly the Chemical and Biological Defense Command, CBDCOM) has consciously collected historical documents and reports pertaining to the Army's involvement with chemical agents. The collection is used to assist the Army in accounting for its chemical arsenal. There is no index to the office's holdings, so we relied on Kathy Ciolfi, who is in charge of the

collection, to find files with potentially relevant unclassified materials, and on Jeffrey Smart, SBCCOM Historian, to identify classified documents.

The unclassified collection consists of documents arranged in various subject files and a separate collection of Technical Escort files given to the History Office by the Army's Technical Escort Unit. There are also several bookcases of reference works, newsletters, bulletins, manuals, regulations, and similar items concerning the Chemical Warfare Service and Chemical Corps.

Within the unclassified subject files, Ms. Ciolfi identified the Location Files as having materials related to our project. We examined the Location Files for Alaska. Within those files we found numerous documents (correspondence, memoranda, reports, etc) from the 1930s to the 1950s, with the great majority from WWII, that describe the use, movement, and disposal of chemical agents. Most of the documents were written by Chemical Warfare Service personnel.

Again with the assistance of Ms. Ciolfi, we searched the Technical Escort files. The materials in the files document many of the shipments of chemical agents in which the Technical Escort Unit participated. Ms. Ciolfi conducted a search of the database for the files, finding two potentially relevant reports from the 1980s. Upon reviewing the reports, we determined that they were not pertinent to the project.

We looked through the bookcases of reference materials, copying an entry from a Chemical Warfare Service newsletter and a 1945 War Department Training Circular that describes the various chemical munitions available to the Army Air Forces.

The classified research room contains twenty or more safes and a small desk. After describing our research interests to Mr. Smart, he searched through about eight safes and pulled out reports and other documents that he thought would be of use and for which we had a "need to know." We reviewed them and identified one report, a compilation of chemical agent use by the Army during 1940-1970, as relevant. Because of the decision that the declassification process would require too much time for this project, did not request that the document be declassified.

The SBCCOM History Office has a great number and variety of documents that are directly relevant to the issue of chemical agents used or stored at Air Force facilities in Alaska. The majority are from the WWII period. The most outstanding include requests for and shipment information on Chemical Warfare Service materials sent to Alaska in 1944 and 1945, reports of sea disposal of lewisite and



mustard gas in 1947, and periodic summaries of the activities of the Chemical Warfare Service in Alaska that include descriptions of chemical storage sites.

This repository contains more pertinent information than any of the other sources that we have examined so far. The one weakness of the collection for this project is the lack of materials pertaining to the Air Force after it became a separate agency in September 1947. Mr. Smart stated that he intentionally has not collected items that concern only the Air Force.

**Chemical and Biological Information Analysis Center  
Building E3330  
Aberdeen Proving Ground  
Edgewood, MD 21010**

The Chemical and Biological Information Analysis Center has a collection of over 26,000 books, documents, and other works on chemical warfare subjects. We applied for and received permission from the center to review their online Bibliographic Database. We performed searches using key words and printed bibliographic references to locate potentially relevant documents.

We identified only a few documents that discuss disposal of chemical agents as potentially relevant, but none of them proved useful.

**Defense Technical Information Center  
8725 John J. Kingman Road  
Fort Belvoir, VA 22060**

The Defense Technical Information Center (DTIC) contains thousands of technical reports, most created by Defense contractors, from the 1940s to the present. We requested that DTIC create a bibliography of documents that might be pertinent to the project.

During Phase II, we reviewed a compilation of technical report summaries that the DTIC Technical Information Center to us. We identified and ordered several potentially relevant reports based on the compilation's brief summaries but only found one report produced by the National Research Council in 1984 to be marginally useful. This report provided broad overviews of past disposal operations as well as disposal pilot projects for the 1980s.

**National Archives and Records Administration, College Park, Maryland  
8601 Adelphi Road  
College Park, MD 20740**

The National Archives and Records Administration (NARA) facility at College Park, Maryland, (often referred to as "Archives II") is the main repository of the National Archives, containing hundreds of thousands of feet of permanent federal records. WWII and later military records as well as records created by many civilian agencies are stored in Archives II. The materials tend to be those created by headquarters offices located in the Washington, DC area, although the records sometimes include correspondence and reports by regional offices and commands.

