

Image Cover Sheet

CLASSIFICATION

UNCLASSIFIED

SYSTEM NUMBER

178526



TITLE

AREA SHOOT IN HOT WEATHER WITH 25 PR. SHELL MK. XI CHARGED HTV\ (MM\)

System Number:

Patron Number:

Requester:

Notes:

DSIS Use only:

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Suffield FE Book
Index

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COPY NO. 411
X7 June 1945

EXPERIMENTAL STATION

SUFFIELD ALBERTA

FIELD EXPERIMENT NO. 312

Area Shoot in Hot Weather with 25 pr. Shell
Mk. XI charged HTV(MM)
(Rewrite of F.E. 241)

1. REFERENCE

D-1C

Project S.48.

2. OBJECT

(i) Field Experiment No. 241 was designed to determine the percentage of a target area neutralized in hot weather by 25 pr. shell charged HT/MM when the recommended expenditure of 10 rounds per 100 yard square is used.

(ii) Since it is believed that this information will be obtained from Field Experiment 242 which is a similar trial with 25 pr. shell charged HTV(CR)/MM (a charging which has a performance similar to that of HT/MM) it has been decided to carry out Field Experiment 241 using an increased expenditure (30 rounds per 100 yard square).

(iii) Mk. XI shell, which are the Canadian version of Mk VIII shell, will be used. The shell will be factory-charged in Canada.

(iv) The experiment will be carried out as a predicted shoot. The layout will be sufficiently large to allow for considerable error in prediction.

3. SITE

Artillery Target. C - 4.

4. MATERIAL

936 rds 25 pr. BE/Chem. shell Mk. XI factory charged HT/MM with standard headfilling and fused 221.

25 rds. as above for checking fuze predictions.

3 additional rounds fitted with thermometers.

Shell 25 pr. HE for ranging (as required).

Cartridges Charge III (as required).

24 x 25 pr. guns.

Fuzes to be provided from one lot.

Classification / Designation
Changed to / Remplacée par ulu
By Authority of
Sur l'Autorisation de C. Laforce
Date 25 Feb 98 Signature D. Kuseler
Appointment
Fonction

49 / 8183

+1'

5. WEATHER

Wind Speed: 5 - 15 mi/hr. to 1000 feet.
Wind Direction: N W to S W.
Air temperature: 80°F or above.

6. PROCEDURE

- (i) All shell will be taken to the field prior to the trial and stored under well vent ilated tarpaulins.
- (ii) When moved to the gun positions they will be shaded from the sun until fired.
- (iii) The three shell fitted with thermometers will be allotted to three representative gun positions. The temperature of the chargings at the time of firing will be recorded. (O.M. & E.)
- (iv) The viscosity of the charging in three shell taken at random from the stock of shell from which the programme rounds were drawn will be recorded (O.M. & E.). A sample from each will be forwarded to P. & M.S.

Layout

- (v) A target box 300 yards by 400 yards will be chosen and a layout of small jump cards on a 10 yard grid will be put down over this area and over a frame 300 yards deep. (See Appendix).
- (vi) A 15 ft. photographic marker will be erected at the centre of the target box and further markers will be erected parallel to the line of fire to indicate the limits of the target box and the complete layout.
- (vii) Point G will also be identified by a suitable marker.
- (viii) Gun positions will be chosen so that the target box is engaged from a range of 6000 to 7000 yards.
- (ix) An O.P. will be selected as far forward as would be possible under battle conditions.

Line of Fire

- (x) The line of fire for the guns will be approximately parallel to the shorter side of the target box. A battery will be allotted to each of the three lines of fire as indicated in the Appendix.
- (xi) If considered necessary a rehearsal will be carried out prior to the programme shoot as was done in Field Experiment No. 255.

PROGRAMME SHOOT

Meteor Telegrams

- (xii) A meteor telegram will be provided prior to the shoot. This telegram will be used by the Adjutant to draw up the fire plan orders and should be issued as close to zero as possible. The actual conditions during the shoot will be recorded by two telegrams one taken at the beginning and one at the end of the shoot.

