CDF Operations Summary

Arnd Meyer
June 3, 2002

Store		Initial Lum	Duration	$L_{delivered}$/nb	L_{live}/nb	Eff
1365	Mon 5/27	15.6E30	9.7h	393.1	154.4	39.3%
1367	Tue 5/28	12.5E30	9.8h	294.1	155.4	52.8%
1369	Tue 5/28	6.5E30	8.2h	141.4	46.6	33.0%
1383	Thu 5/30	7.4E30	11.1h	222.3	70.2	31.6%
1393	Fri 5/31	11.7E30	14.1h	377.0	268.1	71.1%
1396	Sat 6/1	10.4E30	9.1h	266.5	205.1	77.0%
1401	Sun 6/2	14.9E30	0.5h	26.1	16.7	64.0%
			62.5h	1720.5	916.5	53.3%

- Short stores, unstable conditions
- Many special runs
- Level 2 problems

Integrated Luminosity

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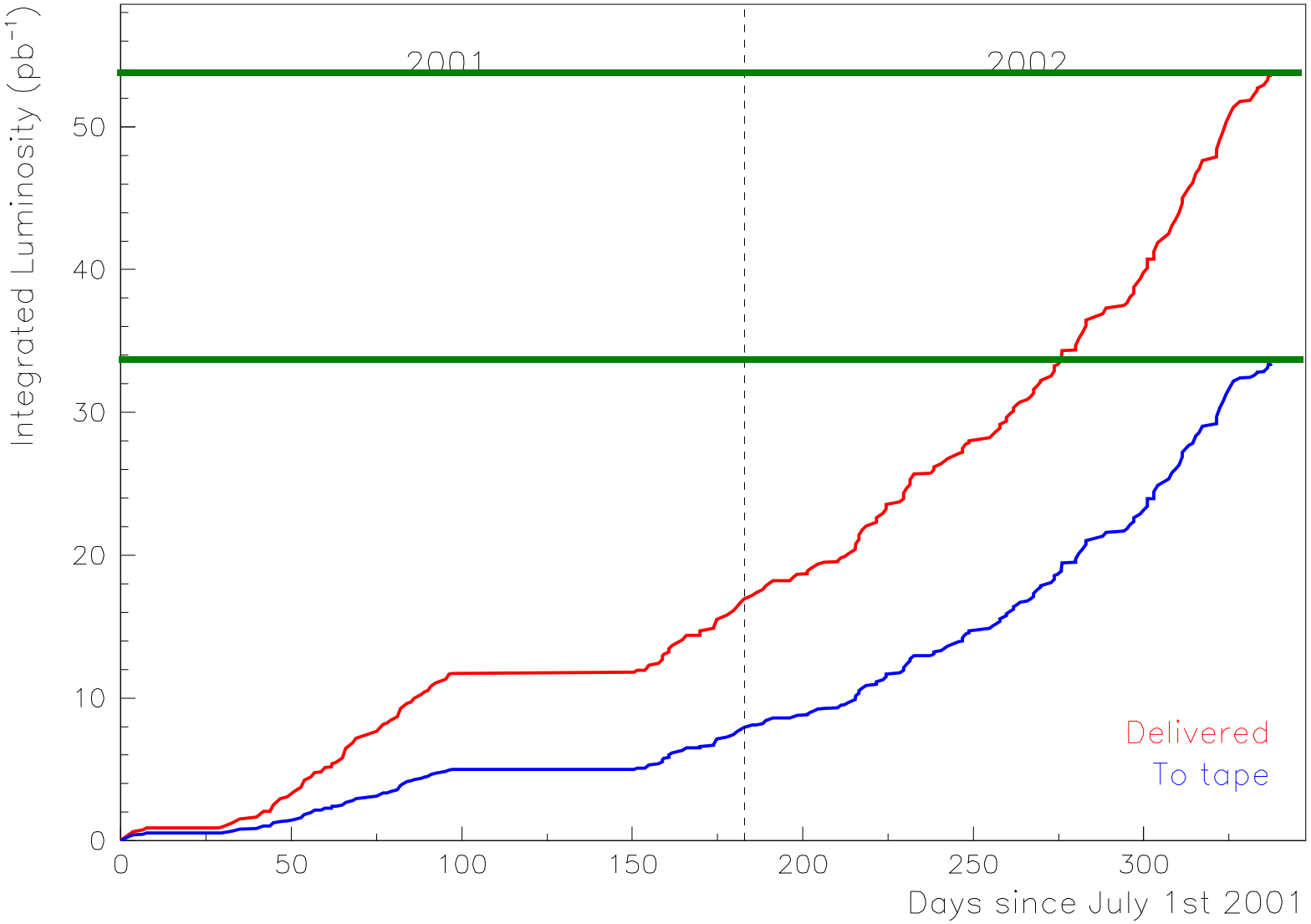

