



governmentattic.org

"Rummaging in the government's attic"

Description of document: **Three (3) Reports on the Development of Gas Masks for Horses**

Requested date: 27-December-2005

Posted date: 16-October-2007

Title of Document See following page

Date/date range of documents: 1997 - 1941

Source of document: US Army
Research, Development, and Engineering Command
ATTN: AMSSB-SCC, Bldg. E-4435
5183 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5424
(410) 436-2289

Notes: Still heavily redacted after more than 60 years

The governmentattic.org web site ("the site") is noncommercial and free to the public. The site and materials made available on the site, such as this file, are for reference only. The governmentattic.org web site and its principals have made every effort to make this information as complete and as accurate as possible, however, there may be mistakes and omissions, both typographical and in content. The governmentattic.org web site and its principals shall have neither liability nor responsibility to any person or entity with respect to any loss or damage caused, or alleged to have been caused, directly or indirectly, by the information provided on the governmentattic.org web site or in this file.

Horse Gas Masks E2R44 and E4R22
Engineering Tests
Memorandum Report
May 19, 1937

Field Test of Horse Gas Masks E6R10 (Environmental) and MIII Against Phosgene
Project D 6.1-4 T.D.M.R. 262
30 January 1941

Project D 6.1-4 Horse Gas Mask
Memorandum Report
Development of Horse Gas Mask R22
Comparison of Protection with that of Horse Gas Mask MIII
May 9, 1941
Chemical Warfare Service

UNCLASSIFIED

~~CONFIDENTIAL~~
By authority of the E.A.
UNCLASSIFIED

HORSE GAS MASKS E2R44 AND E4R22,
ENGINEERING TESTS.

MEMORANDUM REPORT

UNCLASSIFIED
NOV 19 5 00 PM '50

By

(b)(6)

[Redacted signature box]

UNCLASSIFIED

CONFIDENTIAL

~~CONFIDENTIAL~~
By authority of the E.A.

UNCLASSIFIED

Best Available Copy

HORSE GAS MASKS E2R44 AND E4R22,
ENGINEERING TESTS.

MEMORANDUM REPORT

ABSTRACT

Object.

The object of the work described in this report was to correct the defects observed in previously developed horse gas mask E2R22 and E4R5, as detailed in Field Artillery Board Report, Dec. 9, 1929, and in two Cavalry Board Reports, each dated July 23, 1932.

Results.

The recent development covers two types of horse gas masks E2 and E4 for the Field Artillery and Cavalry, respectively. Fifteen samples of horse gas mask E2 (modifications E2R30 to E2R44) and sixteen samples of horse gas mask E4 (modifications E4R6 to E4R22) were made. The changes over earlier designs included changes

(b)(3):10 USC 130

(b)(3):10 USC 130

UNCLASSIFIED

UNCLASSIFIED

No detailed cost data have been compiled, but the increase in weight and number of principal and minor parts of horse gas mask E4R22 indicates higher cost than for horse gas mask E2R44.

Conclusions.

It is concluded that the Field Artillery horse gas mask E2 and the Cavalry horse gas mask E4 have been improved in design to meet the requirements of the using services as enumerated in section III, B,1 and 2 of this report. Both masks can be worn by horses at all rates

(b)(3):10 USC 130

Recommendations.

It is recommended that six samples of Field Artillery horse gas mask E2R44 be submitted to the Field Artillery Board, and six samples each of Field Artillery horse gas mask E2R44 and Cavalry horse gas mask E4R22 be submitted to the Cavalry Board for engineering test.

UNCLASSIFIED

UNCLASSIFIED

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
A. Object	1
B. Authority	1
II. HISTORICAL	1
III. THEORETICAL	1
A. Gas Protection	1
B. Mechanical Construction	2
1. Field Artillery Horse Gas Mask E2	2
2. Cavalry Horse Gas Mask E4	2
IV. EXPERIMENTAL	2
A. Horse Gas Mask E2	3
1. Horse Gas Mask E2R30	3
2. Horse Gas Mask E2R31	3
3. Horse Gas Mask E2R32	4
4. Horse Gas Mask E2R33	4
5. Horse Gas Mask E2R34	5
6. Horse Gas Mask E2R35	5
7. Horse Gas Mask E2R36	6
8. Horse Gas Mask E2R37	7
9. Horse Gas Mask E2R38	7
10. Horse Gas Mask E2R39	7
11. Horse Gas Mask E2R40	8
12. Horse Gas Mask E2R41	9
13. Horse Gas Mask E2R42	9
14. Horse Gas Mask E2R43	10
15. Horse Gas Mask E2R44	11
B. Horse Gas Mask E4	12
1. Horse Gas Mask E4R16	12
2. Horse Gas Mask E4R17	12
3. Horse Gas Mask E4R18	13
4. Horse Gas Mask E4R19	13
5. Horse Gas Mask E4R20	14
6. Horse Gas Mask E4R21	15
7. Horse Gas Mask E4R22	16
C. Final Models	16
V. CONCLUSIONS	16
VI. RECOMMENDATIONS	16

APPENDIX A - Photographs

APPENDIX B - U.S. Army Specification No. 97-54-106, Horse Gas Mask E2R29.

UNCLASSIFIED

UNCLASSIFIED

HORSE GAS MASKS E2R44 AND E4R22,
ENGINEERING TESTS.

MEMORANDUM REPORT

I. INTRODUCTION.

A. Object.

The object of the work described in this report was to correct the defects observed in horse gas mask E2R22 and E4R5 as detailed in Field Artillery Board Report, Dec. 9, 1929, and two Cavalry Board Reports, July 23, 1932.

B. Authority.

The work described in this report was authorized by the project program under project D 6.1-3.

II. HISTORICAL.

The history of the development of horse gas masks prior to 1929 has been reviewed in a previous report (E.A.M.D. 29). This report covers redesign of the horse gas mask MII developed during the World War to and including experimental model horse gas mask E2R21. This model was designed to improve the fit of the mask and durability of the headstall. In the report of Field Artillery Board, Dec. 6,

(b)(3):10 USC 130

III. THEORETICAL.

A. Gas Protection.

No tests of the masks were made while adjusted on the animal in the presence of toxic gases, because the existing policy of

UNCLASSIFIED

UNCLASSIFIED

the War Department does not permit such tests. No tests of the efficiency of the absorbent bag against toxic gases have been made during the investigation reported herein and the impregnates developed and specified during the World War were used. However, the efficiency of similar bags was tested during the work reported in E.A.M.D. 29.

B. Mechanical Construction.

All tests made were confined to proving the efficiency of the masks with respect to mechanical functioning and the physiological effect on the animal. The mechanical and physiological factors requiring improvement as enumerated in the service reports of the Field Artillery and Cavalry masks referred to above were:

1. Field Artillery Horse Gas Mask E2.

(b)(3):10 USC 130

2. Cavalry Horse Gas Mask E4.

(b)(3):10 USC 130

IV. EXPERIMENTAL.

Details of the development and improvement in construction of both Field Artillery and Cavalry horse gas masks (E2 and E4, respectively) are given as follows:

UNCLASSIFIED

UNCLASSIFIED

A. Horse Gas Mask E2.

1. Horse Gas Mask E2R30.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

2. Horse Gas Mask E2R31.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

UNCLASSIFIED

(b)(3):10 USC 130

3. Horse Gas Mask E2R32.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

4. Horse Gas Mask E2R33.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

5. Horse Gas Mask E2R34.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

6. Horse Gas Mask E2R35.

a. Description.

(b)(3):10 USC 130

UNCLASSIFIED

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

7. Horse Gas Mask E2R36.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

UNCLASSIFIED

(b)(3):10 USC 130

8. Horse Gas Mask E2R37.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

9. Horse Gas Mask E2R38.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

10. Horse Gas Mask E2R39.

a. Description.

(b)(3):10 USC 130

UNCLASSIFIED

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

11. Horse Gas Mask E2R4C.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

(b)(3):10 USC 130

[Redacted]

12. Horse Gas Mask E2R41.

a. Description.

(b)(3):10 USC 130

[Redacted]

b. Results and Conclusions.

(b)(3):10 USC 130

[Redacted]

13. Horse Gas Mask E2R42.

a. Description.

(b)(3):10 USC 130

[Redacted]

(b)(3):10 USC 130

d. Results and Conclusions.

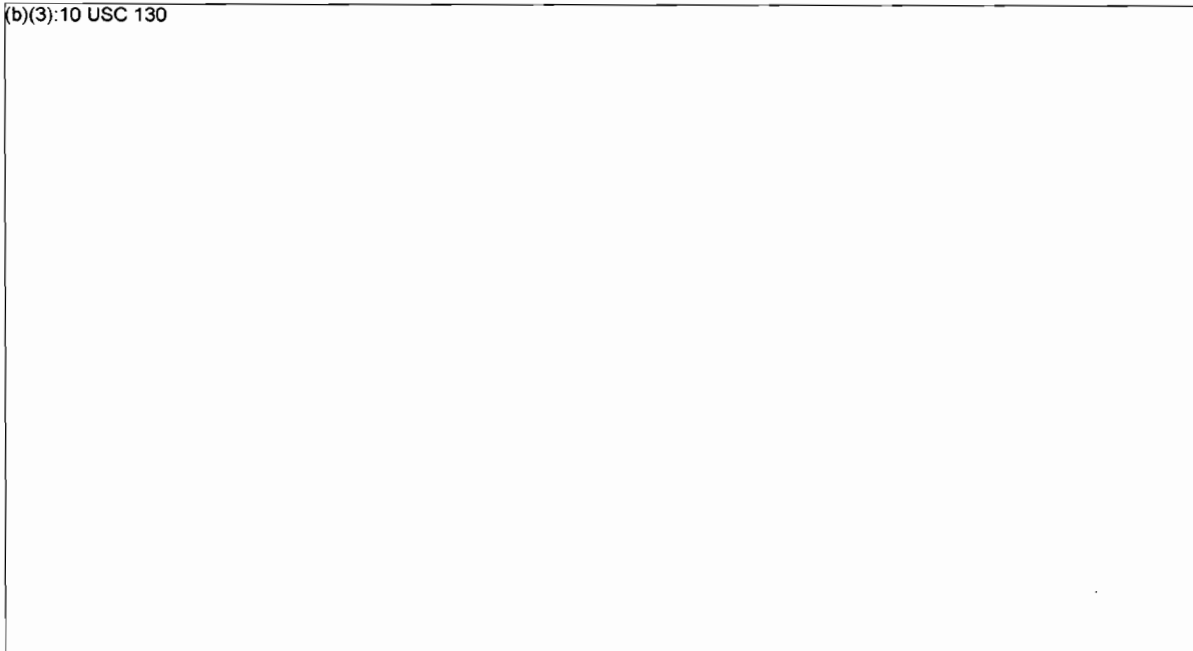
(b)(3):10 USC 130

14. Horse Gas Mask E2R45.

a. Description.

(b)(3):10 USC 130

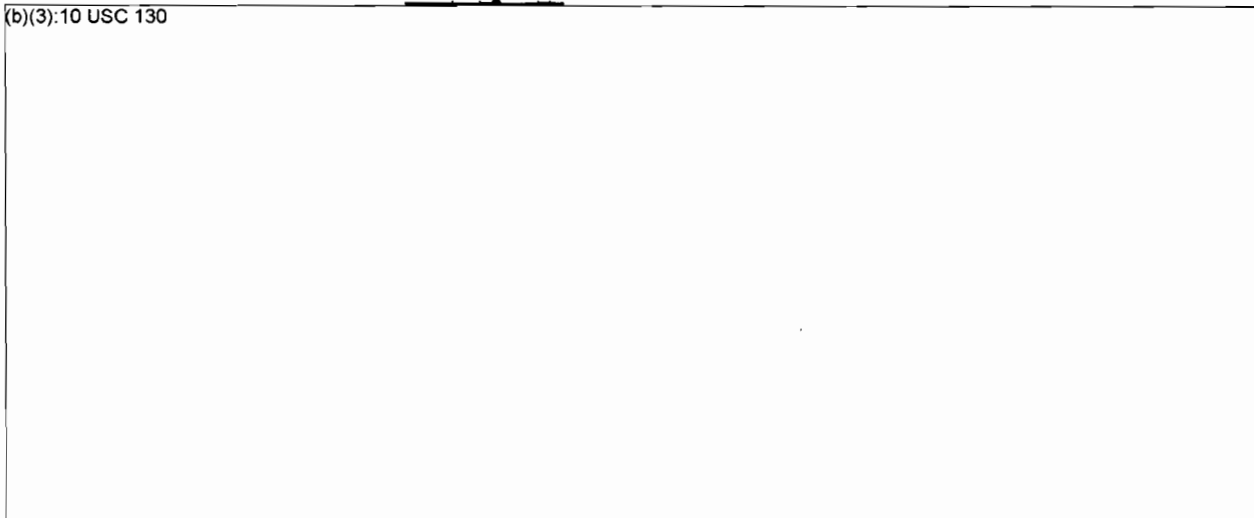
(b)(3):10 USC 130



15. Horse Gas Mask E2R44.

a. Description.