To assess which records are potentially relevant to the project, we reviewed the finding aids for the following record groups for textual, cartographic, and photographic materials: RG 18, Army Air Forces; RG 340, Secretary of the Air Force; RG 341, Air Force Headquarters; RG 342, Air Force Commands; RG 175, Chemical Warfare Service; RG 338, Army Commands; RG 319, Army Staff; RG 373 Defense Intelligence Agency; RG 270 War Assets Administration; RG 336, Army Chief of Transportation; RG 334, Interservice Agencies; RG 77, Office of the Chief of Engineers; RG 41, Bureau of Marine Inspection and Navigation; RG 313, Naval Operating Forces; RG 181, Naval Districts and Shore Establishments; and RG 26, Coast Guard.

As a result of this work, we have identified more than a thousand boxes of textual records that could contain information pertinent to the project. The AAF records include hundreds of boxes of the Air Adjutant General's correspondence concerning various subjects, including Alaska, from 1942-1948. The CWS records contain correspondence files from 1918 to the 1950s that cover topics of potential relevance to the project. A CWS entry from 1950-1955 includes correspondence about air bases, depots, and other locations of potential relevance. We also understand from the SBCCOM Historian that the Historian's Background Files, 1922-1946, includes correspondence of potential interest.

During Phase I, we examined photographs from the Air Force Commands record group. In that collection we located and copied photographs of installations and Chemical Warfare Service personnel at work in Alaska.

During Phase II, we carefully considered our findings and prioritized the records so that we examined the most relevant first. Because of the quantity and quality of WWII records we collected from the SBCCOM History Office (and dearth of

post-war records), as well as the fact that the SBCCOM collection overlaps that of NARA College Park, we concentrated our efforts on the post-WWII period.

We examined records of the of the Chief Chemical Officer of the Army Corps for 1946-1954, several general correspondence series created by the headquarters office of the Chemical Corps from 1955-1960, and Air Force headquarters correspondence on biological and chemical weapons from 1951-1953. In these collections, we found and copied a document from 1954 in which an Army Distribution Officer recommends that nearly 27,000 pounds of H gas stored at Elmendorf Air Force Base "be disposed of, at point of storage, in accordance with existing regulations." We also found indications that the Air Force's Air Materiel Command had responsibility for handling chemical agents during the 1950s. In some of the Air Force headquarters correspondence files for the post-WWII era, we found documents that indicated that most chemical agents were shipped by sea through the Navy's Military Sea Transportation Service to the Alaskan Air Force facilities. Another document from the same collection stated that the Air Force Assistant Deputy Chief of Staff, Operations, for Atomic Energy had responsibility in 1951 for coordinating Air Staff activities related to the development, procurement, and distribution of chemical agents and for the chemical warfare training of Air Force personnel. Although we followed up on those leads, we found nothing of relevance concerning them at the National Archives.

We also examined indexes to WWII and post-war Air Force publications filed in Record Group 341, Air Force Headquarters. Based on those indexes, we selected and then copied about twenty Air Force Regulations concerning requirements for chemical agent inspections, transportation, safety, and other issues. We identified a lead in one of the Air Force Regulations to three Air Force Technical Orders concerning chemical agents, including Technical Order 11H2-1-1, "Disposal of Gas Identification Sets and Toxic Gas Sets." We inquired with the Air Force Museum, which has a collection of Technical Orders, and learned that those orders are not in the museum's collection. The museum's Research Division staff could not provide leads to other sources of Technical Orders.

**Washington National Records Center  
4205 Suitland Road  
Suitland, MD 20746**

The Washington National Records Center (WNRC) houses records retired by headquarters offices, and some regional offices, of federal agencies. The records are those that are still controlled by the agencies that created them and are awaiting either destruction or shipment to the National Archives for permanent

retention. To determine whether the center's holdings include any materials of relevance, we examined accession lists and record transmittal forms which describe the center's records. We looked at lists and forms for the following record groups: RG 77, Office of Chief of Engineers; RG 336, Army Chief of Transportation; RG 338 U.S. Army Commands; RG 340, Secretary of the Air Force; RG 341, Air Force Headquarters; and RG 342, Air Force Commands.

