INDIVIDUAL PROPERTY/DISTRICT
MARYLAND HISTORICAL TRUST
INTERNAL NR-ELIGIBILITY REVIEW FORM

Property/District Name: Eastern Chemical Warfare Depot Survey Number: HA-1988

Project: Demolition of Buildings (E-2380 and E-2328) Agency: Army, APG

Site visit by MHT Staff: X no ___ yes Name _____ Date _____

Eligibility recommended _____ Eligibility **not** recommended X

Criteria: X A X B X C ___D Considerations: ___A ___B ___C ___D ___E ___F ___G X None

Justification for decision: (Use continuation sheet if necessary and attach map)

The Eastern Chemical Warfare Depot was established in 1920 on Edgewood Arsenal and was expanded during 1941-1942 eastward onto a peninsula between Lauderick and Kings creeks near Bush River. The peninsula is a restricted access area. The depot at Edgewood Arsenal supported the installation's mission as a chemical warfare production center from its establishment in 1920 through Word War II. Although the depot was constructed to support the logistical activities of the Chemical Warfare Service during World War II, the Eastern Chemical Warfare Depot does not possess significance for listing in the National Register of Historic Places under the Criteria for Evaluation or under Criterion Consideration G. Under Criterion A, the Depot does not possess any direct important associations with the logistical support activities of World War II operations. No advances were made in logistical technology at the Eastern Chemical Warfare Depot. Under Criterion B, The Depot appears to have no known associations with the lives of significant people. Under Criterion C, the World War II buildings associated with the expansion of the Depot do not represent unique ordnance storage facilities. They follow standardized plans and do not illustrate the adaptation of new engineering technologies or new construction materials and are not unique to chemical weapons. Under Criterion G, the role of the Depot during the Cold War era is simply one of storage of supplies and chemical weapons stockpiles. The buildings and structures constructed during the Cold War era represent minor support facilities, such as temporary igloo storage, metal storage buildings, sentry stations, and a concrete-block storage building. They do not possess exceptional significance on the national level required to meet Criterion Consideration G.

Documentation on the property/district is presented in: Chemical Area Storage Yard (CASY) MHT Inventory Form

Prepared by: Kathryn Kuranda, R. Christopher Goodwin & Asso., Inc.

J. Ellen Hensley 11/17/98
Reviewer, Office of Preservation Services Date

R program concurrence: X yes ___ no ___ not **applicable**

B Kurtz 3/24/00 (rec'd)
Reviewer, NR program Date

Survey No. HA-1988

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA - HISTORIC CONTEXT

I. Geographic Region:

_____	Eastern Shore	(all Eastern Shore counties, and Cecil)
_____	Western Shore	(Anne Arundel, Calvert, Charles, Prince George's and St. Mary's)
X	Piedmont	(Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery)
_____	Western Maryland	(Allegany, Garrett and Washington)

II. Chronological/Developmental Periods:

_____	Paleo-Indian	10000-7500 B.C.
_____	Early Archaic	7500-6000 B.C.
_____	Middle Archaic	6000-4000 B.C.
_____	Late Archaic	4000-2000 B.C.
_____	Early Woodland	2000-500 B.C.
_____	Middle Woodland	500 B.C. - A.D. 900
_____	Late Woodland/Archaic	A.D. 900-1600
_____	Contact and Settlement	A.D. 1570-1750
_____	Rural Agrarian Intensification	A.D. 1680-1815
_____	Agricultural-Industrial Transition	A.D. 1815-1870
X	Industrial/Urban Dominance	A.D. 1870-1930
X	Modern Period	A.D. 1930-Present
_____	Unknown Period (___ prehistoric	___ historic)

III. Prehistoric Period Themes:

_____ Subsistence
_____ Settlement
_____ Political
_____ Demographic
_____ Religion
_____ Technology
_____ Environmental Adaption

IV. Historic Period Themes:

_____ Agriculture
X Architecture, Landscape Architecture, and Community Planning
_____ Economic (Commercial and Industrial)
_____ Government/Law
X Military
_____ Religion
_____ Social/Educational/Cultural
_____ Transportation

V. Resource Type:

Category: District/Storage Yard

Historic Environment Rural

Historic Function(s) and Use(s): Defense, military facility, chemical storage depot

Known Design Source: U.S. Army Quartermaster Department

HA-1988
Chemical Agent Storage Yard (CASY),
Aberdeen Proving Ground, Edgewood Area
Harford County
Vicinity of Edgewood, MD
1941
Public: Restricted Access

CAPSULE SUMMARY

The Eastern Chemical Warfare Depot is a restricted area located on the northeast portion of Edgewood Arsenal on a peninsula that juts into the Bush River between Lauderick and Kings Creeks. The depot's location was chosen for its access to railroad, road, and shipping networks that supplied the arsenal. The topography of the peninsula shaped the plan of the depot. Bush River Road and a railroad line traversed the length of the peninsula, ending at the major shipping pier. Secondary roads and railroad spurs spaced 400 feet apart provided access to the above-ground storage buildings located north and east of the main road.

The depot exhibits a variety of industrial ordnance storage buildings, including 12 general purpose warehouses, 13 above-ground ordnance magazines, and 6 igloos. The depot also contains two toxic gas yards, a berthing pier, infrastructure, a few personnel support buildings, and miscellaneous buildings and structures. The built resources are functional, utilitarian buildings with no architectural ornamentation, constructed mainly of structural clay tile or concrete.

The Eastern Chemical Warfare Depot was established in 1920 on Edgewood Arsenal and was expanded during 1941-1942. It supported the arsenal's mission as a chemical warfare production center. Although constructed to support the logistical activities of the Chemical Warfare Service during World War II, the Eastern Chemical Warfare Depot does not possess significance for listing in the National Register of Historic Places under the Criteria for Evaluation or under Criterion Consideration G.

Survey No. HA-1988

MARYLAND INVENTORY OF HISTORIC PROPERTIES

Magi No.

DOE __yes __no

Maryland Historical Trust State Historic Sites Inventory Form

1. Name (indicate preferred name)

historic Eastern Chemical Warfare Depot, Edgewood Arsenal

and/or common Chemical Agent Storage Yard (CASY), Aberdeen Proving Ground, Edgewood Area (preferred)

2. Location

street & number Edgewood Area, Aberdeen Proving Ground X not for publication

city, town Edgewood X vicinity of congressional district 2nd

state Maryland county Harford

3. Classification

Category	Ownership	Status	Present Use	
X district	X public	X occupied	___ agriculture	___ museum
___ building(s)	___ private	___ unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	___ yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
	X not applicable	X no	X military	___ other:

4. Owner of Property (give names and mailing addresses of all owners)

name U.S. Army Garrison, APG, Department of the Army, DOD

street & number 2201 Aberdeen Blvd. telephone no.: 410-278-6756

city, town APG state and zip code MD 21005-5001

5. Location of Legal Description

courthouse, registry of deeds, etc. Harford County Courthouse liber

street & number - folio

city, town Bel Air state MD

6. Representation in Existing Historical Surveys

title N/A

date ___ federal ___ state ___ county ___ local

depository for survey records

city, town state

7. Description

Survey No. HA-1988

Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	X original site
___ good	___ ruins	___ altered	___ moved date of move _____
X fair	___ unexposed		

Prepare both a summary paragraph and a general description of the resource and its various elements as it exists today.

SEE CONTINUATION SHEET

8. Significance

Survey No. HA-1988

Period	Areas of Significance—Check and justify below			
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science
1500–1599	___ agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	___ architecture	___ education	X military	___ social/ humanitarian
___ 1700–1799	___ art	___ engineering	___ music	___ theater
___ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ transportation
X 1900–	___ communications	___ industry	___ politics/government	___ other (specify)
		___ invention		

Specific dates 1941 **Builder/Architect** Whitman, Requardt & Smith/Construction Division, Office of Quartermaster General

check: Applicable Criteria: X A ___ B X C ___ D
and/or
Applicable Exception: ___ A ___ B ___ C ___ D ___ E ___ F X G

Level of Significance: X national X state X local

Prepare both a summary paragraph of significance and a general statement of history and support.

