

Lam d - 974

~~SECURITY INFORMATION~~

Redacted
Version

UNCLASSIFIED

~~SECRET~~

SAA 20006951 0000
Unique Document #

THIS IS A COVER SHEET FOR A CLASSIFIED DOCUMENT

TRANSMITTAL OF THIS DOCUMENT MUST BE COVERED BY A SIGNED RECEIPT. IT MUST NOT BE LEFT UNATTENDED OR WHERE AN UNAUTHORIZED PERSON MAY HAVE ACCESS TO IT. WHEN NOT IN USE, IT MUST BE STORED IN A LOCKED FILE OR SAFE. WHILE THIS DOCUMENT IS IN YOUR POSSESSION AND UNTIL YOU HAVE OBTAINED A SIGNED RECEIPT UPON ITS TRANSFER TO AN AUTHORIZED INDIVIDUAL, IT IS YOUR RESPONSIBILITY TO KEEP IT AND ITS CONTENTS FROM ANY UNAUTHORIZED PERSON.



~~RESTRICTED DATA~~

THIS DOCUMENT CONTAINS RESTRICTED DATA AS DEFINED IN THE ATOMIC ENERGY ACT OF 1946. ITS TRANSMITTAL OR THE DISCLOSURE OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED.

~~SECRET~~

UNCLASSIFIED

~~SECURITY INFORMATION~~

Att 210

~~SECRET~~
~~SECURITY INFORMATION~~
UNCLASSIFIED

Land - 974
This document consists of 6 pages.

Symbol: TM-23

Group Ref: TMG-M10

December 13, 1951

MINUTES OF THE TENTH MEETING OF THE THEORETICAL MEGATON GROUP

11 December 1951

1. The tenth meeting of the TMG was held on 11 December 1951 at 9:30 AM and 1:15 PM in the Rhines Raum. Those present were:

H. Agnew	J. C. Mark, Chairman
W. Bouricius	H. L. Mayer
G. A. Cowan	N. Metropolis
F. de Hoffmann	L. W. Nordheim
B. E. Freeman	W. E. Ogle
R. W. Goranson	L. G. Peck
A. C. Graves	F. Reines
G. M. Grover	J. R. Reitz
M. G. Holloway	R. D. Richtmyer
E. H. Krause	M. Rosenbluth
R. B. Lazarus	J. L. Tuck
C. L. Longmire	M. C. Walske

B. E. Watt

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW
1. DETERMINATION (CIRCLE NUMBER(S))
2. CLASSIFICATION RETAINED TO:
3. CONTAINS NO DOE CLASSIFIED INFO
4. COORDINATE WITH:
5. CLASSIFICATION CANCELLED
6. CLASSIFIED INFO BRACKETED
7. OTHER (SPECIFY):
1ST REVIEW DATE: 7-31-87
AUTHORITY: OAC/DAC/DAOD
NAME: [Signature]
2ND REVIEW DATE: 9/2/97
AUTHORITY: [Signature]
NAME: [Signature]

2.

3. The main agenda topic of the meeting was concerned with discussion of measurements for Snapper and Ivy. Some earlier considerations were held on 24 October 1951 and reported in the minutes of the 4th meeting of the TMG. The following remarks relate only to observations for Ivy because there was not sufficient time to discuss those for Snapper.

Reines, Ogle and Mayer had been asked to make a preliminary evaluation of information wanted and feasibility of associated measurements. The following items are not necessarily in the same order in which they were listed nor discussed.

(a) Simple α_n measurement.

UNCLASSIFIED

~~RESTRICTED DATA~~

This document contains restricted data as defined in the Atomic Energy Act of 1954. Its transmission or the disclosure of its contents in any manner to an unauthorized person is prohibited by law.

~~SECRET~~
~~SECURITY INFORMATION~~

UNCLASSIFIED

~~SECRET~~



Fig. 1

DOE
b(3)

~~SECRET~~

UNCLASSIFIED

000000-1

(2)

~~SECRET~~

DOE
b(3)

The alpha determination is to be tied into the time scale of the other events.

(b) Transit time is not required.

(c) Yield.

A yield value of sufficient precision can be calculated from alpha.