As a result of this work, we identified several hundred boxes of textual records that could contain information pertinent to the project.

The holdings of the Army Staff record group include nine boxes of Army unit histories that include chemical and ordnance units. Correspondence files from the Office of the Secretary of the Air Force from 1966 and later include folders on chemical and biological warfare.

The Army Corps of Engineers holdings include 55 boxes of realty files that contain, among other items, files pertaining to the Chemical Corps in Alaska during the 1940s. There are six boxes of maps, plans, drawings, and photographs for 1950-1963 from Elmendorf AFB.

Although there was a large volume of materials to review, it appeared that we might find only a relatively small quantity of relevant documents. During Phase II, we received access to Air Force, Army Corps of Engineers, and Army records, both classified and unclassified, stored at the WNRC. In the unclassified Air Force records we identified and copied several maps of Alaskan Air Force bases from the 1950s and 1960s, as well as a memorandum on the establishment of safe exposure levels for chemical agents. In the classified Air Force records, we found several documents which would prove to be useful information for the project but which remain classified. We did not request their declassification because of the judgment that the declassification process would extend beyond the deadline for this project. In searching through the Army Corps of Engineers and Army records, we used the War Department Decimal Filing Guide to target specific filing designations of interest, such as chemical warfare, disposal, and training. As anticipated, we found only a small amount of useful information, including several unclassified maps of Alaskan Air Force bases.

Most of the information, while frequently base-specific, concerned matters wholly unrelated to the project. It proved difficult to effectively rule out records as being not of interest based on the record transmittal forms reviewed during Phase I. The forms frequently summarize an entire accession without carefully describing its contents. Through the use of the War Department Decimal Filing Guide and/or the arrangement of records (alphabetical subject or geographic files) within each accession, on occasion we could focus on specific boxes as

containing potentially relevant information and eliminate the remainder from consideration.

**National Personnel Records Center**  
**9700 Page Avenue**  
**St. Louis, MO 63132**

Besides personnel records, the National Personnel Records Center (NPRC) houses documents retired by the Army (RG 338, Army Commands) and the Air Force (RG 342, Air Force Commands) dating from WWII to the mid-1960s. The materials are still controlled by the agencies that created them and are awaiting either destruction or shipment to the National Archives for permanent retention. To determine whether the center's holdings include any materials of relevance, we submitted to the NPRC staff a list of Air Force and Army organizations for which we wanted to view record transmittal forms which describe the NPRC's holdings. When we arrived at the NPRC, we found that the staff had been able to find only a handful of record transmittal forms. During the next two days, staff members found a few additional record transmittal forms, all of which we reviewed. We copied relevant forms.

After obtaining permission through Colt Denfeld, we reviewed several boxes of Army Chemical Center and Chemical Corps Materiel Command records from the Army Commands record group, but found nothing of relevance. We also presented the staff with record transmittal forms for 50 Army Corps of Engineers, Alaska, boxes that were potentially relevant. However, because the location codes on the boxes were out of date, the NPRC staff was unable to find any of the boxes.

In the record transmittal forms we found references to three feet of classified Alaska Engineer District records that may contain pertinent maps and drawings. There are also about ten feet of Alaskan Air Command records for which the NPRC staff was unable to find record transmittal forms. We copied several cards filed with record transmittal forms that described the organizational history of Eielson AFB in the immediate post-war period.

A few months after the trip, the NPRC staff located and sent to us the record transmittal forms for the Alaskan Air Command, Pacific Air Command, and Far East Air Force. The forms described several potentially relevant collections of correspondence files for those units ranging from the early 1940s to the late 1950s.

After requesting and receiving access to potentially relevant Air Force documents, team members conducted research in classified and unclassified

Alaskan Air Command, Pacific Air Command, and Far East Air Force records. Within those records they found yearly correspondence files arranged by the War Department Decimal Filing Code. Using a guide to the code, they concentrated on chemical warfare, disposal, and training decimals. They identified and copied a number of documents primarily related to training policies and procedures during the 1940s and 1950s.

