

Detector Status (HCAL)

May 4, 2004

Hardware Status

The Hadron calorimeter is installed and currently fully functional

The two muon detection panels are installed and have been roughly calibrated to obtain the appropriate gain and signal thresholds

Readout

Readout for the Calorimeter ADCs has been included in DAQ system.

The HCAL data block has been written out successfully and read back from the raw data files.

The acquired spectra from the individual channels appear to be correct.

ADC Spectrum

The ADC spectra exhibit the correct feature

Pedestal (99% subtracted in Fig.1)

Minimum Ionizing Peak (muons)

Hadron Shower Energy

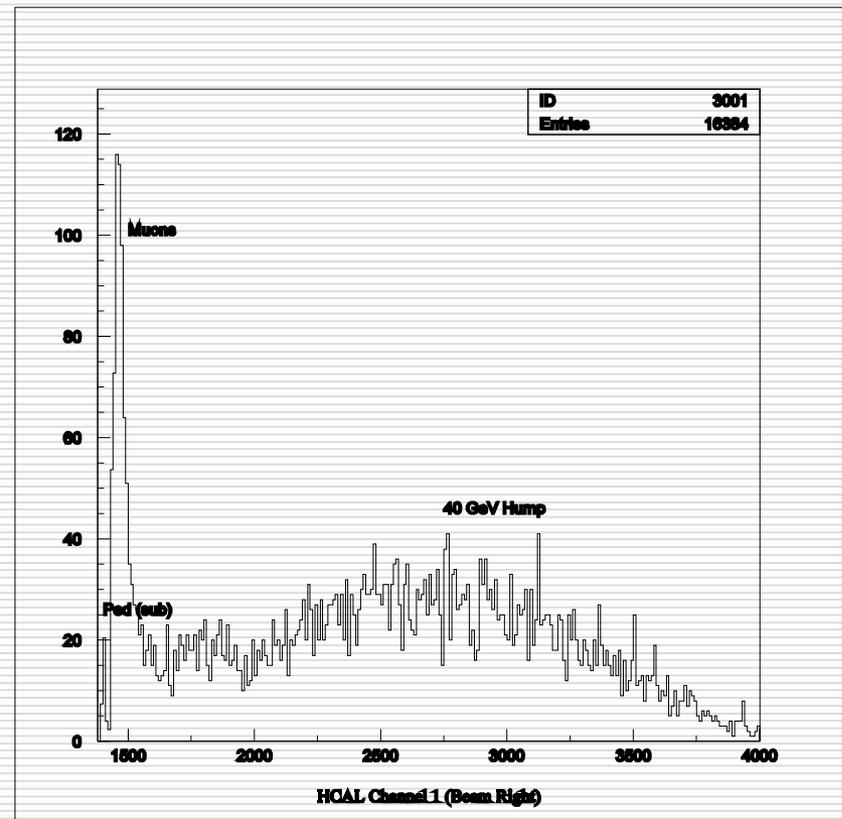


FIG. 1 HCAL ADC Spectrum

Calibrations

Timing for ADC gates have been determined and set.

Gain values for the current voltage settings have been calculated

Waiting for dedicated access to the Beam and DAQ in order to further refine the gain settings.

Request high rate (>400Hz) running

Muon Counter

Muon trigger paddles are instrumented and included in the DAQ to form the “muon trigger”

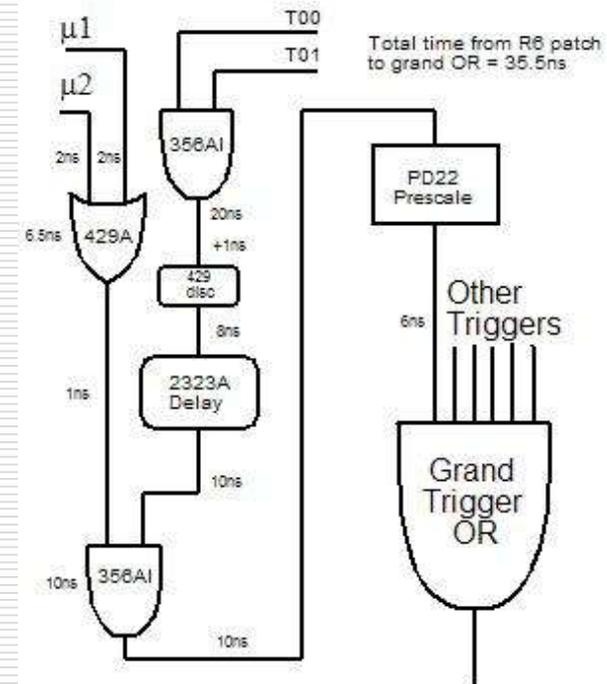
This trigger is currently 132ns behind the primary experimental trigger

