

SUMMARY OF OPERATIONS - APRIL 1980

Program Planning Office

The experimental activities underway in April were primarily a continuation of those begun in March. The accelerator was operated at 350 GeV with a 1.0-second flattop for most of the month while the majority of scheduled experiments were engaged in start-up or tuning activities. During the last week of running the flattop length was changed to 1.5 seconds, reflecting the fact that over half of the scheduled experiments were in a data-taking mode and benefited from a longer spill. The overall efficiency of the accelerator in delivering beam for high-energy physics was relatively poor for the month of April due to numerous and varied failures. These included problems with the Booster injection orbit bump power supply, two separate failures of extraction septum ES-38, and two Main-Ring feeder faults.

Particle Search #580 (M6) and Particle Search #595 (N5) took data steadily during the available running time in April and by the end of the month Dimuon #326 (PW), Particle Search #515 (M1), and Particle Search #591 (ITA) were also in a data-taking mode.

Other significant events during April included a resumption of experimental activity in Proton-Center by Charged Hyperon #497 and the beginning of a series of beam tests and radiation measurements in the M2 beam line to determine future operating conditions for Beam Dump #613.

FERMI NATIONAL ACCELERATOR LABORATORY
MONTHLY OPERATIONS HISTORY
APRIL 1980

Date	accelerator	Internal Target Area	Proton Area	Neutrino Area	Meson Area
Tue. 4/1	7×10^{14} 0.350 GeV 1.0 sec flattop	591	326 (PW) 516 (PE)	595 (N5) 610 (N1) 594 Test (NO)	580 (M6) 585 (M4) 515 (M1) OFF (M2, M3)
Wed. 4/2	ES-38 shorted				
Thu. 4/3					
Fri. 4/4	QREHM tripped 6×10^{13} PPP 0.350 GeV	591	326 (PW) 516 (PE)	595 (N5) 610 (N1)	580 (M6) 585 (M4)
Sat. 4/5	1.0 sec flattop			594 Test (NO)	515 (M1)
Sun. 4/6	MACC-1 DISRUPTION	RF#9			M2 Tests
Mon. 4/7	QREHM				OFF (M3)
Tue. 4/8					
Wed. 4/9					
Thu. 4/10	1.4×10^{13} PPP 0.350 GeV	591	326 (PW) 516 (PE)	595 (N5) 610 (N1)	580 (M6) 585 (M4)
Fri. 4/11	1.0 sec flattop				515 (M1)
Sat. 4/12	200 MeV chopper				M2 Tests
Sun. 4/13					OFF (M3)
Mon. 4/14	Necessary Rep. & Linac.				
Tue. 4/15	MR Conv. Feed.				
Wed. 4/16					
Thu. 4/17					
Fri. 4/18	Water Leak & Feeder	591	326 (PW) 516 (PE)	595 (N5) 610 (N1)	580 (M6) 585 (M4)
Sat. 4/19	Booster clock & MR Quad		497 Tests (PC)		515 (M1)
Sun. 4/20					M2 Tests
Mon. 4/21	Necessary Rep. MR Safety				OFF (M3)
Tue. 4/22					
Wed. 4/23					
Thu. 4/24					
Fri. 4/25	Quad #5 Linac	591	326 (PW) 516 (PE)	595 (N5) 610 (N1)	580 (M6) 515 (M1)
Sat. 4/26	Linac Rep		497 Tests		585 (M4)
Sun. 4/27	1.5×10^{13} PPP 0.350 GeV				M2 Tests
Mon. 4/28	1.5 sec flattop ES-38 short:Linac #2				OFF (M3)
Tue. 4/29					
Wed. 4/30					
					Accelerator Studies (Parasitic HEP)

FACILITY UTILIZATION SUMMARY - APRIL 1980

I. Summary of Accelerator Operations

	<u>Hours</u>
A. Accelerator use for physics research	
High energy physics research	387.4
Accelerator physics research	49.0
Subtotal	436.4
B. Other Activities	
Program interruption	82.3
Accelerator setup and tuning to experimental areas	29.0
Subtotal	111.3
C. Unscheduled interruption	171.3
D. Unmanned time	-
Total	719.0