**Federal Records Center, Pacific Region (Laguna Niguel)  
24000 Avila Road  
Laguna Niguel, CA 92607**

The Federal Records Center in Laguna Niguel, California, houses records retired by federal agencies' regional offices located near the Center. The records are those that are still controlled by the agencies that created them and are awaiting either destruction or shipment to the National Archives for permanent retention. To determine whether the Center's holdings included any materials of relevance, we examined the accession lists and record transmittal forms which describe the center's records. We looked at the lists and forms for the following record groups: RG 77, Office of Chief of Engineers; RG 181, Naval Districts and Shore Establishments; RG 237, Federal Aeronautics Administration; RG 269 General Services Administration; RG270, War Assets Administration; RG 291, Federal Property Resources Service; RG 338 U.S. Army Commands; and RG 342, Air Force Commands. All of the references that we found on the lists and forms are to materials that are irrelevant to the project. We did not review any documents.

**National Archives and Records Administration, Pacific Division  
(Laguna Niguel)  
24000 Avila Road  
Laguna Niguel, CA 92607**

The NARA facility at Laguna Niguel, California, holds the permanent records that federal offices in the region have turned over to NARA. We reviewed finding aids for the following record groups: RG 77, Office of Chief of Engineers; RG 181, Naval Districts and Shore Establishments; RG 237, Federal Aeronautics Administration; RG 270, War Assets Administration; RG 336, Army Chief of Transportation; RG 338 U.S. Army Commands; RG 342, Air Force Commands. After reviewing the finding aids, we determined that there appeared to be no pertinent records at NARA Laguna Niguel. We did not review any documents.

**Federal Records Center, Pacific Region (San Bruno)  
1000 Commodore Drive  
San Bruno, CA 94066**

The Federal Records Center in San Bruno, California, houses records retired by federal agencies' regional offices located near the center. The records are those that are still controlled by the agencies that created them and are awaiting either destruction or shipment to the National Archives for permanent retention. To determine whether the center's holdings included any materials of relevance, we examined the accession lists and record transmittal forms which describe the center's records. We looked at lists and forms for the following record groups: RG 71, Navy Bureau of Yards and Docks; RG 77, Office of Chief of Engineers; RG 121, Public Building Service; RG 181, Naval Districts and Shore Establishments; RG 237, Federal Aeronautics Administration; RG 269, General Service Administration; RG 270, War Assets Administration; RG 291, Federal Property Resources Service; RG 336, Army Chief of Transportation; RG 338 U.S. Army Commands; and RG 342, Air Force Commands.

Based on our review of the lists and forms, there are no materials of relevance to Air Force bases in Alaska.

**National Archives and Records Administration, Pacific Division  
(San Bruno)  
1000 Commodore Drive  
San Bruno, CA 94066**

The NARA facility at San Bruno, California, holds the permanent records that federal offices in the region have turned over to NARA. We reviewed finding aids for the following record groups: RG 18, Army Air Force; RG 71, Navy Bureau of Yards and Docks; RG 77, Office of Chief of Engineers; RG 121, Public Building Service; RG 156, Office of the Chief of Ordnance; RG 181, Naval Districts and Shore Establishments; RG 237, Federal Aeronautics Administration; RG 269, General Services Administration; RG 270, War Assets Administration; RG 291, Federal Property Resources Service; RG 336, Army Chief of Transportation; RG 338 U.S. Army Commands; RG 342, Air Force Commands, and RG 18, Army Air Force.

Based on the finding aids, it appears that there are no relevant records related to Alaska.

**National Archives and Records Administration, Pacific Northwest Division  
(Seattle)  
6125 Sand Point Way, NE  
Seattle, WA 98115**

The NARA facility at Seattle, Washington, holds the permanent records that federal offices in the region (including Alaska) have turned over to NARA. We reviewed finding aids for the following record groups: RG 121, Public Building Service; RG 269, General Services Administration; RG 270, War Assets Administration; and RG 291, Federal Property Resources Service.

In examining the surplus property case files in those record groups, we located and copied maps of Middleton Island, Ladd Air Force Base, and Eielson Air Force Base.

**Federal Records Center, Pacific Northwest Region  
(Seattle)  
6125 Sand Point Way, NE  
Seattle, WA 98115**

The Federal Records Center in Seattle, Washington, houses records retired by federal agencies' regional offices located near Seattle. The records are still controlled by the agencies that created them and are awaiting either destruction or shipment to the National Archives for permanent retention. To determine whether the center's holdings included any materials of relevance, we examined the accession lists and record transmittal forms which describe the center's records. We looked at lists and forms for the following record groups: RG 77, Army Corps of Engineers; and RG 342, Air Force Commands. The documents reviewed were of no relevance to this project.