There is essentially no leeway in the trigger timing

Have developed stand alone DAQ for special muon calibration runs

Muon Trigger

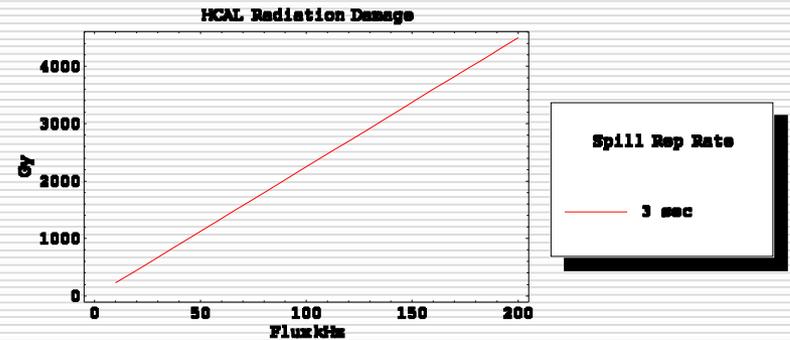
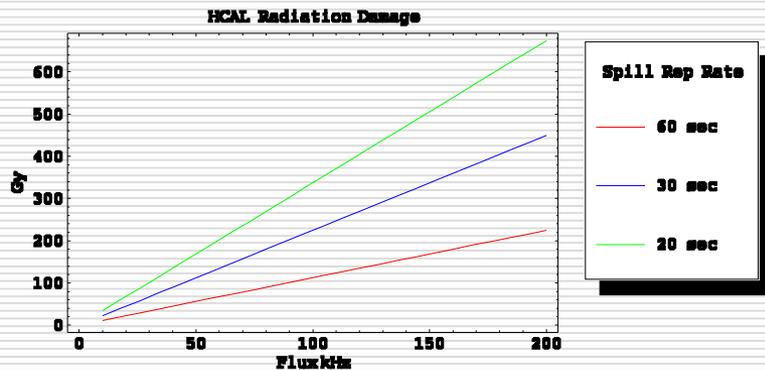
Muon trigger and signals are in scalars
Need to find out where the latches for the two muon signals are going (which data block)



Note: 2323A set to 190ns delay 100ns width

Muon Trigger Setup and Timing

Radiation Damage



Updated radiation damage estimate

Calculations were made assuming a spill rep-rate from 60 sec down to 3 sec

Secondary beam rates from 10-200kHz

Radiation Damage (cont.)

Maximum dose rates are calculated by beam momentum

Degradation of detector performance is expected at doses approaching 1000Gy

	Beam Spill Spacing			
Beam P	60 sec	30 sec	20 sec	3 sec
120 GeV/c	225 Gy	450 Gy	675 Gy	4500 Gy
80 GeV/c	160 Gy	320 Gy	470 Gy	3150 Gy
40 GeV/c	84 Gy	170 Gy	255 Gy	1700 Gy

Summary

HCAL is currently functional and requires only minor tuning to be considered done

Muon paddles are installed and functional, a trigger is formed, but is 132ns late

Software support is in place along with online monitoring and analysis jobs

To Do

Want to add pedestal subtraction to the online monitoring

Want to add an out of spill “pedestals” trigger

For the final HCAL calibrations we need access to the beam and DAQ

Need to locate the muon latches

Can balance and calibrate the calorimeter properly then.