SEE CONTINUATION SHEET

9. Major Bibliographical References

Survey No. HA-1988

SEE CONTINUATION SHEET

10. Geographical Data

Acreage of nominated property approx. 375 acres

Quadrangle name Edgewood, MD **Quadrangle scale** 1:24,000

UTM **References** do NOT complete UTM references

	Zone	Easting	Northing		Zone	Easting	Northing
A				B			
C				D			
E				F			
G				H			

Verbal boundary description and justification

SEE CONTINUATION SHEET

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
Maryland		Harford	

11. Form Prepared By

name/title Katherine Grandine/Historian

organization R. Christopher Goodwin & Assoc., Inc. **date** September, 1998

street & number 241 E. 4th St., Suite 100 **telephone** 301-694-0428

city or town Frederick, **state** MD 21701

The Maryland Historic Sites Inventory was officially created by an Act of the Maryland Legislature to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 supplement.

The survey and inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

return to: Maryland Historical Trust
Shaw House
21 State Circle
Annapolis, Maryland 21401
(301) 269-2438

MARYLAND HISTORICAL TRUST
DHCP/DHCD
100 COMMUNITY PLACE
CROWNSVILLE, MD 21032-2023

PS-2746

SECTION 7: DESCRIPTION

CONTRIBUTING RESOURCE COUNT: 63

Summary

The Eastern Chemical Warfare Depot is a restricted area located on the northeast portion of Edgewood Arsenal on a peninsula that juts into the Bush River between Lauderick and Kings Creeks. The depot's location was chosen for its access to railroad, road, and shipping networks that supplied the arsenal. The topography of the peninsula shaped the plan of the depot. Bush River Road and a railroad line traversed the length of the peninsula, ending at the major shipping pier. Secondary roads and railroad spurs provided access to the above-ground storage buildings located north and east of the main road. The roads were spaced every 400 feet and provided access to the south elevations of the warehouses. Railroad spurs accessed the north elevations of the warehouses. The southern end of the peninsula contained igloo storage that was accessible only by roads.

The depot exhibits a variety of industrial ordnance storage buildings, including 12 general purpose warehouses, 13 above-ground ordnance magazines, and 6 igloos. In addition, the depot contains two toxic gas yards, a berthing pier, infrastructure, a few personnel support buildings, and miscellaneous buildings and structures. The general warehouses occupy the northwesternmost section of peninsula, while the magazines and igloos occupy the remainder of the peninsula. The magazines generally are spaced 300 feet apart, while the igloos are spaced 400 feet apart. The general purpose warehouses are grouped closer together. Currently, most of the buildings are surrounded by woods. The built resources constructed at the depot are functional, utilitarian buildings with no architectural ornamentation. The above-ground warehouses are one-story, rectangular buildings constructed mainly of structural clay tile or concrete.

Description

General Purpose Warehouses

Two types of general purpose warehouses for inert storage were identified in the depot area. Warehouses were used to store small-arms ammunition, sodium nitrate, bleach, gas masks, protective clothing, and other materials that were not explosive hazards (U.S. Ordnance Department 1941). One type of general purpose warehouse was constructed of structural clay tile and one type was constructed of poured concrete. These buildings were located in the northern portion of the depot area with easy access to the rest of the installation.

Buildings E-2166, E-2168, E-2170, E-2196, and E-2198 represent the first type of general purpose warehouse. These rectangular one-story structures measure 202 x 68 feet and terminate in gable roofs. Each warehouse features a concrete foundation, slab floor and 7-foot high concrete wall. A steel frame bolted into the concrete wall supports a continuous horizontal band of industrial metal-sash windows on all four elevations. Corrugated transite siding covers the gable ends and gable roof. A continuous metal ventilator extends along the roof ridge. The long side elevations contain ten sets of interior sliding metal doors. In general, alterations to the buildings

are limited to infilled or modified door openings, some replacement door units, and small lean-to additions on the side elevations. The warehouse interiors are characterized by unobstructed open space.

Building E-2194 exhibits similar construction and dimensions as the concrete general purpose warehouses. This building, however, originally was subdivided to accommodate individual offices and packing, shipping, and receiving rooms. This building also was provided with an individual boiler plant.

Buildings E-2160, E-2162, E-2180, E-2182, E-2184, E-2186, E-2188 represent the second type of general purpose warehouse. These rectangular buildings measure 240 x 51 feet and are constructed of 12-inch structural clay tile blocks. Brick is used to infill the rake at the eave line and the corners formed by the 12-inch tile blocks. The buildings rest on concrete slab foundations at grade. Each building contains five openings in each long elevation that are covered by wood doors; the doors slide along a rail attached to the exterior of the building. The side gable roof is wood framed and sheathed in asphalt shingles. Six metal ventilators are located along the roof ridge. Alterations common to these buildings include a one-story addition located in the center of each long elevation.

Ordnance Storage

Ordnance storage in the depot area comprises 13 above-ground magazines, illustrating two types, and 6 igloos. Buildings E-2200, E-2204, E-2206, E-2310, E-2312, E-2314, E-2390 measure 218 x 51 feet and historically are classified as ammunition magazines. Buildings E-2320, E-2322, E-2328, E-2330, E-2380 measure 110 x 37 feet and historically are classified as smokeless powder magazines. Both types of magazines share similar construction characteristics. Both types have concrete foundations with concrete footings that support steel frames encased in structural clay tile. The walls are constructed of ridged 8-inch structural clay tile blocks. The side gable roofs are steel frame and sheathed with corrugated asbestos (i.e., transite) siding. Each roof features a copper roof ridge, metal ventilators, and lightning protection. The long elevations contain openings that are covered by steel doors with fixed screen louvers; the doors slide along rails attached to the exterior of the building. Typically, the magazine interiors are characterized by unobstructed open space. Differences between the two magazine types are illustrated by overall dimensions and door openings. The 110-foot magazines feature 6 openings, while the 218-foot magazines feature 11 openings. Typical alterations to the magazines include infilled door openings or replacement doors. In some cases, one-story shed roofed additions have been appended to the buildings. Both of these types of magazines generally are spaced 300 feet apart.

Three above-ground magazines were designed to store white phosphorous at Edgewood Arsenal; only Building E-2620 is located in the depot area. Building E-2620 features walls constructed of poured concrete panels that rest on a concrete foundation. The one-story building measures 209 x 38 feet. Stepped reinforced concrete fire walls extend beyond the roof plane and divide the interior of the building into defined compartments. Each bay along each long elevation is accessed by a steel door with metal louvered panel above. Two screen vents punctuate the side wall of each bay on each long elevation. Metal ventilators punctuate the side-gabled roof ridge. The roof is sheathed with corrugated asbestos. Each bay of the building is equipped with

large metal pipes to pump water into the building on the west elevation. The release valves are located on the east elevation of the building. This equipment was necessary to protect against the combustibility of white phosphorous when exposed to air.

Buildings E-2630, E-2634, E-2638, E-2642, E-2652, E-2654, E-2656 represent igloo storage in the depot area. The igloo is a barrel-vaulted structure measuring 26 x 40 feet. The igloo's floor and arched sides and roof are constructed of reinforced concrete. The igloo is covered with earth on three sides. The front of each igloo is defined by a concrete wall with a single metal door opening contained in a pronounced concrete surround. Each igloo is vented by a metal vent at the rear. The shape of igloo was designed to direct the force of an explosion upwards, rather than outward towards adjacent storage facilities.

Specialized Storage

The depot contains two toxic gas yards that primarily provide open storage behind a protective fence. Storage sheds are located in each yard. Originally established in the 1930s, the first gas yard contained a one-story, rectangular storage shed with a gravel floor and corrugated metal walls and gable roof (Building E-2364). An open shed-roof storage shed (Building E-2362) was added to the yard in 1936. A second corrugated metal storage shed (Building E-2360) was constructed in 1943. During the early 1960s, this area was designated a radiological waste disposal area. In addition, Building E-2354 was constructed as a shop, lavatory, and office to support the personnel at the original toxic gas yard. This one-story building is constructed of structural clay tile. Building E-2371 is a one-story storage building constructed of a poured concrete wall foundation with corrugated walls and roof.

During World War II, a second toxic gas yard was established. Currently, this area is a large rectangular graveled area surrounded by a fence. Two shed-roof, open storage sheds are located in the middle of the yard. The shed walls are enclosed partially with corrugated asbestos siding. The roof also is sheathed with corrugated asbestos.

Personnel Support

Personnel support buildings include the change houses. Building E-2354 is a shop, lavatory, and office constructed for the 1930s toxic gas yard. Building E-2169 represents a World War II change house. This building measures 24 x 28 feet and is constructed of 8-inch structural clay tile and brick. The building has a flat roof and an exterior brick chimney. The doors are wood paneled with multiple glass lights. The six-over-six-light, double-hung sash windows have concrete lintels and brick lug sills and protective security bars.

