



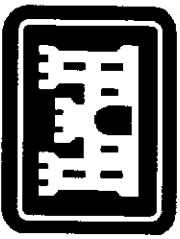
THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 465

DEFENSE DEPOT MEMPHIS, TN

HISTORICAL ENVIRONMENTAL AERIAL PHOTOGRAPHIC ANALYSIS
OF THE MAIN DEPOT AREA SOUTH OF DUNN AVENUE



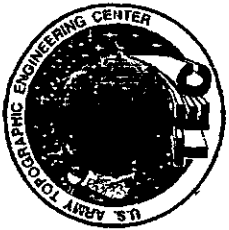
MEMPHIS, TENNESSEE



U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315

SEPTEMBER 1998 REPORT

Prepared for the U.S. Army Engineering and Support Center
Huntsville, Alabama



NOTICE

The views, opinions, and conclusions contained in this report are those of the author and should not be construed as official Department Of Army positions or policy unless so designated by other documentation.

**Defense Depot Memphis, Tennessee (DDMT)
Main Depot Area¹
Shelby County, Tennessee
Historical Environmental Aerial Photographic Analysis**

By
The U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
7701 Telegraph Road
Alexandria, VA 22315-3864

September 1998 (Final Report)

Prepared for the US. Army Engineering and Support Center
(CEHNC-OE-DC), Huntsville, Alabama

INTRODUCTION

This report presents the results of an environmental historical photographic analysis of the United States Defense Depot Memphis, Tennessee (DDMT), located in Shelby County, Tennessee. This study was compiled for the U.S. Army Corps of Engineers, Huntsville Division office by the U.S. Army Topographic Engineering Center's (USATEC's) Operations Division (CETEC-OD) located in Alexandria, Virginia.

The Terrain Analysis Branch of the Operations Division was tasked to search for and collect historical photographic records and ancillary data relative to DDMT property. Locating former chemical burial sites at Dunn Field through photo interpretation of historical images was declared to be of particular interest by the Engineering and Support Center, Huntsville.

Two historical photographic studies have been produced by USATEC in September of 1998:

- (A) the Main Depot Area of DDMT, and
- (B) the Dunn Field Area of DDMT.

This report presents the results of an environmental historical photographic analysis of the MAIN DEPOT AREA (see Figures 1 through 9). The analysis is primarily based upon interpretation of black and white aerial photography over the project area spanning 1945 to 1990. Stereo viewing was employed where overlapping photographs permitted its use. A list of aerial and ground photography collected by USATEC, or acquired by loan², appears in Table 1.

Stereo-paired photography was available for 1945, 1946, 1953, 1963, and 1990. Oblique aerial photography was available for: 1951 (March, May, and October), 1952 (February and June), 1955, 1957, and 1958. Photo maps (non-stereo) were available for 1949, 1950, and 1959. Supplemental collateral materials such as textual information, diagrams, maps, and still photos were obtained from various repositories.



Specific mission responsibilities as a principal distribution depot include receiving, inspecting, and storing: industrial, construction, medical, food, clothing, petroleum, and other supplies. Other general duties have included drum storage and possible drum reclamation operations; salvage operations, automotive maintenance with gasoline and oil storage on site, and incineration.

The Ordnance Section of the depot held reserve storage of ammunition and performed "minor alteration and repair of ordnance materiel in storage"³. The Chemical Warfare Service (CWS) employed personnel at the depot and utilized some of warehouses, sheds, and open storage areas. Some past actions of CWS personnel on the premises of the main depot include: storage, mixing⁴, and repackaging of chemicals (decontamination agents and impregnite), and storage of munitions.

Photographic analysis was performed over DDMT where photo coverage was available. The boundary of the installation is that which is depicted on United States Geological Survey (USGS) maps and does not necessarily denote legal property lines or ownership.

SITE DESCRIPTION

Before Defense Depot Memphis was constructed on 642 acres in the city of Memphis during 1941-1942, this location consisted primarily of cotton fields (see Plate I). Advantages of this site include close proximity to an excellent road network, railroads, the Mississippi River, and a major airport. Based in Memphis, this depot proved to be a strategic location between the Atlantic and Pacific coasts, and a direct connecting point for New Orleans Port with the central and northern sections of the United States.

Storage and supporting facilities have included more than 30 warehouses providing more than 4 million square feet of enclosed storage space, open sheds, shop buildings, and an extensive allocation of open storage areas. Over 6 million square feet to improved storage space was provided for packaged petroleum, pipe, and barbed wire. Rail sidings serve the warehouses, open storage, and shed areas. By 1971, a total of 26 miles of railroad track were within the depot area.⁵

METHODOLOGY

Photographic analysis (PA) of historical photography was the primary method of locating man-made ground disturbances (cleared areas, ground scars, debris piles, etc.) on DDMT property. Both monoscopic and stereoscopic viewing was performed on the USATEC collection of DDMT historical photos. In some cases, references derived from various base plans, studies, or textual data matched closely with a feature observed on the photography (e.g. drum storage area outlined on a map).

Rectified image files and vector coverage files were generated for this project using Erdas Imagine, Version 3.0. These files, in .TIF and Arc Interchange format (.e00), have been placed on CD-ROM for quick and easy access. A "world file" or .tfw file is associated with each .tif file. The .tfw file contains the coordinate information of the upper left pixel (x,y) and the pixel size in feet. ARC/INFO or ArcView can recognize this file format.

The rectified image files and corresponding vector coverages are georeferenced to Tennessee State Plane, Zone 5301, NAD83 (datum), and GRS 1980 (spheroid).

SUMMARY OF FINDINGS

Significant features, derived through photo analysis, are displayed on selected photos of the Main Depot Area (Figures 1 through 8). Some features have year-date information associated with them (e.g. 1945 - 1963). The beginning date represents the first point in time this feature was observed on the photography, and the second date reflects its last observance on another aerial photograph.

The images displayed in this report were compiled in PowerPoint 97 using the raw (unrectified) aerial photographs. The CD-ROM, include in this project, contains image and vector files displaying the same significant findings in their true georeferenced locations.