Separator Problem

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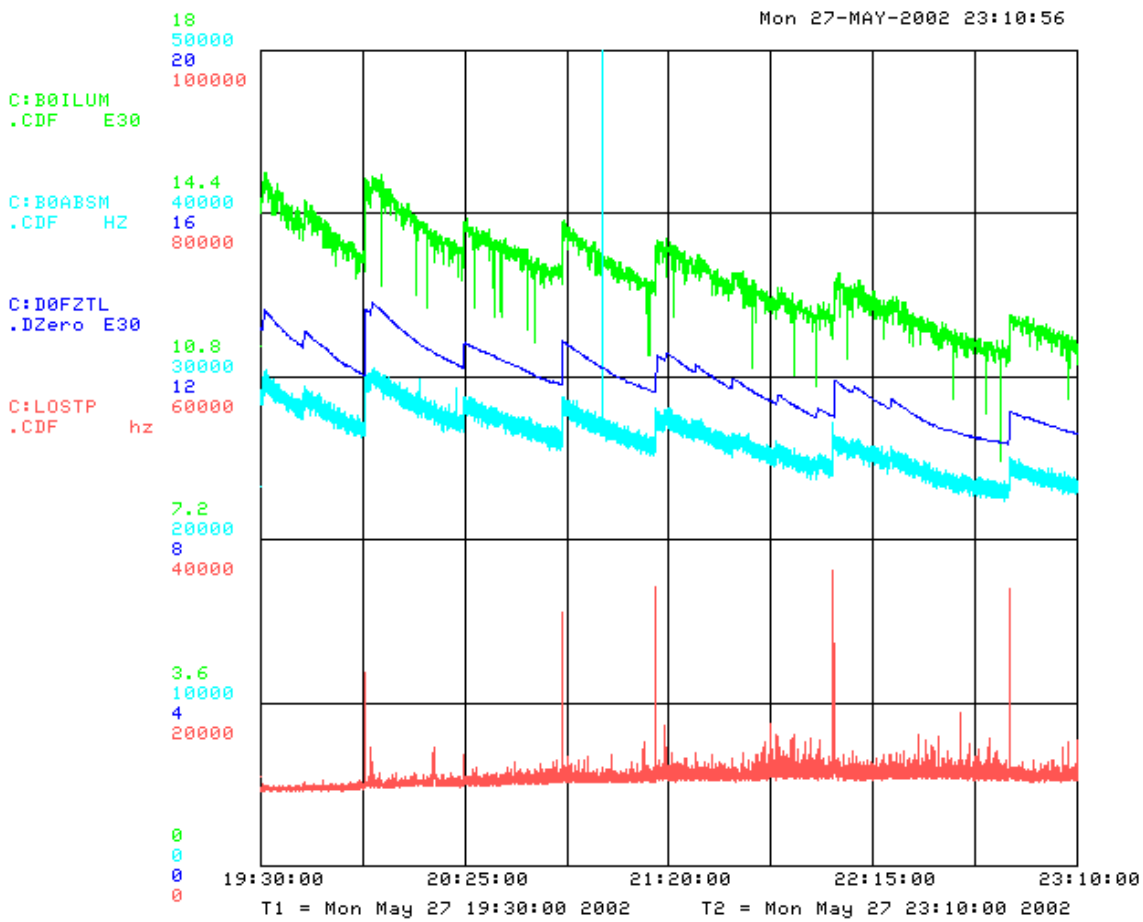
- Store 1365: "Sawtooth" pattern observed in luminosity, MCR identified problem with electrostatic separator at B0 → fixed after store 1367
- No Silicon for two stores (1365, 1367)



