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CLASSIFICATION

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TITLE

PRELIMINARY TRIAL WITH "T" THERMAL GENERATORS

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Classification Unclassified

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5/97
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Unit
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EXPERIMENTAL STATION

SUFFIELD, ALBERTA

FIELD EXPERIMENT NO. 124

COPY NO.

40

X 24th., May 1943

PRELIMINARY TRIAL WITH "H" THERMAL GENERATORS

OBJECT:

To establish techniques for large scale trial asked for by the U.K. Comparison of various impregnated clothes has been included at the request of C.W.L.

SITE:

To be selected by M.E.O.

METEOROLOGICAL CONDITIONS:

Temperature Gradient - Zero to slight lapse.
Air Temperature - Above 65°F.
Wind Speed - 6 - 12 m.p.h.
Wind Direction - Any, - But steady.
No Precipitation.

MATERIAL:

- (a) 561 "H" Thermal Generators (includes 51 spare.)
- (b) 96 observers, comprising 4 groups each of 24 men.

Group "A" will wear U.S. Charcoal impregnated suits.

Group "B" will wear U.S. C.C. 2 impregnated suits.

Group "C" will wear British impregnate E. or A-V suits.

Group "D" will wear non-impregnated German uniforms.

(c) All observers will wear British Service type respirators.

(d) Underclothes will be worn for at least 3 days prior to the trial. Pants, impregnated, will be worn by all observers during and after exposure.

PROCEDURE:

1. (a) Layout will be as in appendix 1.

(b) A line perpendicular to wind direction will be established, length 100 yards. Generators will be spaced at 2 yard intervals along this line.

2. (a) Chemical sampling lines will be established (see Appendix 1) at 30. 80. 150 yards downwind of source and parallel to it.

(b) Each sampling point will consist of two or more injectors operating bubblers at a height of 27".

((c) Physiological areas will be established on lines 50 and 100 yards from source. Rope barriers will delineate these areas. Four bubblers and injectors will be spaced evenly across each physiological area and one bubbler and injector will be placed in each tent.

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Field Experiment No. 124 (cont.)

(d) Positioning of chemical and physiological lines will be confirmed in the field, the C.T.'s required being 300 to 500 and 600 to 700, for a time interval of 22 minutes, rate of emission being 0.07 lbs/min/yd.

3. (a) At each physiological area (50 and 100 yards.) the following personnel and material will be stationed:-

(i) 24 observers digging a trench, 6 drawn from each group.
(ii) 24 observers carrying out gentle exercises or resting; 8 in a tent all equally drawn from each group. 16 outside all equally drawn from each group.

(b) The following stores will be included in the 50 yard physiological area:-

(i) A stack of six service cartons containing clothes.
(ii) Representative clothes hung in each tent;
(iii) Food consisting of vegetables, bread, butter, and milk exposed in open containers.

(c) Observers and materials will be marked for subsequent identification.

4. (a) Digging parties will commence work at zero minus five min. (This will ensure that they are hot when the trial starts.)

(b) Bubblers will be turned on in the chemical and physiological lines.

(c) Generators will be lit and reinforced as necessary. One man with port fire, to be in charge of each 4 generators. (The recalling of observers will be the signal for these operators to stop functioning further generators.)

(d) Of the 16 outside observers (See 3 (a) 2.) 6 will take emergency steps to protect themselves, i.e., use of ointment on exposed skin and tightening of all openings in clothes.

(e) After 22 minutes from the time the cloud reaches the physiological areas, the observers will be recalled. (Note. Generators take approximately $\frac{1}{2}$ minute to build up.) All bubblers from these areas will be brought out with them.

5. (a) Observers will wear their clothes for a period of 4 hours subsequent to the trial.

(b) Clothes and food samples will be removed for Chemistry Section for estimation of contamination. Weathering and wearing trial with some of the clothes will be carried out. (Wearing trials to be conducted by Phys. S. with observers. Weathering to be carried out by Chem. S.)

ADMINISTRATION

Section in charge of trial - M.E.O.

Section responsible for final report - O.M. & E.

C.E.O.

Decision as to time of trial. Departmental warnings and organization. Provision of transport. Collection of reports.

M.E.O.

Conduct of trial. Provision of men to light generators. Provision of tents, boxed clothes and foods. Delivery of clothing and food samples to Chem. S. Report.

Field Experiment No. 124 (cont.)

P. & M.S.

Meteor observations. Decision in the field and final positioning of physiological lines. Inform M.E.O. in the field when generators should be lit. Report.

O.M. & E.

Provision of generators and supervision of lighting. Report of functioning. Final report.

PHYS. S.

Provision of observers. Supervision of observers, before, during and after experiment. Wearing trials with stored clothes. Report.

Chem. S.

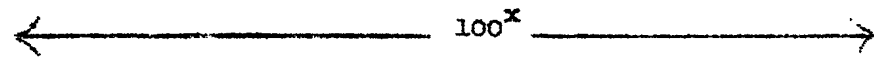
Field sampling. Analysis of clothing and food. Weathering trials with stored clothes. Report.

J.P.H./C.P.P

J. T. Hugill s/p
X (J.T. Hugill) Major
s/c. C.E.O.
Experimental Station.

APPENDIX ONE

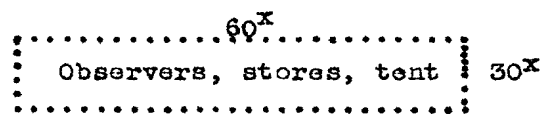
LAYOUT



51 generators
at 2^x intervals.
9 reinforcements
plus one spare
at each point.

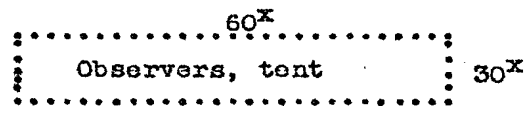
30^x 11 pairs of
bubblers at
10^x spacing.

50^x 5 Bubblers &
injectors.



80^x 11 pairs of
bubblers at
10^x spacing.

100^x 5 bubblers &
injectors.



150^x 11 pairs of
bubblers at
10^x spacing.



AK

DIRECTORATE OF
SCIENTIFIC INFORMATION
SERVICES
DEFENCE RESEARCH BOARD
ROOM 4/44, TAYLOR BUILDING
OTTAWA 4, ONT., CANADA

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