**National Archives and Records Administration, Alaska Division (Anchorage)  
654 W. 3rd Avenue  
Anchorage, AK**

This archive contained little in the way of Air Force operational records. However, it did contain records of the War Assets Administration, who was responsible for selling or turning over real property after WWII. As a result, the files contain maps, lists of buildings, and records of who the sites were turned over to. Many of the remote Air Force landing strips were turned over to the Civil Aeronautical Administration (CAA), the predecessor of the Federal Aviation Administration (FAA).



**National Security Archive  
The Gelman Library, Suite 701  
George Washington University  
2130 H St. NW  
Washington, D.C. 20037**

The National Security Archive (NSA) is an independent non-governmental research institute and library that collects and publishes declassified documents obtained through the Freedom of Information Act.

During Phase II, we contacted NSA staff and learned that NSA possessed a Chemical and Biological Warfare Collection. After obtaining a box and folder list from NSA, we identified seven potentially relevant boxes out of a total of twenty-eight boxes in the collection. We reviewed these boxes and found that they contained mostly policy-level United States chemical warfare information dating from the 1930s to the 1980s. We copied several reports, letters, and memoranda dating from the 1950s to the 1980s that described policies related to the disposal of chemical munitions and chemical agent identification sets.

**Command History Office  
3rd Wing  
Elmendorf Air Force Base  
Anchorage, Alaska**

This archive contains microfiche and paper records of the 3rd Wing, starting with the arrival of the first Army Air Corps personnel in the early 1940s. Most of this archive (and all of the microfiche records) are duplicated at Maxwell. Information about each Air Force facility in Alaska can be found in alphabetical order in the paper files. Many of the facilities were used for a limited period of time and have been returned to the landowner. Facility maps and usage information, including dates of use, may be found in these files.

At this office, microfiche records of the chemical and ordnance sections were reviewed, as well as the Summary of Operations and Bombing Mission Statistics for the Aleutian campaign. Paper records reviewed included the alphabetical files of inactive bases, and the files for Attu, Shemya, Galena, and King Salmon.

**Command History Office  
Hickam Air Force Base  
Oahu, Hawaii**

This office contains holdings for the Far East Air Force (FEAF). All of the Office's holdings are duplicated at Maxwell. To avoid duplication of other researchers'

work, the only files reviewed here were the FEAF histories. The historian checked her database and informed the researchers that there were no other files, classified or otherwise, that showed chemical warfare materiel as key words. The FEAF histories from 1948 through June of 1954 were reviewed. The history for the second half of 1954 is still classified, and was not reviewed.

**15th Wing History Office  
Hickam Air Force Base  
Oahu, Hawaii**

The Wing History Office collection consists of records donated to the office. The records consisted of maps, photographs, and written documents. The files were arranged alphabetically by the name of the installation to which they pertained, with separate drawers for Bellows, Wheeler and Hickam.

The researchers made a copy of the index to the maps held at this location. Records were reviewed for each location listed in the scope of work. The information found did not include specific references to CWM, although locations set aside for ordnance storage were noted. Location maps were copied, often to show the lack of storage areas separated from garrison areas and the lack of landfills.

**Environmental Flight Library  
15CES/CEV  
Hickam Air Force Base  
Oahu, Hawaii**

This library contains copies of the documents produced by and for the Environmental Flight's Installation Restoration Program (IRP). Most of the sites of interest had a record review conducted in the early 1980s, and are in various stages of the IRP process. Records reviewed included the early record reviews, archive search reports, and the most recent management action plan for each site. Site diagrams were copied, as well as pertinent site investigation information. For the small sites, these diagrams show a lack of appropriate storage areas for any CWM larger than CAIS, and a lack of land disposal areas.

**Hamilton Library  
University of Hawaii  
Oahu, Hawaii**

The Hamilton Library contained three sections of interest to the researchers; the Pacific Collection, the Hawaii Collection, and the Honolulu Bulletin and Star Advertiser Morgue. The Pacific and Hawaii collections contain such obscure

sources as research papers written by students on issues pertaining to Hawaii and the Pacific and copies of legislation and resolutions placed before the legislature. A computerized database is accessible for all of the reference material in the Hamilton Library.