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- Store 1369 (33% eff., low lum.): Struggling all night to make L2 work
  - Finally found some intermittent problems with SVT interface boards:
  - passing on excessive number of tracks
  - Stuck bit causing high trigger rates ("overefficient")
- Store 1383 (32% eff., low lum.): Early start-up after studies
  - Had installed modified firmware in a dozen crates in the counting rooms, not sufficiently tested $\rightarrow$ 2 crates had problems (corrupt data, high muon trigger rates)
- Store 1393, 1396 (71%, 77%): Reasonably stable operation, got most of the special run requests out of the way
  - Optimize SVT hit finder parameters
  - Minimum Bias, BMU trigger, new L2 SVT algorithms, lepton/photon+SVT triggers, $J/\Psi \rightarrow ee$, ...
- Store 1401 (64%): lost after 30min
- Some amount of L2 problems in all stores. Temporarily switched back to backup crate to achieve stable operation.

Preparing for "$5 \cdot 10^{31} cm^{-2} s^{-1}$"

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- Present trigger table is good to luminosities of about $2 \cdot 10^{31} cm^{-2} s^{-1}$
- At L1, we approach the current limitation of ~8-10kHz
  - Effort is underway to reduce the L2 latency from its current value of ~80-100μs. Design is 20μs (10 each for loading data and processing)
  - This includes moving code from the "Alpha" into firmware, code optimization, and understanding the loading time of Silicon data
- At L2, we approach the limit of ~300Hz accept rate
  - This is the design value, and cannot be increased easily
  - Many new L2 algorithms have been tested recently; so far, cuts have been simple and robust, not cutting on correlations between objects
  - Collected a good amount of "tag" data with the new algorithms (new trigger table since Friday)
  - Have also implemented changes to the L1 muon trigger to compensate the lack of the L2 muon interface board (will only be available late in the year)
- At present, the L3 accept rate is sufficiently low (~30Hz)

Plans

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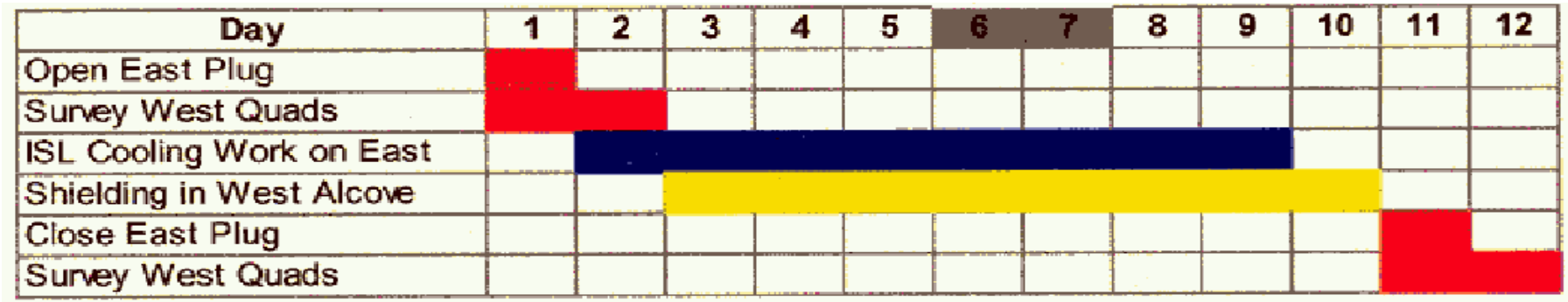
June 3, 2002

- June shutdown (no changes):
  - Start shielding project on the West: clear out alcove, temporary shielding
  - ISL cooling: establish a rate of progress
    - Procedures have been improved, better equipment, additional personnel
    - Expect completion in October, hope for good progress now
  - Install radiation resistant VME power supplies (done: 9(20) COT, 4(8) Silicon)
  - Many more smaller repairs will be done as far as they don't interfere with the above