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SUBJECT: TF OPERATION STARTING 2002 RUN PERIOD

Based on discussions at today's NSTX Departmental Meeting the following approach to increasing the TF operating envelope was agreed to:

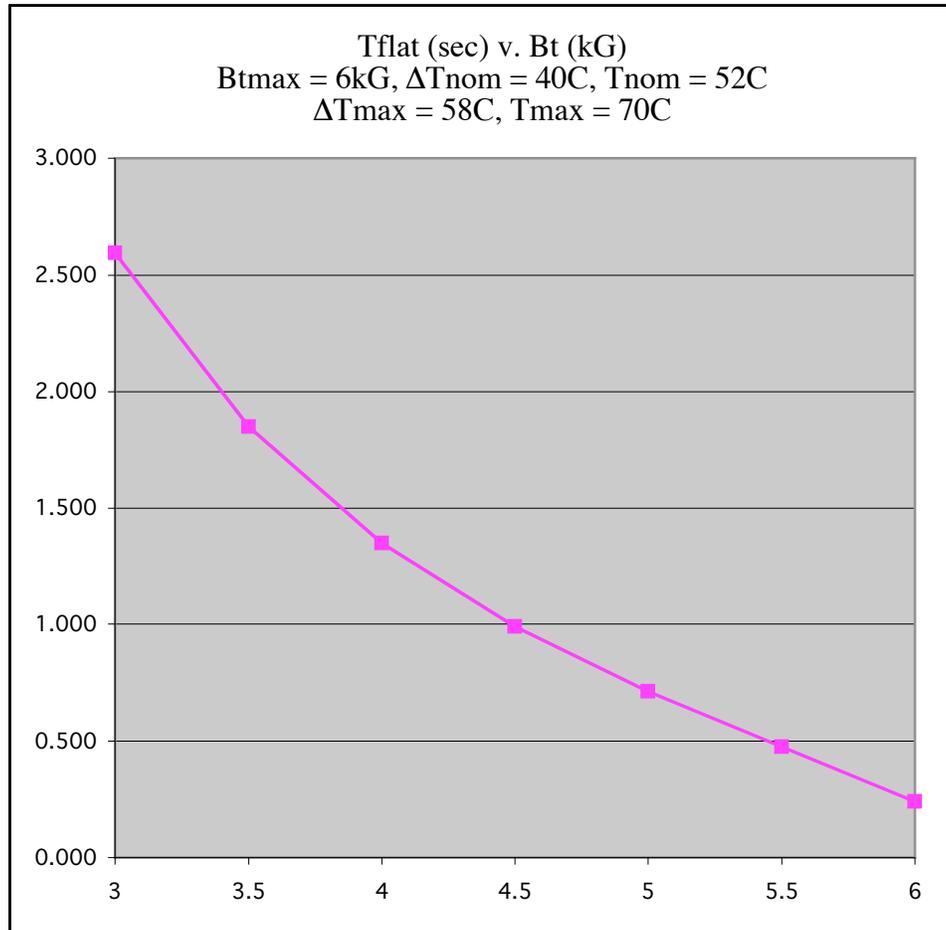
- 1) Operations commencing January 2002 will aim to allow B_t up to 4.5kG, with a flat top of approximately 1 second;
- 2) ISTP performed in January 2002 will include measurements to assess the temperature differentials resulting from reduced coolant flow in the epoxied TF inner leg turns. Adjustments to flow and/or rep rate will be made if necessary to limit differential temperature;
- 3) Research group will investigate near term needs for flat top time at 6kG;
- 4) Based on 3), the operating envelope will be increased in the March 2002 time frame to allow B_t up to 6kG with flat top time TBD.

Present plan for operating envelope is described in the following tables. It is noted that, at the flat top time given, the nominal end of pulse temperature will be the same in all cases. However, if there is a fault at or near the end of flat top, additional temperature rise will occur. Thus the maximum exposure to temperature rise differs somewhat for the 4.5kG and 6kG cases.

$$\begin{aligned}
 B_t &\leq 4.5\text{kG (6.0kG)} \\
 \Delta T_{\text{nom}} &= 40\text{C} \\
 T_{\text{nom}} &= 52\text{C} \\
 \Delta T_{\text{max}} &= 50\text{C (58C)} \\
 T_{\text{max}} &= 62\text{C (70C)} \\
 I^2T \text{ Trip} &= 3.45 \times 10^9 \text{ A}^2\text{-sec}
 \end{aligned}$$

Btf(kG)	Itf (Amp)	Tflat max (sec)
6*	71160	0.242
5.5*	65230	0.475
5*	59300	0.712
4.5	53370	0.991
4	47440	1.349
3.5	41510	1.849
3	35580	2.596

* = extended operation after March 2002



cc:

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