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MINUTES OF MEETING OF MTA REVIEW COMMITTEE HELD APRIL 17, 1951

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Technology - Materials
Testing Accelerator

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MINUTES OF MEETING OF MTA REVIEW COMMITTEE
HELD APRIL 17, 1951

E. D. Fleckenstein

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MINUTES OF MEETING OF MTA REVIEW COMMITTEE
HELD APRIL 17, 1951

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Present: UCRL: Alvarez, Brobeck, Cooksey, Latimer, Lofgren, Longacre,
McMillan, Norton, Panofsky, Reynolds, Thornton, Van Atta

CR&D: Maker

AEC: Ball, Fidler, Fleckenstein

Maker presented the details of the present liquid nitrogen traps and ways by which their capacity might be increased.

At present each of the five pump manifolds on Mark I is provided with two $3\frac{1}{2}$ " O.D. x 19'6" long pipes to serve as liquid N₂ traps. This system will require liquid N₂ at the rate of 400 lbs./hr. at a cost of \$85,000 per year (@ 5.8¢ per lb.). It would be possible to double the number of cooling tubes and to supply each tube with two $\frac{1}{4}$ " thick, 8" long fins and thus increase the trapping area from its present value of 181 sq. ft. to 1412 sq. ft. The nitrogen consumption for this latter system would be 2500 lbs./hr. and would cost \$880,000/yr. (@ 4.9¢ per lb.). It is clear that if we are actually to require quantities of liquid N₂ approaching this latter figure it would be best to build our own liquid N₂ plant at the site. The cost of adding the additional cooling tubes and providing fins would probably be about \$10,000. The storage tanks for liquid nitrogen for a 3-day capacity are supplied rent free by the nitrogen supplier.

Lofgren said the only way we will determine the necessity of the trapping is to install the traps as originally planned. If it is found that additional trapping is necessary then it would be desirable to design a more efficient trapping system than adding fins to the present pipes.

Lawrence asked about CO₂ cooling. Maker said no detailed study has been made. McMillan thought CO₂ is not cold enough and that it would only trap water as ice and prevent it from being pumped out. Lofgren said his main concern is to provide baffling to hold back the pump oil and this can be accomplished with CO₂. Alvarez stated that some tests to study trapping were being planned for the 200-megacycle electron model. Lawrence suggested that tests be made on the B-1 cavity to determine the effectiveness of holding back pump oil by CO₂ baffles.

Brobeck sketched the 3-year Mark II schedule showing accelerator operation starting in April 1954 and production beginning 6 months later. Design of the Mark II tank must be available in August to carry out this schedule.

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Maker said that the location of the supporting ribs for the first 100 feet cannot be determined until the drift tube positions are known because of the close spacing of the drift tubes near the front end. It is not necessary to know the exact location of the other drift tubes in order to design the tank.

Panofsky said that in the draft of the new feasibility report one important case for Mark II was not considered. The omitted case is that of operating Mark II CW with a 100 ma beam. This is a very important case and may prove to be the one under which the Mark II is built. Panofsky pointed out that the 100 ma CW is much more favorable than 100 ma PW except if a sparking problem at long pulse lengths is found by Mark I operation. Norton pointed out that a factor to be considered is whether or not the power company can supply sufficient power in time to operate 100 ma CW.

Reynolds said that they have been studying the problem of supplying the additional power at Livermore to accommodate the work being transferred there. It is now known when power and water will be available and this is the present limitation on the schedule for moving groups to Livermore.

The next review meeting will be two weeks from today.



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