

MINUTES OF PROJECT M MEETING NO. 30

Date: November 20, 1959.

Place: Room 104, Physics Lecture Hall.

Present: Bunker, Breymeier, Brown, Christie, Copenhagen, Crabtree, Dedrick, Edwards, Eldredge, Elg, Chu, Gallagher, Goertz, Jones, Kirk, Kraus, Lebacqz, Loew, Mallory, Meloni, Moulton, Mozley, Neal, Pindar, Pope, Sonkin, Snyder, Taylor, Turner

Next Meeting: December 4, 1959, Room 104, Physics Lecture Hall at 4:10 p. m.

I. Project M Reports

Kirk noted that a master list of Project M documents is now being compiled. He suggested that anyone in the group who has in the past originated documents which might be placed in this list should communicate to him, in writing, the names, dates, and authors of these documents so that they might be so incorporated. When originating any future documents for Project M, please contact Kirk at the time of preparation for the assignment of an identifying number.

II. Handling of Project M Personnel Matters

Omar Snyder will now handle all applications, screening, etc. for professional personnel who may be interested in joining the Project M group. As in past, Marsh O'Neill will continue to handle personnel matters for technicians and so on.

III. To Whom Prospective Buyers Should Speak

Since our group has grown somewhat in recent months, and since it has never been entirely clear just who does what, Ginzton noted that we shall soon prepare a revised list of which of our people prospective suppliers should be referred to.

IV. Review of the General Status of the Project

The bulk of this meeting was devoted to a general review of the present status of the project, with Mr. Ginzton doing the talking. Ginzton noted that the Joint

Committee on Atomic Energy Congress has voted unanimously for the project, but that it has not yet reported the Authorization Bill to the floor of Congress. Chairman Anderson of the JCAE seems not to be wholly satisfied with three specific aspects of the project: (1) the "conflict of interest" situation, (2) the matter of obtaining the most economical power for the project, and (3) the possibility of earthquake hazards at the project site.

In regard to the first of these reservations, several things have happened which should clarify this matter. The Board of Trustees of Stanford University has waived any royalties that Stanford might obtain from the klystrons used in the project. (The fact is that Stanford would not have got any klystron royalties anyhow. All Stanford income from klystron royalties will cease in February, 1960.) Varian Associates has formally declared its intention not to bid on any aspect of the Project M work; or, if asked to bid, will participate in the project only on a non-profit basis.

In regard to the second item mentioned above, Stanford believes that the matter of most economical power is one that must be resolved by the AEC and others. Since power in quantity will not be required for several years at least, there is plenty of time to make suitable arrangements.

In regard to item number three above, we think that the question of potential earthquake hazard at the site has been fairly well answered. Past and present geological evaluation of the Stanford site indicates no unusual earthquake hazard, and there has been the precedent of many large tunnels in California which have successfully withstood the earthquakes which have occurred.

In summary of the congress's position, it appears that no further action is required by the JCAE, but it is certainly the case that Chairman Anderson must be satisfied with the project arrangements before his committee will report the bill out to the floor. For Anderson to be satisfied, it seems clear that he must be assured by Chairman McCone of the AEC that all questions of site, prospective contractual arrangements, conflict of interests, etc., have been satisfactorily resolved with Stanford.

Ginzton then went on to note that the Project M accelerator is only a part of this country's large program in high energy physics. The President's Scientific

Advisory Committee has looked carefully at the matter of overall government support for high energy physics in this country. In this committee's report, it was recommended that first priority be given to adequate funding of existing machines, and that new machines be a matter of second priority. Although the Stanford machine was given first place among the desirable new machines, Chairman McCone is now concerned that the existing machines may require a good deal more support than had been previously thought. An attempt to forecast the future needs of the existing accelerators will be made on December 31, when Chairman McCone will meet with the heads of the various national laboratories.

Ginzton then noted that President Sterling will meet with Chairman McCone sometime in the near future (perhaps in December), at which time it is expected that many of the details of the contract that may come to exist between the AEC and Stanford will be ironed out.

The consensus view of the project's probability is still that it will very likely go through, perhaps with a contract of some sort existing between Stanford and the AEC as early as July, 1960, or so. Snyder mentioned at this point that a Mr. Van Horn, who has been the AEC Area Manager at Brookhaven, has now been assigned to a similar position with the Stanford project, which would appear to be an encouraging sign.

Ginzton went on to describe the present PA-1 program and its future plans. For the past year or so, the PA-1 program has been operating at a level of approximately \$400,000.00 per year. Stanford has presently before the AEC a proposal to continue the PA-1 program for the next seven months (to 1 July 1960) with expenditures during this period of \$1,370,000. The Division of Research of the AEC has given its general approval to this budget, but as yet the full commission has not acted upon it. In the meantime, the AEC has instructed us to continue the PA-1 work in December and January at the previous, rather smaller, rate.

For the period covered by our seven month proposal, it is the intention of the project to expand its professional staff very little, perhaps only two or three new people. However, provision is made for the acquisition of a sizable number of new technicians. Also provided for in the proposed seven month budget are an increase in the daily operation schedule of the Mark IV Accelerator, and funds for preliminary investigation of such things as

accelerator waveguide fabrication techniques, equipment for model sections, modulator studies, etc.

V. Space Requirements and Scheduling Problems

A discussion of space requirements and scheduling problems was held, with Snyder and Copenhagen doing most of the talking. It was noted that the staff presently working on Project M consists of about 22 professional people, 25 technicians, etc., and Kirk, for a total of 47 and $\frac{1}{3}$. By July 1, 1960, the total number will have increased to about 60, to about 140 a year later, and to about 200 or more a year later than that. It seems likely that no buildings will exist on the accelerator site for at least two years after the date on which the project will start (presumably around 1 July 1960). There is a need, therefore, for temporary space to accommodate large numbers of people during this time. We are now investigating several possible ways for acquiring this temporary housing.

In the matter of scheduling, several people drew six year maps on the board, into which they fitted the sequence from design to manufacture or procurement of various items such as accelerator waveguide and klystrons. Snyder noted that the six year construction schedule now visualized requires that about 99% of the hardware must be ready at the end of five years in order to leave one year to put the thing together and get it going. It was agreed that an interesting time would be had by all during these six years.

VI. Organization

The project has had little in the way of formal organization in the past, a system (or a lack of a system) which has both advantages and disadvantages. It seems desirable now to establish tentatively a somewhat more formal organization than we have hitherto had, so that it becomes clearer to all of us who does what, who decides what, etc. This will at least have the advantage of making it easier to decide who prospective vendors should see when they call upon us.

VII. Responsibility for the Accelerator Project

Ginzton briefly discussed the matter of division of responsibility between Stanford and the AEC in the project. No formal decisions have yet been made in this area. In general, Stanford wishes to retain their responsibility for design and specification of nearly all items on the

project, and the AEC wishes to have direct responsibility for the actual construction of buildings and tunnels. Whatever is decided in the matter of division of responsibility will come from the future negotiations between Stanford and the AEC.

VIII. Site Location

The geological work to date on the site originally proposed at Stanford has tended to indicate that the site is in fact a feasible one, but it may be that the geological conditions are such that some other site would be more suitable for economic or other reasons. At the present time, therefore, the AEC has asked John Blume & Associates to make preliminary investigations of other sites. Two of these other sites are now being studied, namely, Moffett Field and Coyote Hills (across the Dumbarton Bridge). A site directly on Stanford land would of course have many advantages, but it is our intention to weigh objectively the pros and cons of the several possible sites.

Meeting adjourned: 5:20 p. m.