DEFENSE DEPOT MEMPHIS, TENNESSEE
1998 RESERVATION BOUNDARY



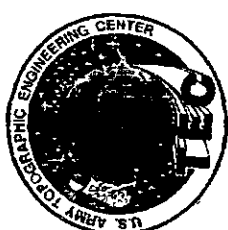
PLATE I

1937 AERIAL PHOTOGRAPHY (PREDEVELOPMENT)



U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315

Source: Photo No. 14-909
Mission: ADI
Date Flown: 10 August 1937
Original Scale: 1:20,000
Stereo Coverage



SIGNIFICANT FINDINGS

• SALVAGE OPERATION: A salvage yard is observed in the southern portion of the main depot between Track 27 and the WW II POW/interment camp. Base plans of the depot in this time period identify a “Salvage Section” and drum storage area. Through photo analysis, this area appears to display some mounded material and a great amount of scattered debris. Unlike the dedicated open storage areas of the depot, items in this “salvage” area are not neatly stacked or placed in rows. There is no visual evidence of burial operations at this site. (Analysis source: 1945 aerial photography).

• DRUM RECLAMATION PLANT: According to an Army Service Forces travel report dated 11 January 1945, the setting up of a drum reclamation plant at Memphis General Depot was being investigated.⁶ It was proposed that POWs would operate the plant. The plant site, type of construction, and plant operation was approved by General Danielson. Based upon information provided in an attached drawing, a possible location for this plant is a site immediately west of the “salvage section” near the southernmost termination point of Track 27 (see Figure 2). (Analysis source: 1946 aerial photography).

• SALVAGE OPERATION – EXPANSION & EVENTUAL ABANDONMENT: After the closing of the POW camp in the middle of 1946⁷, the salvage operation was expanded to include the former POW camp buildings⁸ (see Figure 3). By 1952 the open salvage yard appears vacant, probably in preparation for six new large warehouses to be built over this portion of the depot. Construction of these warehouses is observed in the 1953 aerial photographs. (Analysis source: 1946, 1950, 1952, and 1953 aerial photographs).

• INCINERATOR: An excavated site is observed in the southern portion of the main depot just east of the POW/interment camp. A 1944 base plan identifies an “Incinerator” at this location. The configuration (i.e. size and shape of this feature) shown on the base plan draws a strong resemblance to what is observed on the aerial photographs at the same general location (see Figures 1 & 2). A dark-toned variation is observed at the “bottom” of the excavation in the 1945 photographs. Due to the scale of the photography, it is unclear whether this variation in tone may be related to ash residue associated with incineration. (Analysis source: 1945 & 1946 aerial photography).

• BLEACHING POWDER CANNING MACHINE: Due to rapid deterioration of bleaching powder containers (often 3 to 6 months), it became necessary for CWS personnel to develop a method of repackaging this material⁹ (see Figures 8 & 9). A possible hazard lingering from this operation may be the buildup of bleaching powder residue in the interior of the warehouse from airborne particles of bleaching powder dust.

Ground photos (G1 through G4) show the interior of the warehouse which houses the canning machine apparatus, but the warehouse in which the machine is situated is not identified. The CWS utilized warehouses NC-1, NC-2, and two sections of NB-1¹⁰, so the canning machine could have existed in any one of these three buildings. However, an exhaust pipe is clearly observed extending to the warehouse roof in photos G-1 and G-2. Through photo analysis of aerial photography, only warehouse NC-1 has a roof ventilation stack (see Figure 1). Panoramic photos shot in 1942 from a tower on the north side of the main depot also clearly show one warehouse, NC-1, with a roof ventilation stack¹¹. Based upon these observations, it is likely that the canning machine operated in warehouse NC-1. (Analysis source: 1942 ground photography & 1945 aerial photography).

• GROUND SCARS AND DISTURBED GROUND NEAR

WESTERN PERIMETER: Two patches of ground scars are observed near the western fence in the southwest portion of the main depot between 1949 and 1953 (see Figures 4 and 5). Although some of the scarring may be associated with changes and/or maintenance to powerline towers, the grass in these areas does not appear to recover. On the 1963 photography, a rectangular patch of disturbed ground and a ground scar are visible near the southwest corner of the main depot (see Figure 6).

• VEHICLE MAINTENANCE & REPAIR FACILITIES: A cluster of buildings located just south of Warehouse No. 250 (old designate = SA1) represents an area that has had activities associated with vehicle servicing over many years: oil and gas storage and pumping, painting and body work, cooling system service, and other types of activities involving greases/ lubricants as well as degreasing operations (see Figures 1 through 7).



¹ Refer to the USATEC Dunn Field Historical Environmental Aerial Photographic Analysis report for analysis of the Dunn Field Area of DDMT.

² The St. Louis Corps District Office provided USATEC with historical aerial photographic prints, maps, plans, and textual records pertinent to DDMT including the Dunn Field area.

³ National Archives and Records Administration (NARA), Archives II, College Park, MD, Textual Records Branch, RG 156, Entry 646, Box A367, 7 December 1943 (memorandum).

⁴ Photographic documentation provided from historical CWS files shows POWs mixing RH195 with acetylene tetrachloride on conveyors in an outdoor area on the main post (adjacent to depot storage warehouses). The exact location of this mixing operation, however, cannot be determined from the CWS ground photos. These images appear in the CD-ROM product – included with this study.

⁵ Defense Depot Memphis, Annual Historical Summary, RCS DD-DSA(A)216(L), 1 July 1970 – 30 June 1971, page 2.

⁶ NARA, College Park, MD, Archives II, Textual Records Branch, RG 92, Army Service Forces, Office of the Quartermaster General, Report of Official Travel to Memphis Army Service Forces Depot, 11 January 1945.

⁷ The last of the prisoners were reported to have left in June of 1946 – “Memphis Armed Service Forces Depot Prisoner Of War Camp: 1944-1946”, Wages, Hazel, Tennessee Historical Quarterly.

⁸ Memphis General Depot, Depot Layout Plan, Office Of Post Engineers, Drawing No. 11-22, 10-12-44, revisions in 9-18-46 and 9-30-47.

⁹ Memorandum, “Storage and Preservation of Bleaching Powder”, to Chief, Chemical Warfare Service, Gravelly Point, Washington, D.C., from Thomas Forshaw, Captain, CWS, 12 January 1944.

