

MINUTES OF PROJECT M MEETING NO. 31

Date: December 4, 1959.

Place: Room 104, Physics Lecture Hall.

Present: Breymayer, Brown, Bunker, Chu, Copenhagen,  
Crabtree, Dedrick, Edwards, Eldredge, Gallagher,  
Ginzton, Goerz, Jasberg, Jones, Kirk, Kraus,  
Lebacqz, Loew, Meloni, Moulton, Mozley, Neal,  
Pindar, Pope, Snyder, Turner.

I. Report of Project Status

Mr. Ginzton began the meeting by listing the day's topics: politics, site, and estimated project costs.

A. Politics

We now have before the AEC a proposal to extend Contract PA-1 for 7 months. At the present time, however, the AEC has agreed only to extend PA-1 through the months of December and January at the present rate of expenditure (approximately 75,000 dollars per month). A meeting will take place in Washington on December 9, at which President Sterling and others from Stanford will discuss with Chairman McCone and his colleagues several project matters, including the proposed contract extension.

The project study now being conducted by John A. Blume and Associates is due in the hands of the AEC by December 16. Apparently the AEC wishes to be prepared to go to Congress with complete information about the project on hand by the time that the second session of Congress reconvenes in January.

Mr. Ginzton then described to the group the meeting that was recently held at Brookhaven National Laboratory. At this meeting, all of the major facilities for high energy physics research in the United States made an attempt to forecast their plans and financial requirements for the next five years. This meeting was called by Mr. McCone, who is understandably concerned about the high cost of the nation's high energy physics program. It will be instructive to compare the results of the Brookhaven meeting with the level of support that was recommended by the GAC-PSAC combined committees last year. The total cost of the nation's high energy physics program is a matter of national policy, and it is apparent that decisions in this area will rather strongly affect Project M.

B. Site

Mr. Ginzton briefly reviewed the various cost estimates that have been made of the originally proposed parallel tunnel site in the foothills behind the university. These are as follows:

<u>Source</u>	<u>Year</u>	<u>Estimated Cost</u>
Utah	1956	\$ 9 Million
Kaiser	1958	\$ 16 Million
AEC	early 1959	\$ 18 Million
Blume	early 1960	\$ 23 Million

The difference between the AEC and Blume estimates is largely attributable to the "swelling" and "squeezing" ground that the recent drilling operations have found to be present in the tunnel site. Although this site is still a feasible one, it appears that rather heavy tunnel support and steel reinforcement would be required if it is used.

Two other possible sites have been investigated by Blume in his recent study: Moffett Field, and Coyote Hills. Cut and cover techniques would be used at either of these sites, since they are both comparatively level. A first tentative assessment of the site work at both of these sites shows that each would be some \$ 6 - 10 M less expensive than the original Stanford tunnel site.

There is a good possibility that other suitable sites on the Stanford lands can be found. When our original proposal was submitted, in April, 1957, these other sites were not available to us, and it is not at all clear that they are now. These other Stanford sites will be investigated, and should they seem suitable, it may be that the Stanford Board of Trustees will be asked to approve one of them for the use of the project.

#### C. Estimated Project Costs

We have learned that the total estimated project cost arrived at by Blume in his study will be approximately \$ 127 M. This is \$ 22 M higher than the previous working figure of \$ 105 M. This increase can be divided, almost equally, among three factors: geology, increased power requirements and other changed specifications, and escalation. About escalation, there is obviously nothing we can do. In regard to geology, it may be that the additional costs required for the original tunnel site will make it less suitable than other useable sites. This matter is being looked into. The third item, the cost increases that have resulted from certain proposed changes in specifications (increasing the pulse repetition rate to 360, for example), this is a matter over which we can exercise some control. We shall undertake a reexamination of certain of these specifications with a view toward reducing the additional costs that seem to be involved (and perhaps eliminating some items) without sacrificing any of the essential machine characteristics.

There followed a long discussion of the subject of estimated costs noted above.

Adjourned: 5:05 p. m.