Fire Plan

(xiii) On receipt of the first meteor telegram, the Adjutant will register point G. He will then issue fire plan orders and the G.P.O.'s will draw up and issue complete gun programmes. Each point of origin will be engaged by two guns.

(xiv) At zero the pivot gun of each battery will fire six rounds BE/Chem. shell to check the predicted fuze setting. The M.E.O. in consultation with the O.F. officers will on the basis of these shell confirm or correct the fuze setting.

(xv) Each gun will then fire 9 programme rounds at sweep 100 yards the rate of fire being battery salvo at intervals of 7 seconds. The layout will then be inspected by M.E.O. and P.R.S. and if the engagement is satisfactory the remaining 30 rounds per gun will be fired at sweep 100 at the same rate.

Functioning of Shell

(xvi) Two observers will station themselves on a flank opposite the target centre. One will record the number of shell bursting to the left of the target centre and the other those bursting to the right.

(xvii) The O.M. & E. height recorder will be set up on a flank not less than 1,500 yards from the target centre. It will be adjusted so that each of its three operators cover a field of view 150 ft. high as measured at the target centre. It will be centred on the target centre and then elevated so that the horizon is the base line for the lowest observer. A fourth observer will record the number of shell bursting below the horizon.

(xviii) Two observers will record the number of shell bursting short or long of the field of view of the O.M. & E. recorder and a further observer with window will record the number of shell bursting above the field of view of the instrument.

Vapour Samples

(xix) Injector operated bubblers spaced at intervals of 20 yards and sampling at 12 inches will be put down along a line 900 yards long parallel to and at a distance of 50 yards downwind of the downwind line of fire. An additional 4 bubblers protected by A/G capes will be placed at each position. The injectors will be turned on immediately before programme firing commences. Bubblers will be replaced at z plus 30 minutes (z = time at which half of the programme rounds have been fired.) $z+1$ hr., $z+1\frac{1}{2}$ hrs., and $z+2$ hrs. (These sampling periods assume a ground temperature of 100°F and a wind speed of 10 mi/hr.)

Meteor Data

(xx) Full meteor data will be recorded during the period of sampling.

Observer Tests

(xxi) A defensive platoon position will be prepared at the centre of the target box prior to the shoot. Two hours after the shoot a minimum of 12 men dressed as in para xxiii and wearing respirators at the gas position will attack and pass through this position. They will alternately walk and crawl across the area, the periods of crawling being controlled by small arms fire. During each crawl they will fire 3 rounds of blank ammunition. At the end of the patrol the men will be inspected by Phys. S. They will re-apply A/G ointment to their hands before removing their respirators. They will continue to wear the clothing for a further 4 hours during which time they will take part in normal station fatigues.

(xxii) Four hours after the shoot a minimum of 12 men dressed as below will attack and occupy the position. The occupation will last for 6 hours. The necessity for the wearing of respirators during the occupation will be determined by tests with a vapour detector kit. If respirators are not necessary eyeshields will be worn. These men will change their clothing when they leave the area.

(xxiii) All men will be dressed in KD shirts fastened at the wrists and neck, KD trousers fastened at the ankles (see D.S.W.V. Liaison Letter No. 21) skeleton webbing, short limbed underwear, boots and socks and will carry light type respirators. They will apply A/G ointment to their hands and arms to a distance of 2 to 3 inches beyond the wrists. Each man will carry a rifle.

7. ADMINISTRATION

M.E.O.

In charge of trial. Provision of shell. Layout. Height of burst (5 observers) in co-operation with P. & M.S. Decision as to completion of shoot (see para xv).

P. & M.S.

Meteor telegrams. Heights of burst (4 observers). Assessment of jump cards. Plot of contaminated areas. Meteor observations.

Phys. S.

Provision and control of observers.

O.M. & E.

Viscosity of charging. Samples of charging to P. & M.S. Particulars of shell (lot number etc.). Temperature of shell.

Visiting Regiment

Provision of guns. Attack of target.

Chem. S.