¹⁰ “Supplying all Fronts: 1942 – 1945, A History of the Chemical Warfare Section, Memphis A.S.F. Depot”, page 27.

¹¹ NARA, “Panorama Showing Job Completed”, Memphis General Depot, Memphis, Tennessee, Date of Exposure: 4-24-42, Direction of Exposure: From East to West, Point From which Picture Taken: Central Tower.

TABLE 1

AERIAL & GROUND PHOTOGRAPHY COLLECTION¹
DEFENSE DEPOT MEMPHIS, TN

Note: A single asterisk (*) in the **Size/Usage** column signifies that this photo coverage was used in the photo analysis of the **Main Depot**.
A double asterisk (**) in the **Size/Usage** column signifies that this photo coverage was used in the photo analysis of the **Dunn Field** area.

Date/ NARA Record Group	NARA Can No.	Mission/ Sortie	Size/ Usage	Photo Listing / Comments
10 August 1937, 145	2024	ADI, Shelby County, TN	9"x9"	ADI-14-908, 909, & 910. Pre-development coverage.
24 April 1942	-	-	9"x7" *	Collected at a NARA facility by the St. Louis District Corps office. Material in photocopy form only. Ground photos are panoramic - taken from a tower located on the north side of the main depot property looking SE, S, and SW.

¹ Unless otherwise noted, table entries represent *aerial* photographic source material.

1944	-	-	9"x7" *	Collected at a NARA facility by the St. Louis District Corps office. Material in photocopy form only. Ground photos taken inside of CWS warehouse and others taken outside of warehouses on the main depot property.
April 1945, 342-FH	Video Disc Ref: 3B-47679 & 3B-47680; Box 2110	-	9"x9"	U.S. Air Force photos located in the Smithsonian Air & Space Museum Collection (5th Floor - Still Photos, NARA, College Park, MD). Photos are low level oblique.
26 August 1945, 373	ON 001002	16 PL-5M " M2"	9"x9" * **	VV 177, 178, 179, 200, 201, & 202. Full coverage in stereo. Photography is vertical. Scale = 1:22,000. Diapositives and contact prints.
7 February 1946, 373	ON 001538	16 PRSQ-6, "M199"	9"x9" * **	VV166, 167, 184, & 185. Full coverage in stereo. Photography is vertical. Scale = 1:20,000. Diapositives and contact prints.
1947 or 1948 (probable)	N/A	-	14 ½ " x 20 " **	Single print reproduced one to one. Coverage of the main depot is about 80% while coverage of Dunn Field is only about 20% (southern portion). Collected from DDMT's own archival holdings. Reproduced in print and diapositive form.

1949	N/A	-	approx. 9"x9" * **	Photo Maps 7-13 and 8-14. Original scale: 1 inch =500 ft. (1:6,000). Material was reproduced and rescaled to 8 ½ x 8 ½ inch prints and diapositives. Reproduced in both print and diapositive form.
1950	N/A	-	10"x12" * **	Photo Maps 10-3, 10-4, 11-2, & 11-3. Original scale: 1 inch = 200 ft. (1:2,400). Material was reproduced and rescaled to 10x12 inch prints and diapositives.
31 March 1951, 373	ON 003165	28 RTS "28 SRW"	9"x18"	RSV 59, 60, & 61. Oblique photography. Coverage of the main depot is almost complete. Only about 5% of Dunn Field is photographed.
24 May 1951, 373	ON 004347	91 RTS "323 SRS"	9"x18"	RSV 26, 27, & 28. Oblique photography. Coverage of the main depot is complete. Only about 60% of Dunn Field is photographed.
3 October 1951, 373	ON 004576	68 RTS "323 SRS"	9"x18" * **	ALSV 19 & 20. Oblique photography. Scale = 1:16,000. Coverage of the main depot and Dunn Field is complete.
9 February 1952, 373	ON 004747	5 SRW	9"x18" **	LHM 49, 50, & 51. Oblique photography. Coverage of the main depot and Dunn Field is complete.

15 June 1952, 373	ON 003231	TRS 765 "R765"	9"x9" **	VV 1, 2, 5, 6, & 7. Oblique photography shot at two different scales. Coverage is complete for both the main depot and Dunn Field (VV1 & VV2). Scale = 1:28,000. The larger scale photos (VV5, 6 & 7) cover about 40% of the main depot (eastern section), but no coverage exists for Dunn Field.
11 October 1953, 114	ON 42404	ADI, Shelby County, TN	9"x9" * **	ADI-2M 195, 196, & 197. Full coverage in stereo. Photography is vertical. Scale = 1:20,000. Diapositives and contact prints.
17 November 1955, 373	ON 006915	43 TRS "43"	9"x18"	LSV 24, 25, & 26. Oblique photography. Coverage of the main depot is about 90%. Coverage of Dunn Field is extremely low (about 5%).
8 July 1957, 373	ON 006371	26 SRW "801 RTS"	9"x18" **	LCM 49 & 50. Oblique photography. Small patches of clouds over Dunn Field and the southern 1/4 of the main depot area.
8 April 1958, 373	ON 005868	155 TRS "521 57-16 G5071"	9"x9" **	Photos 60, 61, 72, 73, & 74. Scale = 1:10,000. Photo 72 collected by St. Louis District Corps office. Oblique photography, but flown "near vertical". Excellent resolution.

23 January 1959	N/A	-	9 1/2" x 10 1/2" **	Photo Maps 1078, 1080, 1146, & 1148. Original scale: 1 inch = 100 ft. (1:1,200). Material was reproduced and rescaled to 9 1/2" x 10 1/2" prints and diapositives.
8 March 1963	N/A	GS-VARE	9"x9" * **	Photos 1-103 & 1-104. Full coverage in stereo. Photography is vertical. Scale = 1:20,000.
8 March 1973	N/A	GS-VDFI	9"x9" * **	Photos 1-135, 1-136, & 1-137. Full coverage in stereo. Photography is vertical. Scale = 1:20,000.
1990	N/A	GS-VFMT	9"x9" * **	Photos 1-62, 1-63, 1-88, & 1-89. Mission flown 12 February 1990.
March 1996	N/A	-	-	Photos 372, 387, & 388. Photography in (soft copy) digital form. Each file is approximately = 50 Mbytes. Header files not importable to USATEC's geographic informations systems, but standard (unrectified) images are displayable. Source data held by Memphis District Corps office.

