DETECTOR PREPARATION FOR SLD 2000
Post mortem on 97/98 run.

by Ken Baird
1997-98 Run Review

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SLD Collaboration Meeting
Kirkwood
Sept. 16, 1998
SLD Collaboration Meeting

July 9 - Sept. 15
(before the CDC wire break)

Good Things:
- New LINAC Phasing Software
- New Autocollide Software
- Ran in parallel with PEPII HER commissioning
- Currents slowly increased (--> 3E10/2.3E10)

Odd Things:
- Diurnal Triplet Motion (spotted, worried about, ignored)
- Rattlesnake in CEH
  "Panta Layo", "Pantelo"

Bad Things:
- CRID flow problems (--> thermocouple)
- Water-logged LAC TOPHAT
- 1st CRID Wire Break for the run
- EDC HV Problems (HRS gas tried - no luck)
  - NDR Cavity 590 (removed/replaced/studied/detuned)
  - SDR Klystrons (water leaks)
  - Misc. Magnets (water leaks)
  "NFF Obstruction"

From RC Logbook:
- "Too Many CDC Trips"
- "Very Noisy Beams"
- "Stability and Single Flier Problems"

18674 CDC-On Z⁰'s Logged
CDC Status:

- Hardware - OK

  - CDC Wire Break during Sept.-Oct. 1997 kept SLD from running for ~3 Weeks! First ever occurrence, so had to develop new tools/tests to locate break. Culprit finally tracked down to dummy-sense wire of Layer 7, cell 57:

  - Microscope pictures indicate that wire break was not HV related (see slides -->)

  - Fallout:
    Cell 7-57 being run at different voltage
    Cover plates not tight --> higher O₂ level than normal
    (Oct. - Dec. only)

  - H₂O level increased to try to help EDC HV problems
  - Gas Fraction changed to improve gain

Oct. 8 - Dec. 18 (FFTB/Christmas Shutdown)

Good Things: Energy jitter reduced
Pizza fund seriously depleted
Marty Alarms (thank Sal)
Ran in parallel with PEP II LER injection tests
Currents increased (--> 4E10/3E10) bunch-munch
Compton Backgrounds start getting bad
QFC takes data (just in time)

Odd Things: Compton Laser good for killing ants
"Pontaleo" (getting closer)
CO₂ getting O₂ contamination during fills
3-state measurement confirms pol. low (~73%)

Bad Things: Accidental Argon vent (no O₂ contamination)
6 more CRID Wires break (SW/JJV correlation)
Compton Backgrounds start getting bad
Compton controller errors
FASTBUS control cable problems

From RC Logbook: “Record shift....”, “Record 24 hrs...”,
“Record week...”, “ANOTHER record week!”
“Passed 100K!”

90742 CDC-On Z⁰'s Logged
(total for 1997: 109416)
Christmas Downtime Activities

SLD:

VXD3: Installed modified power supplies

CDC: Fixed misc. Motherboards
    Worked on L9 bad cell
tightened cover plates (to reduce O₂ level)

EDC: Fixed bad board

CRID: Fixed 6 TPCs (clip broken wires)

LAC: Replaced bad Daughterboard
    Found noise source for TH BS2 (cryo feedthru)

WIC: Repaired misc. HV boards

WISRD: Repaired/replaced misc. preamp boards
        Investigated noise spikes in S. Flipcoil signl.

Pol: Removed QFC
     Removed RBC (for leak fix)

SLC:

    Reversed polarity of FF Triplets
    Moved FF Quads --> beams off-axis
    (no compton realignment needed)
    (new permanent-magnet octupoles not yet ready)

----> SLC starts up 1/2/98

----> SLD starts logging data 1/6/98 (~100 Z⁰/hr)
Jan. 5 - Apr. 5
(Startup to Mid-Run)

Good Things: Octupoles installed
Current raised (-->4.0/3.6E10)
Energy jitter reduced
Pizza --> increased cholesterol levels @MCC
3K and 4K Z days/ 20K week!

Misc.: CRID C\textsubscript{5}F\textsubscript{12} gas leak
Various LAC MB problems
Compton Ch. 6 & 8
(no time lost for these)

Bad Things: Rain!! Mudslides!! Power Outages!!
LOTS of CDC Trips (at times > 100/24 hrs)
No new Compton beampipe
Compton noise --> hourly e\textsuperscript{-} only measurements
Logging problems
Broken EDC wire

1/98 Serial failures (BSY water/N&S FF water,..)
NDR vent
Triplet trips (1 quench!! - protection circuit failed)

From RC Logbook: “too many CDC trips”
“1997/98 run now exceeds total number of Z’s from all previous runs”

104,005 CDC-On Z\textsuperscript{0}’s Logged
(total for run: 213,421 )
**Great Things:**
- Q1 Boost Supply installed
- 21 K week/5K day/1500 day shift
- "Pantaleo" ---- finally!

**Odd Things:**
- Flood in CEH DAR & Mezzanine (water heater)
- Fried Rat (---> big power outage)
- Lost ComSat --> dead pagers
- Peak Scan results?

**Bad Things:**
- Many CRID wires break
- variable noise conditions
- Cavity 590 window regooped
- FB69 micro problems
- SDR klystrons/NFF kicker/SDR septa/....
- many Flux concentrator trips

128,098 CDC-On Z⁰'s Logged
(total for run: 342,519 )

6/8/98 11:45 am: e⁺ target vacuum leak
---> end of 1997-98 physics run (almost)
(except for posipol)
End of Run 'BBQ @ CEH
6/15/98

SLD 2K