SUMMARY OF OPERATIONS - JANUARY 1980

Program Planning Office

The 400-GeV high-energy physics program resumed after the Christmas stand-by period and continued for about three weeks, at which point an extended maintenance and development period began. Immediately prior to the shutdown the accelerator was operated at 200 GeV for a one-day period to enable the Neutrino #616 experimenters to complete some necessary Cherenkov counter calibrations. During much of the January run, accelerator operation was marred by downtime caused by a number of problems--a Main-Ring vacuum failure, a power outage that caused the accelerator control computers to fail, and a Main-Ring magnet failure.

The Proton Area septa troubles of last month extended into this month, limiting the intensity during operation early in the month. However, sufficient intensity was obtained to enable the trigger studies to be completed for Dimuon #326 in P-West. The remainder of the time in Proton-West was used to setup and test the Dimuon #537 spectrometer. In the Neutrino Area, data taking was completed for Neutrino #616. In excess of one coulomb of protons were delivered to the NO target for that experiment over the course of the final run which began in May.

In the Meson Laboratory data taking was completed for Charged Hyperon Magnetic Moment #620 (M2). After finishing their measurements of the Σ^- and Σ^+ magnetic moments the E-620 experimenters utilized the final day of 200-GeV beam for lead glass calibration. After several vacuum leaks were plugged successfully in the Particle Search #584 apparatus, that experiment was able to complete data taking for their neutral particle search which concludes the experiment.

FERMI NATIONAL ACCELERATOR LABORATORY
MONTHLY OPERATIONS HISTORY
JANUARY 1980

Date		Accelerator	Internal Target Area	Proton Area	Neutrino Area	Meson Area
Tue.	1/1	Facility Shutdown				
Wed.	1/2					
Thu.	1/3	Accelerator Startup for HEP				
Fri.	1/4	~2.0x10^{13}ppp @400 GeV 1.0 sec flattop	591 Installation	516 (PE) 326 (PW) P-Center Tests	616 (NO)	620 (M2) 584 (M3) 580 (M6)
Sat.	1/5					
Sun.	1/6	PSEP Repairs ~2.0x10^{13}ppp @400 GeV 1.0 sec flattop				
Mon.	1/7					
Tue.	1/8			326 Tests P-West OFF		515 (M1)
Wed.	1/9	Accelerator Research and Maintenance				
Thu.	1/10	M.R. Vacuum Power outage M.R. Mag. Rep.	Accelerator Startup & Tuneup			
Fri.	1/11					
Sat.	1/12					
Sun.	1/13		591	516 (PE) 537 (PW) P-Center Tests	616 (NO) 610 Tests	620 (M2) 584 (M3) 580 (M6) 515 (M1) M-4 Tests
Mon.	1/14	Necessary Reprs. ~2x10^{13}ppp @400 GeV 1.0 sec flattop				
Tue.	1/15					
Wed.	1/16					
Thu.	1/17	Accelerator Research and Maintenance				
Fri.	1/18	≥1.5x10^{13}ppp M.R. Quad Repair 400 GeV 1.0 sec flattop	591	516 (PE) 537 (PW) P-Center Tests	616 (NO)	620 (M2) 584 (M3) 557 (M6) 515 (M1) M-4 Tests
Sat.	1/19					
Sun.	1/20					
Mon.	1/21	200 GeV Calibration Runs				
Tue.	1/22					
Wed.	1/23	Facility Shutdown				
Thu.	1/24					
Fri.	1/25					
Sat.	1/26					
Sun.	1/27					
Mon.	1/28					
Tue.	1/29					
Wed.	1/30					
Thu.	1/31					

BEAM UTILIZATION BY EXPERIMENTAL ACTIVI'

	Beam	Hours	
PROTON AREA			
Dimuon #326	PW	80	tuneup and
Protoproduction #516	PE	300	setup and t recoil dete
Dimuon #537	PW	190	setup and c
NEUTRINO AREA			
Nuclear Fragments #466	NO		data; three
Neutrino #616	NO	280	completed; structure f
MESON AREA			
Particle Search #515	M1	240	setup and t
Hadron Jets #557	M6	70	tuneup and
Particle Search #580	M6	170	setup and c
Particle Search #584	M3	300	completed;
Charged Hyperon Magnetic Moments #620	M2	300	completed;
TOTAL HOURS FOR HIGH ENERGY PHYSICS		1930	

:Y EXPERIMENTAL ACTIVITY - JANUARY 1980

Activities
tuneup and trigger rate studies
setup and test experimental apparatus including check out of SLIC and recoil detector
setup and check out of large aperture forward spectrometer
data; three targets exposed
completed; data and calibrations for the measurement of neutrino structure functions
setup and tuneup; trigger rate studies
tuneup and calibrations; preliminary test data written
setup and checkout of apparatus; triggers studied
completed; data to search for new long-lived neutral particles
completed; data with Σ^- and Σ^+ triggers