CWS = Chemical Warfare Service
DDMT = Defense Depot Memphis, Tennessee
NARA = National Archives and Records Administration
USATEC = U.S. Army Topographic Engineering Center

GLOSSARY

ACCESS ROAD - A paved or unpaved route of vehicular access.

BERM - A man-made ridge or embankment, constructed of natural or man-made materials, often used to prevent the movement of materials, usually liquids.

BUILDING /STRUCTURE - Usually box-like and roofed; man-made.

CLEARED AREA - An area from which man has removed the trees, shrubs, or other natural vegetation cover.

CONTAINER - Something such as a can, box, bucket, or barrel; used to hold, store and/or transport materials.

CUT - Narrow section of ground which has been removed from a hill or sloped area for an unknown purpose.

DEBRIS - The scattered remains of anything broken or destroyed.

DEPRESSION - An area sunken below its surroundings.

DISTURBED AREA - A rough ground surface which has been cleared, overturned, dug up, filled and/or changed from the immediate environs in some manner for an unknown purpose.

DITCH - A long narrow trench or furrow dug in the ground, as for drainage or irrigation.

DRAINAGE, SURFACE - The routes by which liquid flows. Surface drainage includes perennial, intermittent, channelized, and suspected pathways.

DRUMS - Cylindrical, plastic, or metal, or fiber container for storing and/or transporting materials.

EDGE OF SLOPE - A topographic contour which simulates a relatively sharp and distinct downward inclination of the ground surface.

EXCAVATION - A cavity in the earth formed by digging or scooping out materials.

FILL AREA - Area where material, either earthen and/or non-earthen, has been deposited in a fill area.

GRADED AREA - Area where the ground surface has been shaped, usually leveled to a smooth horizontal or sloping surface.

GROUND SCAR - A ground surface, vegetated or not, where marks from a previous activity or feature, or from a subterranean feature are visible.

LANDFILL - A land disposal site, usually for solid waste which intermittently employs a cover material.

MATERIAL - A substance (usually non-liquid, if that distinction can be made) placed, bulldozed, graded, mixed, spread, etc.

MOUNDED MATERIAL - Material which has been placed in piles or mounds. Frequently extraction materials, construction materials, or industrial raw materials are stored in large mounds in the open. At fill areas and landfills uniformly dump truck size mounds of material are often present.

OPEN STORAGE - An open-air, outdoor area for storage of materials, supplies, vehicles, and/or equipment; may or may not be enclosed by a fence.

PIT - A relatively deep, steep sided hole in the ground surface.

STRUCTURE /BUILDING - Usually box-like and roofed; man-made.

TONES, LIGHT/MEDIUM/DARK - A general, and somewhat subjective, classification of the wide range of tones/shades visible on panchromatic photography.

TRENCH - A long narrow excavation.

UNIDENTIFIED [FEATURE] - Object /objects, usually man-made, which can be distinguished from surrounding environs, but cannot be clearly identified due to limiting factors of the panchromatic photography such as: scale, resolution, look-angle, etc.