(b)(3):10 USC 130



b. Results and Conclusions.

(b)(3):10 USC 130



B. Horse Gas Mask E4.

Horse gas mask E4 was made to include a rubber muzzle-piece connected by a short length of hose to the filter bag unit strapped underneath the animal's neck. This type was preferred by the Cavalry. The history of the recent development of this type of mask is given as follows:

1. Horse Gas Mask E4R16.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

2. Horse Gas Mask E4R17.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

3. Horse Gas Mask E4R18.

a. Description.

(b)(3):10 USC 130

[Redacted content]

b. Results and Conclusions.

(b)(3):10 USC 130

[Redacted content]

4. Horse Gas Mask E4R19.

a. Description.

(b)(3):10 USC 130

[Redacted content]

b. Results and Conclusions.

(b)(3):10 USC 130

[Redacted content]

(b)(3):10 USC 130

5. Horse Gas Mask E4R20.

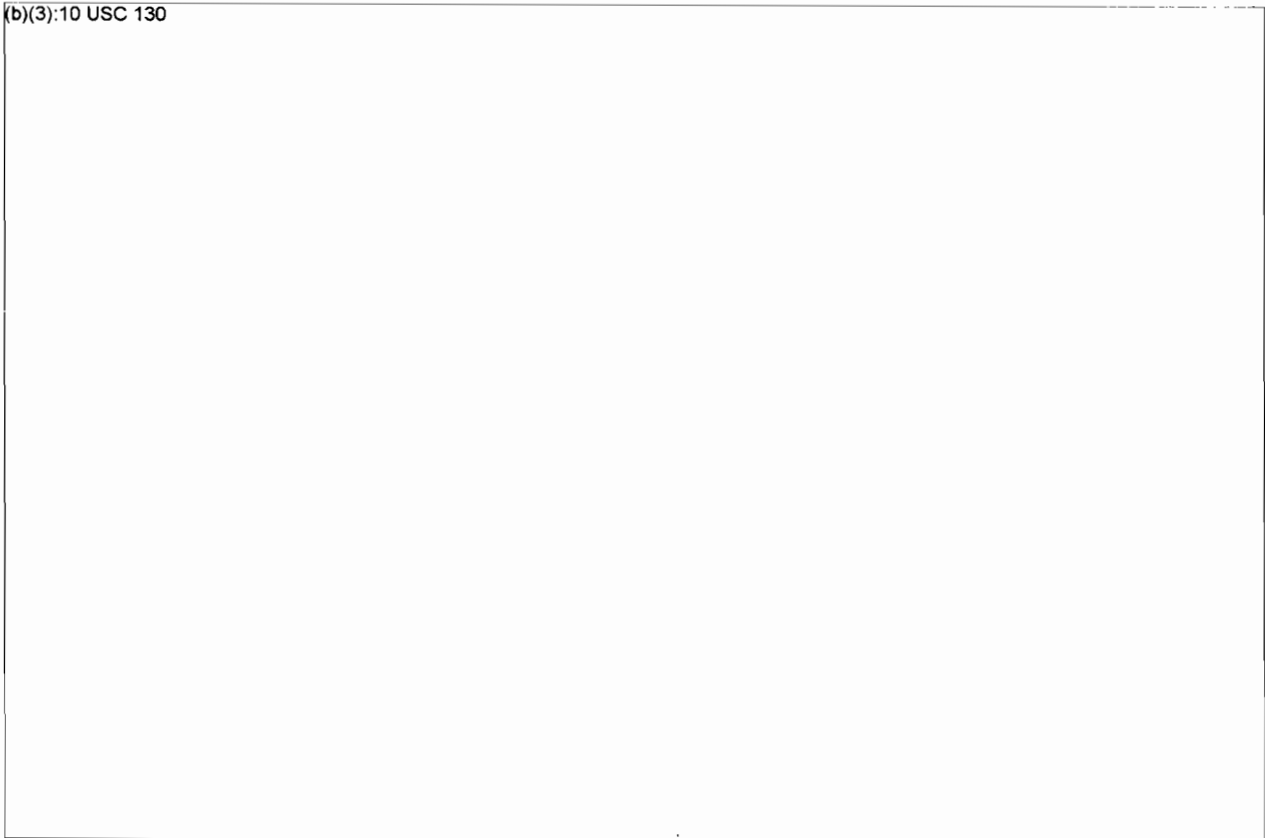
a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

(b)(3):10 USC 130



6. Horse Gas Mask E4R21.

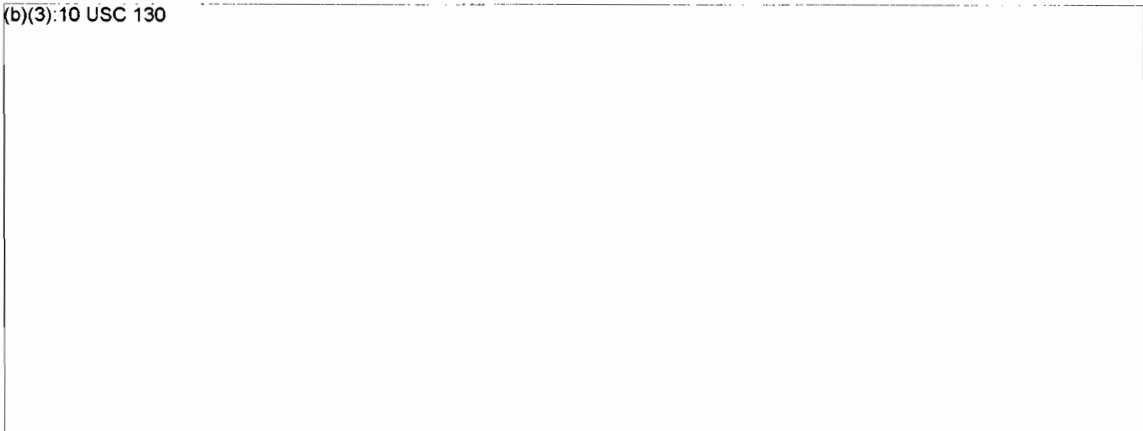
a. Description.

(b)(3):10 USC 130



b. Results and Conclusions.

(b)(3):10 USC 130



(b)(3):10 USC 130

7. Horse Gas Mask E4R22.

a. Description.

(b)(3):10 USC 130

b. Results and Conclusions.

(b)(3):10 USC 130

c. Final Models.

(b)(3):10 USC 130

V. CONCLUSIONS.

It is concluded that the Field Artillery horse gas mask E2 and the Cavalry horse gas mask E4 have been improved in design to meet the requirements of the using services as enumerated in section III, B, 1 and 2 of this report. Both masks can be worn by horses at all rates of exercise. (b)(3):10 USC 130

(b)(3):10 USC 130

VI. RECOMMENDATIONS.

It is recommended that six samples of Field Artillery horse gas mask E2R44 be submitted to the Field Artillery Board, and six samples each of Field Artillery horse gas mask E2R44 and Cavalry horse gas mask E4R22 be submitted to the Cavalry Board for engineering test.

Horse Gas Masks E2R44 and E4R22,
Engineering Tests.

Memorandum Report.

Submitted:

(b)(6)

Project D 6.1-3.

May 19, 1937.

10 copies made)
Typed - meo)

UNCLASSIFIED

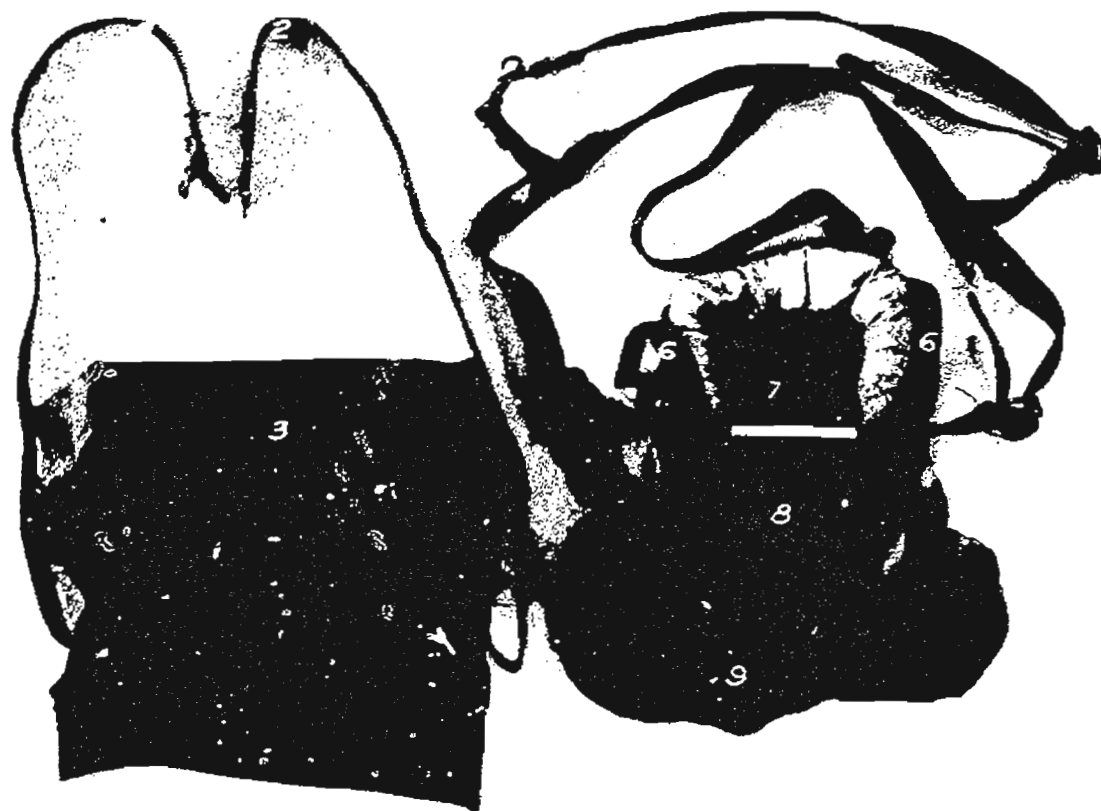
APPENDIX A.

Photographs

<u>No.</u>	<u>Title</u>
7660	Horse Gas Mask E2R44 (Field Artillery).
7661	Horse Gas Mask E4R22 (Cavalry).
7662	Horse Gas Mask E4R22 (Cavalry).
7663	Horse Gas Mask E2R44 (Field Artillery).

UNCLASSIFIED

BEST COPY AVAILABLE



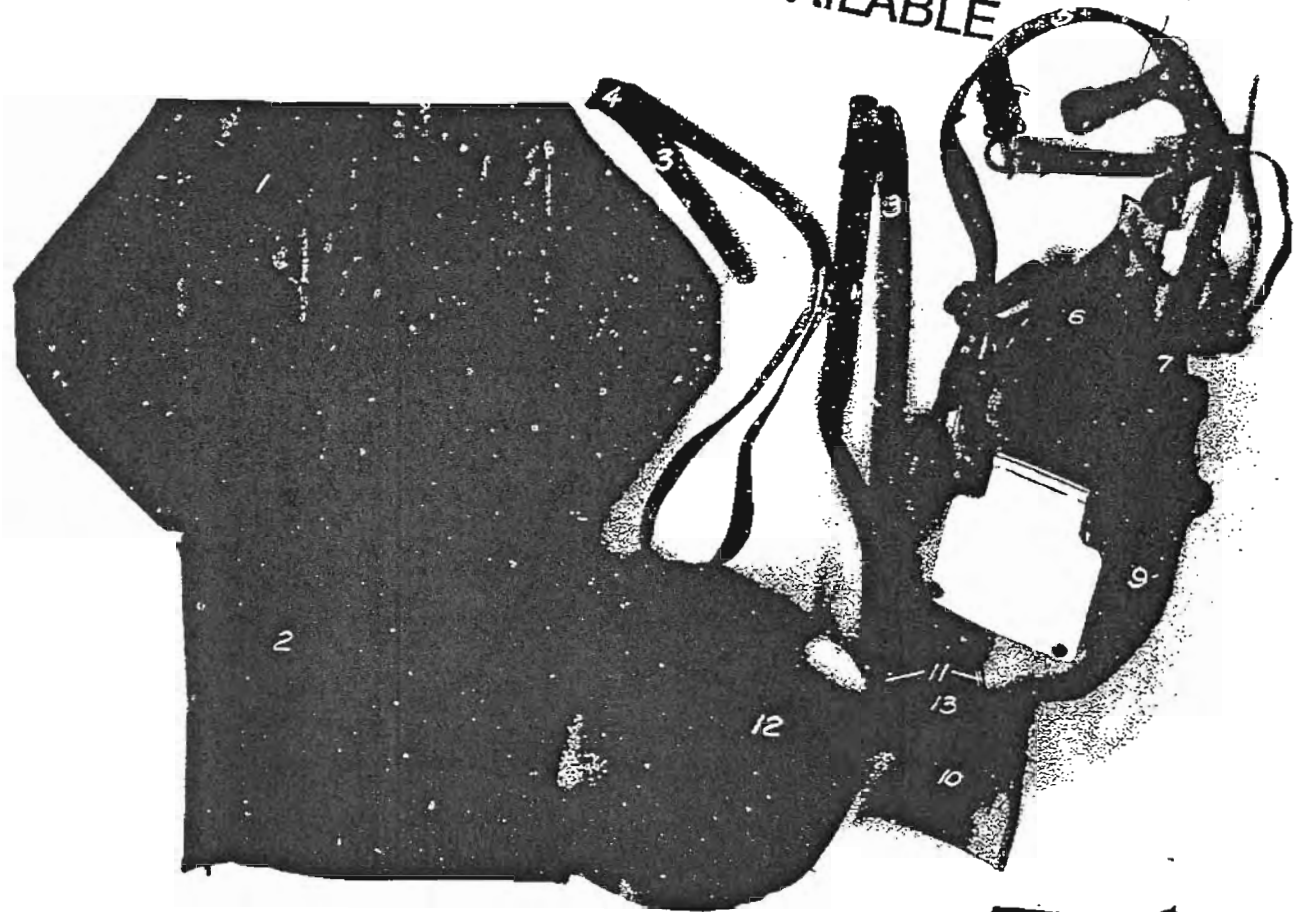
UNCLASSIFIED

UNCLASSIFIED

~~SECRET~~ 7680

Horse Gas Mask E2R44 (Field Artillery).