FACILITY UTILIZATION SUMMARY - JANUARY 1980

I. Summary of Accelerator Operations

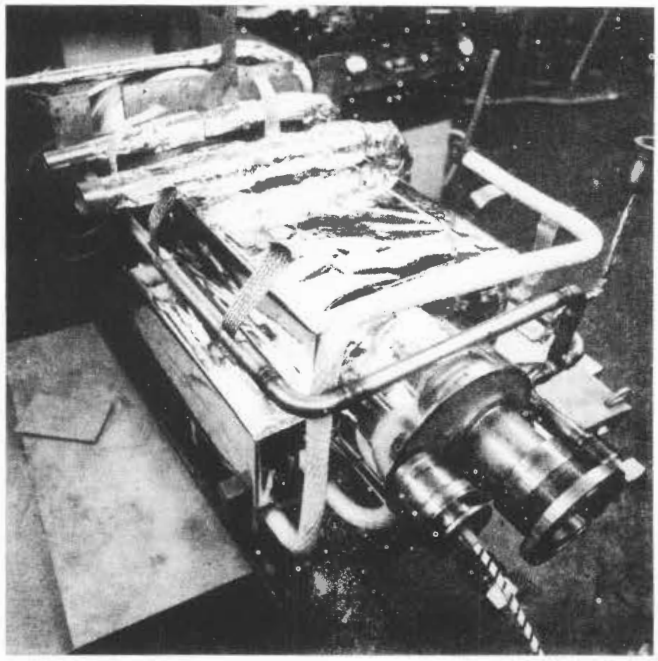
		Hours	
A. Accelerator use for physics research			
High energy physics research		303.4	
Accelerator physics research		142.9	
	Subtotal		446.3
B. Other Activities			
Program interruption		124.0	
Accelerator setup and tuning to experimental areas		35.8	
	Subtotal		159.8
C. Unscheduled interruption			93.9
D. Unmanned time			44.0
Total			744.0

II. Summaries of High Energy Physics Research Use

	# of Expts.	Hours	Results
A. Counter experiments	9	1930	3 completed
B. Bubble chamber experiments	-	-	
C. Emulsion experiments	-	-	
D. Special target experiments	1	3 tgts	
E. Test experiments	-	-	
F. Engineering studies and tests	-	-	
G. Other Beam Use	-	-	
Totals	10	1930	

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

A. Beam accelerated in Main Ring	1.70
B. Beam delivered to experimental areas	1.57
Proton Area	0.07
Neutrino Area	
Slow Spill	0.14
Fast Spill	0.98
Meson Area	0.38



An Energy Saver "spool" piece. This assembly fits between the quadrupole and the next magnet and contains most of the correction elements.

(Photograph by Fermilab Photo Unit)

Setting up a stochastic-cooling experiment. This scene, in the control room of the Electron Cooling Ring, shows (left to right) Chris Leeman, Branko Lescovar, and Glen Lambertson of Lawrence Berkeley Laboratory. In the background are Yoshikazu Miyahara, at Fermilab on leave from KEK, and Fred Mills of Fermilab.

(Photograph by Fermilab Photo Unit)

SITUATION REPORT -- JANUARY 1980

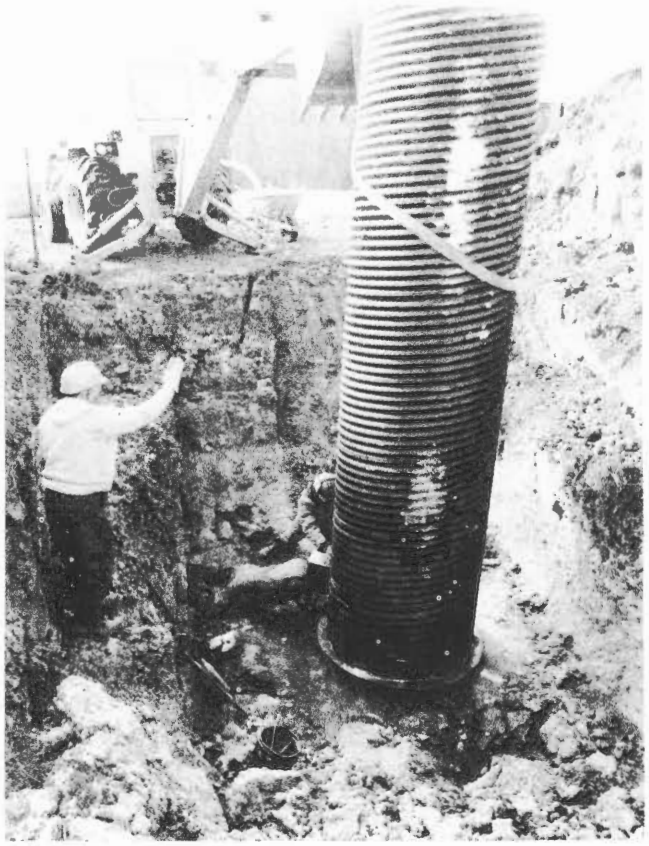
PAGE 1 | FERMI NATIONAL ACCELERATOR LABORATORY | PROGRAM PLANNING OFFICE 21 JAN 1980