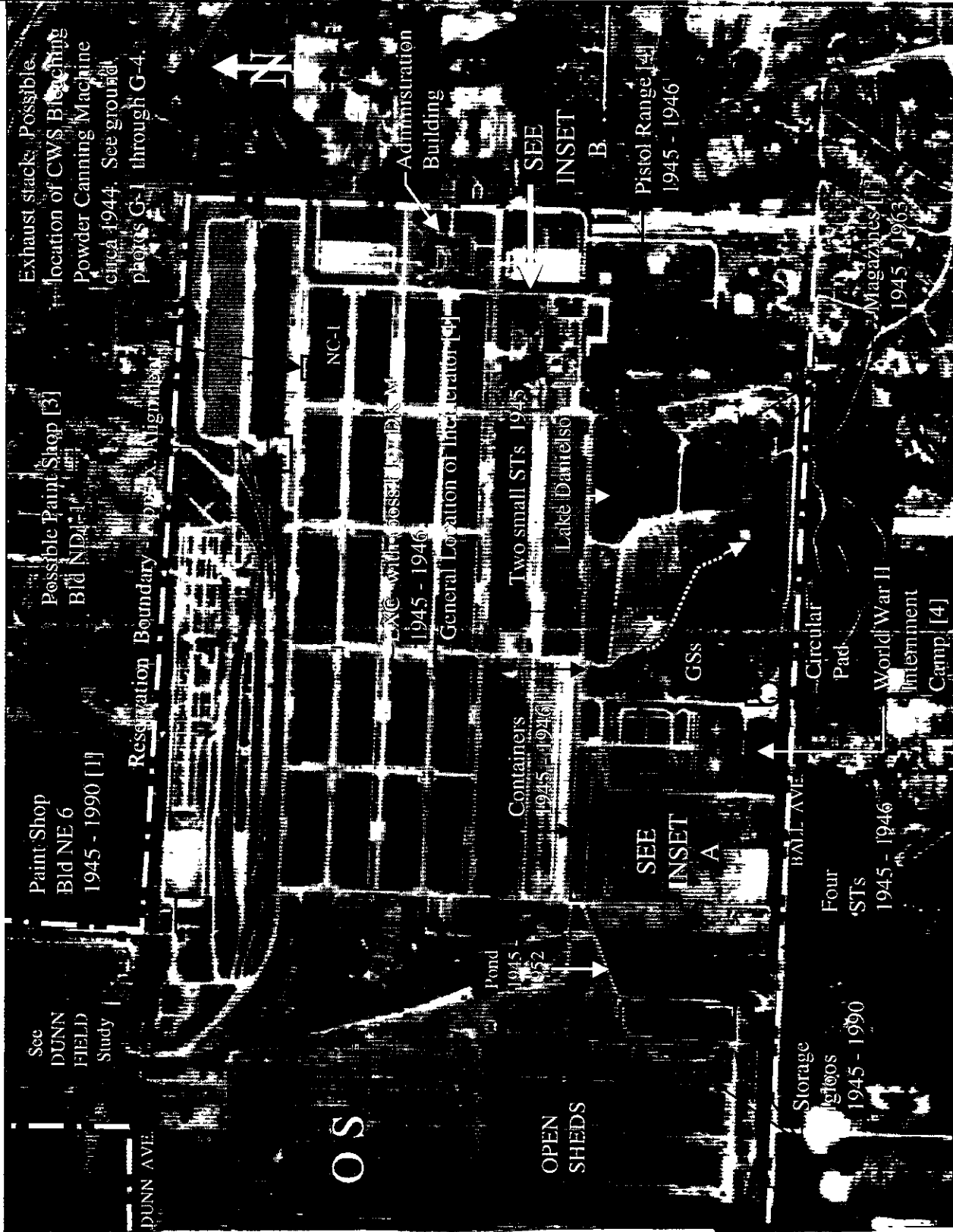


MEMPHIS ARMY SERVICE FORCES DEPOT, 1945

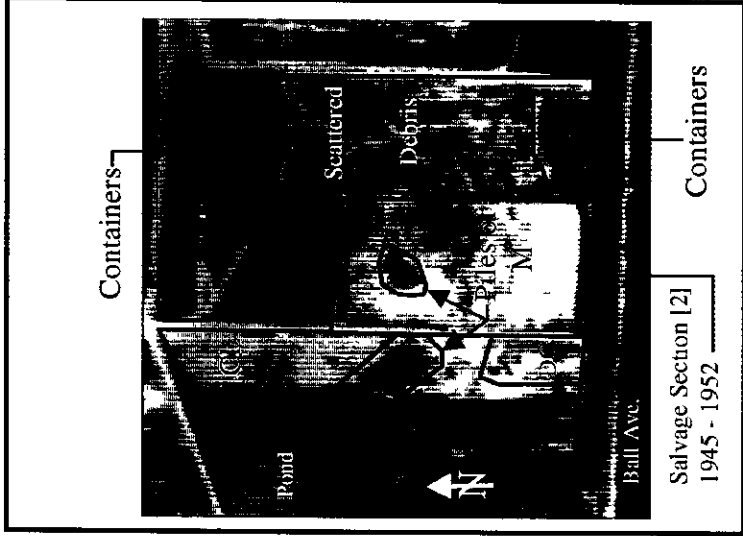
MAIN DEPOT AREA

Figure 1

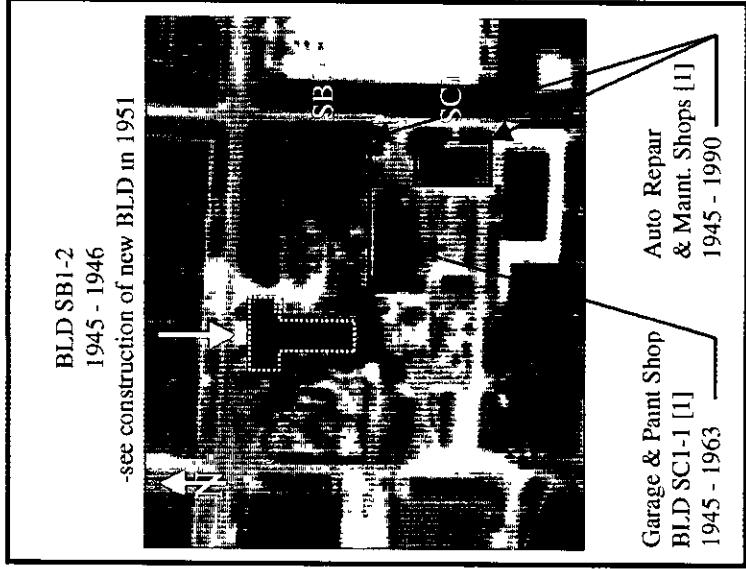
MEMPHIS, TENNESSEE



INSET A



INSET B



GS ... GROUND SCAR
M ... MATERIAL
OS ... OPEN STORAGE
ST ... STRUCTURE

CL ... CLEARED AREA
CWS ... CHEMICAL WARFARE SERVICE
DK ... DARK-TONED
EXC ... EXCAVATED

0 200 400 600
SCALE in feet
[approximate]
Main Graphic Only

U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315

Source: Photo No. 178
Mission: VV16PL-M2-16PS
Date Flown: 26 August 1945
Original Scale: 1:22,000
Stereo Coverage

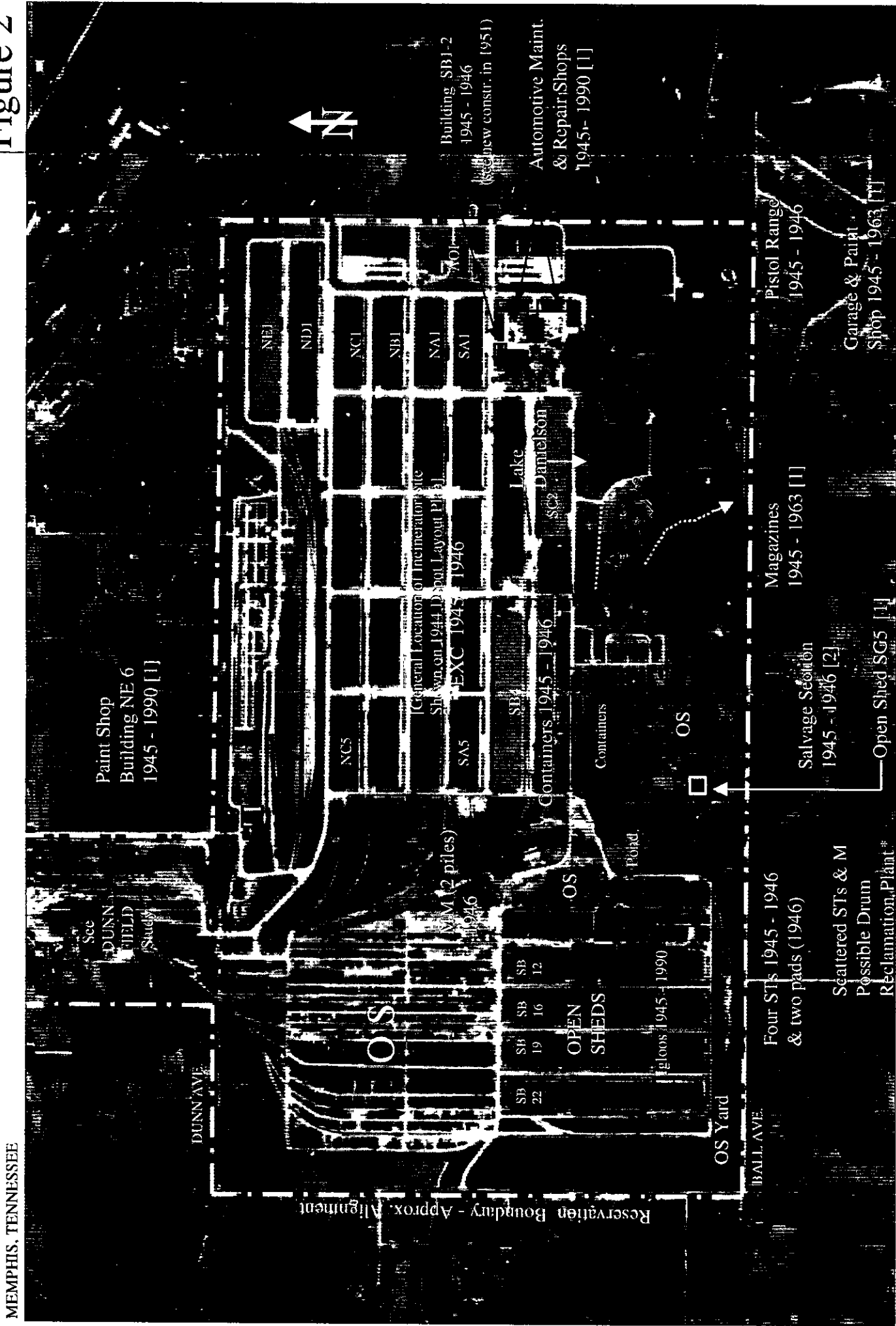
NOTE: Brackets [] indicate an endnote reference.



