LAMD-908 I

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DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW

1ST REVIEW DATE: 02-2016 DETERMINATION (CIRCLE NUMBER)

1. CLASSIFICATION RETAINED
2. CLASSIFICATION CHANGED TO:
3. CONTAINS NO DOE CLASSIFIED INFO

NAME:

2ND REVIEW DATE: 7-2-97

AUTHORITY: RDD

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Group Ref: TMG-M4

October 29, 1951

MINUTES OF THE FOURTH MEETING OF THE THEORETICAL MEGATON GROUP

24 October 1951

1. The fourth meeting of the TMG was held on October 24, 1951, at 8:30 a. m., in Room T-251. Those present were:

N. E. Bradbury	J. C. Mark, Chairman
A. A. Broyles	H. L. Mayer
W. Bouricius	L. W. Nordheim
F. de Hoffmann	L. G. Peck
J. J. Devaney	R. D. Richtmyer
R. L. Garwin	B. R. Suydam
R. W. Goranson	E. Teller
R. M. Landshoff	J. L. Tuck
R. B. Lazarus	M. Carl Walske
C. L. Longmire	R. E. Watt

2. [redacted] DOE b(3)

2a. The ACF group is presently planning on a tower 60 feet high by 40 feet square with three floors at 20 foot intervals. [redacted] DOE b(3)

Early ball of fire requires ground clearance, the late characteristics do not. However, tower perturbation will be such that a 20-40 foot elevation will make no difference.

[redacted] DOE b(3)

2b. Photographic documentation:

i. Framing camera to run at about four frames per microsecond (see minutes of third TMG meeting) for observing the behavior of the envelope.

ii. Smear camera as described in the minutes of the third TMG meeting.

iii. Standard ball of fire observations. B. O. F. will give something less than twice the yield because of

ground loss. Assuming black body absorption for radiation and a reflector hydrodynamically it is expected to give a yield value within twenty percent.

iv. NRL is interested in making shawdowgraph spectrogram observations through the bomb cloud.

[redacted]

DOE b(3)

It was considered as being perhaps of phenomenologic but not of diagnostic interest.

2c. Radiochemistry.

From air samples (which are expected to be small) radiochemical analyses will be capable of measuring yield.

[redacted]

DOE b(3)

[redacted]

DOE b(3)

[redacted]

DOE b(3)

2d. Radiations:

1. Alpha of primary bomb.

[redacted]

DOE b(3)

11.

[redacted] DOE b(3)

Number of mean free paths for inelastic scattering of 14 Mev neutrons are as follows

	Number of MFP
[redacted]	

[redacted] DOE b(3)

[redacted] the attenuation was in doubt by a factor 10, one would still have a good measure of the compression.

[redacted] DOE b(3)

[redacted] DOE b(3)

[redacted]

DOE b(3)

Harris did not consider the results would justify the effort. Long range observation will yield time of beginning and end of burning and thus propagation time.

[redacted]

DOE b(3)

It was decided by the TM Group to request now (a) the long distance observations and (b) what it would mean in effort to get the information which requires close detectors plus collimation plus shielded coaxial cable.

2e. AFSWP is preparing to measure air blast, thermal radiation, contamination by gamma radiation, ground shock, and water waves. The last two will be atypical and consequently be determined only by simple means.

3. Steel case test for Snapper.

de Hoffmann presented results of some CPC calculations of rate of growth of "Taylor instability" for three SEAC implosion problems (2, 4, and 101).

[redacted]

DO b(

[redacted] DOE b(3)

With a non-linear combination of wave lengths the picture may be much worse.

[redacted] DOE b(3)

4. Handbook of nuclear data.

Mark thought that a handbook containing such nuclear data as recommended cross-sections would be desirable.

Tuck and Devaney have agreed to try and compile such a handbook. Group members were asked to provide them with suggestions as to information desired.

Tuck pointed out that the usefulness of such a compilation was dependent on early availability.

R. W. Goranson

RWG:li

Distribution:

1A - H. H. Barschall
2A - W. Bouricius
3A - N. E. Bradbury
4A - B. Carlson
5A - F. de Hoffmann
6A - B. E. Freeman
7A - D. K. Froman
8A - R. W. Goranson
9A - M. G. Holloway
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