II. Summaries of High Energy Physics Research Use

	<u># of Expts.</u>	<u>Hours</u>	<u>Results</u>
A. Counter experiments	9	2560	
B. Bubble chamber experiments	-	-	
C. Emulsion experiments	-	-	
D. Special target experiments	-	-	
E. Test experiments	-	-	
F. Engineering studies and tests	1	30	M2 beam tests
G. Other Beam Use	-	-	
Totals	<u>10</u>	<u>2590</u>	

III. Number of Protons Accelerated and Delivered (x10¹⁸) at 350 GeV

A. Beam accelerated in Main Ring	1.39
B. Beam delivered to experimental areas	*
Proton Area	0.28
Neutrino Area	
Slow Spill	0.29
Fast Spill	*
Meson Area	0.61

* Accurate delivered beam information was not available for the month of April.

SITUATION REPORT -- APRIL 1980

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FERMI NATIONAL ACCELERATOR LABORATORY

PROGRAM PLANNING OFFICE

EXPERIMENTAL PROGRAM SITUATION REPORT

11 APR 1980

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 APRIL 1, 1980. FOR EXPERIMENTS WHICH HAVE BEEN COMPLETED OR HAVE RECEIVED DATA THERE IS INDICATION OF THE AMOUNT OF RUNNING TIME OR EXPOSURE. THE EXPERIMENTAL AREA NAMES ARE ABBREVIATED AS FOLLOWS: NEUTRON AREA (NA), NEUTRINO AREA (N), 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 (259):

(ONLY EXPERIMENTS COMPLETED SINCE 1 JAN 1980 ARE LISTED BELOW)

MA-M2	CHARGED NEUTRON MAG SOMENT #620	PONDBOR	600 HOURS	22 JAN 1980
NA-M3	PARTICLE SEARCH #584	WINSTEIN	400 HOURS	22 JAN 1980
NA-NO-DICHROM	NEUTRINO #616	SCIOLLI	2,900 HOURS	22 JAN 1980

B. EXPERIMENTS THAT ARE IN PROGRESS (11):

EXTENT OF RUN TO DATE DATE OF RECENT RUN

MA-M1	PARTICLE SEARCH #490	SANDWEISS	950 HOURS	1 OCT 1978
-M2	QUARK #622	GUSTAFSON	UNSPECIFIED	1 JUL 1979
-M4	FAON CHARGE EXCHANGE #565	FRANCIS	1,250 HOURS	1 APR 1980
-M6	PARTICLE SEARCH #580	GREEN	400 HOURS	1 APR 1980
NA-NO-HORN	15-FOOT ANTI-NEUTRINO/HZENE #534	BALAT	163K PIX	1 JUL 1977
	NEUTRINO/HZENE #534	BALAT	1,150 HOURS	1 JUL 1979
	15-FOOT π EMULSION/NEUTRINO #564	VOYFODIC	EMULSION EXPOSURE	1 JUL 1979
	15-FOOT ANTI-NEUTRINO/D ₂ #390	GARPMIKEL	10K PIX	1 APR 1979
	15-FOOT ANTI-NEUTRINO/H26MM #180	ERMOLOV	273K PIX	1 JUL 1977
-OTHER	MONOPOLE #5C2	BARTLETT	COSMIC RAY RUNNING	1 APR 1979
	NUCLEAR FRAGMENTS #466	SUGARMAN	36 TARGETS EXPOSED	1 APR 1980

C. EXPERIMENTS THAT ARE IN TEST STAGE (10):

EXTENT OF RUN TO DATE DATE OF RECENT RUN

MA-M1	PARTICLE SEARCH #515	ROSEN	700 HOURS	1 APR 1980
-M6	ELASTIC SCATTERING #577	BURSTEIN	300 HOURS	1 JAN 1980
	HADRON JETS #557	HALAMUD	250 HOURS	1 APR 1980
NA-MOON/HADRON	PARTICLE SEARCH #610	KIRK	150 HOURS	1 APR 1980
-15-FT	PARTICLE SEARCH #595	BODKE	600 HOURS	1 APR 1980
-OTHER	QUARK #549	LONGO	1 TARGETS EXPOSED	1 OCT 1978
PA-PE	PHOTOPRODUCTION #516	MASH	650 HOURS	1 JAN 1980
-PW	DI-NUCLEON #434	SHOCHET	400 HOURS	1 APR 1980
	DI-NUCLEON #537	COI	100 HOURS	1 APR 1980
ITA-C-0	PARTICLE SEARCH #591	GUTAY	150 HOURS	1 APR 1980

