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Internal Memorandum
Report No. M-249
February 1961

PROPOSED METHOD OF BEAM STEERING AND DEGAUSSING
FOR THE TWO-MILE ACCELERATOR

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As a result of discussions during a recent design meeting,^{*} it was recommended that steering coils and magnetic shielding material be eliminated from the two-mile accelerator and that the combined functions of degaussing and steering be accomplished solely by means of a number of degaussing coils running the length of the accelerator.

In the proposed design, the degaussing coils would be divided into sectors (e.g., 320 ft) and each coil would have its own power supply and controls. Either manual or automatic control of the degaussing coils would be feasible using signals from enroute beam monitors and/or transverse position indicators.

Advantages of the method described above are as follows:

1. Elimination of steering coils would reduce the number of control functions and would result in lower cost of the control system and increased ease of operation.
2. The use of a large number of individual degaussing systems along the accelerator length will reduce the accuracy to which the degaussing current must be maintained compared to the accuracy required in the case of a single degaussing coil extending over the entire length. This improvement arises from the reduced effective error resulting from the statistical averaging of a number of errors randomly distributed about the correct value.

* Attended by Brown, Eldredge, Helm, Loew, and Neal.

3. Elimination of magnetic shielding material around the accelerator will result in:
 - a) increased simplicity in the accelerator support and water cooling assemblies;
 - b) less complication in case the accelerator is baked by means of externally applied heating elements.
4. The proposed method permits the use of a technique of checking accelerator alignment described in M Report No. 250. This technique can also be used to accomplish simultaneous re-alignment of the accelerator from a remote location without interference with normal beam operation.