Image Cover Sheet

CLASSIFICATION	SYSTEM NUMBER
UNCLASSIFIED	140990

TITLE

PHYSIOLOGICAL EFFECT OF MUSTARD VAPOUR AT LOW TEMPERATURES

System Number:

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31 March 1944

EXPERIMENTAL STATION

SUFFIELD ALBERTA

FIELD EXPERIMENT NO. 215

Physiological Effect of Mustard Vapour at Low Temperatures

1. REFERENCE

Field Experiment No. 199.
D.C.W. & S. Project No. S.69.

2. OBJECT

(i) To establish the order of dosage of mustard vapour required to produce physiological effects at low temperatures.

(ii) The trial will be carried out using an improvised chamber and the results are to be confirmed by a field trial using Comings generators as a source of H vapour.

3. WEATHER

Wind Speed 5 to 10 mi/hr.
Air Temperature 15 to 25°F.
Trial to be carried out in the morning.

4. SITE

Wooden hut used in Field Experiment No. 199.

5. PROCEDURE

(a) Arrangement of Hut

Sampling apparatus to be erected at seven positions as indicated in the diagram. Boxes of ammunition to be provided at each position, as indicated.

Hut to be aired for one hour prior to trial by opening windows and door and running fans.

(b) Putting up Vapour and Chemical Sampling

(i) One bubbler sampling at 60 inches will be operated at the centre position and at positions A and D.

(ii) H at the rate of 1 ml every five minutes will be evaporated starting at zero and continuing for four additions. H will then be added at the rate of 0.8 ml every five minutes until end of trial. Total H added and weight of residue will be recorded.

(iii) The bubbler at each position will be replaced every 15 minutes and the dosage in the removed bubbler estimated as rapidly as possible.

(iv) When the results up to zero plus 60 minutes are available (zero plus 90 minutes) a decision will be made whether observers can be used. Concentrations will be suitable if the last two samples show concentrations between 8 and 15 mg. H/cu.m.

(v) 15 minute samples will continue to be taken and analysed up to 30 minutes after the commencement of exposure of observers.

(vi) At the commencement of exposure of observers bubblers sampling at 21 and 60 inches will be operated at each of the 7 points and will run until the exposure is completed.

(c) Observers

(i) 10 observers dressed as follows will be exposed.

Shorts	impregnated.
Underwear-long-limbed	non-impregnated.
Shirt	non-impregnated.
Sweater Coat	non-impregnated.
B.D.	
Boots and Socks	
Respirator at the gas position	
Drill order	
Gloves A/G	

(ii) Each will be allotted a position as shown on the diagram. On entering the hut the observers will go to their respective positions and when all are in position, each will in turn make a complete circuit of the hut carrying an ammunition box. After each observer has rested for five minutes he will repeat the circuit. This routine will continue until their exposure is complete.

(iii) If the concentration measured for the period zero plus 75 to zero plus 90 minutes (available 30 minutes after commencement of exposure) is within the limits 8 to 15 mg. H/cu.m. observers will remain for 45 minutes. If it is above 15 mg. H/cu.m. they will be removed. If below 8 mg/cu.m. a longer exposure will be used.

Note: If temperature in hut rises to 5°C (41°F) observers will be removed.

(iv) After exposure they will continue to wear their clothing for a further 2 hours during which they will occupy a warm room. Respirators will be worn during this period.

(d) General

Relative humidity and temperature in the hut will be recorded.

ADMINISTRATION

In charge of trial - Phys. S. in collaboration with Chem. S.

CHEM. S.

Putting up H. Sampling. Reporting 'snap' samples to Phys. S. during trial.

PHYS. S.

Provision and control of observers.