Building E-2610 is a small building that measures 10 x 12 feet. It is constructed of structural clay tile, rests on a concrete slab foundation, and terminates in a concrete slab roof. The original use of this building remains undocumented. It is sited on a paved area that probably was used for open storage. It has a central door and six-light windows on three elevations. The design suggests that the building may have served a personnel office. However, the concrete slab roof and large metal vent may be indicative of some type of explosives storage building.

Infrastructure

Infrastructure in the area includes water wells, an elevated water tower, and a berthing pier. The berthing pier (Facility E-2396) is a T-shaped pier that projects 350 feet into the Bush River. It originally was constructed during 1918, but was renovated during 1941. This pier originally was constructed on wood pilings with a wood plank deck. During World War II, the pier was paved and outfitted with tracks. Currently, the pier is secured behind two sets of gates. A one-story structural clay tile pump house (Building E-2650) is located near the west end of the wharf.

During World War II, the potable water supply of Edgewood Arsenal was expanded to include new water wells and elevated water storage tanks. New water wells located in the depot are represented by Facilities E-2548, E-2622, E-2639. These structure are metal pipes drilled into the ground and capped. Often the well caps were protected by wood boxes. Facility E-2580 is an example of a metal elevated water tank constructed in 1942.

Miscellaneous Structures

Three structures illustrate the earlier military use of the peninsula before the area was assigned to the depot during the 1930s. In 1920, Facility E-2570 was constructed as a protective explosion barricade. This roofless structure has one-story poured concrete walls on three sides; it does not have a south wall. The concrete walls are strengthened by exterior concrete buttresses. A single opening is located in the north wall. This opening is shielded by a detached concrete wall. This protective barricade probably was associated with an explosives artillery range depicted in this area on a 1930s map (DPW, Edgewood Arsenal Map).

Two ruins (formerly E-2350 and E-2351) are located near the Bush River. The ruin of E-2350 is a massive, rectangular poured-concrete foundation and basement; the remains of metal-frame windows are located at the southeast corner of the ruin. Polygonal foundation walls project from the south elevation. This ruin is the foundation of the Bush River Power House constructed in 1918 during the initial establishment of the installation. The ruin of E-2351 is a T-shaped, poured concrete foundation that projects into the Bush River. This building originally was the Bush River Pump House that supplied water to the power plant.

Buildings And Structures Less Than 50 Years Old

Since the end of World War II, twelve buildings have been added to the Eastern Chemical Warfare Depot. Three structures (E-2144, E-2638, E-2646) are underground igloos constructed in 1953. These buildings measure 25 x 40 feet. They have concrete foundations and arched steel walls. Access to the igloos is through an arched steel tunnel that leads to a steel door. Each structure is covered with a mound of earth. This type of igloo construction was classified as temporary in a 1941 *Ordnance Safety Manual* (U.S. Ordnance Department 1941).

Four structures located within the 1930s toxic gas yard are recorded in the real property records as being "found on post" in 1963. Structure E-2356 is an open storage shed with a corrugated metal shed roof supported on wood posts. Structure E-2363 is a Hower balancer scale sheltered under a corrugated metal roof supported by metal beams. Structure E-2366 is a steam cleaning facility comprising raised concrete supports sheltered under a roof supported on steel beams. Building E-2368 is constructed of corrugated metal walls and roof with a single wood-paneled door with four glass lights.

Other buildings of more recent construction include a polygonal plywood salt storage dome (E-2195) erected in 1982, two square metal sentry stations (E-2309 and E-2344) erected in 1985, a metal Butler building (E-2571) erected in 1987, and a concrete-block ammo/exp. storehouse (E-2556) constructed in 1995.

HA-1988
Chemical Agent Storage Yard (CASY),
Aberdeen Proving Ground, Edgewood Area
Harford County
Section 7.6

LIST OF BUILDINGS AND STRUCTURES IN CHEMICAL AGENT STORAGE YARD (CASY), EDGEWOOD AREA, APG

Bldg.No.	Historic Use	Date	Property Type	1998 Proposed National Register Status
E02144	Igloo Storage	1953	Storehouse	Not Eligible
E02160	Warehouse-General Purpose	1942	Storehouse	Not Eligible
E02162	Warehouse-General Purpose	1942	Storehouse	Not Eligible
E02166	Warehouse-General Purpose	1941	Storehouse	Not Eligible
E02168	Warehouse-General Purpose	1941	Storehouse	Not Eligible
E02169	Change House	1943	Personnel Support	Not Eligible
E02170	Warehouse-General Purpose	1941	Storehouse	Not Eligible
E02180	Warehouse-General Purpose	1942	Storehouse	Not Eligible
E02182	Warehouse-General Purpose	1942	Storehouse	Not Eligible
E02184	Warehouse-General Purpose	1942	Storehouse	Not Eligible
E02186	Warehouse-General Purpose	1942	Storehouse	Not Eligible
E02187	Warehouse/Administration	1997	Storehouse	Not Eligible
E02188	Warehouse-General Purpose	1942	Storehouse	Not Eligible
E02194	Office/Administration	1941	Administration	Not Eligible
E02195	Salt Storage Dome	1982	Storehouse	Not Eligible
E02196	Warehouse-General Purpose	1941	Storehouse	Not Eligible
E02198	Warehouse-General Purpose	1941	Storehouse	Not Eligible
E02200	Magazine	1941	Storehouse	Not Eligible
E02204	Magazine	1941	Storehouse	Not Eligible
E02206	Magazine	1941	Storehouse	Not Eligible
E02309	Sentry Station	1985	Personnel Support	Not Eligible
E02310	Magazine	1941	Storehouse	Not Eligible
E02312	Magazine	1941	Storehouse	Not Eligible
E02314	Magazine	1941	Storehouse	Not Eligible (R in 1993)
E02320	High Explosives Magazine	1941	Storehouse	Not Eligible (R in 1993)
E02322	High Explosives Magazine	1941	Storehouse	Not Eligible (R in 1993)
E02328	High Explosives Magazine	1941	Storehouse	Not Eligible (R in 1993)
E02330	High Explosives Magazine	1941	Storehouse	Not Eligible
E02338	Toxic Gas Yard-Storage Shed	1941	Storehouse	Not Eligible (R in 1993)
E02340	Toxic Gas Yard-Storage Shed	1941	Storehouse	Not Eligible (R in 1993)
E02344	Sentry Station	1985	Personnel Support	Not Eligible
E02350	Bush River Power Plant (ruin)	1918	Utility Building	Not Eligible
E02351	Bush River Pump Station (ruin)	1918	Utility Building	Not Eligible
E02354	Shop, Lavatory, Office	1931	Storehouse	Not Eligible in 1993
E02356	Transit Shed	1963	Storehouse	Not Eligible
E02360	Storage Shed	1943	Storehouse	Not Eligible in 1993
E02362	Storage Shed	1936	Storehouse	Not Eligible in 1993
E02363	Scale	1963	Utility Building	Not Eligible
E02364	Storage Shed	1931	Utility Building	Not Eligible in 1993
E02366	Compt. Cleaning Facility	1963	Utility Building	Not Eligible
E02368	Heat Plant Building	1963	Utility Building	Not Eligible
E02371	Unknown (Storage?)	1941	Storehouse	Not Eligible in 1993
E02380	High Explosives Magazine	1941	Storehouse	Not Eligible
E02390	High Explosives Magazine	1941	Storehouse	Not Eligible
E02396	Berthing Wharf	1918/1942	Utility Building	Not Eligible
E02548	Water Well	1941	Utility Building	Not Eligible
E02556	Ammo/Exp. Storehouse	1995	Storehouse	Not Eligible
E02570	Barricade	1920	Utility Building	Not Eligible
E02571	CML FLD Maintenance shed	1987	Maintenance Shop	Not Eligible
E02580	Water Tower	1942	Utility Building	Not Eligible
E02610	Unknown (Office?)	1941	Personnel Support	Not Eligible
E02620	Magazine-White Phosphorous	1941	Storehouse	Not Eligible (R in 1993)
E02622	Water Well	1941	Utility Building	Not Eligible
E02630	Igloo Storage	1941	Storehouse	Not Eligible (R in 1993)
E02634	Igloo Storage	1941	Storehouse	Not Eligible (R in 1993)
E02638	Igloo Storage	1953	Storehouse	Not Eligible
E02639	Water Well	1941	Utility Building	Not Eligible
E02642	Igloo Storage	1941	Storehouse	Not Eligible

HA-1988
Chemical Agent Storage Yard (CASY),
Aberdeen Proving Ground, Edgewood Area
Harford County
Section 7.7

E02646	Igloo Storage	1953	Storehouse	Not Eligible
E02650	Dock Pump House	1918	Utility Building	Not Eligible in 1993 survey
E02652	Igloo Storage	1941	Storehouse	Not Eligible
E02654	Igloo Storage	1941	Storehouse	Not Eligible (R in 1993)
E02656	Igloo Storage	1941	Storehouse	Not Eligible (R in 1993)

TOTAL: 63

SECTION 8: SIGNIFICANCE

Summary

The Eastern Chemical Warfare Depot was established in 1920 on Edgewood Arsenal and was expanded during 1941-1942 eastwards onto a peninsula between Lauderick and Kings creeks near Bush River. The peninsula is a restricted access area. The depot at Edgewood Arsenal supported the installation's mission as a chemical warfare production center from its establishment in 1920 through World War II. Although the depot was constructed to support the logistical activities of the Chemical Warfare Service during World War II, the Eastern Chemical Warfare Depot does not possess significance for listing in the National Register of Historic Places under the Criteria for Evaluation or under Criterion Consideration G.

Historic Context

The chemical warfare depot at Edgewood Arsenal supported the installation's mission as a chemical warfare production center developed in response to the use of chemical weapons on the battlefield in Europe during World War I. The site of Edgewood Arsenal was selected in December 1917 and occupied the northern section of Gunpowder Neck on the west side of Chesapeake Bay next to Aberdeen Proving Ground (located on Bush Neck). This site offered access to transportation by rail and water and was relatively isolated from population centers at the time of its establishment.

Edgewood Arsenal, constructed during 1918, was the only chemical weapons production facility in the United States. Following the war, Edgewood Arsenal was maintained as a permanent installation at a much reduced level of activity; production facilities were closed. The Chemical Warfare Service (CWS) was established as a separate entity from the Ordnance Department under the National Defense Act of 1920. While the Chief of CWS was located in Washington, D.C., Edgewood Arsenal served as the headquarters for research and development, training, manufacturing, and storage activities for the service. Edgewood Arsenal remained the primary CWS installation until World War II.

Edgewood Arsenal initially was planned as an integrated production line to accommodate the multi-step process of chemical weapons manufacturing. The installation included an area for assembling and producing raw materials, an area for chemical production, an area to pack chemicals into shells, and a loaded-ordnance storage and shipping area (Goodwin & Associates, Inc., 1996). The center of the installation was dominated by chemical production plants designed to produce chlorine, mustard gas, chlorpicrin, and phosgene, and shell-filling plants to load chemicals into ammunition shells.

The magazine area (Block E-1900) was located north of the shell-filling area between Scully and Wise roads close to the main line of the Pennsylvania Railroad. This area comprised 11 magazines measuring 100 x 202 feet constructed of 8-inch structural clay tile set on concrete foundations. The magazines were accessed by wood doors set on sliding tracks bolted to the tile

walls. The magazines were arranged in rows of three and four buildings spaced 100 feet apart. Rails were located north and south of each magazine (Marshall and Ellicott 1919).

In 1920, when CWS was established as a separate service, the magazine area of the installation was designated as the Edgewood Chemical Warfare Reserve Depot. The depot's mission was to serve both as a branch depot and a reserve depot. As a branch depot, its mission was to store and to issue supplies for the Chemical Warfare Service. As a reserve depot, it stored reserve supplies for the War Department. The depot was located on Edgewood Arsenal property because it was the only CWS post in the United States. It was logical that the depot organization controlled the warehouses and storage areas already in use for storage (Scaggs 1945).

In 1927, the depot's name was changed to Edgewood Chemical Warfare Depot (1927-1943). During the 1930s, the depot expanded eastward to claim the peninsula located between Lauderick and Kings creeks. The actual boundaries of the depot were delineated in 1931. The command structure of the depot functioned independently from the command structure of Edgewood Arsenal, except for administrative matters, security, and fire protection (Scaggs 1945). The depot, renamed the Eastern Chemical Warfare Depot in 1943, remained a tenant at Edgewood Arsenal under a separate command until 1963.

The expansion of the depot eastward displaced earlier uses on the peninsula. The primary building on the peninsula was the Bush River power plant (Building E-2350) constructed in 1918. This power plant was the largest power plant constructed at the arsenal; it measured 144 x 216 feet. The reinforced concrete foundation walls were 24 inches thick below grade. The walls were 8-inch structural clay tile. At the time of its completion, the power house was reported as equipped with the most modern machinery. By World War II, the power plant no longer was in operation and was dismantled to its concrete foundation. The platform was used as open storage during World War II.

In addition to the power house, the peninsula was the site of a dock and pump house along the Bush River. The dock (Facility E-2396) was constructed in 1918 as a shipping pier. It provided access to the waterways for shipping chemical weapons and associated items and continued in that use during World War II. A pump house (Building E-2650) associated with the dock was located at the west end of the dock.

One area of the peninsula was designated as a test site for artillery components. In 1920, a concrete barricade (Facility E-2570) was constructed. The barricade, currently overgrown, is the last structural evidence of the test site.

Plans for the expansion of the depot were detailed on a map dated 1933 (DPW 1933 map). This map depicts Bush River Road as the primary road access to the area with secondary roads branching to the northeast. The outlines of future buildings were located along these roads.

The first facility established by the depot on the peninsula was the Toxic Gas Yard located approximately 200 feet south of Eagle Point. The area was cleared in 1930 and put into operation in 1931. One building constructed in the yard was a galvanized metal storage shed (Building E-2364). In addition, a one-story structural clay tile shop, lavatory, and office (Building E-2454) was constructed to support personnel employed at the yard. The yard was expanded with an additional storage shed (Building E-2362) in 1936 and again in 1938. By 1938, the yard had a

capacity to store 1,922 ton containers and 360 drums. In 1940, the depot controlled 290,725 square feet of warehouse space; one white phosphorous pit; 13,172 square feet of magazine space; and, 105,375 square feet in the toxic gas yard (Scaggs 1945).

The plan for the expansion of the depot, as envisioned in 1933, began to be implemented during 1941 as part of the Protective Mobilization Plan and as a result of the Lend-Lease Act passed in March 1941. Beginning in 1939, educational orders were placed with private industry for the production of gas masks. Approximately 80,000 gas masks were procured under this program, and additional storage facilities for CWS supplies were needed.

Throughout the conflict in Europe, it was unknown whether chemical weapons would be used in combat. President Roosevelt declared that the United States would not use chemical weapons offensively, but would retaliate with chemical weapons if they were used by the Axis powers (i.e., Germany, Italy, or Japan). This policy served as a deterrent; the Axis powers never used chemical weapons on military targets, even though Germany had produced vast quantities of chemical munitions and nerve gases. These stocks were captured by the Allies in 1945 (Goodwin et al. 1996).

CWS prepared for the event that chemical weapons were employed on the battlefield. During World War II, the role of Edgewood Arsenal shifted from CWS's primary manufacturing and production installation to administration, research and development, and specialized and experimental tasks. Edgewood Arsenal no longer functioned as an integrated chemical warfare production line. Instead, a smaller number of self-contained production plants functioned independently at the arsenal. Production lines were either housed in one building, or in a series of separate small buildings. The bulk of chemical production and shell loading activities were transferred to newly established CWS installations: Huntsville/Redstone Arsenal (1941), Alabama; Rocky Mountain Arsenal (1942), Colorado; and, Pine Bluff Arsenal (1943), Arkansas (Goodwin & Associates, Inc., 1996).

The locations of these arsenals were selected based on criteria established by the Ordnance Department. These facilities were located in the interior of the U.S., away from coastlines and borders to minimize the danger of enemy air raid. The sites also required access to transportation, especially rail lines, and an abundant supply of water. As a result of the site criteria, most of the ammunition production facilities were constructed in the Midwest and Southeast (Goodwin & Associates, Inc., 1997).

CWS remained a relatively small program compared to the overall ordnance procurement program. While CWS operated four production arsenals and six chemical warfare depots, the Ordnance Department operated 35 ordnance works to produce propellants and high explosives, 31 ordnance plants to produce ammunition, and 24 ammunition depots. While toxic chemicals never were used during World War II, CWS supplied smoke and incendiary munitions for use in combat, as well as protective gear, including clothing and gas masks (Goodwin et al. 1996, 1997).

Between 1 September 1939 and 7 December 1941, $27 million out of CWS budget appropriations totaling more than $64 million were appropriated for construction and repair projects at Edgewood Arsenal. Construction projects included renovating and upgrading chemical production plants to working order and constructing new hospital, laboratories, headquarters

building, an incendiary bomb plant, and new warehouses to service both the manufacturing plants and the storage depot (Chemical Corps Association 1948).

Expansion of the Edgewood Chemical Warfare Depot was completed substantially by September 1941 and came very close to the proposed 1933 plan. The major difference between the proposed and actual facility was the construction of additional warehouses along Cadwalder Road, and additional magazines and igloos. In September 1941, construction was completed on 5 warehouses to store inert materials, 13 magazines, 6 igloos, and a new toxic gas yard. The primary building materials were concrete and structural clay tile. All buildings were constructed at grade. The buildings classified as magazines represented three types: 7 ammunition magazines, 5 smokeless powder magazines, and 1 white phosphorous magazine. The above-ground ammunition and smokeless powder magazines represented standard types that were constructed at many ammunition manufacturing plants, shell-loading plants, and depots during World War II. The plans for these standard magazine types were developed during the inter-war era and were described in the *Ordnance Safety Manual* O.O. Form No. 7224 dated 1 December 1941. The reinforced concrete igloos also were standardized construction for high explosives that were developed following the explosion of the Naval Ammunition Depot at Lake Denmark, NJ, in 1926 and constructed at both Navy and Army ordnance depots.

The firm of Whitman, Requardt & Smith, Engineers, of Baltimore, Maryland, served as general construction contractors for the expansion work at Edgewood Arsenal. This firm worked with the Construction Division of the Office of the Quartermaster General to complete the construction projects. In the case of the chemical manufacturing plants, the firm generated building plans. In the case of the storage construction, the firm utilized standardized plans developed by the Construction Division of the Office of the Quartermaster General. Whitman, Requardt & Smith, Engineers, was founded in 1915 and continues to operate under the name of Whitman, Requardt and Associates. During the firm's first fifty years of practice, it specialized in public works projects and was noted for expertise in water and waste water treatment (Richard Lortz, Whitman, Requardt & Associates, personal communication 9/22/94). This firm also served as general construction contractors for Huntsville Arsenal (now Redstone Arsenal) in Alabama and Rocky Mountain Arsenal in Colorado.

The layout of the expanded Eastern Chemical Warfare Depot was utilitarian, functional, and conformed to the topography of the peninsula. The distances between the above-ground magazines were 300 feet; igloos were separated by 400 feet. These distances were the standard distances specified by the Ordnance Department during the inter-war era and published in the *Ordnance Safety Manual* O.O. Form No. 7224 dated 1 December 1941. The kinds of items stored throughout the war and during demobilization included: toxic gases (chlorpicrin, mustard, Lewisite, molasses residuum, phosgene, white phosphorous, napalm, cyanogen chloride), adamsite candles, bleach, incendiary bombs, airplane bombs, burster tubes, 4.2-inch chemical mortars (containing tear gas and smokes), smoke pots and candles, chemical land mines, high explosives ammunition and fuzes, boosters and adapters, smokeless powder, and general supply items, including gas masks, protective clothing, gas-proof curtains (U.S. Army Chemical and Biological Defense Command, History Office, building files). The incendiary bombs dropped on Tokyo by James Doolittle in his famous raid were shipped from this depot (Scaggs 1945).

The expanded depot construction completed in 1941 increased warehouse storage by 82,416 square feet; magazine storage by 107,757 square feet; igloo storage by 6,756 square feet;

and, toxic gas storage in a new yard by 155,760 square feet. During 1942, additional 86,520 square feet of warehouse storage were added to the depot by the completion of 7 additional warehouses (Buildings E-2160, E2162, E-2180 through E-2186) (Scaggs 1945). By the end of the war, the depot contained 880,000 square feet of covered and open storage area (Brophy et al. 1959).

As in the case of the main manufacturing plants, the role of the Edgewood Chemical Warfare Depot changed during World War II. At the beginning of the war, the depot was the only CWS depot and was the center of the CWS distribution system. To prevent overcrowding at the Edgewood Chemical Warfare Depot, CWS initially leased warehouses in Chicago and Indianapolis. Indianapolis eventually became a branch depot that specialized in CWS spare parts. With the declaration of war, the Edgewood Chemical Warfare Depot shipped chemical warfare supplies and equipment as needed to all ports, camps, and stations in the U.S. The depot operated in this capacity between December 1941 and October 1942, when additional CWS depots began operation (Scaggs 1945).

Since no land to expand the Eastern Chemical Warfare Depot at Edgewood Arsenal was available, CWS established other depots to store the growing numbers of chemical weapons and supplies. Efforts were made to select sites that met the selection criteria of the Ordnance Department; depots were dispersed throughout the U.S. and located at sufficient distances from coastlines and borders to escape aerial bombing. As in the case at Edgewood Arsenal, the new depots generally were attached to CWS arsenals to minimize transportation costs from the arsenal to the depot.

Construction of two new branch depots began during spring 1942 and included the Gulf Chemical Warfare Depot with 3,385,000 square feet of storage at Huntsville/Redstone Arsenal, Alabama, and Midwest Chemical Warfare Depot with 2,521,000 square feet of storage at Pine Bluff Arsenal, Arkansas. The largest CWS depot was the Deseret Chemical Warfare Depot established in fall 1942 near Salt Lake City, Utah; this depot had a capacity of 19,066,000 square feet of storage, the largest portion of which was a toxic yard comprising 18,053,000 square feet of storage. The main mission of branch depots, with the exception of Indianapolis, was to handle chemical ammunition and toxics. The size of the new depots allowed for the construction of numerous igloos. To handle general supplies, CWS obtained storage space at five Army Service Forces depots: Atlanta, GA; Memphis, TN; New Cumberland, PA; San Antonio, TX; and, Utah (Brophy et al. 1959).

After October 1942, the Edgewood Chemical Warfare Depot became the supply depot for the First, Second and Third Service Commands, and the Baltimore and Hampton Roads Ports of Embarkation (Scaggs 1945). The depot had two logistical problems. It was considerably smaller than the CWS depots located in the South, Midwest, and Utah. In addition, it was located close to the crowded East Coast transportation corridor. To relieve congestion along the East Coast corridor, a major portion of the depot's general supplies responsibilities were transferred to New Cumberland, PA. In 1944, the Northeastern Chemical Warfare Depot was opened near Niagara Falls, NY, as a sub-depot of the Eastern Chemical Warfare Depot. A substantial amount of chemical munitions were transferred to Niagara Falls (Brophy et al. 1959).

The exigencies of war required increased efficiency in storage practices and administration. The dramatic increase in activity is reflected in the following statistics. During the

entire year 1930, the Edgewood Chemical Warfare Depot shipped 802 outgoing shipments of 548.17 tons and received 426 incoming shipments of 685 tons. For the month of July 1942, incoming shipments equaled 4,543.6 tons, while outgoing shipments equaled 6,317.6 tons (Scaggs 1945).

Warehousing and administrative procedures for processing incoming and outgoing shipments, inventory, and locational information needed to be streamlined. CWS adopted a number of innovations instituted at Army general supply depots. These procedures were recommended by a group of commercial warehouse owners who assembled in spring 1942 to study Army warehouse procedures in San Antonio, TX. These innovations included changes in administrative procedures, modifications to warehouse design and interior arrangement, introduction of forklifts, and palletization. Changes to the exterior design of warehousing and magazines resulted in the construction of elevated loading platforms along the side elevations to match the elevation of boxcars and trucks. These platforms saved labor required to lift supplies. Warehouse and magazine interiors were rearranged from multiple 36-inch aisles to three major 10-foot aisles. This rearrangement allowed for the use of forklifts and pallets. Pallets became the standard packaging tool (Brophy et al. 1959).

While these innovations were introduced at new CWS depots during 1942 and 1943, forklifts and palletization were not introduced at the Eastern Chemical Warfare Depot at Edgewood Arsenal until February 1944. Since the depot was expanded in 1941, its buildings were constructed at grade with no elevated loading platforms. In addition, the depot comprised a large number of small buildings located in two areas separated by 1.5 miles. The headquarters area remained in the magazine area constructed in 1918. The storage buildings constructed near the Bush River were not densely arranged because of the physical constraints of the peninsula. These buildings were constructed without elevated loading platforms. The best accommodation made for the use of mechanization was the construction of at-grade concrete loading pads outside each warehouse door (Scaggs 1945; Brophy et al. 1959).

Handling and storage of toxic gases was the specialty of CWS. Handling procedures were developed first during World War I and refined throughout the inter-war era at the chemical warfare depot at Edgewood Arsenal. Toxic gases were stored in one-ton steel cylinder containers in open storage yards. The containers rested horizontally on rails to allow for air circulation. Toxic gas handlers were specially trained to test, inspect, maintain, clean, and handle toxic gas containers (Scaggs 1945; Brophy et al. 1959).

After the end of World War II, the Army began to demobilize. The CWS depots received shipments returning from overseas to store items in accordance with peacetime requirements. Material declared surplus was salvaged. The number of employees decreased.

Following World War II, the Army entered a period of reorganization. CWS was demobilized, but a vigorous support for the role of chemical warfare ensured its permanent existence. In 1946, the Army redesignated CWS as the Chemical Corps, and Edgewood Arsenal was renamed the Army Chemical Center. The role of chemical warfare was a hotly debated topic throughout the Cold War era. During the Cold War era, Edgewood Arsenal served as the national center for chemical warfare materiel development and testing and medical activities. Minor missions included wholesale logistical operations and activities undertaken by other departments

and non-Army agencies located on the property (AEC 1997). In 1971, Aberdeen Proving Ground and Edgewood Arsenal were joined administratively.

In 1947, the Eastern Chemical Warfare Depot was discontinued as a separate installation and designated as an activity of the Army Chemical Center, although the former name continued to appear as a separate entity on organizational charts until 1961. The depot resumed its peacetime role as a distribution depot for general supplies and chemical ammunition, a reserve depot to receive CWS general supplies and ammunition for future distribution, and as a filler depot to receive and store all types of CWS ammunition for shipment overseas through ports of embarkation. In addition, as other CWS depots were deactivated, supplies were transferred to Edgewood. Between 1947 and 1951, the Eastern Chemical Warfare Depot also was designated a key depot for the distribution of spare parts. During the 1950s, a maintenance shop was operated at the depot to repair chemical weapons and equipment. In 1959, the handling of radioactive materials was added to the mission of the depot (U.S. Army Chemical and Biological Defense Command, History Office, historical files 1946-1961).

In 1962, the Army's technical services, including the Chemical Corps, were disbanded, and the Army Materiel Command (AMC) was established. This new command consolidated logistical functions to ensure integrated materiel management, including new product development, management of materiel stockpiles, testing, and technical and maintenance support. The former Eastern Chemical Warfare Depot was located under the installation's Director of Support Services in 1966 (Smart 1994; AEC 1997; U.S. Army Chemical and Biological Defense Command, History Office, historical files).

Until 1968, the U.S. policy was to maintain stockpiles of chemical and biological agents as deterrents to the possible Communist use of chemical weapons. After a chemical testing incident in 1968, President Nixon ordered a review of chemical warfare programs. The stockpiles of chemical agents were retained, while a program to destroy biological agents was initiated (AEC 1997). In 1985, Congress enacted Public Law 99-195 to require the Army to develop a program to dispose of all stockpiled chemical agents and munitions. The former Eastern Chemical Warfare Depot remains a storage repository for distilled mustard in bulk containers. The amount of mustard gas stored at APG represents 5 per cent of the total U.S. chemical agent stockpile (Program Manager for Chemical Demilitarization 1998). Current activities in the former depot area focus on the management and destruction of aging chemical stockpiles in an environmentally responsible manner.

Evaluation

The Eastern Chemical Warfare Depot is located within the boundaries of Edgewood Arsenal, currently Edgewood Area, of Aberdeen Proving Ground (APG). The buildings evaluated as part of this MHT form illustrate the World War II expansion of the depot eastward onto the peninsula between Lauderick and Kings creeks. This section of the depot contains permanent types of storage facilities. The main administration offices were retained in the depot headquarters located in the World War I magazine area. Evaluation of the National Register eligibility of this area was prompted by the scheduled demolition of two buildings (Buildings E-2380 and E-2328) as part of the construction of the Aberdeen Chemical Agent Disposal Facility (ABCDF) proposed for 1999.

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Section 8.8

During the preparation of the APG Cultural Resource Management Plan (CRMP), the Eastern Chemical Warfare Depot was one of two warehouse areas at Edgewood Arsenal identified as requiring additional archival and field investigations to assess their potential eligibility as a National Register of Historic Places historic district. Based on preliminary findings, the CRMP stated that the area may be significant under Criterion A for its association with the development of logistical support required to fight a major war. The CRMP further stated that the buildings may possess significance for embodying the distinctive characteristics of a common and widespread class of building type constructed during World War II (Criterion C) (Goodwin & Associates, Inc. Draft 1993, Final 1996). Since that time, several warehouses and magazines have been evaluated on an individual basis for National Register listing. To date, none of the magazines or warehouses have been determined to possess those individual qualities of significance for National Register consideration (Robinson & Associates, Inc. 1995).

During the 1990s, the Army commissioned several studies to develop nationwide historic contexts to assist in the evaluation of buildings and structures constructed during the twentieth century. These studies include: *Support and Utility Structures and Facilities (1917-1946) Overview, Inventory and Treatment* (Goodwin & Associates, Inc. 1995); *Historic Context for the Army Materiel Command's World War II Facilities* (Goodwin & Associates, Inc. 1996); and, *Historic Context for Department of Defense Facilities World War II Permanent Construction* (Goodwin & Associates, Inc. 1997). These studies provide historic contexts, information for comparative analysis, descriptions of building typologies, and methodologies for evaluation, that are useful tools in approaching the evaluation of the buildings in the Eastern Chemical Warfare Depot.

The *Historic Context for Department of Defense Facilities World War II Permanent Construction* outlined an approach to evaluate permanent World War II construction. World War II is a crucial event in U.S. history, but not all property constructed by the military or by civilians under contract to the federal government during World War II is necessarily significant within the historic context of World War II. Military construction typically was planned and executed as part of a national defense program that expended billions of dollars in the construction of thousands of facilities. It is important to evaluate World War II properties within the larger national historic context. To evaluate a property as significant within the context of World War II permanent construction, that property must have an important and specific association with World War II (Goodwin & Associates, Inc. 1997). The *Historic Context for Department of Defense Facilities World War II Permanent Construction* was prepared in consultation with the National Register staff, who reviewed and participated in the development of the above-cited documentation.

The expansion of Eastern Chemical Warfare Depot located near the Bush River occurred during World War II. The depot is a recognizable entity as a concentration of general and ordnance storage buildings that exhibits an overall plan. The buildings are not distinguished nor individually significant, neither is the overall grouping of buildings or the depot's plan. The plan reflects the most efficient use of space within the constraints imposed by the site's topography and by distance requirements between ordnance storage buildings. The decreasing width of the peninsula resulted in the construction of numerous short streets with access to only one, two, or three magazines or warehouses. The peninsula's northwest edge could accommodate a longer row of warehouses. The resulting dispersal of the warehouses and magazines was criticized as a failing in the planning of the depot (Brophy et al. 1959; Scaggs 1945).

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The Eastern Chemical Warfare Depot does not appear to possess the qualities of significance for listing in the National Register of Historic Places under Criterion A. To be eligible under Criterion A, depots must possess direct, important associations with the logistical support activities of World War II operations. The Eastern Chemical Warfare Depot was established in 1920 on Edgewood Arsenal and was expanded significantly during 1941-1942. On the installation level, the depot represented a minor portion of the work accomplished at Edgewood Arsenal as the only CWS installation until World War II. The dominant importance of the arsenal historically was the manufacturing plants and research laboratories that occupied the central section of the installation.

Although the Eastern Chemical Warfare Depot was the only CWS depot until 1940, it became one of six depots constructed throughout the nation during the war to support the logistical functions of CWS. CWS played a small part in the overall effort to produce and store ordnance required to win the war. The production facilities and chemical stockpiles served as a deterrent that helped keep chemical weapons from being used on the battlefield. Among the most important CWS items supplied to the fighting troops in Europe and the Pacific were smokes and incendiary munitions for use in combat and protective gear, such as clothing and gas masks. The storage area available at the Eastern Chemical Warfare Depot was one of the smallest of the CWS depots.

Throughout the war, CWS operated a relatively small program when compared to the overall ordnance procurement program. While CWS operated four production arsenals and six chemical warfare depots, the Ordnance Department operated 35 ordnance works to produce propellants and high explosives, 31 ordnance plants to produce ammunition, and 24 ammunition depots (Goodwin et al. 1996, 1997).

No advances were made in logistical technology at the Eastern Chemical Warfare Depot. CWS relied on warehouse technology developed for general supply depots. Logistical innovations, such as palletization and use of forklifts, were implemented at the Eastern Chemical Warfare Depot only late during the war; these innovations were incorporated into the design of the other CWS depots. The specialized handling of toxic gases developed at Edgewood during World War I and the inter-war period occurred in impermanent open storage areas that resulted in few buildings and structures to illustrate those technologies.

The Eastern Chemical Warfare Depot does not appear to possess the qualities of significance for listing in the National Register of Historic Places under Criterion C. To be eligible for listing under Criterion C, properties must meet one of the four requirements: embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic value; or represent a significant and distinguishable entity whose components may lack individual distinction.

The World War II buildings associated with the expansion of the Eastern Chemical Warfare Depot do not represent unique ordnance storage facilities. The above-ground magazines, warehouses, and igloos followed standardized plans developed during the inter-war period and were typically constructed of structural clay tile or reinforced concrete. These buildings were characterized by their functional designs and minimal ornamentation. Their construction at the Eastern Chemical Warfare Depot did not illustrate the adaptation of new engineering technologies or new construction materials.

The building types constructed at the Eastern Chemical Warfare Depot were not unique to chemical weapons, but followed building plans prescribed for ordnance depots, ordnance plants, ordnance works, and CWS arsenals and depots. These building types were widely constructed during the World War II nationwide industrial mobilization program. The 1994 Army real property inventory provided the following counts of above-ground storage magazines, warehouses, and igloos constructed between 1917 and 1946: 2,538 high explosives magazines; 421 smokeless powder magazines; 807 general purpose magazines; 1,706 general warehouses; and, 14,143 igloos (Goodwin & Associates, Inc., 1995). These same building types were constructed on the west side (e.g., E-5800 Block) of Edgewood Arsenal to support the manufacturing facilities.

Other specialized facilities constructed at the Eastern Chemical Warfare Depot are the toxic gas yards and the white phosphorous magazine, which were constructed only at CWS depots or arsenals. The toxic gas yard at the Eastern Chemical Warfare Depot represents the smallest yard in the CWS inventory by the end of the war. Since most of the toxic storage was out in the open, few buildings and structures are associated with that property type. The white phosphorous magazine is a specialized magazine constructed of reinforced concrete to handle the storage needs of a specific chemical. This functional building type was constructed in fewer numbers; three are located at Edgewood Arsenal.

The Eastern Chemical Warfare Depot appears to have no known associations with the lives of significant people under Criterion B. It is not anticipated that the Eastern Chemical Warfare Depot will yield information important to the World War II historic context. In general, buildings must be older than 50 years of age to be eligible for listing in the National Register of Historic Places. Criteria Consideration G of the National Register allows properties that have achieved significance within the last 50 years to be eligible for listing if they are of *exceptional importance* (U.S. Department of the Interior 1991). The Army has developed additional guidance for evaluating Cold War-era properties in DA PAM 200-4 (Section 3-3.d(2)(b)) as follows:

> The Criterion of Exceptional Importance is applied to properties that are less than 50 years old in order to evaluate the National Register eligibility pursuant to 36 CFR 60.4. A Cold War property may have significance under National Register criteria A-D, due to association with major historical events or persons, technological or scientific design achievement, or as a fragile survivor of a class of properties. The significance of Cold War era properties may lie at the national level in association with military themes directly tied to the Cold War, or at the state or local level under other themes (AEC 1997).

A study prepared by the U.S. Army Environmental Center (AEC) entitled *Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties* (AEC 1997) also was consulted as an important reference. The report reinforces DA PAM 200-4 by stating that Cold War military properties must possess exceptional significance on a national level; these include those resources with a direct association with major Army activities and missions. Property types constructed between 1946 and 1989 at APG that are directly tied with Cold War activities are those associated with the major missions of basic research, materiel development and testing, education, and medical activities. The role of the Eastern Chemical Warfare Depot during the Cold War era is simply one of storage of supplies and chemical weapons stockpiles. The buildings and structures constructed during the Cold War era at the Eastern Chemical Warfare Depot represent minor support facilities, such as temporary igloo

storage, metal storage buildings, sentry stations, and a concrete-block storage building. At this point in time, none of the Cold War-era properties at the Eastern Chemical Warfare Depot appear to possess the qualities of significance under Criterion Consideration G (AEC 1997).

SECTION 9: BIBLIOGRAPHY

Brophy, Leo P., Wyndham D. Miles, and Rexmond C. Cochrane
1959 *The Chemical Warfare Service: From Laboratory to Field.* Office of the Chief of Military History, Department of the Army, Washington, D.C.

Chemical Corps Association
1948 *The Chemical Warfare Service in World War II.* Reinhold Publishing Corporation, New York, NY.

Directorate of Public Works, Aberdeen Proving Ground
Maps, drawings, and real property records.

Goodwin, R. Christopher, & Associates, Inc.
1995 *Support and Utility Structures and Facilities (1917-1946) Overview, Inventory and Treatment.* Final report prepared for Atlantic Division, Naval Facilities Engineering Command by R. Christopher Goodwin & Associates, Inc., Frederick, Maryland.

1993-96 *Aberdeen Proving Ground Cultural Resource Management Plan.* Draft Report 1993. Final report prepared for Atlantic Division, Naval Facilities Engineering Command by R. Christopher Goodwin & Associates, Inc., Frederick, Maryland.

1996 *Historic Context for the Army Materiel Command's World War II Facilities.* Final Report prepared for U.S. Army Corps of Engineers, Baltimore, Maryland.

1997 *Historic Context for Department of Defense Facilities World War II Permanent Construction.* Final Report prepared for U.S. Army Corps of Engineers, Baltimore, Maryland.

Lortz, Richard, Whitman, Requardt & Associates
9/22/94 Personal communication.

Marshall, R.C., and Edward B. Ellicott
1919 *Report on the Construction of the Filling Plants at Edgewood Plant of Edgewood Arsenal.* Government Printing Office, Washington, D.C.

Program Manager for Chemical Demilitarization
1998 Pilot Testing of Neutralization/Biotreatment of Mustard Agent at Aberdeen Proving Ground. Draft EIS statement.

Robinson & Associates, Inc.
1995 Warehouse study. On file at DSHE, APG.

Scaggs, George W.
1945 *History of the Eastern Chemical Warfare Depot, Edgewood Arsenal.* Typescript located in CBDCom History Office.

Smart, Jeffrey K.
1994 *U.S. Army Chemical and Biological Defense Command Historical Highlights.* USA CBDCom, APG.

U.S. Army Chemical and Biological Defense Command, History Office
Building files, historical files, maps.

U.S. Army Environmental Center
1997 *Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties.* Draft, AEC, Aberdeen Proving Ground, Maryland.

U.S. Army Environmental Hygiene Agency
1989 *RCRA Facility Assessment, Edgewood Area.* Aberdeen Proving Ground, Maryland.

U.S. Department of the Army, AEC
1997 Army Regulation 200-4 and Pamphlet 200-4. *Cultural Resources Management.*

U.S. Department of the Interior
1991 *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation.* Government Printing Office, Washington, D.C.

U.S. Ordnance Department
1941 *Ordnance Safety Manual* O.O. Form No. 7224. Government Printing Office, Washington, D.C.

SECTION 10: GEOGRAPHIC INFORMATION

The Eastern Chemical Warfare Depot occupied the northeast portion of Edgewood Arsenal. The depot comprised two areas. One area contained a group of magazines and administrative offices constructed during World War I. The second area, the subject of this MHT form, was the World War II expansion of the depot onto a peninsula that juts into the Bush River between Lauderick and Kings Creeks. Most of the peninsula is fenced for security. This area was selected for expansion of the depot during the early 1930s. Construction for the expansion was undertaken in 1941.

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Chemical Agent Storage Yard (CASY),
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Harford County

MARYLAND COMPREHENSIVE PRESERVATION PLAN DATA

Geographic Organization: Piedmont
Chronological/Development Periods: A.D. 1930-Present
Prehistoric/Historic Period Themes: Military

Resource Type:
- Category: District
- Historic Environment: Rural
- Historic Function(s) and Use(s): Military storage
- Known Design Source: U.S. Army Quartermaster Department

HA-1988
Chemical Agent Storage Yard (CASY),
Aberdeen Proving Ground, Edgewood Area
Harford County
Photos

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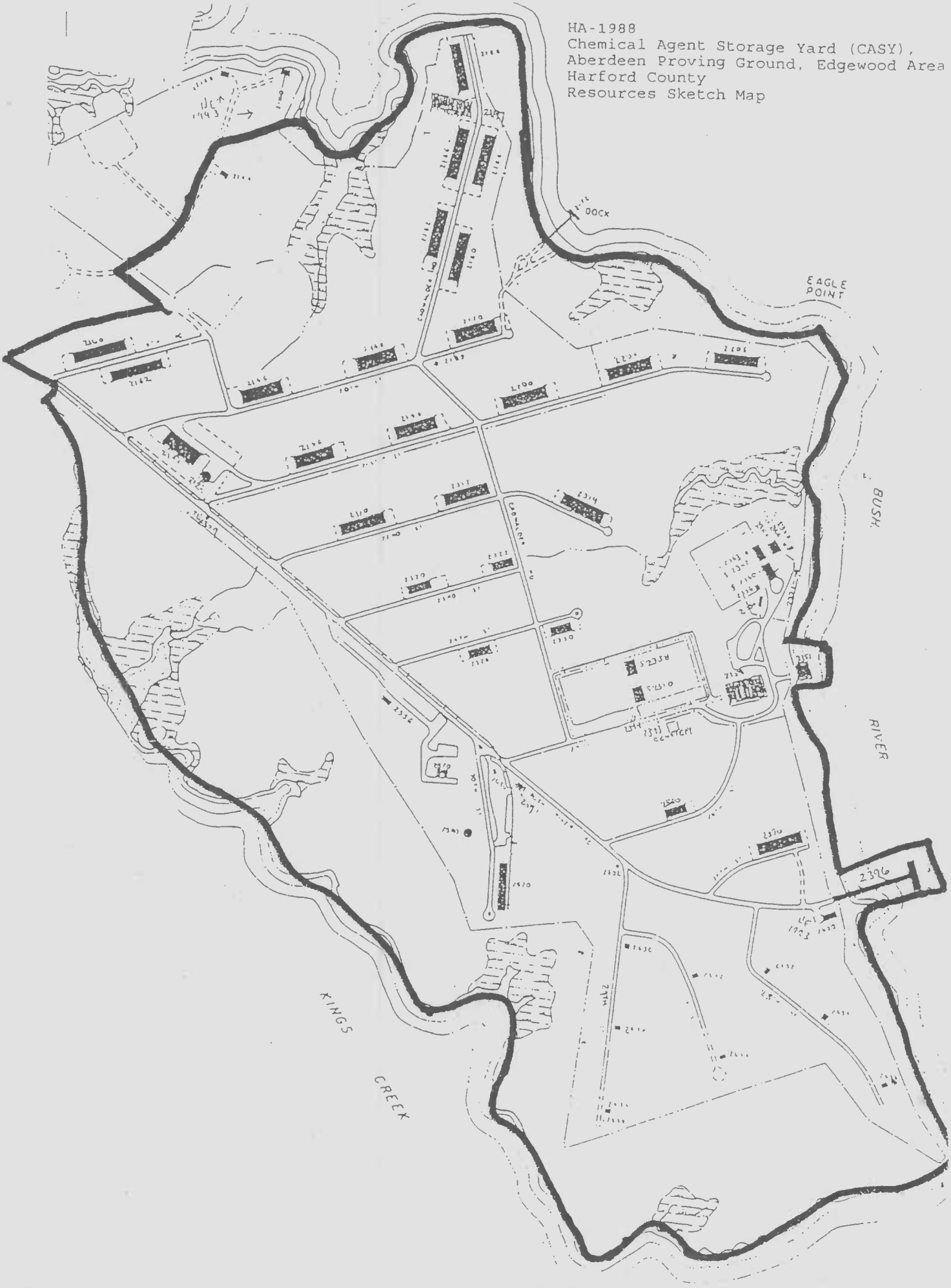
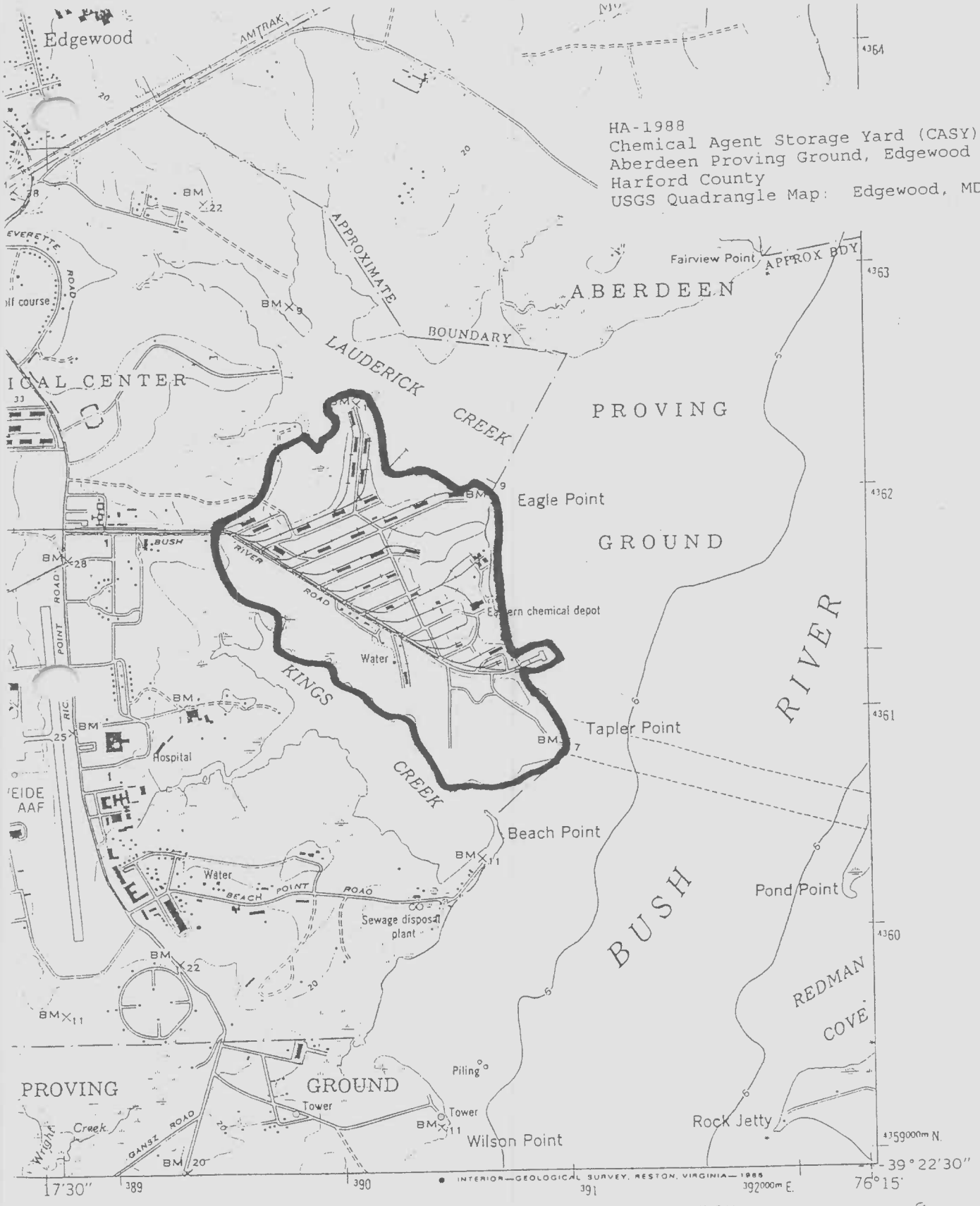
Chemical Agent Storage Yard (CASY),
Aberdeen Proving Ground, Edgewood Area
Harford County
Resources Sketch Map



HA-1988
Chemical Agent Storage Yard (CASY),
Aberdeen Proving Ground, Edgewood Area
Harford County
USGS Quadrangle Map: Edgewood, MD