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Dr. Rulon Linford
Los Alamos National Laboratory
Nuclear Systems Program Office E529
Los Alamos, NM 87545
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Dear Rulon:

I would like to pass on my reactions to the discussions I heard in St. Louis. I am seriously worried that we are heading down the same path as we did with BPX, namely costing ourselves out of the market. To propose an ITER which can accomplish very ambitious goals with conservative physics assumptions, plus a >$1B nuclear tester seems irresponsible.

I would favor an ITER which can attain full goals if we make an allowance for optimistic extrapolations of present experience (e.g. H mode factor 3, $\beta_t = 5$, IA scaling) which would allow for a smaller, lower fusion power machine (Perkins has costed it at about .6 CDA). If the conservative assumptions are correct it would yield Q = 8 instead of ignition, still fairly satisfactory. By using aspect ratio 4, the device would also be capable of current drive and a decision could be made later on whether to implement it.

I am also leery of the high fluence part of the program, partly because it is such a big step, but also because the very large ITER constructed of present day materials would be so radioactive and because the tritium requirements may be difficult to meet, even though the extra cost to allow for such fluence testing is not great. Again, a smaller fusion power would help and in the long term the international program must include advanced materials development including a 14 Mev source which is not necessarily a Tokamak.

In short I believe conservative assumptions on financial expectations are likely to be more realistic than conservative physics assumptions, D-III in particular, has been seeing continuous improvement in performance. I hope you will see fit to pass this on to the other Panel I members.

Sincerely,

Marshall N. Rosenbluth

MNR:sc

cc: Anne Davies
R. Conn
D. Baldwin