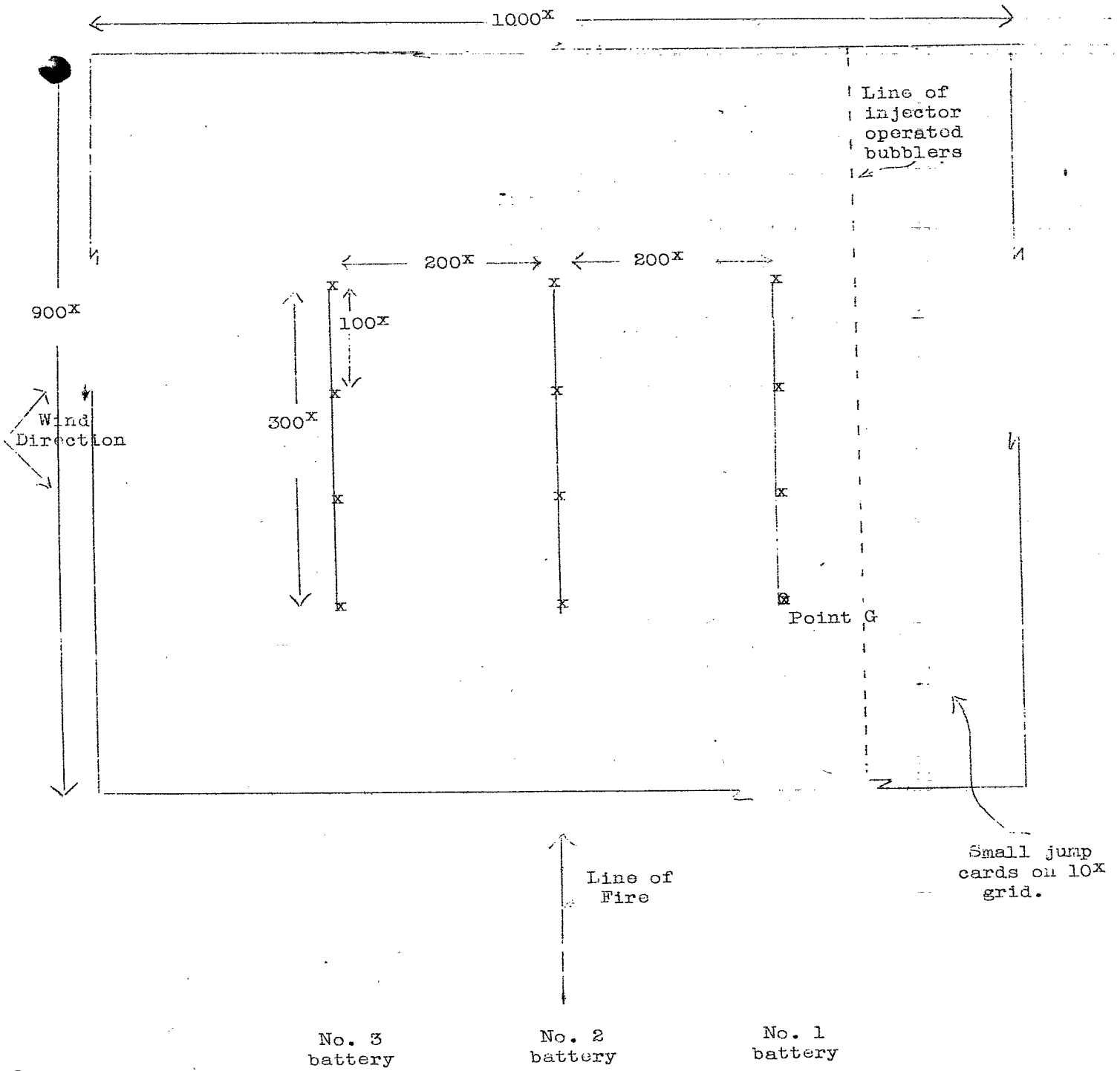
Vapour sampling.

HJF:pkn

J.S. Campbell
X (J.S. Campbell) Lt. Col., R.A.
C.E.O.

H.J. Fish
X (H.J. Fish)
P.R.S.

APPENDIX



AK

DIRECTORATE OF
SCIENTIFIC INFORMATION
DEFENCE RESEARCH BOARD
ROOM 474
OTTAWA 4, ONT. CANADA

Date, **OCT 21 1963**

From,

Copy No. *1* of *1*

Acc. No. **H9/8183**

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