SUMMARY OF OPERATIONS - JULY 1978

Program Planning Office

The experimental activities underway in July were primarily a continuation of those begun after the shutdown in June. Accelerator operation was disappointing with a few more than the usual number of necessary repairs and an inability to produce the normal intensities for experiments.

Two goals were achieved during July in the Proton Area. Di-Lepton # 288 in P-Center was finally declared complete following study of dielectron and dimuon spectra which continued over the past three years. Presumably the last experiment was completed at an upstream location in P-West (E-592) and work began toward commissioning of the new high intensity pion beam which will eventually lead to running several new experiments at downstream locations.

FERMI NATIONAL ACCELERATOR LABORATORY
MONTHLY OPERATIONS HISTORY
JULY 1978

Date	Accelerator	Internal Target Area	Proton Area	Neutrino Area	Meson Area
Sat. 7/1	~1×10^{13} ppp		152B (PE)	Neutrino 356	272 (M1E)
	@400 GeV		288 (PC)	(NO)	290 (M6W)
Sun. 7/2	(1 sec flattop)	OFF	592 (PW)		495 (M2)
					585 (M4)
Mon. 7/3					
Tue. 7/4					
Wed. 7/5	Main Ring Studies & Accel. Tuneup for HEP				
			same but OFF(PE)		
Thu. 7/6	Main Ring Studies, Removal of Obstacles, & Tuneup for HEP				
Fri. 7/7	~1.3×10^{13} ppp				
	@400 GeV		152B (PE)		
Sat. 7/8	(1 sec flattop)	OFF	288 (PC)	15'B.C.expansion	
			592 (PW)	& test strips	
Sun. 7/9					
Mon. 7/10	MR Studies and Necessary Repairs				
	1.3×10^{13} ppp				
Tue. 7/11	@400 GeV				
	(1 sec flattop)				
Wed. 7/12	Scheduled Accelerator Repairs				
	1.3×10^{13} ppp		Photoprod.152B	Neutrino 356	
Thu. 7/13	@400 GeV	OFF	(PE)	&	
	(1.25 sec flattop)		Di-Lepton 288	15'H_2&Ne #380	
Fri. 7/14			(PC)	(NO)	
Sat. 7/15			Nucl.Scal. 592		
			(PW)		
Sun. 7/16					
Mon. 7/17	Reprs:Linac RF,MR Vac.,		152B (PE)	Neutrino 356(NO)	
	MR Cntrls.,PSEP		288 (PC)	15'B.C. Repairs	
Tue. 7/18		OFF	High Int. Tsts.		
	Reprs: MK90		(PW)		
Wed. 7/19	Accelerator Studies and Maintenance & Development				
Thu. 7/20					
Fri. 7/21	Accelerator Repairs and Tuneup for HEP				
Sat. 7/22	~1.3×10^{13} ppp		Photoprod.152B	(15' B.C. on)	495 (M2)
	@400 GeV		(PE)		490 (M1W)
Sun. 7/23	(1.25 sec flattop)	OFF	High Int.Bm.Tsts.	Neutrino 356	290 (M6W)
			(PW)	(NO)	585 (M4)
Mon. 7/24	Tuning:First Ping		Open (PC)	15'B.C.Repairs	533 (M3)
Tue. 7/25	Accelerator Studies				
			Repairs to PE		
Wed. 7/26			target box		
Thu. 7/27	Scheduled Studies of First Ping				
			High Int.Bm.Tsts.	Neutrino 356	E^0 Production 495
Fri. 7/28	Shutdown for necessary repairs		(PW)	&	(M2)
	~1.5×10^{13} ppp		OFF (PE)	15'ν/H_2&Ne #380	Part.Search 490
Sat. 7/29	@400 GeV		OPEN (PC)		(M1W)
	(1.25 sec flattop)			(NO)	Bkwd.Scatt. 290
Sun. 7/30					(M6W)
Mon. 7/31	Accelerator Studies				K Chg.Exch.585(M4)
					π-μ Atoms 533 (M3)

BEAM UTILIZATION BY

	Beam	Hours
PROTON AREA		
Photoproduction #152B	PE	330
DiLepton #288	PC	300
Nuclear Scaling #592	PW	200
High Intensity Beam Test	PW	20
NEUTRINO AREA		
Neutrino #356	N0	325
15' ν /H_2+N_e #380	N0	53.2 K pictures
Nuclear Fragments #466	-	-
MESON AREA		
Hadron Dissociation #272	M1E	245
Backward Scattering #290	M6W	430
Ξ^0 Production #495	M2	385
K Charge Exchange #585	M4	435
π-μ Atoms #533	M3	140
Particle Search #490	M1W	145
Nuclear Chemistry #81A	-	-
TOTAL HOURS FOR HIGH ENERGY PHYSICS		2955