EXPERIMENTAL PROGRAM SITUATION REPORT

THE EXPERIMENTAL PROGRAM SITUATION AT FERMILAB IS SUMMARIZED BELOW. THE EXPERIMENTS ARE LISTED SEPARATED BY EXPERIMENTAL AREA UNDER CATEGORIES THAT BEST DESCRIBE THEIR CIRCUMSTANCE AS OF JANUARY 1, 1980. FOR EXPERIMENTS WHICH HAVE BEEN COMPLETED OR HAVE RECEIVED BEAM THERE IS INDICATION OF THE AMOUNT OF RUNNING TIME OR EXPOSURE. THE EXPERIMENTAL AREA NAMES ARE ABBREVIATED AS FOLLOWS: MESON AREA (MA), NEUTRINO AREA (NA), PROTON AREA (PA), INTERNAL TARGET AREA (ITA).

TOTAL NUMBER OF APPROVED EXPERIMENTS - 301

AREA-BEAM		SPOKESPERSON	EXTENT OF RUN TO DATE	DATE COMPLETED
A. EXPERIMENTS THAT HAVE COMPLETED DATA TAKING (256):				
(ONLY EXPERIMENTS COMPLETED SINCE 1 JAN 1979 ARE LISTED BELOW)				
MA-M1	HADRON DISSOCIATION #272	FERBEL	1,950 HOURS	3 DEC 1979
-M2	LAMBDA BETA-DECAY #361	PONDROM	1,250 HOURS	29 NOV 1979
-M3	PI-MU ATOMS #533	THOMSON	2,050 HOURS	28 NOV 1979
NA-NO-DICHROM	NEUTRINO #356	SCIULLI	1,350 HOURS	17 JAN 1979
	15-FOOT NEUTRINO/HAZONE #380	BALTAY	196K PIX	31 OCT 1979
	15-FOOT ANTI-NEUTRINO/HAZONE#388	PETERSON	181K PIX	12 SEP 1979
-NO-WB HORN	NEUTRINO #253	MO	2,050 HOURS	7 MAR 1979
	15-FOOT NEUTRINO/DAZONIZ #545	SNOW	3178 PIX	17 JAN 1979
PA-BE	PHOTOPRODUCTION #401	GORMLEY	2,100 HOURS	26 NOV 1979
-PC	PARTICLE SEARCH #608	BROWN	600 HOURS	7 MAR 1979
-PW	PION INCLUSIVE #258	SHOCHET	1,500 HOURS	9 JUL 1979
	PARTICLE SEARCH #567	WITHERELL	1,650 HOURS	7 NOV 1979
B. EXPERIMENTS THAT ARE IN PROGRESS (14):			EXTENT OF RUN TO DATE	DATE OF RECENT RUN
MA-M1	PARTICLE SEARCH #490	SANDWEISS	850 HOURS	1 OCT 1978
-M2	CHARGED HYPERON MAG MOMENT #620	PONDROM	600 HOURS	1 JAN 1980
	QUARK #622	GUSTAFSON	UNSPECIFIED	1 JUL 1979
-M3	PARTICLE SEARCH #584	WINSTEIN	100 HOURS	1 JAN 1980
-M4	KAON CHARGE EXCHANGE #585	FRANCIS	1,100 HOURS	1 OCT 1970
NA-NO-DICHROM	NEUTRINO #616	SCIULLI	2,600 HOURS	1 JAN 1980
-NO-WB HORN	15-FOOT NEUTRINO/HAZONE #53A	BALTAY	163K PIX	1 JUL 1977
	NEUTRINO #531	REAY	1,150 HOURS	1 JUL 1979
	NEUTRINO #553	FRISKEN	1,500 HOURS	1 APR 1979
	15-FOOT & EMULSION/NEUTRINO#564	VOYVODIC	EMULSION EXPOSURE	1 JUL 1979
	15-FOOT ANTI-NEUTRINO/D2 #390	GARFINKEL	10K PIX	1 APR 1979
	15-FOOT ANTI-NEUTRINO/HAZONE#180	ERMOLOV	273K PIX	1 JUL 1977
-CTREE	MONOPOLE #502	BARTLETT	COSMIC RAY RUNNING	1 APR 1979
	NUCLEAR FRAGMENTS #466	SUGARMAN	33 TARGETS EXPOSED	1 JAN 1980
C. EXPERIMENTS THAT ARE IN TEST STAGE (8):			EXTENT OF RUN TO DATE	DATE OF RECENT RUN