BEST COPY AVAILABLE



UNCLASSIFIED

UNCLASSIFIED

7661

Horse Gas Mask E4R22 (Cavalry).

BEST COPY AVAILABLE

UNCLASSIFIED



Horse Gas Mask E4R22 (Cavalry).

OBJECT:

(b)(3):10 USC 130

DESCRIPTION:

1. Neck strap.
2. Headstall.
3. Muzzlepiece.
4. Carrier.

See, also, photo. 7661.

PROJECT:

D 6.1-3 Horse Gas Mask.

DATES:

Protective Development Division development, November 1936 to May 1937. Photographed May 3, 1937, at Fort Hoyle, Md. for ~~DA-TR-854~~.

UNCLASSIFIED

BEST COPY AVAILABLE

UNCLASSIFIED

APPENDIX B

Mask E2R29. U.S. Army Specification No. 97-54-106, Horse Gas

UNCLASSIFIED

UNCLASSIFIED



Horse Gas Mask E2R44 (Field Artillery).

OBJECT:

(b)(3):10 USC 130

- DESCRIPTION:
1. Neck strap.
 2. Carrier.
 3. Headstall.
 4. Filter bag.

See, also, photo. 7660.

PROJECT:

D 6.1-5 Horse Gas Mask.

DATES:

Protective Development Division development, November 1936 to May 1937. Photographed May 3, 1937, at Fort Hoyle, Md. for ~~E.A.T.R. 254~~.

UNCLASSIFIED

UNCLASSIFIED

C O P Y

(1st Preliminary Draft)

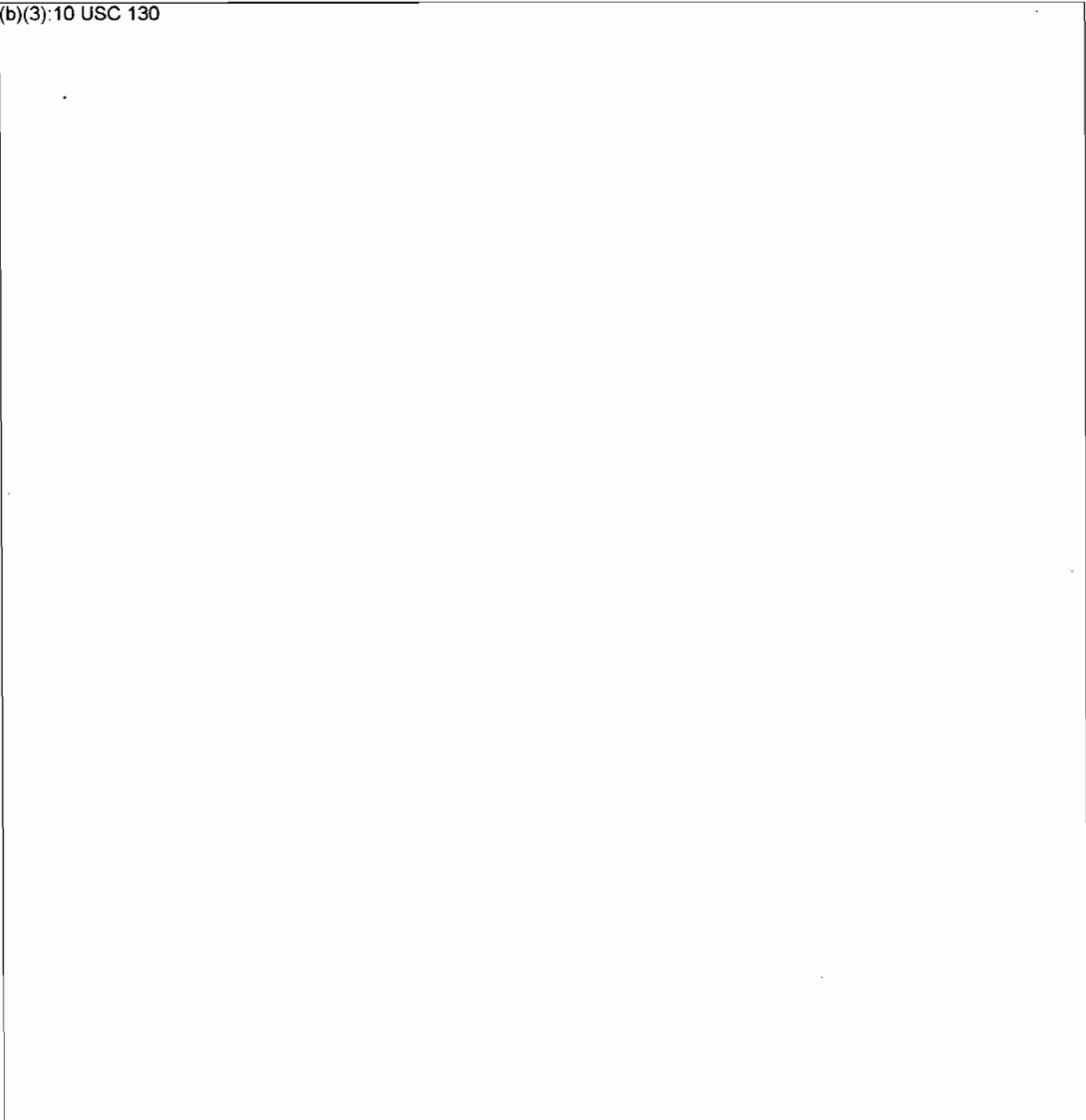
U.S. ARMY
SPECIFICATION

Spec. No. 97-54-106

MASK, GAS, HORSE, E2R29

I. GENERAL SPECIFICATIONS.

(b)(3):10 USC 130



December 5, 1936.

UNCLASSIFIED

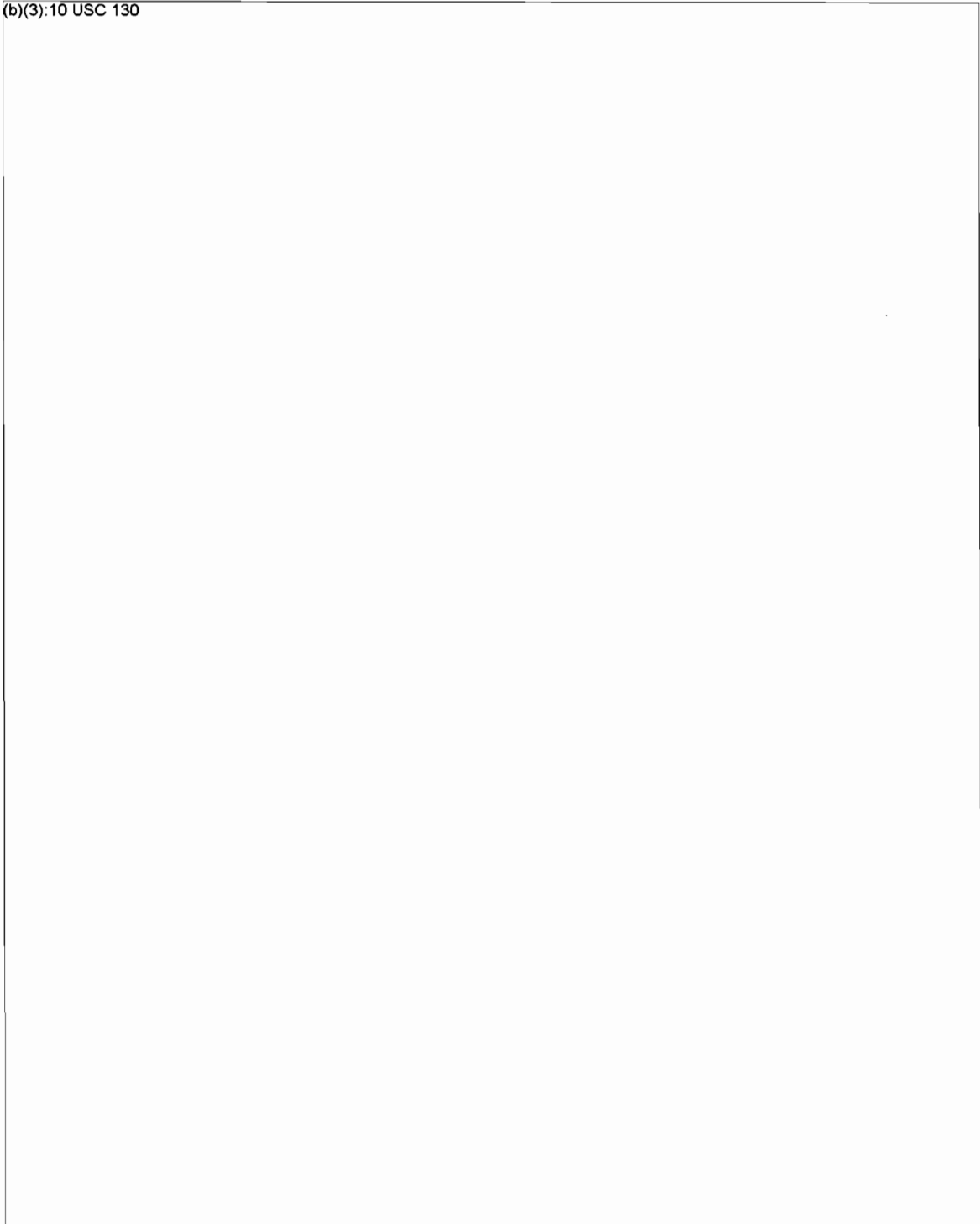
Appendix B

- 1 -

UNCLASSIFIED

DETAIL REQUIREMENTS (CONT'D)

(b)(3):10 USC 130



UNCLASSIFIED

97-64-106

Appendix B

UNCLASSIFIED

DETAIL REQUIREMENTS (CONT'D)