The researchers searched the database for chemicals, chemical warfare, and chemical warfare materiel. All of the resulting newspaper articles were copied. The records found in the Pacific and Hawaii collection were not pertinent to the project and were not copied.

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**APPENDIX E  
EXCERPTS FROM THE  
CHEMICAL WEAPONS CONVENTION**

**APPENDIX E  
EXCERPTS FROM THE  
CHEMICAL WEAPONS CONVENTION**

Provided below are definitions and excerpts from the Chemical Weapons Convention relevant to the discovery of chemical weapons.

**ARTICLE II**

**DEFINITIONS AND CRITERIA**

For the purposes of this Convention:

1. "Chemical Weapons" means the following, together or separately:
  - (a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes;
  - (b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;
  - (c) Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph (b).

2. "Toxic Chemical" means:

Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere.

(For the purpose of implementing this Convention, toxic chemicals which have been identified for the application of verification measures are listed in Schedules contained in the Annex on Chemicals.)

3. "Precursor" means:

Any chemical reactant which takes part at any stage in the production by whatever method of a toxic chemical. This includes any key component of a binary or multicomponent chemical system.

(For the purpose of implementing this Convention, precursors which have been identified for the application of verification measures are listed in Schedules contained in the Annex on Chemicals.)

4. "Key Component of Binary or Multicomponent Chemical Systems" (hereinafter referred to as "key component") means:

The precursor which plays the most important role in determining the toxic properties of the final product and reacts rapidly with other chemicals in the binary or multicomponent system.

5. "Old Chemical Weapons" means:

(a) Chemical weapons which were produced before 1925; or

(b) Chemical weapons produced in the period between 1925 and 1946 that have deteriorated to such extent that they can no longer be used as chemical weapons.

6. "Abandoned Chemical Weapons" means:

Chemical weapons, including old chemical weapons, abandoned by a State after 1 January 1925 on the territory of another State without the consent of the latter.

7. "Riot Control Agent" means:

Any chemical not listed in a Schedule, which can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure.

8. "Chemical Weapons Production Facility":

(a) Means any equipment, as well as any building housing such equipment, that was designed, constructed or used at any time since 1 January 1946:

(i) As part of the stage in the production of chemicals ("final technological stage") where the material flows would contain, when the equipment is in operation:

(1) Any chemical listed in Schedule 1 in the Annex on Chemicals; or

(2) Any other chemical that has no use, above 1 tonne per year on the territory of a State Party or in any other place under the jurisdiction or control of a State Party, for purposes not prohibited under this Convention, but can be used for chemical weapons purposes;

or

(ii) For filling chemical weapons, including, *inter alia*, the filling of chemicals listed in Schedule 1 into munitions, devices or bulk storage containers; the filling of chemicals into containers that form part of assembled binary munitions and devices or into chemical submunitions that form part of assembled unitary munitions and devices, and the loading of the containers and chemical submunitions into the respective munitions and devices;

(b) Does not mean:

(i) Any facility having a production capacity for synthesis of chemicals specified in subparagraph (a) (i) that is less than 1 tonne;

(ii) Any facility in which a chemical specified in subparagraph (a) (i) is or was produced as an unavoidable by-product of activities for purposes not prohibited under this Convention, provided that the chemical does not exceed 3 per cent of the total product and that the facility is subject to declaration and inspection under the Annex on Implementation and Verification (hereinafter referred to as "Verification Annex"); or

(iii) The single small-scale facility for production of chemicals listed in Schedule 1 for purposes not prohibited under

this Convention as referred to in Part VI of the Verification Annex.