MEMPHIS GENERAL DEPOT, 1946

MAIN DEPOT AREA

Figure 2



* Report Of Official Travel
to Memphis Army Service
Forces Depot, Army Service
Forces, Office Of The
Quartermaster General,
[text and drawing],
19 January 1945.

U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315

EXC..... EXCAVATION
M..... MATERIAL
ST..... STRUCTURE
MM..... MOUNDED MATERIAL
OS..... OPEN STORAGE

0 200 400 600
SCALE in feet
[approximate]

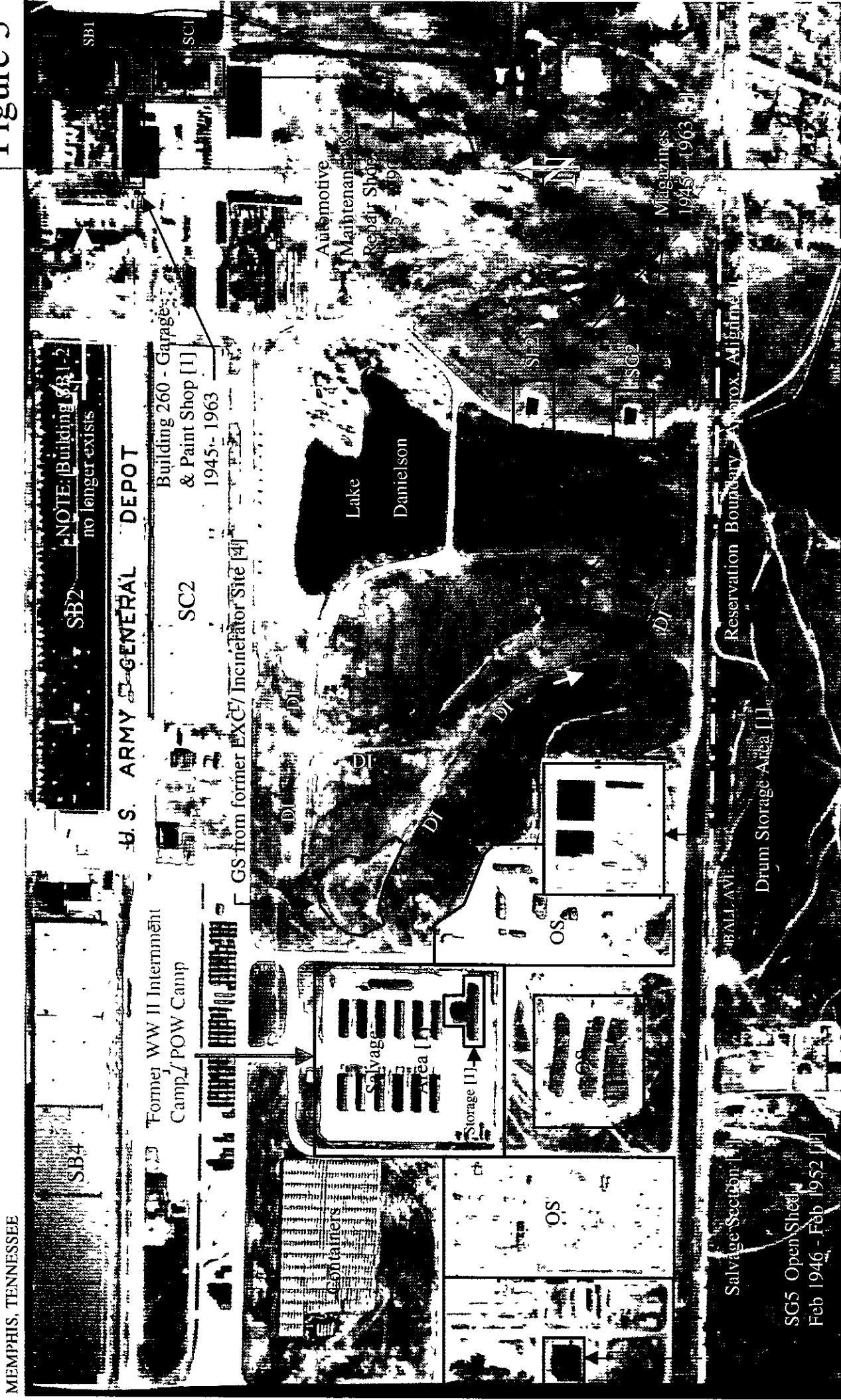
Source: Photo No. 185
Mission: VV1 MED M 199 311 AF
Date Flown: 7 February 1946
Original Scale: 1:20,000
Stereo Coverage

NOTE: Brackets [] indicate an endnote reference.