MA-M1	PARTICLE SEARCH #515	ROSEN	300 HOURS	1 JAN 1980
-M6	ELASTIC SCATTERING #577	RUBINSTEIN	300 HOURS	1 JAN 1980
	HADRON JETS #557	MCLEOD	150 HOURS	1 JAN 1980
	PARTICLE SEARCH #580	GREEN	50 HOURS	1 JAN 1980
NA-15-FT	PARTICLE SEARCH #595	BODEK	500 HOURS	1 APR 1975
-CTREF	QUARK #549	LONGO	1 TARGETS EXPOSED	1 OCT 1978
PA-BE	PHOTOPRODUCTION #516	NASH	650 HOURS	1 JAN 1980
-PW	DI-MUON #326	SHOCHET	200 HOURS	1 JAN 1980
D. EXPERIMENTS BEING INSTALLED (7):			EXTENT OF APPROVAL	
MA-M2	BEAM DUMP #613	FOE	1,000 HOURS	
NA-NO-DICHROM	NEUTRINO #594	WALKER	PARASITIC RUNNING	
-MUON/HADRON	PARTICLE SEARCH #610	KIRK	1,000 HOURS	
PA-PC	CHARGED HYPERON #497	LACH	400 HOURS	
-PW	DI-MUON #537	COX	1,000 HOURS	
	C-TEST #302	WITHERELL	400 HOURS	
ITA-C-0	PARTICLE SEARCH #591	GUTAY	800 HOURS	
E. EXPERIMENTS TO BE SET UP WITHIN A YEAR (1):			EXTENT OF APPROVAL	NOTE: THE ABILITY TO SETUP THIS EXPERIMENT DURING THE NEXT YEAR IS CONTINGENT ON THE AVAILABILITY OF FUNDS.
PA-BE	PHOTON DISSOCIATION #612	GOULIANOS	1,150 HOURS	
F. OTHER APPROVED EXPERIMENTS (15):			EXTENT OF APPROVAL	
MA-M1	HIGH MASS PAIRS #605	BROWN	1,000 HOURS	
-M2	TRANSITION MAGNETIC MOMENT #619	DEVLIN	250 HOURS	
	NEUTRAL HYPERON #555	DEVLIN	450 HOURS	
	POLARIZED SCATTERING #561	YOKOSAWA	UNSPECIFIED	
-M3	CP VIOLATION #617	WINSTEIN	1,000 HOURS	
-M6	HADRON JETS #609	SELOVE	UNSPECIFIED	
NA-30-IN	30-INCH HYBRID #570	PLESS	1,500 HOURS	
	30-INCH HYBRID #565	PLESS	PARASITIC RUNNING	
	30-INCH HYBRID #597	WHITMORE	1,000 HOURS	
-CTREF	EMULSION/PROTONS @ 500 #508	WOLTER	EMULSION EXPOSURE	
	EMULSION/PROTONS @ 500 #524	WILKES	EMULSION EXPOSURE	
	EMULSION/PROTONS @ 500 #576	HEBERT	3 STACKS	
PA-BE	PARTICLE SEARCH #400	PEOPLES	UNSPECIFIED	
	PHOTOPRODUCTION #458	LEE	UNSPECIFIED	
-PW	FORWARD SEARCH #615	ANDERSON	1,000 HOURS	
PENDING PROPOSALS (9):			EXTENT OF REQUEST	
MA-M1	PHOTON SEARCH #614	ROSEN	300 HOURS	
-M2	DI-MUON #589	MOCKETT	750 HOURS	
	CP VIOLATION #621	THOMSON	1,200 HOURS	
-M6	MULTIPARTICLE #523	DZIERBA	800 HOURS	
	PARTICLE SEARCH #623	LAI	1,000 HOURS	
NA-15-FT	DETECTOR DEVELOPMENT #528	ROBERTS	100 HOURS	
-30-IN	DETECTOR DEVELOPMENT #550	ATAC	TEST RUNNING	
PA-BE	PHOTOPRODUCTION #627	KNAPP	1,000 HOURS	
ITA-C-C	PROTON-PROTON SCATTERING #500D	FRANZINI	1,000 HOURS	



A penetration for cryogenic leads for the Energy Saver being built in the Main Ring.

(Photograph by Fermilab Photo Unit)