9. "Purposes Not Prohibited Under this Convention" means:
- (a) Industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes;
  - (b) Protective purposes, namely those purposes directly related to protection against toxic chemicals and to protection against chemical weapons;
  - (c) Military purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare;
  - (d) Law enforcement including domestic riot control purposes.
10. "Production Capacity" means:
- The annual quantitative potential for manufacturing a specific chemical based on the technological process actually used or, if the process is not yet operational, planned to be used at the relevant facility. It shall be deemed to be equal to the nameplate capacity or, if the nameplate capacity is not available, to the design capacity. The nameplate capacity is the product output under conditions optimized for maximum quantity for the production facility, as demonstrated by one or more test-runs. The design capacity is the corresponding theoretically calculated product output.
11. "Organization" means the Organization for the Prohibition of Chemical Weapons established pursuant to Article VIII of this Convention.
12. For the purposes of Article VI:
- (a) "Production" of a chemical means its formation through chemical reaction;
  - (b) "Processing" of a chemical means a physical process, such as formulation, extraction and purification, in which a chemical is not converted into another chemical;



- (c) "Consumption" of a chemical means its conversion into another chemical via a chemical reaction.

## ARTICLE IV

### CHEMICAL WEAPONS

1. The provisions of this Article and the detailed procedures for its implementation shall apply to all chemical weapons owned or possessed by a State Party, or that are located in any place under its jurisdiction or control, except old chemical weapons and abandoned chemical weapons to which Part IV (B) of the Verification Annex applies.
2. Detailed procedures for the implementation of this Article are set forth in the Verification Annex.
3. All locations at which chemical weapons specified in paragraph 1 are stored or destroyed shall be subject to systematic verification through on-site inspection and monitoring with on-site instruments, in accordance with Part IV (A) of the Verification Annex.
4. Each State Party shall, immediately after the declaration under Article III, paragraph 1 (a), has been submitted, provide access to chemical weapons specified in paragraph 1 for the purpose of systematic verification of the declaration through on-site inspection. Thereafter, each State Party shall not remove any of these chemical weapons, except to a chemical weapons destruction facility. It shall provide access to such chemical weapons, for the purpose of systematic on-site verification.
5. Each State Party shall provide access to any chemical weapons destruction facilities and their storage areas, that it owns or possesses, or that are located in any place under its jurisdiction or control, for the purpose of systematic verification through on-site inspection and monitoring with on-site instruments.
6. Each State Party shall destroy all chemical weapons specified in paragraph 1 pursuant to the Verification Annex and in accordance with the agreed rate and sequence of destruction (hereinafter referred to as "order of destruction"). Such destruction shall begin not later than two years after this Convention enters into force for it and shall finish not later than 10 years after entry into force of this Convention. A State

Party is not precluded from destroying such chemical weapons at a faster rate.

7. Each State Party shall:
  - (a) Submit detailed plans for the destruction of chemical weapons specified in paragraph 1 not later than 60 days before each annual destruction period begins, in accordance with Part IV (A), paragraph 29, of the Verification Annex; the detailed plans shall encompass all stocks to be destroyed during the next annual destruction period;
  - (b) Submit declarations annually regarding the implementation of its plans for destruction of chemical weapons specified in paragraph 1, not later than 60 days after the end of each annual destruction period; and
  - (c) Certify, not later than 30 days after the destruction process has been completed, that all chemical weapons specified in paragraph 1 have been destroyed.
8. If a State ratifies or accedes to this Convention after the 10-year period for destruction set forth in paragraph 6, it shall destroy chemical weapons specified in paragraph 1 as soon as possible. The order of destruction and procedures for stringent verification for such a State Party shall be determined by the Executive Council.
9. Any chemical weapons discovered by a State Party after the initial declaration of chemical weapons shall be reported, secured and destroyed in accordance with Part IV (A) of the Verification Annex.
10. Each State Party, during transportation, sampling, storage and destruction of chemical weapons, shall assign the highest priority to ensuring the safety of people and to protecting the environment. Each State Party shall transport, sample, store and destroy chemical weapons in accordance with its national standards for safety and emissions.
11. Any State Party which has on its territory chemical weapons that are owned or possessed by another State, or that are located in any place under the jurisdiction or control of another State, shall make the fullest efforts to ensure that these chemical weapons are removed from its territory not later than one year after this Convention enters into force for it. If they are not removed within one year, the State Party may

request the Organization and other States Parties to provide assistance in the destruction of these chemical weapons.

