CDF Status Report

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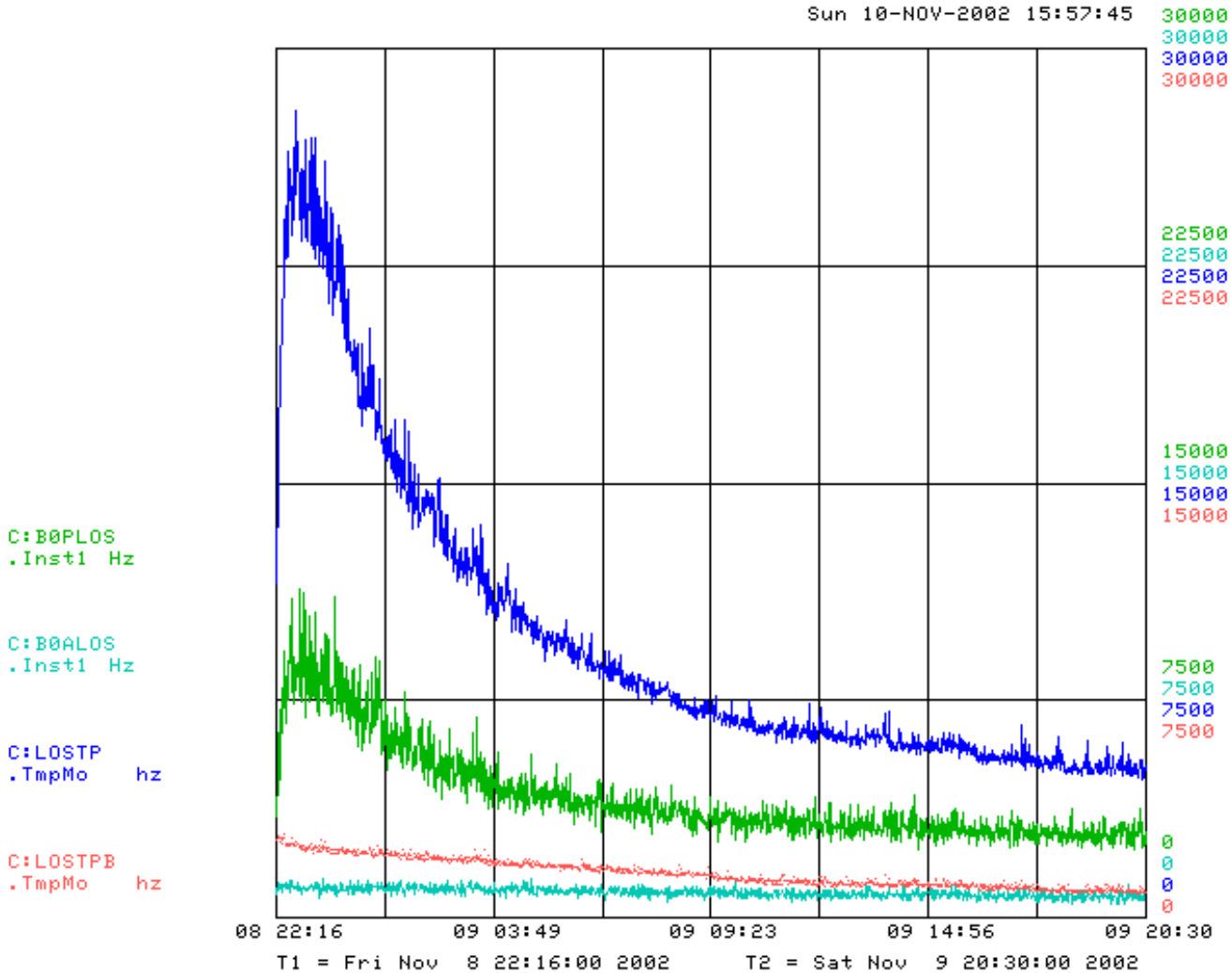
November 11th , 2002

All Experimenters' Meeting

Store Summary

Store	Date	Init Lum	Int. Lum	Lum to Tape	Eff	Silicon
1940	M 11/4	22.3e30	639.9 nb^{-1}	581.2 nb^{-1}	90.8	Yes
1948	W 11/6	23.3e30	144.6 nb^{-1}	99.6 nb^{-1}	68.9	Yes
1949	R 11/7	23.4e30	583.5 nb^{-1}	483.2 nb^{-1}	82.9	Yes
1953	F 11/8	38.0e30	1602.8 nb^{-1}	1155.0 nb^{-1}	72.1	Yes
1955	Su 11/10	35.9e30	1538.3 nb^{-1}	1165.0 nb^{-1}	75.7	No
Tot.			4509.1 nb^{-1}	3484.0 nb^{-1}	77.3	

Proton Losses



Store 1953

Abort of Store 1953

- At the end of store 1953, there was a very dirty beam abort due to a proton abort kicker magnet pre-fire outside of the abort gaps.
- The CDF silicon detector received an instantaneous radiation dose of nearly 200 Rads. This dose is roughly a factor of 50 higher than what was received in a similar type of incident last March.

Silicon Issues

- The CDF silicon detector sustained permanent damage as a result of this most recent incident.
- A preliminary examination shows six SVX chips that exhibit at least some symptoms characteristic of the “AVDD2” failure mode. This results in the loss of analog power to the chip front-end.

Silicon Issues (cont.)

- Based on initial information, we believe that one complete SVX ladder and the z-side readout of a second ladder have been permanently lost.
- During the beam abort six of the eight L00 silicon power supplies blew fuses. Five of these were recovered during an access immediately following the abort, but the sixth remains problematic.

Short-term Silicon Plan

- Preliminary analysis of the six SVX ladders with suspect chips has been started using the two hours of quiet time available this afternoon.
- We are also examining data taken during the quiet time immediately after the beam abort to look for additional problems.

Silicon Plan (cont.)

- We have requested four additional hours of quiet time tomorrow to continue this analysis and make an access to work on the one problematic L00 power supply.
- In the meantime we are working with the accelerator division to completely understand this incident and minimize our susceptibility to this failure mode in the future.

Bottom Line

- CDF will work hard to re-integrate silicon detector as soon as it can be done safely.
- Silicon group has some ideas for modifying SVX chip parameters to further minimize susceptibility to this failure mode.