[Redacted]

DOE
b(3)

No particular interest was expressed in this measurement. However, this could be done, if desired, by the photographic methods discussed for (3.3).

3.3 Radiation temperature and propagation down the "explosive" channel.

Interest in this kind of an observation has been discussed (see minutes of the 3rd and 4th meetings of the TMG).

It is proposed to look at a series of spots (some raised) by means of a smear camera. It is expected to measure propagation rate plus an indirect measurement of pressure (and thus temperature).

[Redacted]

DOE
b(3)

A time discrimination of a few shakes will be required for this observation.

[Redacted]

DOE
b(3)

It was agreed that this was desirable information.

[Redacted]

DOE
b(3)

This will give some kind of an integral expression for pressure.

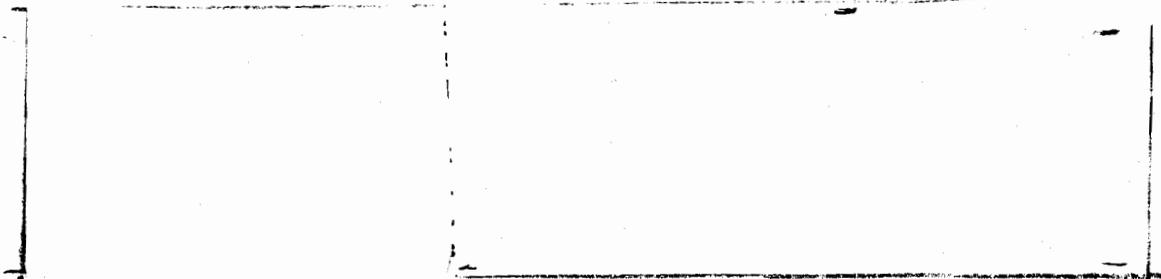
A related, and more pertinent, determination would be compression of D_2 as a function of time, discussed below.

~~SECRET~~

DOE
b(3)

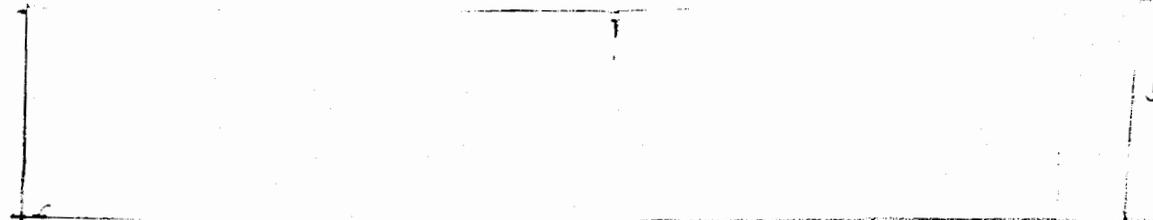
3.5

It was proposed by Reines that, by using a shield, scintillator sheet, and collimated holes, the motion could be observed by means of the accompanying increase in gamma activity as the material swept by. Photographic recording was considered in order to avoid heavily shielded cables; some electronic coupling would be necessary in order to relate this phenomenon in time with the other events.



DOE
b(3)

3.6 Compression of D₂ as a function of time.



DOE
b(3)

Mayer felt that, because of the uncertainty in the equation of state, at least one point should be obtained on the compression curve.



DOE
b(3)

DOE
b(3)