EXPERIMENTAL ACTIVITY -- JULY 1978

Activities

data: for study of elastic and inelastic Compton scattering

completed: including continued high resolution study of the dimuon spectra produced by 400-GeV proton

completed: including study of connection between scaling phenomena and the determination of structure function in inclusive reactions

engineering tests: of a new 200 GeV high intensity pion beam

tuneup and data: for study of deep inelastic ν and $\bar{\nu}$ scattering using a dichromatic beam

data: parasitic bubble chamber experiment with a heavy neon/hydrogen fill

data: 3 targets exposed

completed: study of inelastic Coulomb excitation and diffractive production of hadrons

completed: $\pi \pm$ -p backward scattering at 50 and 70 GeV/c

tuneup and data: for measurement of the production spectrum and polarization of Ξ^o and $\bar{\Lambda}^o$ hyperons

data: for study of KN charge exchange

tuneup: of an experiment to measure the rate of formation of π-μ atoms in K_L^o - decay

tuneup: of an experiment to study charmed particle production in a high resolution streamer chamber

data: 8 targets exposed

FACILITY UTILIZATION SUMMARY -- JULY 1978

I. Summary of Accelerator Operations

		Hours	
A. Accelerator use for physics research			
Accelerator physics research		41.6	
High energy physics research		465.0	
	Subtotal		506.6
B. Other activities			
Accelerator setup and tuning to exp. areas		4.0	
Program interruption		11.2	
Unscheduled interruption		222.2	
	Subtotal		237.4
C. Unmanned time			
	Total		744.0

II. Summaries of High Energy Physics Research Use

	# of Expts.	Hours	Results
A. Counter experiments	10	2935	4 exp. completed
B. Bubble chamber experiments	1		> 53,000 pictures
C. Emulsion experiments			
D. Special target experiments	2		11 targets exposed
E. Test experiments			
F. Engineering studies and tests	1	20	High intensity area tests
G. Other beam use			
Totals	14	2955	

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

A. Beam accelerated in Main Ring		2,28
B. Beam delivered to experimental areas		2,26
Meson Area		0,39
Neutrino Area	Slow Spill	0.0
	Fast Spill	1.39
Proton Area		0.48

SITUATION REPORT - JULY 1978

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25 JUL 1978

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 JULY 1, 1978. 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 - 291