MEMPHIS GENERAL DEPOT, 1950
MAIN DEPOT AREA

Figure 3



U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315

Source: Photo Map No. 11-2
Mission: Unknown
Date Flown: 1950
Original Scale: 1:2,400
Partial Monoscopic Coverage



MEMPHIS GENERAL DEPOT, 1951
MAIN DEPOT AREA

Figure 4



DG..... DISTURBED GROUND
GS..... GROUND SCAR
OS..... OPEN STORAGE

ST..... STRUCTURE
U/C..... UNDER CONSTRUCTION

0 200 600
Scale in feet
[approximate]

NOTE: Brackets [] indicate an endnote reference.

Source: Photo No. 19
Mission: ALSV 68RTS
Date Flown: 3 October 1951
Original Scale: 1:16,000
Stereo Coverage

U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315



MEMPHIS GENERAL DEPOT, 1953

MAIN DEPOT AREA

Figure 5

MEMPHIS, TENNESSEE



U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315

FA..... FILL AREA
GS..... GROUND SCAR
RR..... RAILROAD

0 600
Scale in feet
[approximate]

NOTE: Brackets [] indicate an endnote reference.

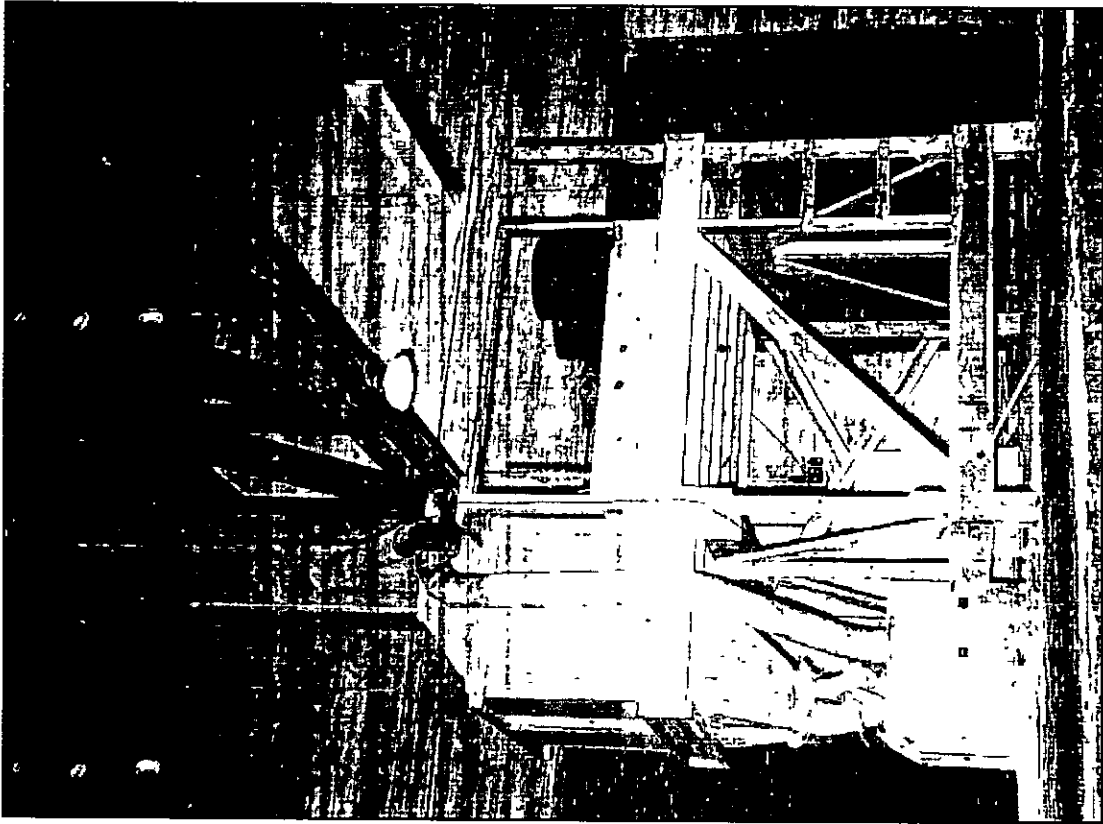
Source: Photo No. 2M-196
Mission: ADI
Date Flown: 11 October 1953
Original Scale: 1:20,000
Stereo Coverage