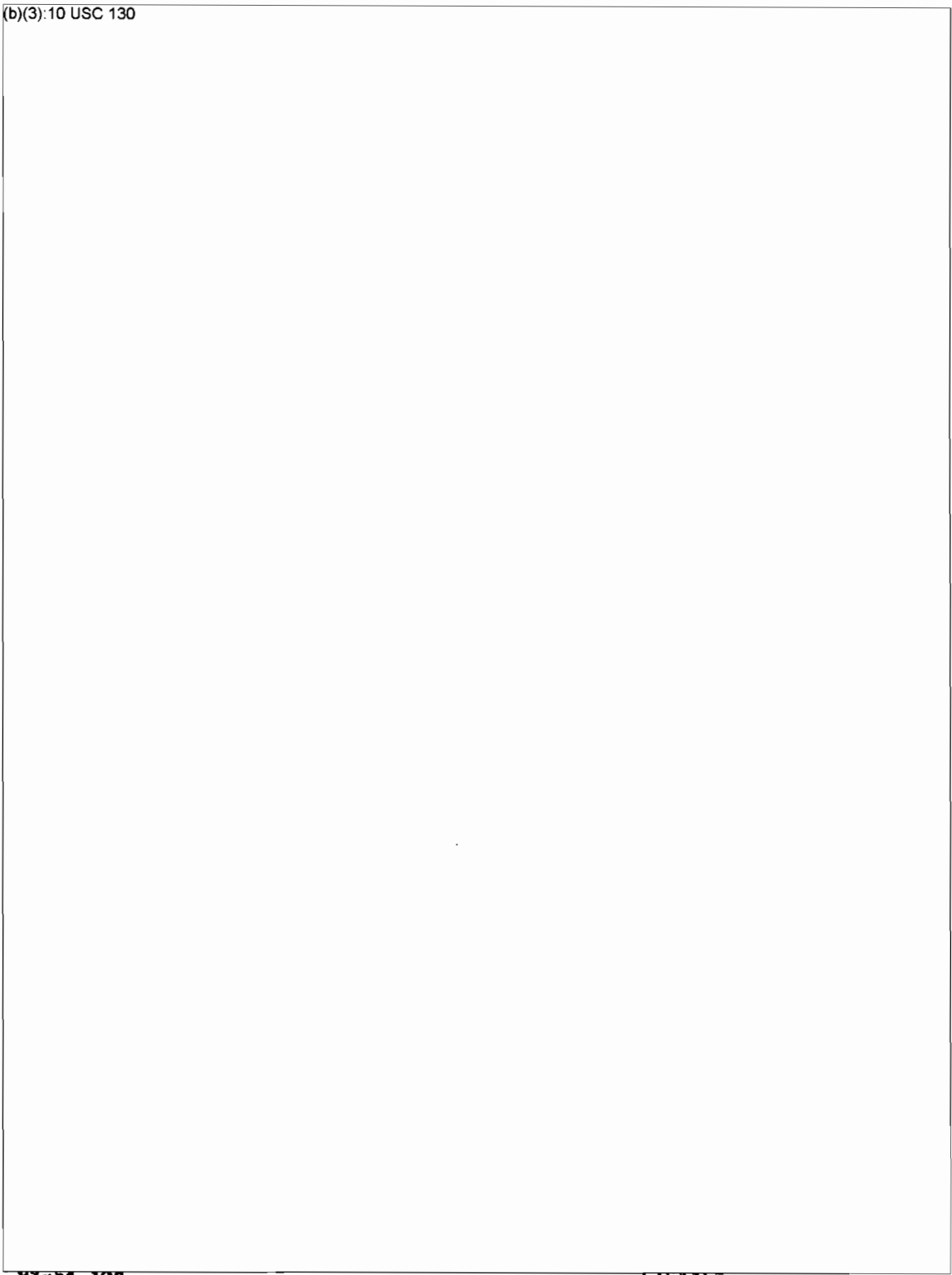
(b)(3):10 USC 130

97-64-108

Appendix B

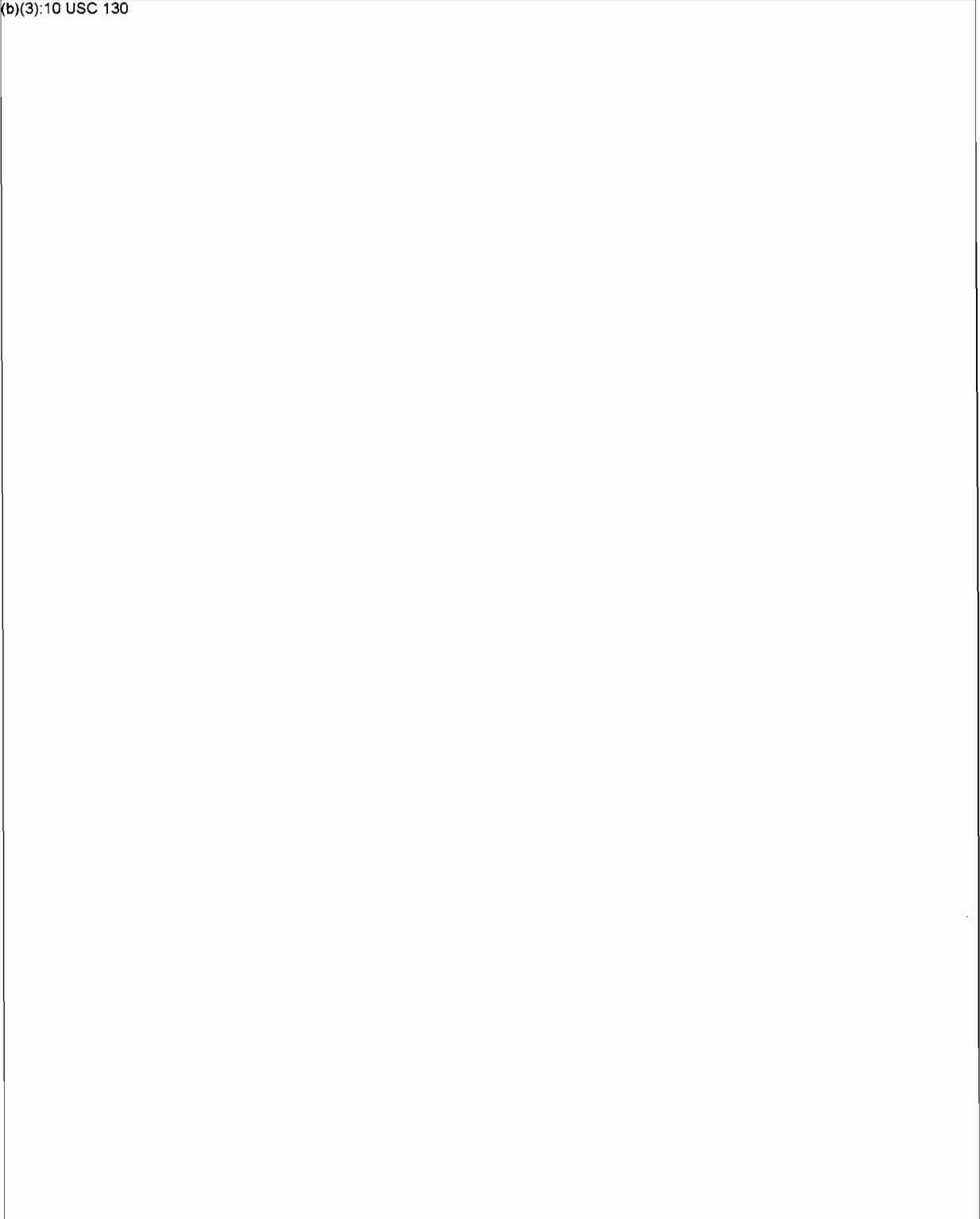
DETAIL REQUIREMENTS (CONT'D)

(b)(3):10 USC 130



DETAIL REQUIREMENTS (CONT'D)

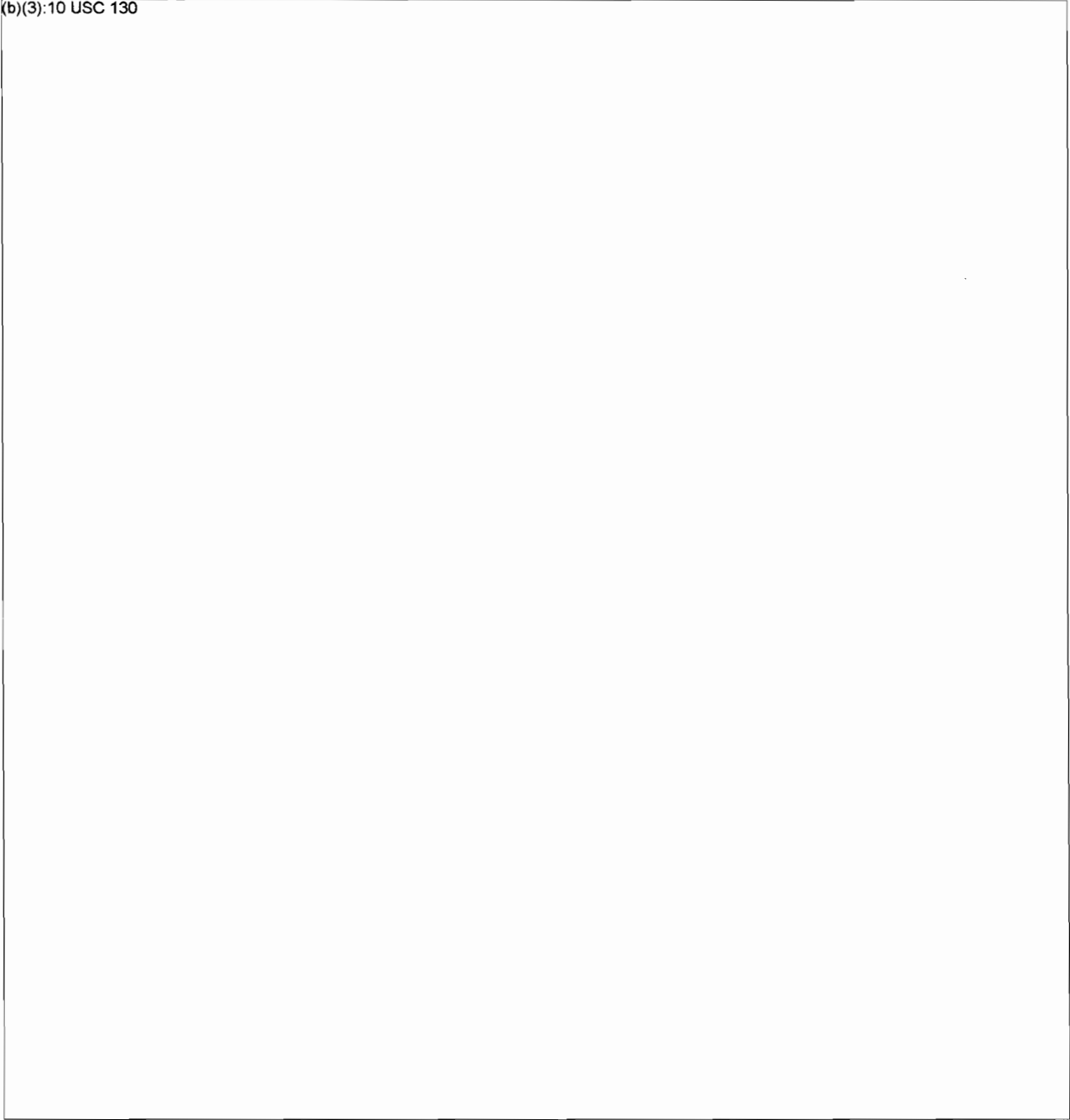
(b)(3):10 USC 130



Best Available Copy

METHODS OF INSPECTION, TESTS, ETC. (CONT'D)

(b)(3):10 USC 130



VIII. NOTES.

1. The use of this specification, whenever applicable, is mandatory on all procuring agencies of the Army.

UNCLASSIFIED

97-54-106

Appendix B

UNCLASSIFIED

NOTES (CONT'D)

2. Notice: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility or any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Best Available Copy

97-54-106

UNCLASSIFIED

Appendix B

UNCLASSIFIED

~~SECRET~~
By authority of
D.O. CWS

~~SECRET~~
2/19/55
By authority of
Edgewood Arsenal, Md.
D.O. CWS
5 Nov 54
Lt. Col. C. E. ST

~~CONFIDENTIAL~~

T.D.M.R. 262
Copy no. 1

UNCLASSIFIED

AD-B970 328



UNCLASSIFIED

Regraded

by authority of
R. G. [Signature]

OCT 4 - 1955

Major Carl C
Member Classified Documents Review Committee
CNL & RAD LABS, A Co. C, Md.
OCT 4 - 1955

A Memorandum Report

FIELD TEST OF HORSE CAB MASKS FOR LO (SUPPLEMENTAL) AND MILL AGAINST PHOSGENS.

By

~~██████████~~ (R) (6)
Capt., V.C.

and

James H. Defandorf
Assistant Chief,
Medical Research Division

UNCLASSIFIED

~~CONFIDENTIAL~~

January 30, 1955

~~SECRET~~
CANCELED

UNCLASSIFIED

UNCLASSIFIED
~~CONFIDENTIAL~~
CANCELED

By Authority of
C.O., CWS Tech. Comd.

FIELD TEST OF HORSE GAS MASKS E6R10 (EXPERIMENTAL) AND M111 AGAINST PHOSGENE.

Project D 6.1-4

T.D.M.R. 262

January 30, 1941.

~~CONFIDENTIAL~~
CANCELED

I. OBJECT.

The object of this test was to determine whether experimental horse gas mask E6R10 furnishes adequate protection for horses working under field conditions while exposed to phosgene, and also to observe the performance of mask M111 under identical circumstances.

II. AUTHORITY.

The authority for this test is Project D 6.1-4.

III. HISTORICAL.

Prior to the investigations described in this report apparently there have been no laboratory or field tests conducted on horses to ascertain the protective value of either of these masks against exposure to chemical warfare agents. Numerous laboratory tests performed by the Protective Development Division have supplied essential information in respect to the ability of both masks to remove toxic chemical agents, i.e., CG, PS, CNCl, HCN, AsH₃, and DM by both chemical and physical action, and the results are to be included in a separate report now in preparation. These tests have shown, however, that the experimental horse gas mask E6R10 has the capacity to furnish adequate protection against concentrations of these agents even greater than those ordinarily expected in the field, because of characteristics provided by the design and construction of the canister. The same extent of protection could not be expected from mask M111, since it is not equipped with a canister, but relies entirely on impregnation and texture characteristics of the nose bag itself for protective qualities.

While, therefore, it was possible to estimate within certain limits the degree of protection which would probably be afforded by both masks against definite concentrations and lengths of exposures to certain chemical

~~CONFIDENTIAL~~ CANCELED UNCLASSIFIED
By Authority of
C.O., CWS Tech. Comd.

UNCLASSIFIED

agents, the role of another factor could be determined only by field tests on the horses themselves, i.e., the possibility of leakage from improper fit, adjustment or slipping of the nosepiece. Accordingly, in order to

(b)(3) 10 USC 130

IV. MATERIALS USED.

A. Chemicals.

Phosgene, U.S.A. Specification No. 100-2, obtained from Chemical Warfare Depot, Edgewood Arsenal.

B. Apparatus.

Chemical cylinders, portable M1A1, equipped with release attachments, each containing 30 lbs. of phosgene (above) and charged with carbon dioxide at a pressure range of 60 to 80 lb. per sq.in.

Horse gas mask, experimental, EoR1C, obtained from the Protective Development Division.

Horse gas mask, M111, obtained from the Protective Development Division.

Gas sampling equipment, the description and operation of which are given in S.A.T.R. 299.

C. Animals.

Eight horses, Cavalry, riding, of physical condition, ranging from 6 to 19 years in age.

V. PROCEDURE.

A. Test Area.

The test area was located at N field on Gunpowder Neck at grid points 690.1 - 1866.9. The terrain was fairly level, bare of trees, and bordered on the west by low shrubbery and trees.

UNCLASSIFIED

B. Meteorological Conditions.

(b)(3):10 USC 130

C. Arrangement and Operation of Cylinders.

(b)(3):10 USC 130

D. Arrangement of Gas Sampling Bottles.

(b)(3):10 USC 130

E. Preparation of Horses and Riders for the Test.

Immediately preceding the test, masks and harness were carefully adjusted in conformance with the procedure found most satisfactory in previous rehearsals, and the riders tested the fit and performance of their own masks against CH. Details of the equipment of horses for the test are given in table 1.

UNCLASSIFIED

Table 1

Assignment of Equipment and Riders

Number of horses: (by order in column)	Type of horse mask used	Type of bit used	How controlled	Rider or Leader
--	-------------------------------	------------------------	----------------	-----------------------

(b)(3):10 USC 130

F. Conduct of the Test.

(b)(3):10 USC 130

VI. TEST DATA.

The results of the field test are presented in table 2, with the exception of gas sampling data, which will be submitted later in a supplement to this report.

UNCLASSIFIED

UNCLASSIFIED

Table 2

Results Obtained Following 10 Min. Exposure of Masked
and Unmasked Horses to Phosgene.

(b)(3):10 USC 130

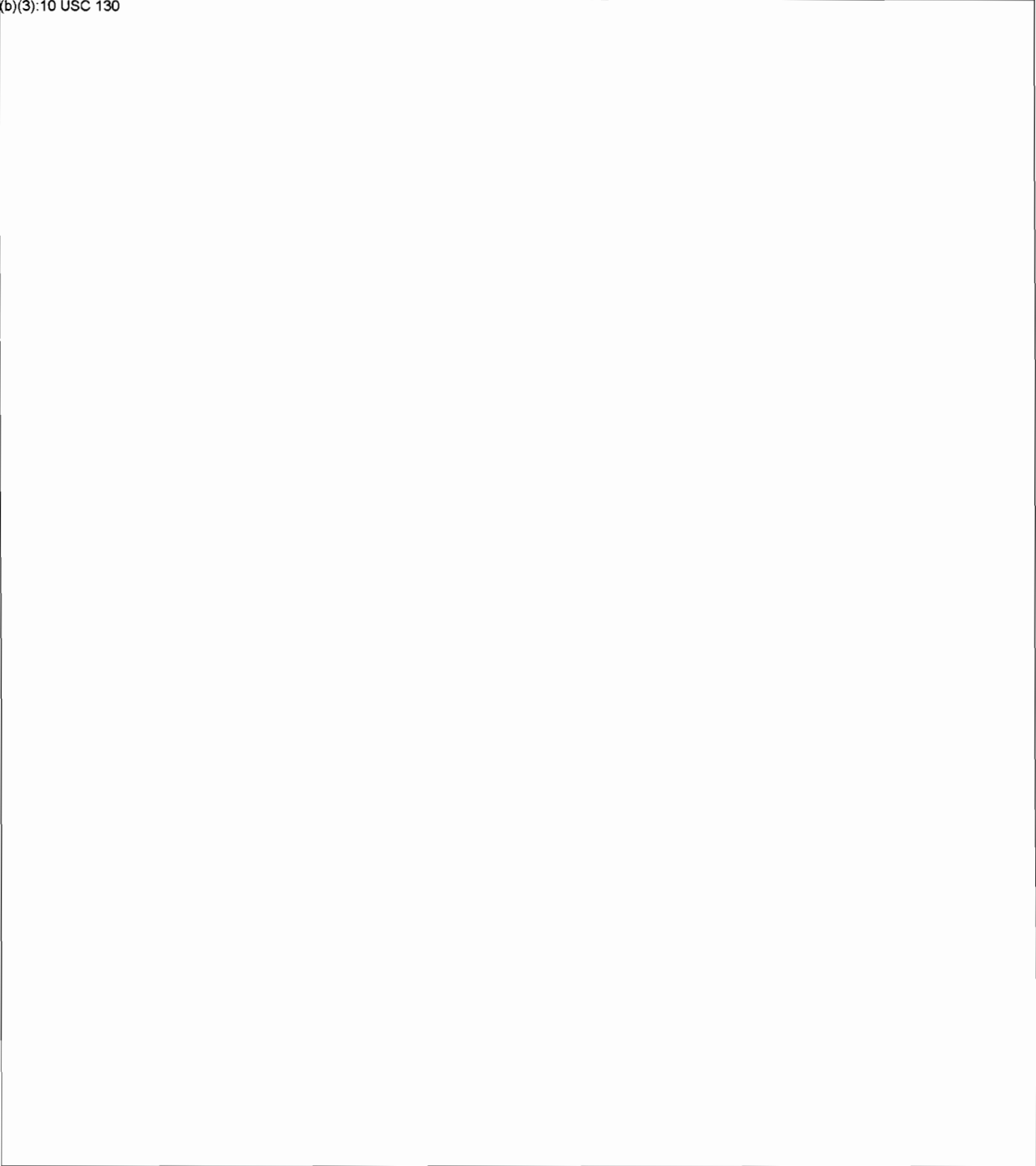
UNCLASSIFIED,

(b)(3):10 USC 130

UNCLASSIFIED

UNCLASSIFIED

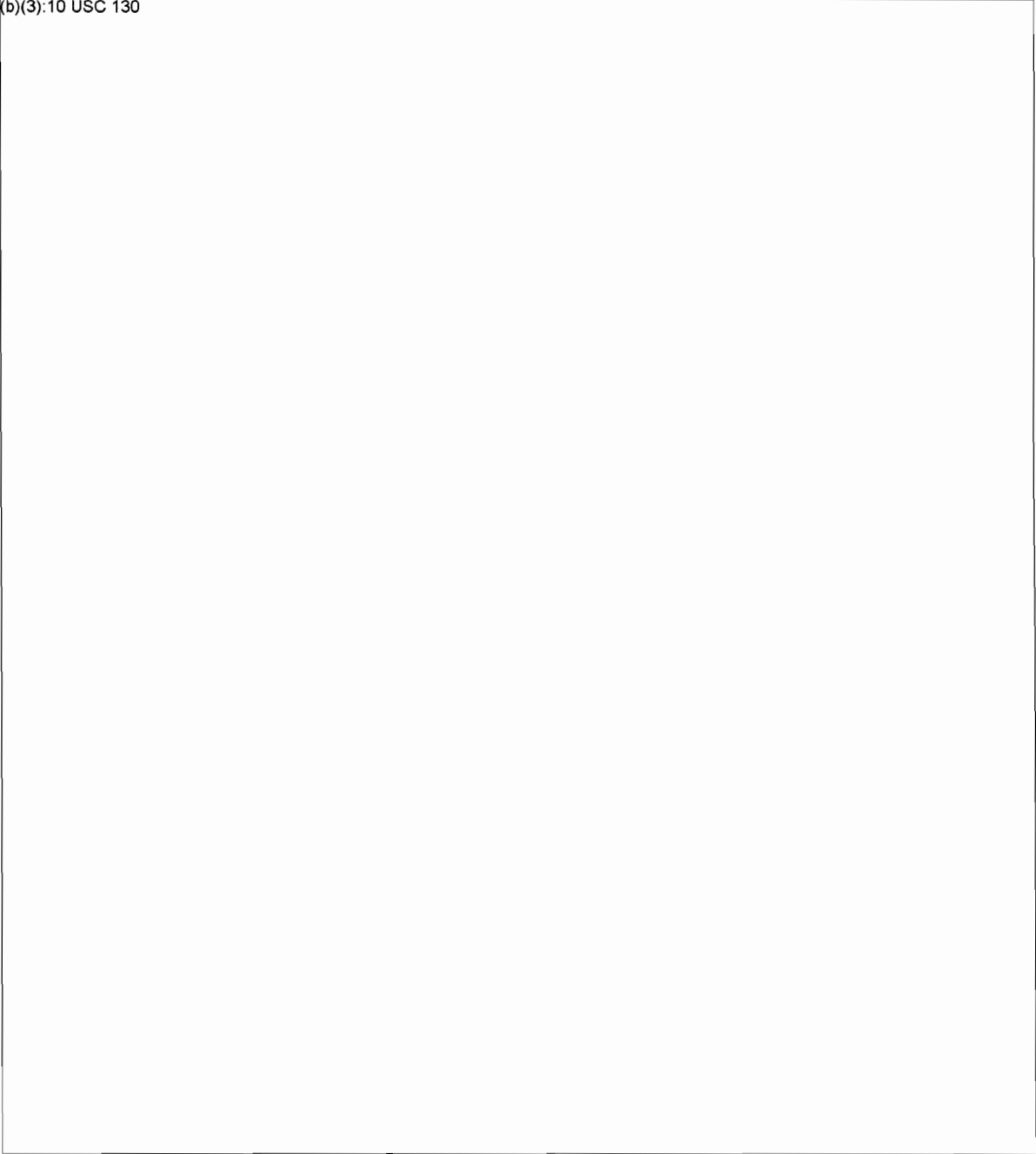
(b)(3):10 USC 130



UNCLASSIFIED

UNCLASSIFIED

(b)(3):10 USC 130



UNCLASSIFIED

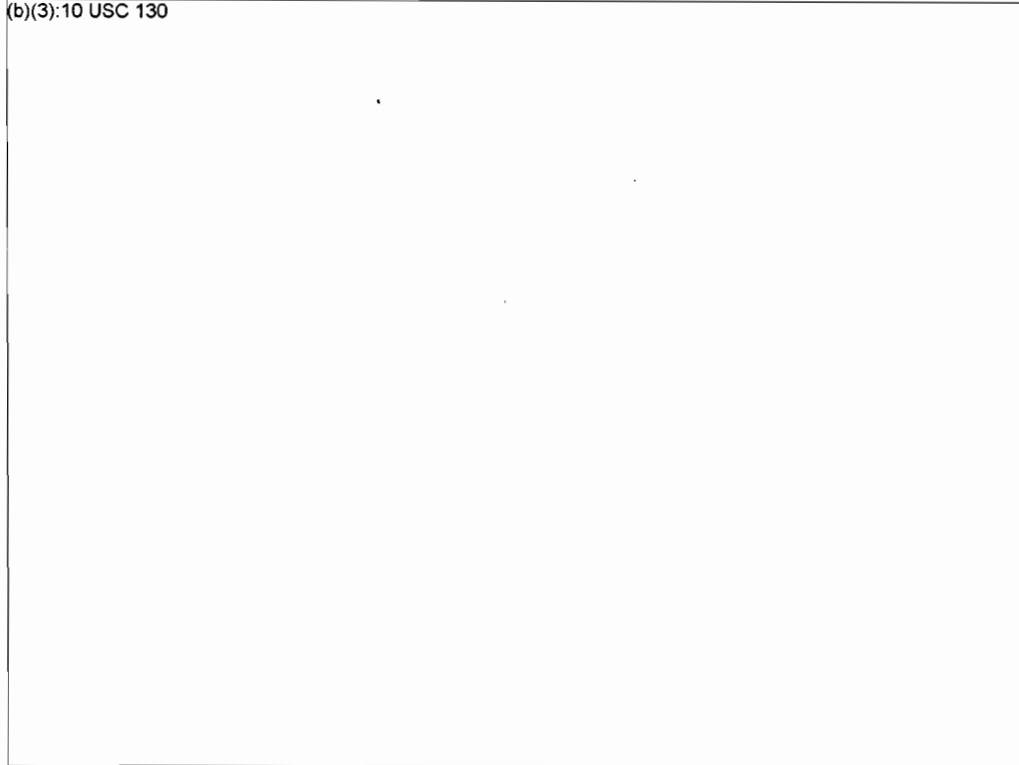


UNCLASSIFIED

~~SECRET~~

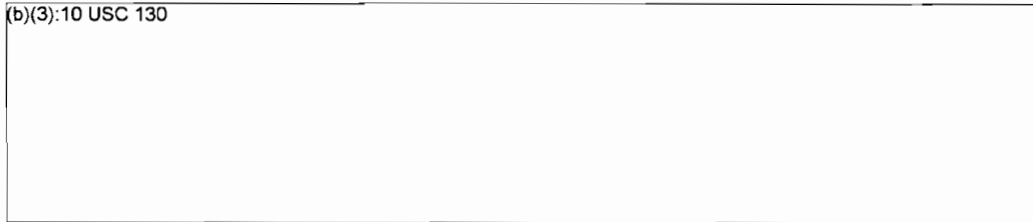
M. R. D.