12. Each State Party undertakes to cooperate with other States Parties that request information or assistance on a bilateral basis or through the Technical Secretariat regarding methods and technologies for the safe and efficient destruction of chemical weapons.
13. In carrying out verification activities pursuant to this Article and Part IV (A) of the Verification Annex, the Organization shall consider measures to avoid unnecessary duplication of bilateral or multilateral agreements on verification of chemical weapons storage and their destruction among States Parties.

To this end, the Executive Council shall decide to limit verification to measures complementary to those undertaken pursuant to such a bilateral or multilateral agreement, if it considers that:

- (a) Verification provisions of such an agreement are consistent with the verification provisions of this Article and Part IV (A) of the Verification Annex;
  - (b) Implementation of such an agreement provides for sufficient assurance of compliance with the relevant provisions of this Convention; and
  - (c) Parties to the bilateral or multilateral agreement keep the Organization fully informed about their verification activities.
14. If the Executive Council takes a decision pursuant to paragraph 13, the Organization shall have the right to monitor the implementation of the bilateral or multilateral agreement.
  15. Nothing in paragraphs 13 and 14 shall affect the obligation of a State Party to provide declarations pursuant to Article III, this Article and Part IV (A) of the Verification Annex.
  16. Each State Party shall meet the costs of destruction of chemical weapons it is obliged to destroy. It shall also meet the costs of verification of storage and destruction of these chemical weapons unless the Executive Council decides otherwise. If the Executive Council decides to limit verification measures of the Organization pursuant to paragraph 13, the costs of complementary verification and monitoring by the Organization

shall be paid in accordance with the United Nations scale of assessment, as specified in Article VIII, paragraph 7.

17. The provisions of this Article and the relevant provisions of Part IV of the Verification Annex shall not, at the discretion of a State Party, apply to chemical weapons buried on its territory before 1 January 1977 and which remain buried, or which had been dumped at sea before 1 January 1985.

## **PART IV (B)**

### **OLD CHEMICAL WEAPONS AND ABANDONED CHEMICAL WEAPONS**

#### **A. GENERAL**

1. Old chemical weapons shall be destroyed as provided for in Section B.
2. Abandoned chemical weapons, including those which also meet the definition of Article II, paragraph 5 (b), shall be destroyed as provided for in Section C.

#### **B. REGIME FOR OLD CHEMICAL WEAPONS**

3. A State Party which has on its territory old chemical weapons as defined in Article II, paragraph 5 (a), shall, not later than 30 days after this Convention enters into force for it, submit to the Technical Secretariat all available relevant information, including, to the extent possible, the location, type, quantity and the present condition of these old chemical weapons.

In the case of old chemical weapons as defined in Article II, paragraph 5 (b), the State Party shall submit to the Technical Secretariat a declaration pursuant to Article III, paragraph 1 (b) (i), including, to the extent possible, the information specified in Part IV (A), paragraphs 1 to 3, of this Annex.

4. A State Party which discovers old chemical weapons after this Convention enters into force for it shall submit to the Technical Secretariat the information specified in paragraph 3 not later than 180 days after the discovery of the old chemical weapons.
5. The Technical Secretariat shall conduct an initial inspection, and any further inspections as may be necessary, in order to verify the information submitted pursuant to paragraphs 3 and 4 and in particular to determine

whether the chemical weapons meet the definition of old chemical weapons as specified in Article II, paragraph 5. Guidelines to determine the usability of chemical weapons produced between 1925 and 1946 shall be considered and approved by the Conference pursuant to Article VIII, paragraph 21 (i).

6. A State Party shall treat old chemical weapons that have been confirmed by the Technical Secretariat as meeting the definition in Article II, paragraph 5 (a), as toxic waste. It shall inform the Technical Secretariat of the steps being taken to destroy or otherwise dispose of such old chemical weapons as toxic waste in accordance with its national legislation.
7. Subject to paragraphs 3 to 5, a State Party shall destroy old chemical weapons that have been confirmed by the Technical Secretariat as meeting the definition in Article II, paragraph 5 (b), in accordance with Article IV and Part IV (A) of this Annex. Upon request of a State Party, the Executive Council may, however, modify the provisions on time-limit and order of destruction of these old chemical weapons, if it determines that doing so would not pose a risk to the object and purpose of this Convention. The request shall contain specific proposals for modification of the provisions and a detailed explanation of the reasons for the proposed modification.

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