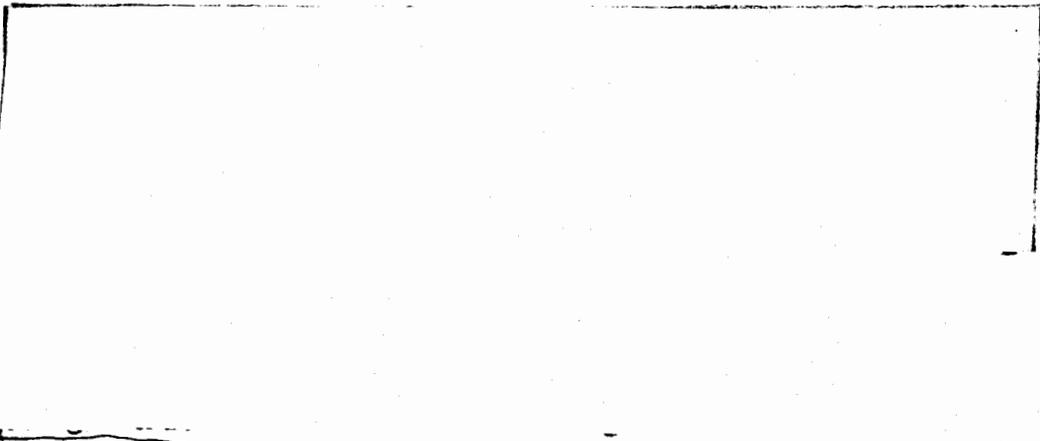
Despite interest in information on D compression, no satisfactory method of obtaining data was proposed.

DOE
b(3)

~~SECRET~~

3.8 Efficiency of burning.

Among the radiochemical detectors proposed are



DOE
b(3)

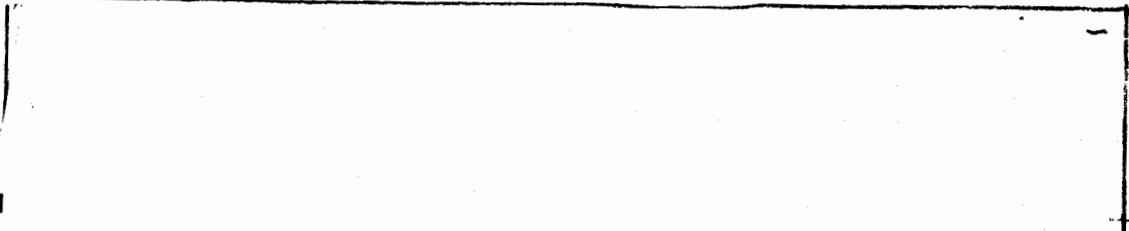
It was agreed that determination of these quantities was worth considerable effort.

3.9



DOE
b(3)

3.10 Rate of rise of the reaction.



DOE
b(3)

A good spatial and time resolution (~ 1 shake) can be obtained by looking at the 14 mev neutrons.

DOE
b(3)

There was considerable debate on whether to accept distant observations of gammas with a 3-4 shake time resolution or ask for close-in observation of 14 mev neutrons with 1 shake time resolution. The latter would require heavy shielding and good

(5)

~~SECRET~~

UNCLASSIFIED

~~SECRET~~

discrimination at a cost, estimated by Ogle, of about 4 megabucks. No general agreement was reached in respect to whether the Group would be satisfied with a rough picture of the sequence of events or require the finer detail.

The scintillator device suggested by Reines (3.5) might have some possibilities here and is being investigated.

R. W. Goranson

R. W. Goranson

Distribution:

- 1A - H. Barschall
- 2A - W. Bouricius
- 3A - N. E. Bradbury
- 4A - S. W. Burriss
- 5A - B. G. Carlson
- 6A - F. de Hoffmann
- 7A - B. E. Freeman
- 8A - D. K. Froman
- 9A - R. B. Gibney
- 10A - R. W. Goranson
- 11A - A. C. Graves
- 12A - L. E. Hightower
- 13A - M. G. Holloway
- 14A - F. C. Hoyt
- 15A - E. R. Jette
- 16A - R. M. Landshoff
- 17A - R. B. Lazarus
- 18A - C. L. Longmire
- 19A - J. C. Mark
- 20A - H. L. Mayer
- 21A - N. Metropolis
- 22A - L. W. Nordheim
- 23A - W. E. Ogle
- 24A - L. G. Peck
- 25A - F. Reines
- 26A - J. R. Reitz
- 27A - R. D. Richtmyer
- 28A - M. Rosenbluth
- 29A - R. W. Spence
- 30A - P. R. Stein
- 31A - E. Teller
- 32A - J. L. Tuck
- 33A - M. C. Walske
- 34A - B. E. Watt
- 35A - J. A. Wheeler
- 36A - H. F. York
- 37A - Report Library
- 38A - Report Library

~~SECRET~~

UNCLASSIFIED

(6)

2025-1