AREA-BEAM		SPOKESPERSON	EXTENT OF RUN TO DATE	DATE COMPLETED
A. EXPERIMENTS THAT HAVE COMPLETED DATA TAKING (234):				
(ONLY EXPERIMENTS COMPLETED SINCE 1 JAN 1978 ARE LISTED BELOW)				
MA-M1	DETECTOR DEVELOPMENT #427	YOAM	40 HOURS	10 JAN 1978
-M2	MULTI-MUON #439	GABELICK	1,700 HOURS	19 MAY 1978
-M3	PARTICLE SEARCH #540	LONGO	600 HOURS	21 FEB 1978
-M4	INCLUSIVE K-SHORT #393	KOBRAK	2,200 HOURS	7 MAY 1978
-M6	ASSOCIATED PRODUCTION #99	DIEBOLD	750 HOURS	24 JAN 1978
	MULTIPARTICLE #110A	DEIEBBA	1,600 HOURS	9 APR 1978
	PARTICLE SEARCH #469	CUTTS	400 HOURS	15 MAY 1978
MA-MO-TRIPLET	NEUTRINO #492	BARISH	1,600 HOURS	3 JAN 1978
	15-FOOT NEUTRINO/H26NE #546	HUSON	375K PIX	26 JAN 1978
-MUON/HADRON	MUON #203A	KERTH	1,200 HOURS	18 MAY 1978
	MUON #391	KERTH		18 MAY 1978
	DI-MUON #449	SMITH	1,100 HOURS	3 JAN 1978
	MUON #448	LOOMIS	900 HOURS	7 MAY 1978
	PARTICLE SEARCH #596	LEDERMAN	200 HOURS	21 MAY 1978
-OTHER	EMULSION/PI- @ 300 #481	TAKAHASHI	7 STACKS	18 JAN 1978
	EMULSION/PI- @ 100 #503	OGATA	4 STACKS	18 JAN 1978
	EMULSION/PI- @ 300 #506	OAKE	2 STACKS	15 JAN 1978
	EMULSION/PI- @ 300 #525	WILKES	2 STACKS	15 JAN 1978
	EMULSION/PI- @ 100 #568	HERBERT	3 STACKS	15 JAN 1978
	EMULSION/PI- @ 300 #573	USHIDA	3 STACKS	15 JAN 1978
	EMULSION/PI- @ 300 #574	WOLTER	4 STACKS	18 JAN 1978
	EMULSION/PROTONS @ 400 #449	IWAI	5 STACKS	15 JAN 1978
	EMULSION/PROTONS @ 400 #547	JACQUOT	24 STACKS	15 JAN 1978
	EMULSION/PROTONS @ 400 #575	LOPD	2 STACKS	15 JAN 1978
PA-PE	PHOTOPRODUCTION #87A	OHALLORAN	4,800 HOURS	7 MAY 1978
ITA-C-O	PROTON POLARIZATION #522	OGDEN	700 HOURS	21 MAR 1978
	P-N SCATTERING #552	SAMMES	950 HOURS	9 APR 1978
B. EXPERIMENTS THAT ARE IN PROGRESS (19):			EXTENT OF RUN TO DATE	DATE OF RECENT RUN
MA-M1	HADRON DISSOCIATION #272	FERBEL	700 HOURS	1 JUL 1978
-M4	KAON CHARGE EXCHANGE #545	ABOLINS	200 HOURS	1 JUL 1978
-M6	BACKWARD SCATTERING #290	BAKER	1,100 HOURS	1 JUL 1978
	INCLUSIVE SCATTERING #451	BARTON	100 HOURS	1 JUL 1978
-OTHER	NUCLEAR CHEMISTRY #81A	KAUFMAN	181 BOMBARDMENTS	1 JUL 1978
NA-MO-DICHROM	NEUTRINO #356	SCIULLI	400 HOURS	1 JUL 1978
-MO-WB HORN	15-FOOT NEUTRINO/H2 #45A	MESSICA	162K PIX	1 APR 1976
	15-FOOT NEUTRINO/H26NE #53A	BALTAY	163K PIX	24 MAY 1977
	15-FOOT ANTI-NEUTRINO/H26NE#190	MEZRICK	273K PIX	1 JUL 1977
	NEUTRINO #310	CLINE	3,900 HOURS	1 JUL 1978
	NEUTRINO #253	MO	450 HOURS	1 APR 1978
-15-FT	15-FOOT PI- - P @ 100 #83A	KITAGAKI	11K PIX	1 APR 1975
	15-FOOT PI- - P6NE @ 200 #89	FRETTER	4K PIX	1 JUL 1975
	15-FOOT PI- - P @ 360 #38B	LANNOZZI	20K PIX	1 APR 1976
-OTHER	MONOPOLE #502	BARTLETT	COSMIC RAY RUNNING	1 JUL 1977
	NUCLEAR FRAGMENTS #466	KAUFMAN	15 TARGETS EXPOSED	1 JUL 1978
PA-PE	PHOTOPRODUCTION #152B	HEDSCH	1,200 HOURS	1 JUL 1978
-PC	DI-LEPTON #288	LEDERMAN	6,550 HOURS	1 JUL 1978
-PN	NUCLEAR SCALING #592	FRANKEL	330 HOURS	1 JUL 1978
C. EXPERIMENTS THAT ARE IN TEST STAGE (3):			EXTENT OF RUN TO DATE	DATE OF RECENT RUN
MA-M1	PARTICLE SEARCH #490	SANDWEISS	350 HOURS	1 JUL 1978
-M2	II-ZERO PRODUCTION #495	HELLER	10 HOURS	1 JUL 1978
PA-PE	PHOTOPRODUCTION #401	GOSHLET	30 HOURS	1 JUL 1978
D. EXPERIMENTS BEING INSTALLED (4):			EXTENT OF APPROVAL	
MA-M2	PROTON POLARIZATION #505	TAMIN	100 HOURS	
	LAMBDA BETA DECAY #361	PONDRON	300 HOURS	
-M3	PI-MU ATOMS #533	SCHWARTZ	500 HOURS	
NA-MO-DICHROM	15-FOOT NEUTRINO/H26NE #380	BALTAY	200K PIX	
E. EXPERIMENTS TO BE SET UP WITHIN A YEAR (21):			EXTENT OF APPROVAL	
MA-M1	PARTICLE SEARCH #515	ROSEN	800 HOURS	
-M3	PARTICLE SEARCH #584	WINSTEIN	300 HOURS	
-M6	NARROW JETS #557	MALAMUD	1,600 HOURS	
	PARTICLE SEARCH #580	JENKINS	800 HOURS	
	ELASTIC SCATTERING #577	RUBINSTEIN	1,200 HOURS	
NA-MO-DICHROM	15-FOOT ANTI-NEUTRINO/H26NE#388	PETERSON	200K PIX	
	NEUTRINO #594	WALKER	PARASITIC RUNNING	
-WO-WB HORN	15-FOOT NEUTRINO/D26HIZ #545	SNOW	350K PIX	
	15-FOOT ANTI-NEUTRINO/D2 #390	CARMONY	300K PIX	
	NEUTRINO #531	WHAT	PARASITIC RUNNING	
	NEUTRINO #553	HAND	PARASITIC RUNNING	
	15-FOOT 5 EMULSION/NEUTRINO#564	VOYVODIC	PARASITIC RUNNING	
-15-FT	PARTICLE SEARCH #595	BODEK	600 HOURS	
PA-PE	PHOTOPRODUCTION #516	WASH	1,000 HOURS	
-PC	CHARGED HYPERON #497	LACH	400 HOURS	
-PN	PION INCLUSIVE #258	SNOCHET	800 HOURS	NOTE: THE ABILITY TO SET UP THESE EXPERIMENTS DURING THE NEXT YEAR IS CONTINGENT ON THE AVAILABILITY OF FUNDS.
	PARTICLE SEARCH #567	WEBB	500 HOURS	
	DI-MUON #326	SNOCHET	800 HOURS	
	C-TEST #302	WEBB	400 HOURS	
	DI-MUON #537	COX	1,200 HOURS	
ITA-C-O	PARTICLE SEARCH #591	GOTAY	800 HOURS	

