

BROOKHAVEN NATIONAL LABORATORY

MAGNET DIVISION NOTES

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Date: June 30, 1992
No: 450-16 (RHIC-MD-160)
Task Force: RHIC
Title: Iron Density Variation Effects in RHIC Arc Quadrupole QRB

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Table 1: Effect of 1% reduction in iron density on QRB

Current(amp)	ratio	parts per 10^4
1.0	1.0000	0
3000.0	1.0000	0
5000.0	0.9995	-5
5500.0	0.9992	-8
8000.0	0.9984	-16

M E M O R A N D U M

DATE: 30 June 1992
TO: J.Cozzolino E.Willen
FROM: R.Gupta P.A.Thompson
SUBJECT: Iron Density Variation Effects in RHIC ARC QUADRUPOLE QRB

The iron density was reduced by 1% of nominal and the magnetic model was rerun. Table 1 presents the ratio of quadrupole strength with the reduced iron density to the full density strength.

At the design current(5000 A) the change is 5×10^{-4} . To comply with the tolerance of 5×10^{-4} , the iron weight should be controlled to 0.5%.