

Jefferson Lab Alignment Group

DATA TRANSMITTAL

TO: Distribution

DATE: Mar 1st, 2001

FROM: C. J. Curtis

Checked: # L657

DETAILS:

During the enforced shutdown of February 2001, the alignment group undertook a resurvey of the elevations of most of the monuments around the accelerator, the beam switch yard and Hall B. This enabled a direct tie between the accelerator and the Halls, the first time this had been possible since 1994.

A free net adjustment was made of the accelerator only. This means that the datum chosen for the new observations was based on the mean of the previous elevations. Based on these results, one point was held fixed, data for the BSY and Hall B was added, and a full network adjustment was made.

The results (given below in millimeters) show maximum variations from previously defined elevations at a little over +/-1mm for the accelerator. The BSY (defined as up to the 3 way tunnel split) varies from +0.41mm near the West Arc to -0.98mm close to line A. Each of the BSY tunnels which lead to the halls show a significant, but gradual "sinking". In lines A and C this is in the order of 4mm, but in line B it reaches over 8mm. The average difference from previous values in Hall B is around 6mm. A graph showing the complete results is attached.

To deal with these differences it is possible to "smooth" out the variations around the accelerator. This is unlikely to work for the halls, however. It is proposed that the ideal elevation for beamline elements should change to closer reflect reality. I will contact the key people to see how this can be carried out.

	Mean	Max	Min	Last Survey
INJ	0.42	0.86	- 0.08	Jul 93
NL	0.32	1.14	- 0.40	Jan 92
EA	- 0.38	0.26	- 1.05	Jan 92
SL	- 0.52	0.14	- 1.34	Jul 93
WA	0.30	1.25	- 0.91	Dec 92
BSY	- 0.27	0.41	- 0.98	Jan 94
LineC	- 2.62	- 1.16	- 4.44	Jan 94
LineA	- 2.73	- 1.35	- 3.85	Jan 94
LineB	- 4.19	- 0.84	- 8.40	Jan 94
HallB	- 6.13	- 5.34	- 7.71	Jul 97

Distribution: A. Bogacz M. Spata
R. Carlini S. Suhring
K. De Jager W. Oren
B. Mecking M. Wiseman