

Lawrence Berkeley National Laboratory

Recent Work

Title

MINUTES OF MEETING OF MTA REVIEW COMMITTEE HELD SEPT. 26, 1951.

Permalink

<https://escholarship.org/uc/item/2sj7p108>

Author

Moore, Milton F.

Publication Date

1951-09-26

UNIVERSITY OF CALIFORNIA - BERKELEY

~~SECRET~~

UCRL-1488

~~CAUTION~~

DECLASSIFIED

This document contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, United States Code, Sections 793 and 794, and the transmission or the disclosure of its contents in any manner to an unauthorized person is prohibited and may result in severe criminal penalties under applicable Federal laws.

~~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.

TWO-WEEK LOAN COPY
This is a Library Circulating Copy
which may be borrowed for two weeks.
For a personal retention copy, call
Tech. Info. Division, Ext. 5545

RADIATION LABORATORY

UCRL-1488
c.2

DISCLAIMER

This document was prepared as an account of work sponsored by the United States Government. While this document is believed to contain correct information, neither the United States Government nor any agency thereof, nor the Regents of the University of California, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or the Regents of the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof or the Regents of the University of California.

~~SECRET~~

UCRL-1488
Technology - Materials
Testing Accelerator

DECLASSIFIED

UNIVERSITY OF CALIFORNIA
RADIATION LABORATORY
Contract No. W-7405-eng-48

CALIFORNIA RESEARCH & DEVELOPMENT COMPANY
Contract No. AT(11-1)-74

MINUTES OF MEETING OF MIA REVIEW COMMITTEE
HELD SEPTEMBER 26, 1951

Milton F. Moore

~~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.

CAUTION

This document contains information affecting the National Defense of the United States. Its transmission or the disclosure of its contents in any manner to an unauthorized person is prohibited and may result in severe criminal penalties under applicable Federal laws.

Berkeley, California

~~SECRET~~

CLASSIFICATION CANCELLED

BY AUTHORITY OF THE DECLASSIFICATION
BRANCH USAEC

BY B. F. Fobett 3-15-57
SIGNATURE OF THE PERSON MAKING THE CHANGE DATE

~~SECRET~~
DECLASSIFIED

UCRL-1488
Technology - Materials
Testing Accelerator

-2-

STANDARD DISTRIBUTION: Series A

Copy Numbers

Atomic Energy Commission (Production Division), Washington	1
Atomic Energy Commission (Production Division), San Francisco	2
Atomic Energy Commission, Washington	3-5
Chicago Operations Office	6
Patent Branch, Washington	7
Technical Information Service, Oak Ridge	8-12
University of California Radiation Laboratory	13-29

RESEARCH SERVICE BRANCH
Atomic Energy Commission
Berkeley Area
Berkeley, California

~~SECRET~~
DECLASSIFIED

DECLASSIFIED

MINUTES OF MEETING OF MTA REVIEW COMMITTEE
HELD SEPTEMBER 26, 1951

Present: UCRL: Alvarez, Bradner, Brobeck, Latimer, Lawrence, Lofgren,
Norton, Pitzer, Reynolds, Thornton, Twitchell

CR&D: Cope, Hansen, Hildebrand, Kent, Mayer, Miller, Powell

AEC: Derry, Fidler, Flaherty, Fleckenstein, Moore, O'Donnell

Hildebrand opened the meeting by describing the program on the Mark I accelerator. The shot peening has been completed, but the cleaning-up process has not. The contract with DPI to convert oil diffusion pumps to mercury has not been completed and 24 pumps have been shipped. The remaining 24 pumps will be shipped when it has been decided whether it will be necessary to pump down again before completion of liner installation. It is thought that all the converted diffusion pumps will be back from DPI in November. The No. 1 power supply is in the stage of being tested. The earliest completion date for Mark I turn-up is late February or mid-March, depending upon whether it is possible to simultaneously perform head welding and installation of liner panels.

Concurrent installation of liner panels and welding of the vessel heads is possible providing the fumes from welding and the dust from wire brushing of the weld are not considered a serious problem preventing clean-up once the panels are installed. If it is not possible to do the above jobs simultaneously there will be an additional delay of three weeks in construction. It was the consensus that, even though the fumes and dust would create a problem, the work should be done concurrently. It was decided that most of the fumes could be removed from the tank by means of temporary ventilation.

Brobeck wanted to know whether it had been decided to wash the tank. The consensus was that no attempt should be made to do so. Washings on test panels show no improvements in the X-ray level.

Brobeck listed all of the units UCRL is assembling for Mark I and pointed out the percentage completion and necessary design changes. It is not anticipated that any portion of the work assembled by UCRL will delay the completion date of Mark I.

~~SECRET~~

DECLASSIFIED

<u>Drift Tube</u>	<u>Number of Units Complete</u>	<u>Percent of Total Assembly</u>	<u>Are Design Changes Necessary?</u>
Support	0/8	75	Yes
Stem	8/8	99	No
Shell	1/8	70	Yes
Magnets	2/8	95	Yes

The space between the drift tube shell and the magnet will be evacuated through the drift tube stem by an external connection from stem to vessel.

	<u>Number of Units Complete</u>	<u>Percent of Total Assembly</u>	<u>Are Design Changes Necessary?</u>
Oscillator	4/19	70	Yes
Pre-exciter	0/2	70	Yes
Injector	0/2	35	Yes

With regard to the oscillators, all designs have been frozen, with the exception of the parasitic suppression rings.

Twitchell commented that a tough engineering problem is making a 20-inch diameter rotating vacuum seal to work in a dry condition. This vacuum seal is to be used on the pre-exciter transmission lines.

Hildebrand presented a CR&D problem concerning negotiations for A-12 engineering contracts. The contracts for the first phase (general engineering studies) are about completed and the second phase (detailed engineering) should be started. The problem is the freezing of a few fundamental parameters of A-12 such as length and diameter of the vessel so that detailed studies may proceed. If we are not in a position at this time to freeze the design to this extent then a cut-back in the engineering effort is necessary. For CR&D to make a decision on the engineering effort required it is necessary that UCRL state their position relative to design freezing.

UCRL representatives stated that there are objections to a design freeze at the present time. Allowing the engineers to go ahead now on detailed engineering drawing of a design based upon a few frozen parameters would build up a large amount of engineering inertia precluding the possibility of major changes in tank dimension, even though advantageous. Such changes are entirely possible and can be more firmly

stated after completion of tests in the near future using the B-1 cavity. These tests are being made to determine in large cavities at high voltage gradients whether X-ray production and excessive sparking can be controlled by pre-treating cavity surfaces. Similar tests on small cavities showed that such control is possible.

If the B-1 cavity tests confirm the previous results a decision may be reached to use long thin drift tubes ("stove-pipe" drift tubes) for A-12, and/or to shorten the tank. These changes in tank dimensions increase the shunt impedance and therefore increase the operating efficiency. Lawrence stated that the B-1 cavity tests are a turning point concerning the tank dimensions.

It was agreed that the problem concerning detailed engineering should be looked at carefully before reaching a decision.

UCRL and CR&D will discuss all aspects of this problem immediately in order to reach a decision in the near future.

DECLASSIFIED

SECRET