(b)(3):10 USC 130



VIII. CONCLUSIONS.

(b)(3):10 USC 130



IX. RECOMMENDATIONS.

None.

UNCLASSIFIED

~~SECRET~~

M. R. D.

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

SUPPLEMENT TO CHART 1

Results of Analysis of Gas Sample Bottles. (Ref. Par. IV,D)
(T.D.M.R. 262)

(b)(3):10 USC 130

UNCLASSIFIED

UNCLASSIFIED

T.D.H.R. 262

Field Test of Horse Gas Masks
66R10 (Experimental) and M111
Against Phosgene.

Project D 6.1-4

Experimental work.

Started: Nov. 22, 1940

Completed: Jan. 30, 1941

Notebook: 691

Typed January 30, 1941.

9 copies made

Copies 1, 8 & 9 - Information Div.

Copy 2 - Chief, C.W.S.

Copy 3 - Central Files

Copy 4 - Medical Research Div.

Copy 5 - Chief of Cav.

Copy 6 - Chief of F.A.

Copy 7 - Surgeon General

Submitted: 2/5

(b)(6)

DF

UNCLASSIFIED

UNCLASSIFIED

Best Available Copy

UNCLASSIFIED

T.D. No. 276
Copy No. 3

Project D 6.1-4

MEMORANDUM REPORT

DEVELOPMENT OF HORSE GAS MASK CANISTER E22,
COMPARISON OF PROTECTION WITH THAT OF HORSE GAS MASK MIII

by

[REDACTED] and [REDACTED] (R) (6)

May 9, 1941.

UNCLASSIFIED

REPRODUCED BY
CENTRAL INTELLIGENCE AGENCY

UNCLASSIFIED

Best Available Copy

~~CONFIDENTIAL~~
CANCELL

Project D 6.1-4

May 9, 1941.

Memorandum Report No. 276

DEVELOPMENT OF HORSE GAS MASK CANISTER E22,

COMPARISON OF PROTECTION WITH THAT OF HORSE GAS MASK MIII.

I. Object: The object of Project D 6.1-4 is to develop a horse gas mask superior to Horse Gas Mask MIII. The object of this report is to describe briefly the development of Horse Mask Canister E22 and to compare the chemical protection afforded by this canister with that of Horse Gas Mask MIII.

II. Authority: The work described in this report was authorized by the project program for the fiscal years 1940 and 1941, Project D 6.1-4, Horse Gas Mask.

III. Historical:

A. Impregnated Bag-Type Horse Mask. The MIII Horse Mask is of the impregnated bag-type and is quite similar to the horse mask that was used during the latter part of the World War. The method of impregnation is stated in C.W.S. Directive No. 27, Manufacturing Process for Impregnating Horse Mask E22L9.

(b)(3):10 USC 130

UNCLASSIFIED

~~CONFIDENTIAL~~

Best Available Copy

UNCLASSIFIED

Project : 0.1.1

May 9, 1941

(b)(3):10 USC 130

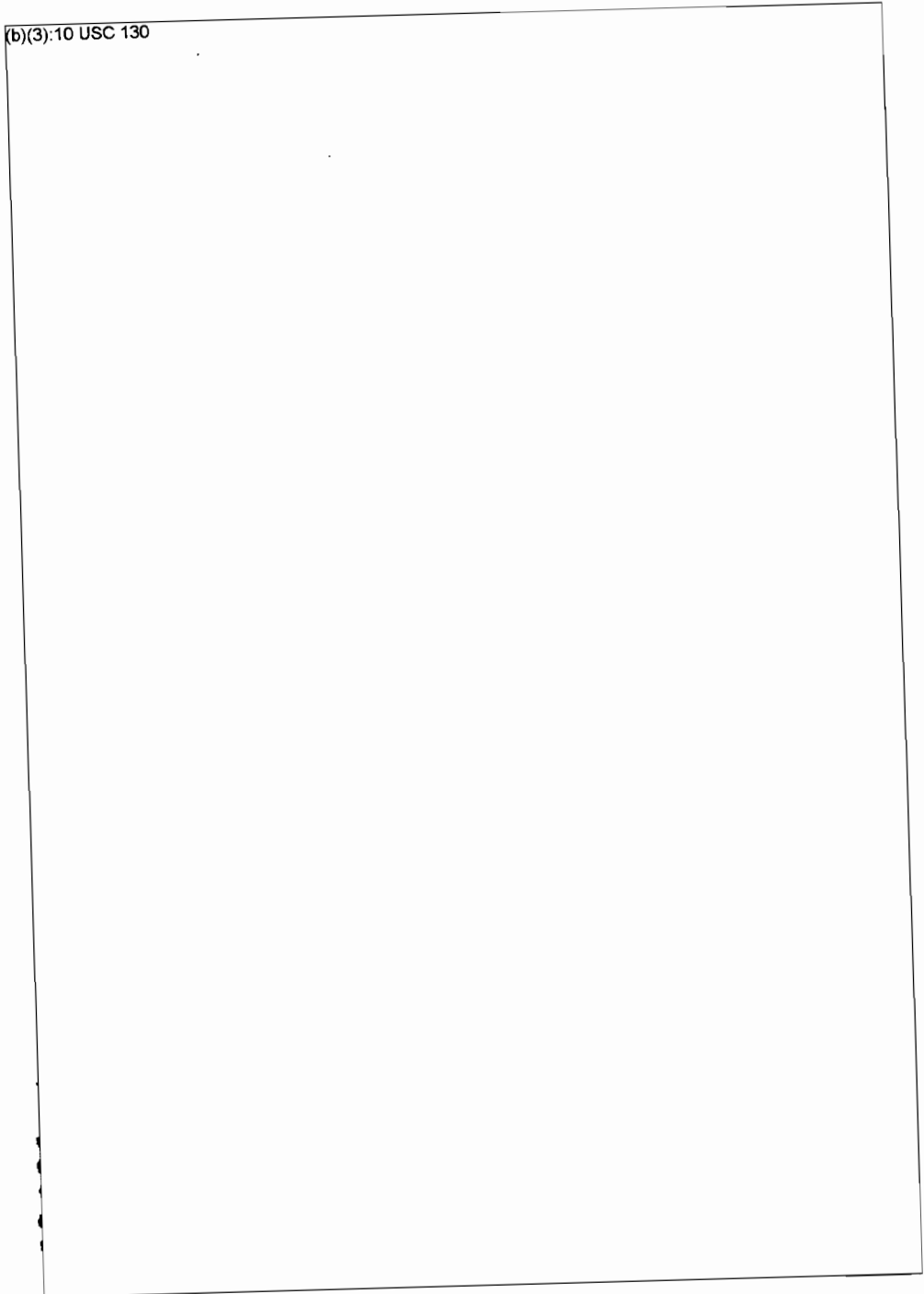
UNCLASSIFIED

Best Available Copy

~~UNCLASSIFIED~~

Project D 6.1-2

May 9, 1941.



(b)(3):10 USC 130

~~UNCLASSIFIED~~

UNCLASSIFIED

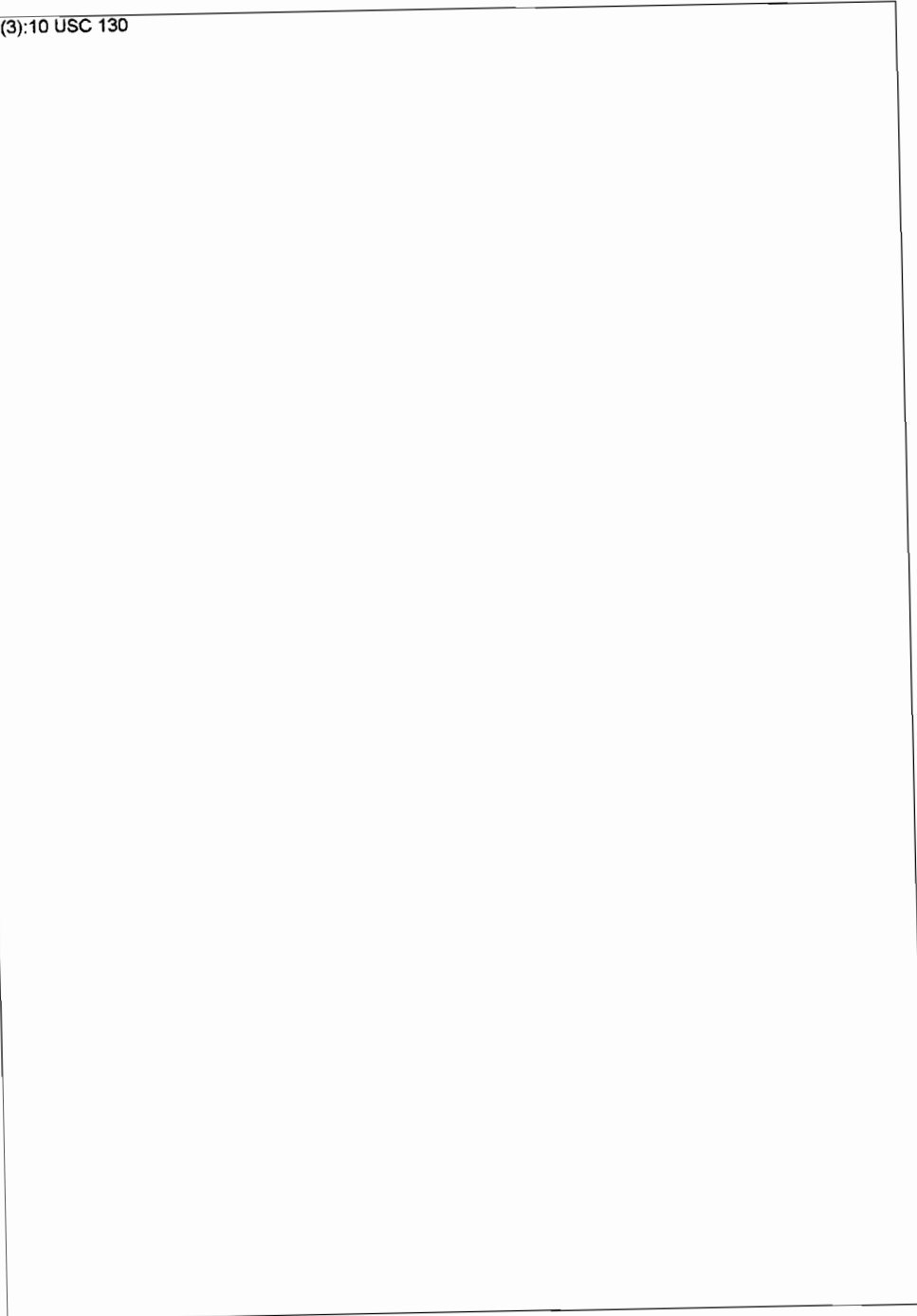
UNCLASSIFIED

~~CONFIDENTIAL~~
P. O. O.

Project D 8.1-4

May 9, 1941.

(b)(3):10 USC 130



~~CONFIDENTIAL~~
P. O. O.

UNCLASSIFIED

UNCLASSIFIED

~~CONFIDENTIAL~~
P. 2

Project D G.1-4

May 9, 1961

(b)(3):10 USC 130

G. Horse Mask Canister 22R5. Engineering drawings have been made and a specification written for canister 22R5. These are included in appendices A and B of this report.

(b)(3):10 USC 130

F. Horse Mask M111. Horse Mask M111 is covered by U.S. specification 197-54-130, Mask, Gas, Horse, M111, September 4, 1960, and related drawings. Recent changes in this mask are described in T.O. 255, Modification of Horse Gas Mask M111.