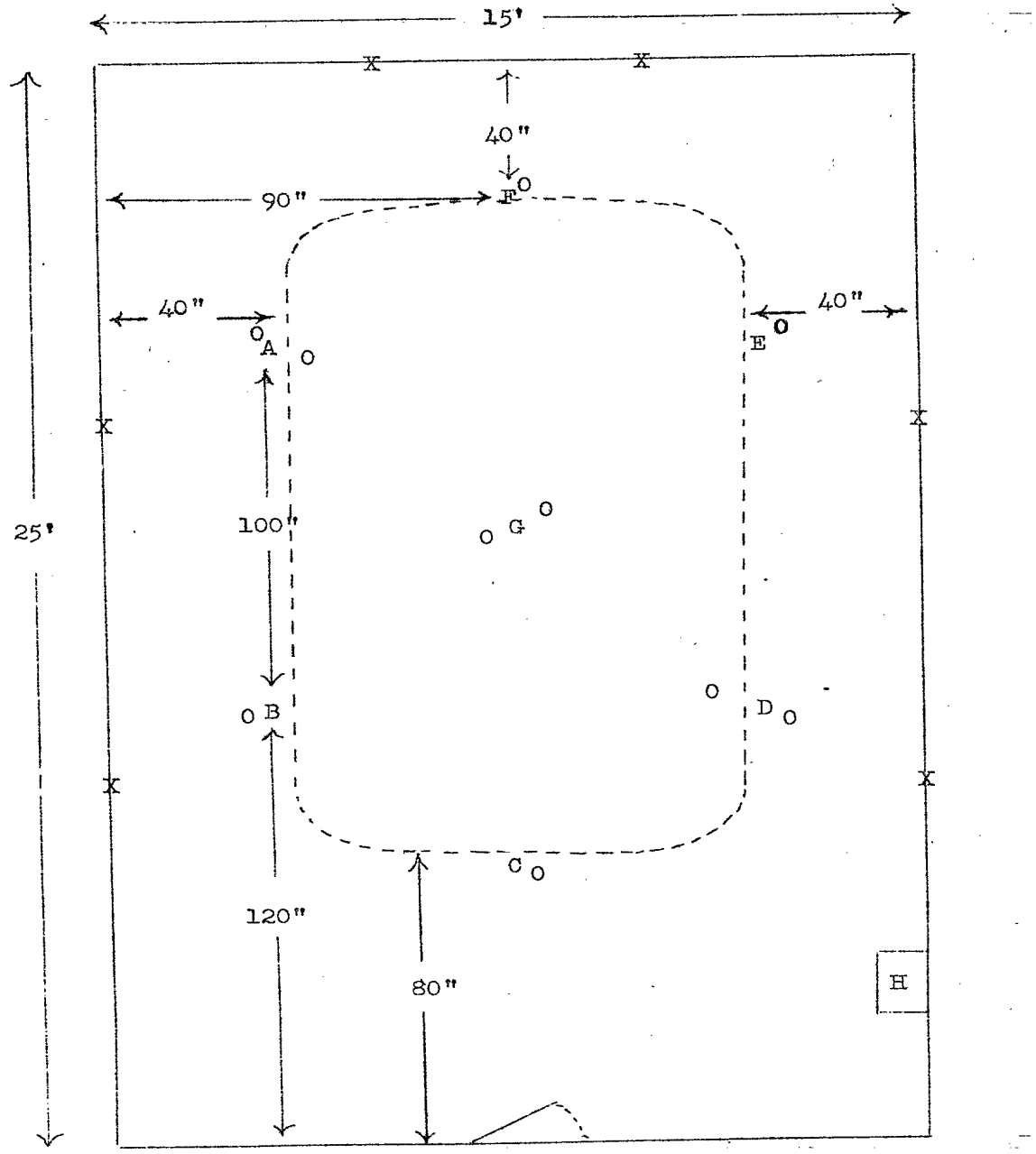
P & M. S.

Relative humidity and temperature in hut. Reporting temperature to Phys. S. during trial.

HJF:rea

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

K. Birchall w/c
(K. Birchall) W/Cmdr.
C.E.O.
Experimental Station



3 injectors at positions A to G

9 bubblers at positions A, D & G

2 bubblers at positions B, C, E & F

Post for 60" sampling at all positions A to G

X = position of fans

H = position of hot plate and fan

-------- observer circuit

O = rest position for observers (10 positions)

One box 25 pr. ammunition to be availa ble at each position.

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