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Reproducibility of linac and HEBT Parameters

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AGS Studies

Beam Transfer Studies — Sept. 26, 1973

van Steenbergen, Claus, Fewell, Gill, Sheehan — 1600-2400

Objective: Reset of linac and transfer parameters to May 24 values. Check on reproducibility of earlier linac performance parameters.

Results: During this period linac parameters were rechecked in detail. Its momentum corrected to "standard" value. As a result, all beam transfer parameters of May 24 could be implemented again, resulting in good stacking efficiency. Early beam monitor (3 msec) indicated an increase of 20% to 25% (up to 7 10^{12} ppp). Associated with the increased early intensity the phenomena (vacuum related, intensity dependent) of the vertical coherent instability recurred, which prevented detailed tuning for increased late intensity. Late intensities were $\cong$ 5-5.3 10^{12} ppp. Further, the May 24 local low field (dipole) corrections were implemented again. Injected beam effective turns ratio increased significantly from about 7.5 to 9.5, in machine losses were, however, traumatic. Some time was spent tuning gradient corrections but no quick result was forthcoming. This needs further study. Returned to present low field dipole and gradient corrections.

200 MeV emittance distributions were successfully obtained and the proper match for the exit of the inflector was calculated. Implementation of these data could not be done because of linac Mod. 8, 60 kV power supply failure at 2230.