VI. Test Methods.

(b)(3):10 USC 130

~~CONFIDENTIAL~~
P. 2

UNCLASSIFIED

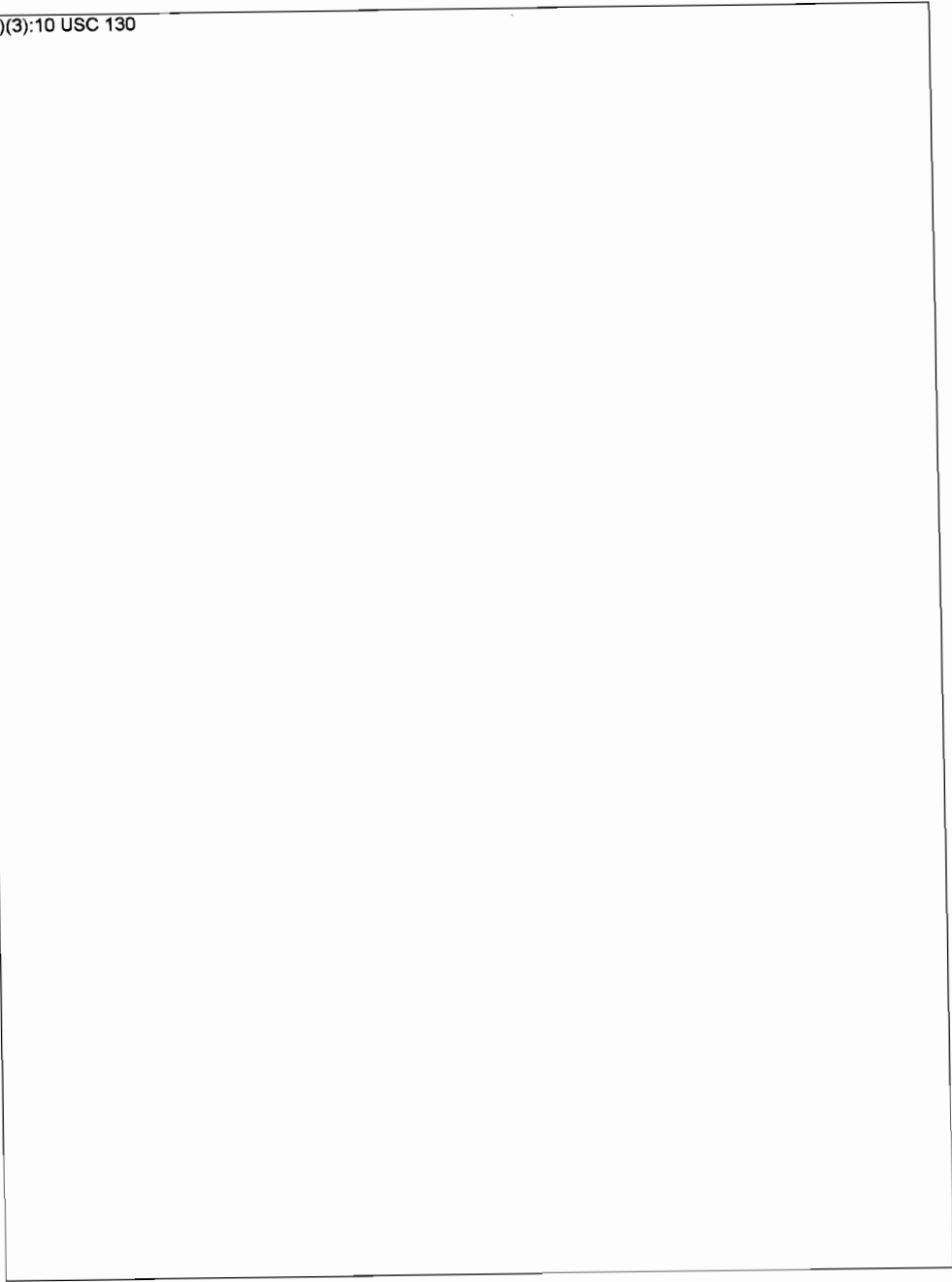
UNCLASSIFIED

~~CONFIDENTIAL~~

Project D 6.1-4

May 9, 1941

(b)(3):10 USC 130



~~CONFIDENTIAL~~
UNCLASSIFIED

UNCLASSIFIED

~~CONFIDENTIAL~~
F. B. I.

Project D 0.1-4

May 9, 1961

(b)(3):10 USC 130

~~CONFIDENTIAL~~
UNCLASSIFIED

UNCLASSIFIED

Project D 0.1-1.


~~CONFIDENTIAL~~

May 9, 1962

Table No. 1

Performance of Canister R22R1 Against

(b)(3):10 USC 130



UNCLASSIFIED

~~CONFIDENTIAL~~

UNCLASSIFIED

BEST COPY AVAILABLE

~~CONFIDENTIAL~~
P. O. O.

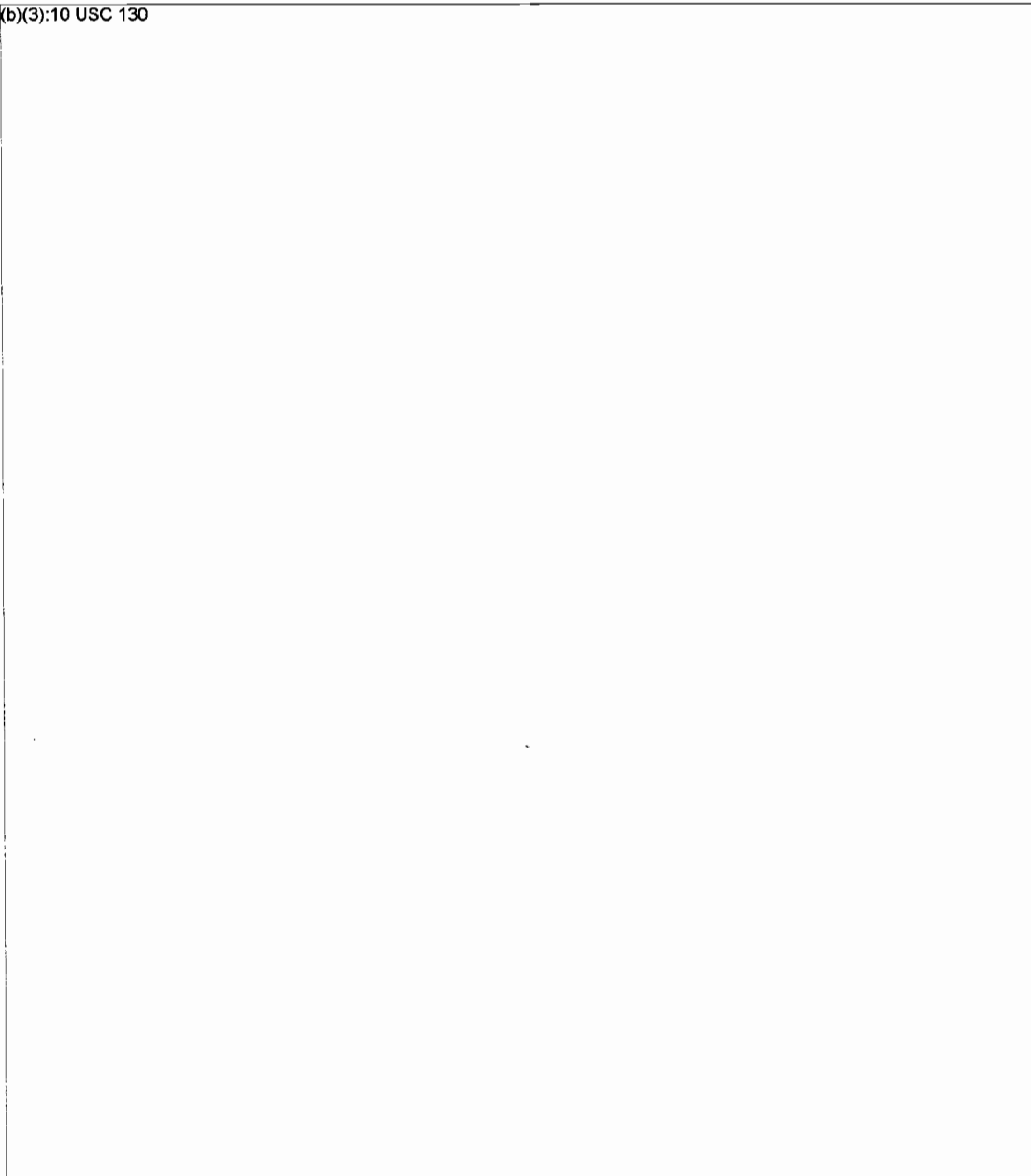
Project D O.1-4

May 9, 1941

Table 2

Estimate on Possible Canister Designs.

(b)(3):10 USC 130



~~CONFIDENTIAL~~
P. O. O.

UNCLASSIFIED

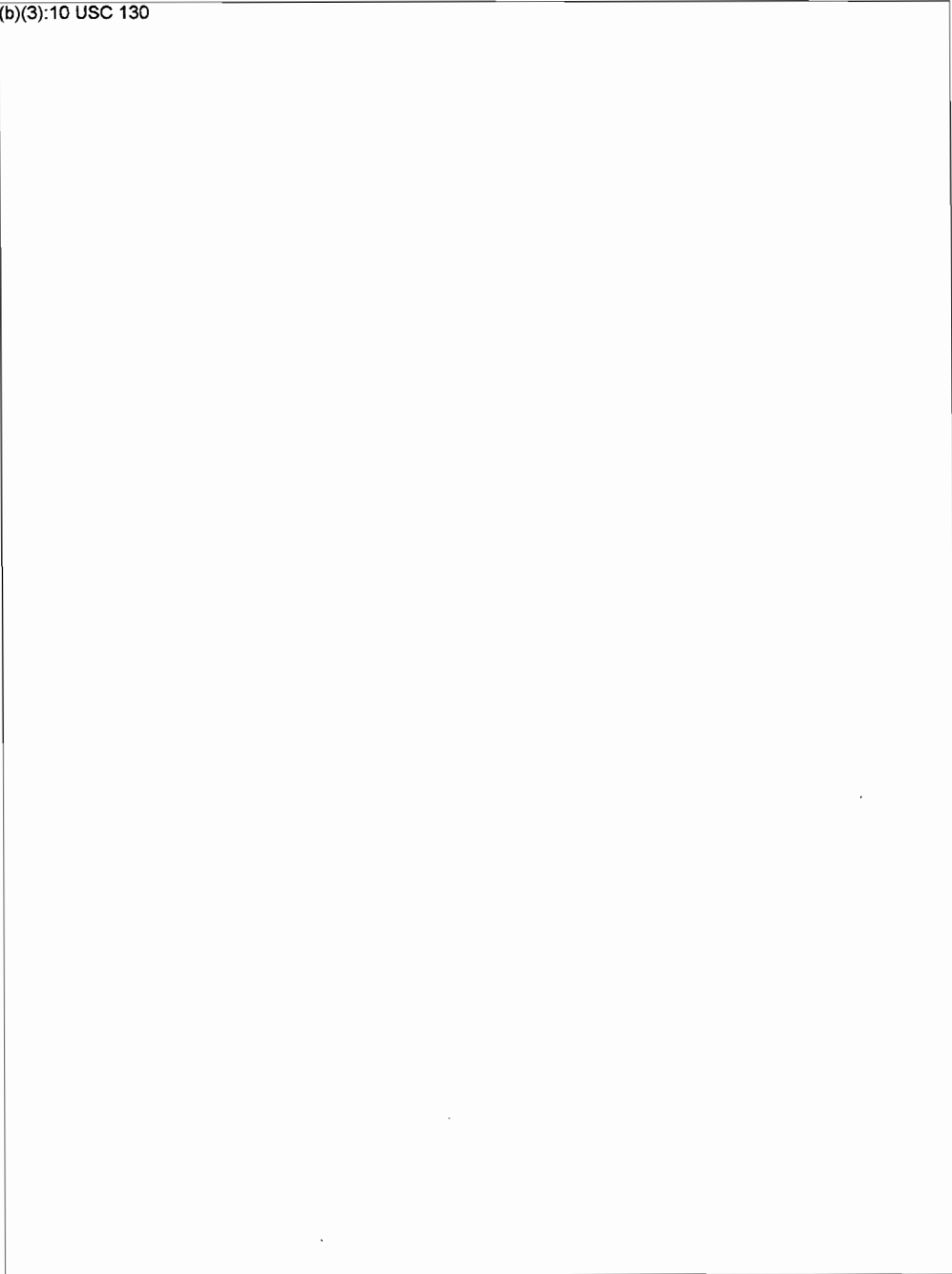
UNCLASSIFIED

~~CONFIDENTIAL~~
F. O. O.