GROUND PHOTOS OF BLEACHING POWDER REPACKAGING OPERATION

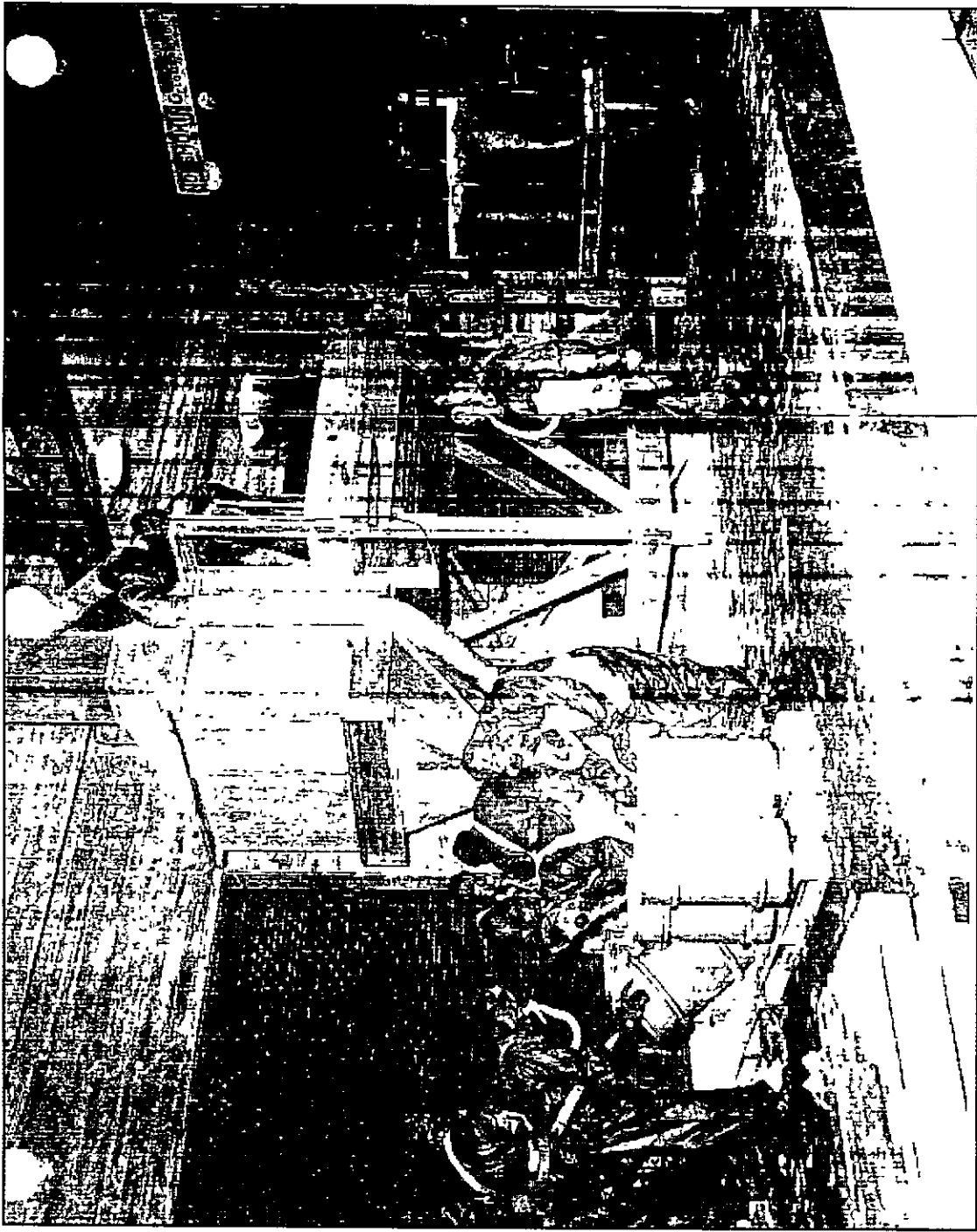
Figure 8

G-1



Bleaching Powder Repackaging Machine. Side view of machine showing overall construction. Long pipe leading from bottom of hopper carrier dust up and through the roof. Booster fan at top of hopper keeps bleach dust moving upward. A second fan located near the roof carrier keeps the remainder of the powder moving upward.

G-2



Shows crew in actual operations. Note that drums are wiped clean before being placed in stack and that pallets are also free of bleaching powder. As a precaution against fire, sand is used as the sweeping agent to clean up the platform. Sand is kept on the floor at all times to prevent slipping as the powder takes up moisture and becomes slushy.

U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315

"While this system of exhaust fans does not eliminate all of the dust hazard, it does reduce it to a very large extent and constant refinements and improvements have tended to increase its efficiency in this respect. It is hoped that further improvements can be made." -page 3, paragraph 9.

SOURCE:
12 Jan 1944 CW memo to CWS
Gravelly Point, Washington, D.C.
from Thomas Forshaw, Captain, CWS
Subject Storage and Preservation of
Bleaching Powder. Photos enclosed.

GROUND PHOTOS OF BLEACHING POWDER REPACKAGING OPERATION



Figure 9

G-3

Workers emptying large drum of bleaching powder into hopper. Platform will hold four drums at one time. Full drums are lifted to platform and empty drums taken away by hoistlift. Section of exhaust pipe and fan shown to left of picture.

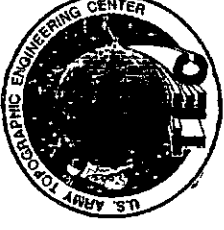
G-4

Close up of section of hopper. Then drum is being filled, door is closed and filled. By the control of the worker who looks through circular panel above hand of hoistlift. The blade paddle wheel inside hopper is turned by worker at right. It acts as an agitator and prevents clogging. Drum is removed from hopper by conveyor line.

U.S. Army Topographic Engineering Center
Operations Division
Terrain Analysis Branch
Attn: CETEC-OD-T
7701 Telegraph Road, Alexandria, VA 22315

"Since it has not been possible to completely eliminate the dust hazard, every effort is made to protect personnel involved." - page 3, paragraph 10.

SOURCE:
12 Jan 1944 CW memo to CWS
Gravelly Point, Washington, D.C.
from Thomas Forshaw, Captain, CWS
Subject Storage and Preservation of
Bleaching Powder. Photos enclosed



REFERENCES TO FIGURES 1 - 7

- [1] General Site and Building Use Plan, Memphis General Depot, Memphis, Tennessee, Department Of The Army, Corps Of Engineer, Nashville, Tennessee, August 1951.
- [2] Depot Layout Plan, Memphis General Depot, Office Of Post Engineer, Drawing No. 11-22, 12 October 1944 ; revisions in 18 September 1946 and 30 September 1947.
- [3] Handbook (of safety, fire, and security regulations) - Addendum to, Headquarters, Memphis Army Service Forces Depot, Office of the Commanding General, 30 June 1944, "Guard Orders", Special Orders, Post No. 18, Warehouse NE-1, page 24.
- [4] Depot Layout Plan, Memphis Army Service Forces Depot, Office of Post Engineer, Drawing No. 11-22, 12 October 1944.
- [5] Engineering Drawing (Depot Layout Plan), Defense Depot Memphis, Facilities Engineering Division, no date.
- [6] Depot Layout Plan - Existing and Proposed Sites For Maintenance Facilities, Defense Depot Memphis, Tennessee, Office Of Planning and Management, 1970. This layout plan was found within the "Annual Historical Summary", RCS DD-DSA(A) 216 (L), Defense Depot Memphis, 1 July 1969 to 30 June 1970. Historical Summary located at Bolling, AFB on microfiche.
- [7] Defense National Stockpile Center, Baton Rouge, LA (telephone conversation on 11 August 1998).
- [8] Defense Technical Information Center (DTIC), "Installation Assessment Of Defense Depot Memphis, Tenn.", DTIC Document No. B065942, July 1982, pp. 2-2, 2-11, and 2-18.

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE