SUMMARY OF OPERATIONS - NOVEMBER 1979

Program Planning Office

The high-energy physics research program continued throughout November with the accelerator in operation at 400 GeV with a 1-second flattop. Emphasis on eliminating the rf power amplifier tube supply problem continued and by the end of the month both the Booster and Main-Ring rf stations had regained their full complement of amplifier tubes. The most significant cause of down time during November was the result of a loss of cooling water (LCW) pressure for the Booster which caused an unexpected shut down of all Booster and Switchyard devices.

Data taking for both Particle Search #567 (P-West) and Photoproduction #401 (P-East Broad Band beam) was completed during the month in the Proton Laboratory. After approximately one week of transition activities between Particle Search #567 and Dimuon #326 in the P-West High Intensity Laboratory, startup activities (primarily beam studies) for the latter experiment got underway. Photoproduction #516 (Tagged Photon Laboratory) will follow Photoproduction #401 in P-East and is scheduled to be in operation for the remainder of the current running period.

Routine data taking continued throughout the month for Neutrino #616 in the N0 beam line. The dichromatic beam train load was tuned for neutrino operation and data were acquired at 140, 165, 200, and 250 GeV.

In the Meson Laboratory data taking was completed late in the month for $\pi\mu$ Atoms #533 operating in the M3 neutral beam line. At the end of the month the transition to the follow-on experiment Particle Search #584 by the same group was in progress. Data taking for Hadron Dissociation #272 in M1 continued throughout the month. That experiment was assigned priority for determining the horizontal targeting angle for the M-Center target for much of the month and was progressing towards conclusion early in December. The transition from Lambda Beta Decay #361 (completed at the end of October) to Charged Hyperon Magnetic Moment #620 was completed early in the month and the latter experiment began startup operations. The initial data taking is expected to be directed towards a measurement of the Ξ^- magnetic moment. The startup run for Elastic Scattering #577 in the M6 east branch ended early in the month and startup activities with the M6 west branch and the Multiparticle Spectrometer got underway for Hadron Jets #557 and Particle Search #580. Those activities are scheduled to continue until the end of the current running period.

FERMI NATIONAL ACCELERATOR LABORATORY
MONTHLY OPERATIONS HISTORY
NOVEMBER 1979

Date		Accelerator	Internal Target Area	Proton Area	Neutrino Area	Meson Area
Thu.	11/1	Accelerator Research & Maintenance				
Fri.	11/2	Accelerator Startup				
Sat.	11/3	~1.7x10^{13}ppp @400 GeV 1.0 sec flattop	OFF	567 (PW) 401 (PE)	616 (NO)	533 (M3) 272 (M1) 577 (M6) OFF (M2)
Sun.	11/4					
Mon.	11/5	~~Necessary Repairs~~				
Tue.	11/6					
Wed.	11/7	Reprs:Linac vac;Booster rupture disk;MR quad.F-27		(End 567)		
Thu.	11/8	Accelerator Studies & Necessary Repairs				
Fri.	11/9	~1.8x10^{13}ppp @400 GeV 1.0 sec flattop	OFF	401 (PE) OFF (PW)	616 (NO)	533 (M3) 272 (M1) 620 (M2) MPS Tests (M6)
Sat.	11/10					
Sun.	11/11					
Mon.	11/12	~~Necessary Repairs~~				
Tue.	11/13	~~Reprs:Booster Vac.~~				
Wed.	11/14	Accelerator Research & Maintenance				
Thu.	11/15					
Fri.	11/16	~1.7x10^{13}ppp @400 GeV 1.0 sec flattop	OFF	401 (PE) P-West beam tsts.	616 (NO)	272 (M1) 533 (M3) 620 (M2) MPS Tests (M6)
Sat.	11/17					
Sun.	11/18					
Mon.	11/19					
Tue.	11/20	Accelerator Research & Maintenance				
Wed.	11/21	~1.9x10^{13}ppp @400 GeV 1.0 sec flattop	OFF	401 (PE) P-West beam tsts.	616 (NO)	272 (M1) 620 (M2) 533 (M3) MPS Tests (M6)
Thu. (H)	11/22					
Fri. (H)	11/23					
Sat.	11/24					
Sun.	11/25			(End 401)		
Mon.	11/26	~~Necessary Repairs~~ ~1.8x10^{13}ppp @400 GeV		326 (PW) OFF (PE)	616 (NO)	
Tue.	11/27					(End 533)
Wed.	11/28	Accelerator Research & Maintenance				
Thu.	11/29					
Fri.	11/30					