Project D 6.1-4

May 9, 1941

(b)(3):10 USC 130



~~CONFIDENTIAL~~
UNCLASSIFIED

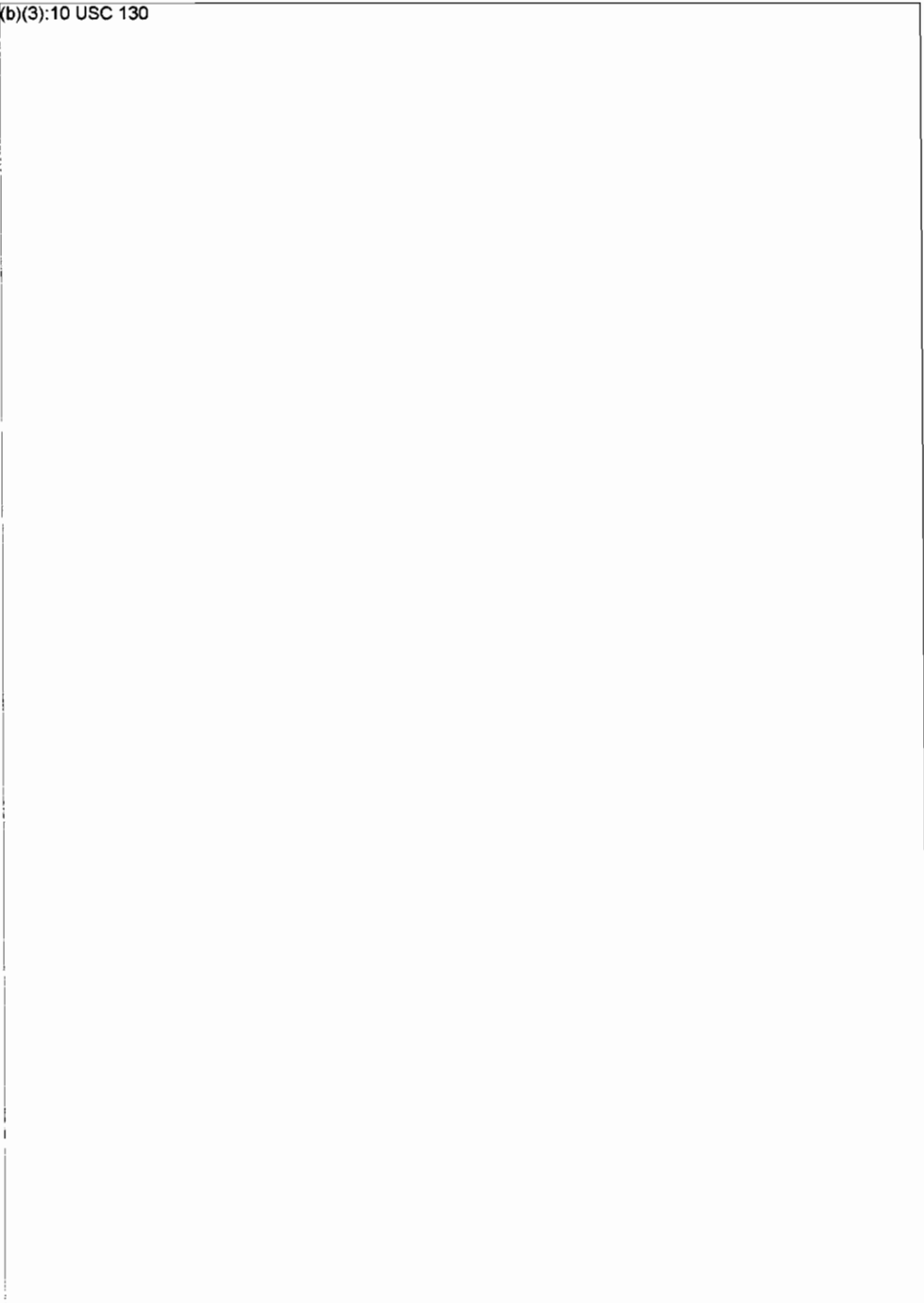
UNCLASSIFIED

~~CONFIDENTIAL~~
C. D. D.

Project D 6.1-4

May 9, 1941

(b)(3):10 USC 130



~~CONFIDENTIAL~~
UNCLASSIFIED

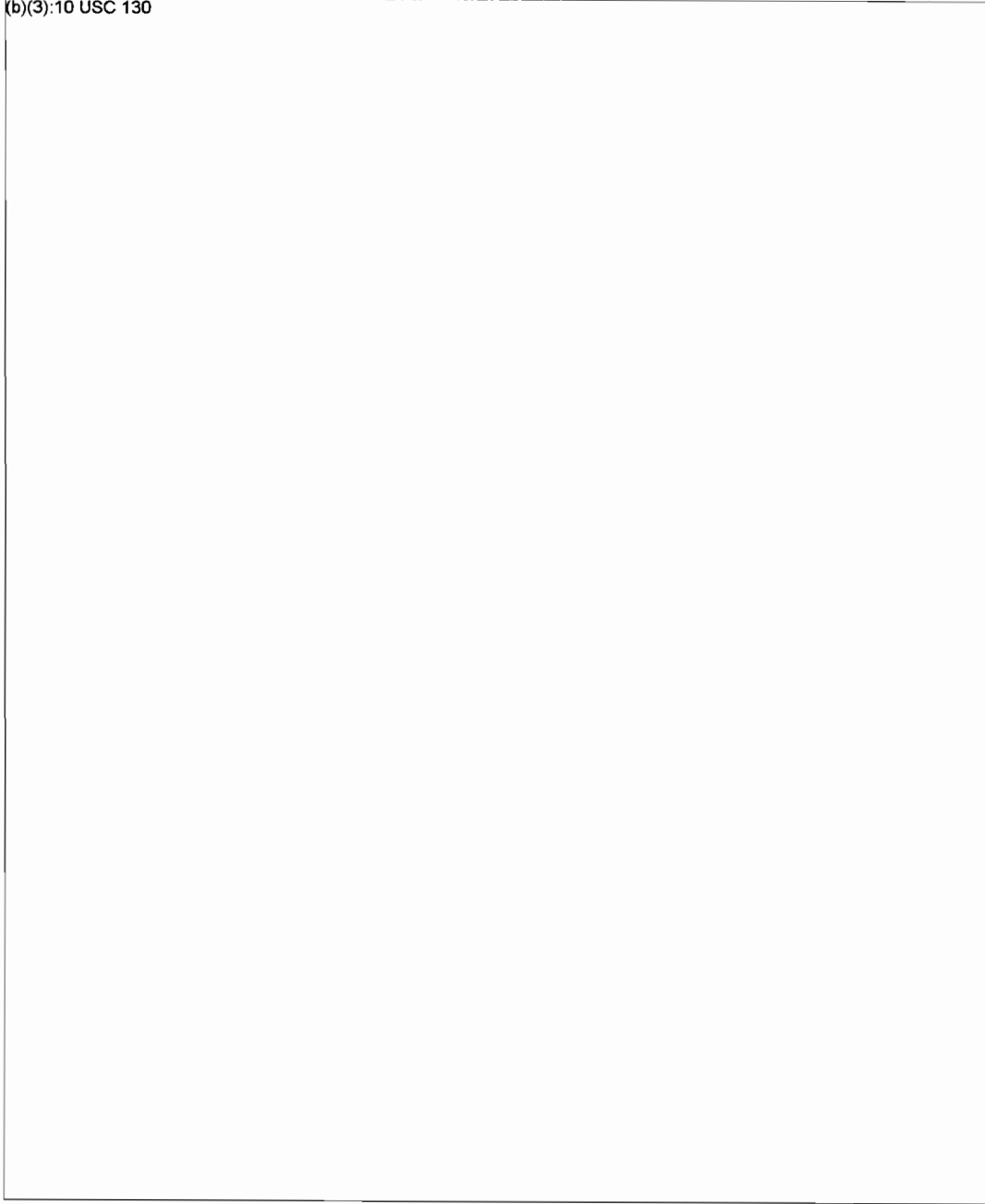
UNCLASSIFIED

~~CONFIDENTIAL~~
SECRET

Project D 6.1-4

May 9, 1941

(b)(3):10 USC 130



UNCLASSIFIED

~~CONFIDENTIAL~~
SECRET

UNCLASSIFIED

BEST COPY AVAILABLE

Project D 6.1-4

May 9, 1941.

(b)(3):10 USC 130

Two types of canister type horse gas masks were standardized by the Adjutant General (2nd Ind., AG 455.3/(1-27-41) M-D, AG, Feb. 20, 1941, to C, CWS, on letter, CWS 470.72/89, C, CWS, Jan. 27, 1941, Subject, Request for Standardization of Masks, Gas, Horse, M, and M5, to AG, thru Ass't. Sec. of War):

a. Horse Gas Mask M1, having the two canisters suspended with one on each side of the horse at the shoulder position.

b. Horse Gas Mask M5, having two canisters suspended on the right shoulder position for horses required to carry a rifle on the left shoulder.

(b)(3):10 USC 130

I. Recommendations. It is recommended that the development of the horse gas mask canister continue in accordance with improvements that may be disclosed through use of the canisters by the mounted services.

UNCLASSIFIED

UNCLASSIFIED

Submitted by:

(b)(6)

I.D.M.R. No. 270
Development of Horse Gas
Mask Canister M22,
Comparison of Protection
with that of Horse Gas
Mask M111.

• Authors

Project D O.1-4, Horse Gas
Mask (4)

Approval recommended:

Experimental Work:
Started - December 7, 1939
Completed - February 17, 1941

(b)(6)

Assistant Chief,
Protective Development Division

Notebook No. 571

Typed: May 9, 1941

(b)(6)

Major, C.W.S.,
Chief, Protective Development Division

Copies: 6
No. 1 Chief, Information Division
6 " " "
7 " " "
8 " " "
2 Chief, C.W.S.
2 Central Files
4 British Military Attache
5 Canadian Military Attache

Approved:

(b)(6)

Lt. Colonel, C.W.S.,
Technical Director.

dg

UNCLASSIFIED

UNCLASSIFIED

CHEMICAL WARFARE SERVICE
SPECIFICATION

No. 187-52-102

CANISTER, MASK, GAS, HORSE, E22R5

A. APPLICABLE SPECIFICATIONS AND DRAWINGS.

- A-1. The latest issue of the specifications and drawings listed in the bill of material on C.W.S. Drawing No. B5-3-373, and of the following specifications, C.W.S. Directives and applicable sections of C.W.S. Pamphlet No. 2, in effect on date of invitation for bids, shall form a part of this specification:

Standard Specifications for Marking Shipments -
U.S. Army Specification No. 100-2.
Canister Test Methods, Chlorpicrin (PS) -
C.W.S. Pamphlet No. 2, Part III, Section D.
Canister Test Methods, Phosgene (CG) -
C.W.S. Pamphlet No. 2, Part III, Section A.
Canister Test Methods, Diphenylaminechlorarsine (DK) -
C.W.S. Pamphlet No. 2, Part III, Section B.
Operation of Filter Material Resistance Meter -
C.W.S. Directive No. 51.
Operation of Filling Machine E725 -
C.W.S. Directive No. 80.
Color Card Supplement to U.S. Army Specification No. 3-1.

B. TYPE.

- B-1. This specification covers one type of canister for a horse gas mask.

C. MATERIAL AND WORKMANSHIP.

- C-1. Material. The materials required for the manufacture of the canister shall be in accordance with the specifications and drawings included in this specification.
- C-2. Workmanship. All work shall be done in a neat and workmanlike manner.

D. GENERAL REQUIREMENTS.

- D-1. See Section E.

UNCLASSIFIED

March 4, 1941

- 1 -

~~CONFIDENTIAL~~

UNCLASSIFIED

~~CONFIDENTIAL~~

E. DETAIL REQUIREMENTS.

E-1.

(b)(3):10 USC 130

E-2.

E-2a.

E-2b.

E-2c.

E-2d.

E-2e.

197-52-102

UNCLASSIFIED

~~CONFIDENTIAL~~

UNCLASSIFIED

DETAIL REQUIREMENTS (CONT'D).

E-2f. (b)(3):10 USC 130

F-2g.

E-2h.

E-2h(1)

E-3.

E-3a.

E-3b.

E-3c.

197-52-102

UNCLASSIFIED

UNCLASSIFIED

~~CONFIDENTIAL~~

DETAIL REQUIREMENTS (CONT'D)

(b)(3):10 USC 130

E-4.

E-4a.

E-4a(1)

E-4a(2)

E-4b.

E-4b(2)

E-5.

E-5a.

E-5a(1)

UNCLASSIFIED

~~CONFIDENTIAL~~

DETAIL REQUIREMENTS (CONT'D).

(b)(3):10 USC 130

F. METHODS OF SAMPLING, INSPECTION AND TESTS.

F-1.

(b)(3):10 USC 130

F-2.

F-2a.

F-2a(1)

F-2b.

F-2b(1)

F-2b(2)

F-2c

UNCLASSIFIED

METHODS OF SAMPLING, INSPECTION AND TESTS (CONT'D).

(b)(3):10 USC 130

G. PACKING AND MARKING.

(b)(3):10 USC 130

UNCLASSIFIED

~~CONFIDENTIAL~~

METHODS OF SAMPLING, INSPECTION AND TESTS (CONT'D).

(b)(3):10 USC 130

F-3.

F-4.

F-5.

F-5a.

F-5b.

F-5c.

F-6.

F-6a.

107-88-102

UNCLASSIFIED

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
UNCLASSIFIED

NOTES (CONT'D).

(b)(3):10 USC 130

H-5.

H-6.

Copies of this specification may be obtained from Office-Chief, Chemical Warfare Service, Washington, D. C.

197-62-106

- 8 -

~~CONFIDENTIAL~~
UNCLASSIFIED

UNCLASSIFIED

~~UNCLASSIFIED~~
P. O. D.

APPENDIX A

C.F.S. Specification No. 197-52-102, Canister,
Mack, Horse, #2215.

~~UNCLASSIFIED~~
UNCLASSIFIED