Comments on a review of Kicker Magnet, Power Supply, and Cooling System Design
July 1, 2002

Presenter: C. Jensen

1. (Reviewer: B. Boettinger) I think that the issue on page 3 of the handout, "There is considerable daily tunnel temperature variation near Q602, +/- 3C," should be investigated more closely due to the capacitance vs temperature coefficient of 0.47%/C. According to the handout, "Magnet temperature variations lead to an impedenace mismatch and a step in the flattop," it does not sound like the design can handle this temperature variance. I would suggest a better designed controller for this area or looking into a larger cooling system with adding a heating element (turn off element -- faster temperature response) for better control.

The cooling system has been re-designed to provide better temperature control.

2. (Reviewer: B. Boettinger) Some investigation has to be done on the connection between the capacitor lead and the conductor that is wrapped around the G-10 core in the PFN. Although this issue was not brought up during the review, but after, the concern for attaching the lead to the conductor without damaging the G-10 core is a valid one (this concern was brought up by Cris Jensen). Certainly some solution probably exists for this problem, but some experimentation with different welding techniques as well as different soldering techniques will have to be done.

OK

3. (Reviewer: P. Czarapata) The one comment I would make is to get the Florinert analyzed as soon as possible. The filters may only be taking the chunks out but it would be good to know if it still has the same chemical properties. It would also be good to decide what to do with the Florinert if it does become nasty stuff and has to be changed.

OK

4. (Reveiwer: B. Ducar) The NuMI Project should give clear attention to George Krafczyk's comments concerning testing of the system before installation. While this definitely presents a scenario where the kicker magnets are installed late in 2004, the value of testing can really pay off in long term reliability of the kicker system. If this is the decided course of action, the Project should NOT allow the preparation for the installation to be delayed. There is significant work for the Flourinert cooling and relocation of existing instrumentation around Q602 that can and should be accomplished earlier.

Done

5. (Reviewer: C. Jensen) I would really like to see a study where there are two batches of beam in MI; one goes to pbar for production and one goes to abort dump. I think there are a lot of possible SNAFU's in making this happen and it will be non-trivial to do. It would be good to know if there are any other changes that have to be made to existing MI systems before commissioning actually begins.

Multi-batch studies have been done. Other than a minor effect on the NuMI due to the MI52 kicker rise/fall time, there are no SNAFU's.

6. (Reviewer: C. Jensen) I would like to know from MI group, operations or high level RF what they think the source of the temperature variation is at MI-60 since I don't know where to start first.

The source of the temperature variation is not pertinent. The system should be designed to live within the existing environment.

7. (Reviewer: D. Pushka) This was not a detailed technical review. No calculations were examined or checked. Much of the mechanical design of the PFN remains to be completed.

OK. This has been done.

(Reviewer: D. Pushka) Since there had already been a sign off on a different set of kicker specifications, I have less than 100% confidence that the kicker requirements will not change again.

The kicker requirements were refined and signed off by the EE dept and the NuMI project.