BEAM UTILIZATION BY

	Beam	Hours
PROTON AREA		
Photoproduction #401	PE	260
Particle Search #567	PW	80
P-West Beam Tests	PW	80
NEUTRINO AREA		
Neutrino 616	NO	400
MESON AREA		
Hadron Dissociation #272	M1	340
π-μ Atoms 533	M3	400
Elastic Scattering 557	M6	80
Charged Hyperon Mag. Mom. 620	M2	280
MPS TESTS	M6	190
TOTAL HOURS FOR HIGH ENERGY PHYSICS		2110

Activities

completed; study of photoproduction of high-mass two-body final states

completed; search for charm production in 200-GeV hadron interactions

test and studies to improve the beam in the P-West High Intensity Area

data to measure neutrino structure functions

data to study the coherent dissociation of π, K, and p into strange particles

completed study to measure the rate of formation of π-μ atoms in $K_L^0 \rightarrow \pi\mu\nu$ decay

setup and tuneup of experimental apparatus to measure large angle angle elastic scattering of $\pi^{\pm}$ on protons at 200 GeV

setup, tuneup, and data to measure the magnetic moments of Σ^+, Ξ^-, Σ^-, and Ω^- hyperons

beam studies and installation of experimental apparatus at the MPS facility

FACILITY UTILIZATION SUMMARY - NOVEMBER 1979

I. Summary of Accelerator Operations

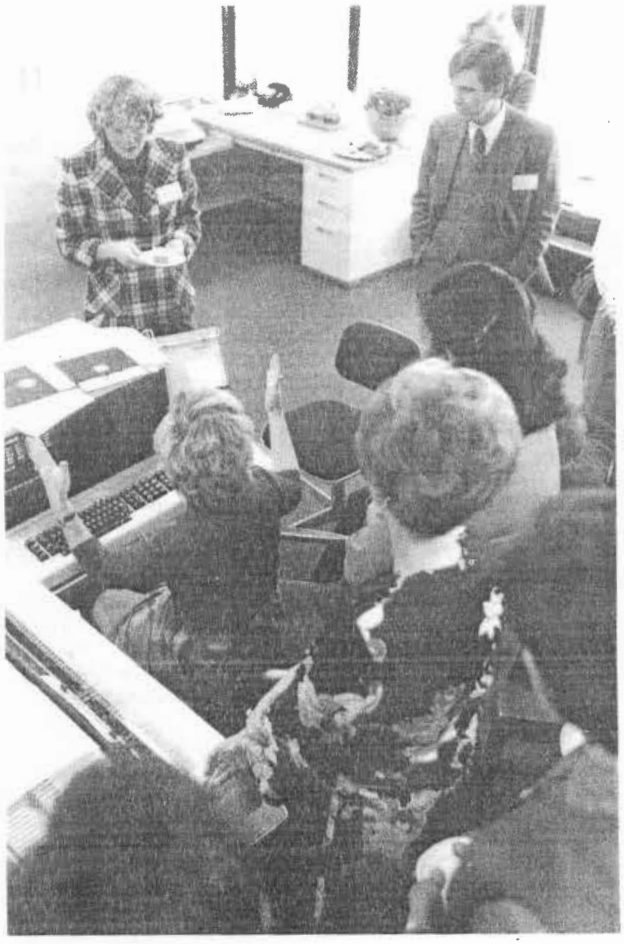
		Hours	
A. Accelerator use for physics research			
High energy physics research		448.9	
Accelerator physics research		60.8	
	Subtotal		509.7
B. Other Activities			
Program interruption		69.5	
Accelerator setup and tuning to experimental areas		33.5	
	Subtotal		103.0
C. Unscheduled interruption			107.3
D. Unmanned time			0
Total			720.0

II. Summaries of High Energy Physics Research Use

	# of Expts.	Hours	Results
A. Counter experiments	7	1840	
B. Bubble chamber experiments	-	-	
C. Emulsion experiments	-	-	
D. Special target experiments	-	-	
E. Test experiments	-	-	
F. Engineering studies and tests	2	270	P-West & M6 beam studies
G. Other Beam Use	-	-	
Totals	9	2110	

III. Number of Protons Accelerated and Delivered ($\times 10^{18}$ p) at 400 GeV

A. Beam accelerated in Main Ring	2.86
B. Beam delivered to experimental areas	2.69
Proton Area	0.16
Neutrino Area	
Slow Spill	0.90
Fast Spill	0.93
Meson Area	0.70



Claire Gorman (seated) explaining operation of a new word-processing system to Rene Donaldson during a Publications Office open house. **Fermilab Report** is now prepared using this new machine.

(Photograph by Fermilab Photo Unit)