

To: Mike Witherell: Director of Fermilab
Abe Seiden: P5 Chair
Jim Alexander: PAC Chair

From: Nick Hadley: DZero Institutional Board Deputy Chair
Terry Wyatt: DZero Institutional Board Chair

Dear Mike, Abe, and Jim:

We are writing to you as members of the DZero Collaboration at Fermilab in light of the recently released plan of the laboratory for the Tevatron collider. The fact that plans for an integrated luminosity for Run II as low as 5 inv. fb are now being considered is a source of serious concern, because of the implications for:

- the physics achievable during Run II;
- the Run IIb upgrade programme of DZero, and
- the ability of the non-US institutes to maintain their long-term commitments to DZero.

The physics potential of Run II remains absolutely compelling and the Tevatron provides incomparable opportunities for major discovery. With regard both to the detectors and the accelerator we believe that a determined and aggressive approach by all concerned offers the best chance for success.

With regard to the detector, our collaboration must ensure that the trigger and event reconstruction capability of DZero is maintained to the end of the decade. Indeed, we need to increase the efficiency in crucial areas such as tracking and b-tagging in order to maximize the signal samples expected for a given integrated luminosity. Our Run IIb upgrades are on schedule, and significant funds have already been spent on them, including those from two NSF MRI awards. The upgrades have passed numerous external reviews, and are being well managed. We expect neither major schedule changes, nor cost over-runs. We wish to reaffirm our very strong support for the Run IIb upgrades, as discussed in our letter to Abe on March 17, 2003.

We intend to operate the detector to the end of the decade and to extract the maximum possible breadth and quality of physics results from the collected data. In order to achieve this we need to maintain a large and active collaboration, extending into the period when, for example, the LHC experiments will be installing, commissioning and starting to take physics data. In order to meet the many challenges of Run II, the DZero collaboration has grown substantially over the past years, with the addition of many non-US groups. The non-US groups are committed to the long-term future of DZero. Indeed, at the moment they continue to grow. However, these groups continually have to defend

their financial and manpower commitments to DZero and the Run IIb upgrade; ultimately it is the fantastic physics expected for Run II that allows them to do this.

With regard to the accelerator complex, the Run II physics reach clearly depends strongly on the total integrated luminosity. We urge the laboratory to reaffirm the aim of delivering around 9 inv. fb by FY 2009 and to restate its commitment to taking all possible steps and making available all necessary resources in order to achieve this ambitious aim.

We recognise the need to redouble our efforts as a collaboration to be well-informed regarding the challenges facing the accelerator complex. If it becomes clear that manpower from the collaboration might make a useful contribution we are ready and willing to help in any way we can. We understand that Fermilab expects to conduct in depth reviews of the accelerator complex over the next two months, and that the possibility of electron cooling in the Recycler will not be fully clarified until the end of 2003. As the PAC and P5 reevaluate the Tevatron collider programme over the coming weeks, we urge that the future physics potential not be jeopardised by any premature decisions regarding, for example, the detector upgrades for Run IIb, before the future capabilities of the Tevatron are fully understood.

These matters have been discussed very widely and seriously within the collaboration. This letter represents the overwhelming consensus of opinion within the DZero institutes.

On behalf of the D0 Collaboration,

Nick Hadley and Terry Wyatt