

Image Cover Sheet

CLASSIFICATION

SYSTEM NUMBER

140995

UNCLASSIFIED



TITLE

TO EXAMINE THE PHYSIOLOGICAL ACTIVITY OF THE CLOUD FROM A COMINGS'S H THERMAL
GENERATOR

System Number:

Patron Number:

Requester:

Notes:

DSIS Use only:

Deliver to:

UNCLASSIFIED | UNLIMITED
DCW

54354-29-13-1
Yall

DEFENCE SCIENTIFIC INFORMATION SERVICE	
DEFENCE RESEARCH BOARD	
DEC 23 1952	
Date :	S.F.S.
From :	
Copy No. :	2 of 1+2
ACC. No. :	52/13935



EXPERIMENTAL STATION

COPY NO
5 Oct. 1943

SUFFIELD ALBERTA

FIELD EXPERIMENT NO. 154

To examine the Physiological Activity of the Cloud from a Comings's H Thermal Generator

REFERENCE:

Request from U.S.

OBJECT:

1. As in title. (The Comings candle produces mustard vapour by passing the gases from a heater pellet through a venturi in which mustard gas is picked up, via holes in it's throat, from a reservoir surrounding the venturi.)

METEOROLOGICAL CONDITIONS

2. Wind Speed - 10 to 15 mi/hr.
Wind Direction - any, Direction steady. ($\pm 30^\circ$)
Air Temperature - 60° to 75° F.
Temperature Gradient - absence of marked convection.

SITE OF TRIAL

3. Level site in A-3.

NOTE: An area of burnt ground will be required for the line of generators.

MATERIAL

4. 96 Comings H Thermal Generators.
480 lbs. stripped HS. Generators will each be charged with 5 lbs. stripped HS in the field. (see para. 6).
17 observers. For clothing see paras 7 & 8. Clothing will be worn for three days prior to trial.

PROCEDURE

5. A layout will be established as shown in the Appendix.
6. The spacing of the generators along the 150^x source will be that required to give a CT of 350-400 at the 100^x line (P&M.S.), if the air temperature is $60-70^\circ$ F. If between $70-75^\circ$ F CT aimed at will be 300-350. One generator will be lit at each point. It will be assumed that each generator emits 3.4 lbs. of H over a period of approximately $4\frac{1}{2}$ minutes. (This assumes that 75% of the H content of the charging is given off as H vapour.)

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 Changed to / Remplacée par _____
 By Authority of C. Laforce
 or l'Autorisation de _____
 Signature D. Kuseler
 Date 25 Feb 98
 Unit _____

7. Line AB 50 yards downwind, 6 yards long. 4 observers seated at 2 yard spacing. Sampling points (3 ft.) immediately upwind of each observer. (Iodoplatinate method). Observers to be dressed as follows :

Battle dress A.V. impregnated.
Issue shirts.
Undershirts, short-limbed, non-impregnated.
Underpants, A.V. impregnated.
Socks, and boots, non-impregnated.
Hoods, C.C.-2 impregnated.
Respirators at the gas position.
Drill order.

On each upper arm, a window will be cut exposing an area of bare skin 2 x 2 inches.

8. Line CD 100 yards downwind, 300 yards long. Sampling points (3 ft.) every 15 yards with 7 sampling points at 5 yards : the centre. Duplicate samples at each point. One for iodoplatinate and one for pyridine method of analysis. 9 observers, 3 at sampling point 13, and one at each of the sampling points 10, 11, 12, 14, 15 and 16. Observers to be dressed as follows:

Battle dress, non-impregnated.
Issue shirts.
Undershirts, short-limbed, non-impregnated.
Underpants, A.V. impregnated.
Socks and boots, non-impregnated.
Respirators at the gas position.
Drill order.

9. Line EF 200 yards downwind, 200 yards long, marked out with stakes at 25 yard intervals. 4 observers dressed as in para. 8 with portable sampling apparatus (iodoplatinate method).

10. Impactors will be set up at positions decided by P & M. S.

11. At zero minus 10 minutes the observers will be taken for a five minute run and the injectors will be turned on. The observers will return to their positions by zero.

NOTE: Injectors operating bubblers for pyridine method of analysis will be turned on as near to zero as possible.

12. At zero, all generators will be lit.

13. During the passage of the cloud the observers on line CD will dig a trench round the downwind side of their sampling apparatus, keeping as near to it as possible.

14. The observers on line EF will follow the cloud and endeavour to keep themselves in the centre of it for the whole time of its passage over them.

15. All sampling apparatus will be turned off as soon as possible after the passage of the cloud.

16. After exposure the observers from lines CD and EF will continue to wear their clothes for 4 hours.

17. Still pictures of the first 200 yards of the cloud will be taken at one minute intervals from a flank.

ADMINISTRATION

In charge of trial - M.E.O.

Responsible for final report - P.R.S.

C.E.O.

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

M.E.O.

Conduct of trial. Layout. Yard stick for spacing generators.

CHEM. S.

Sampling. Report.

P & M. S.

Decision as to number of generators to be used and their
spacing (O.M.&E. to be warned 2½ hours before zero). Meteor observations.
Inform M.E.O. in the field when generators should be lit. Provision
and positioning of impactors. Report.

PHOTO. S.

Photographs as indicated.

O. M. & E.

Charging of required number of generators in the field.
Functioning of generators. Report.

PHYS. S.

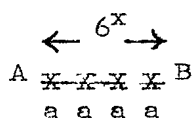
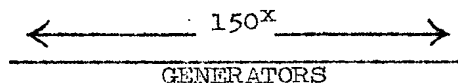
Provision and supervision of observers. Fitting of portable
injectors.

HJE/REA

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

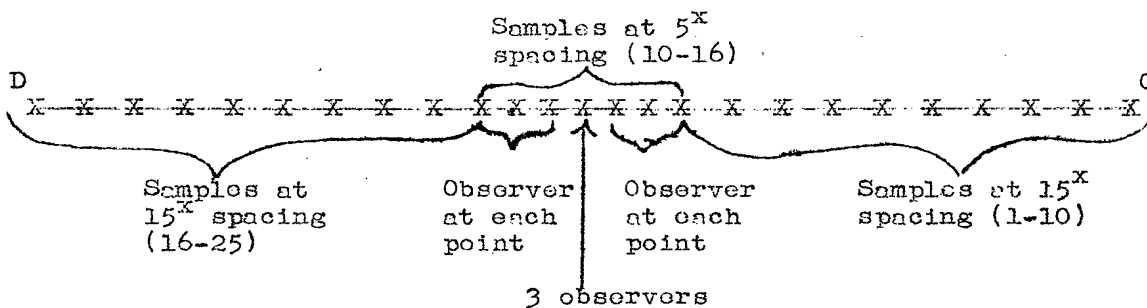
K. Birchall S/L
(K. Birchall) S/Ldr.
C.E.O.
Experimental Station

X = Chemical samples
at 3 feet.
a = observers.

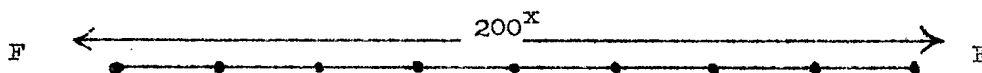


Samples and observers
on chairs at 2^x
spacing.

50^x
from
source



100^x
from
source



200^x
from
source

9 stakes at 25^x spacing
4 observers with portable
samplers following the cloud.

140995