AREA-BEAM		SPOKESPERSON	EXTENT OF APPROVAL
F. OTHER APPROVED EXPERIMENTS (10):			
NA-15-PT	15-FOOT P - P & KS @ 400 #291	MANN	25K PIX
-30-IB	30-INCH HYBRID #570	PLESS	1,500 HOURS
	30-INCH HYBRID #565	YAMAMOTO	PARASITIC RUNNING
	30-INCH HYBRID #557	WHITMORE	1,000 HOURS
-OTHER	EMULSION/PROTONS @ 500 #508	WOLTER	EMULSION EXPOSURE
	EMULSION/PROTONS @ 500 #524	WILKES	EMULSION EXPOSURE
	EMULSION/PROTONS @ 500 #576	REBERT	3 STACKS
	QDAPK #549	LONGO	PARASITIC RUNNING
PA-PE	PARTICLE SEARCH #400	PEOPLES	UNSPECIFIED
	PHOTOPRODUCTION #458	LEE	UNSPECIFIED

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PENDING PROPOSALS (17):			EXTENT OF REQUEST
NA-31	DI-MUON #605	BROWN	4,000 HOURS
-M2	DI-MUON #589	ROCKETT	750 HOURS
-M3	POLARIZED SCATTERING #581	YOKOSAWA	1,200 HOURS
-M6	MULTIPARTICLE #523	DZIERBA	800 HOURS
NA-M0-DICHROM	NEUTRINO #355	BARISH	1,400 HOURS
-M0-WB HORN	15-FOOT NEUTRINO/H2GHZ #489	MEZRICK	450K PIX
	15-FOOT ANTINEUTRINO/H2GHZ#544	KAPTANOV	500K PIX
-MUON/RADRCN	PION DISSOCIATION #318	ASCOLI	400 HOURS
-15-PT	15-FOOT P - P @ > OR = 300 #208	TAKIGAEV	75K PIX
	DETECTOR DEVELOPMENT #528	ROBERTS	100 HOURS
-30-IB	30-INCH PIEP - P&NE @100 #534	GOLJANOV	20K PIX
	DETECTOR DEVELOPMENT #550	ATAC	TEST RUNNING
	PARTICLE SEARCH #606	HUGENTOBLER	750 HOURS
PA-PC	CHARGED HYPERON #353	ECKLUND	600 HOURS
	FORM FACTOR #446	ECKLUND	800 HOURS
ITA-C-0	PHOTON-PROTON SCATTERING #500D	FRANZINI	1,000 HOURS
	PARTICLE SEARCH #607	BUSACK	100 HOURS