D. EXPERIMENTS BEING INSTALLED (4):

EXTENT OF APPROVAL

MA-M2	BEAM DUMP #613	ROE	1,000 HOURS	
NA-NO-DICHROM	NEUTRINO #594	WALKER	PARTASITIC RUNNING	
PA-PC	CHARGED HYPERON #497	LACH	400 HOURS	
-PW	C-TEST #302	WITHERELL	400 HOURS	

E. EXPERIMENTS TO BE SET UP WITHIN A YEAR (7):

EXTENT OF APPROVAL

MA-M3	CP VIOLATION #617	WINSTEIN	1,000 HOURS	NOTE: THE ABILITY TO SET UP THESE EXPERIMENTS DURING THE NEXT YEAR IS DEPENDENT ON THE
-M6	HADRON JETS #609	SILLOVE	UNSPECIFIED	IS DEPENDENT ON THE
NA-10-IM	10-INCH HYBRID #570	PLESS	1,500 HOURS	AVAILABILITY OF FUNDING.
	10-INCH HYBRID #565	PRESS	PARTASITIC RUNNING	
	10-INCH HYBRID #597	WHITMORE	1,000 HOURS	
PA-PE	PHOTON DISSOCIATION #612	GOULIAMIS	1,750 HOURS	
-PC	B & CHARM PARTICLE PROD. #630	SANDWEISS	600 HOURS	

F. OTHER APPROVED EXPERIMENTS (10):

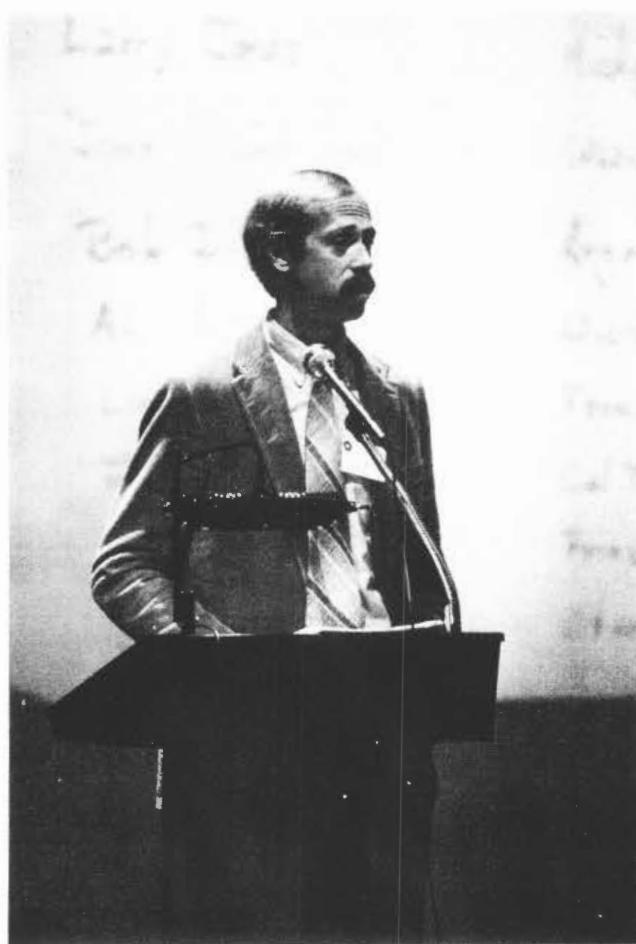
EXTENT OF APPROVAL

MA-M1	HIGH MASS PAIRS #605	BROWN	1,000 HOURS	
-M2	TRANSITION MAGNETIC MOMENT #619	DEVILIN	250 HOURS	
	NEUTRAL HYPERON #555	DEVILIN	450 HOURS	
MA-OTHERS	POLARIZED SCATTERING #581	YOKOSAWA	UNSPECIFIED	
	EMULSION/PROTONS π 500 #508	WOLFER	EMULSION EXPOSURE	
	EMULSION/PROTONS π 500 #524	WILKES	EMULSION EXPOSURE	
	EMULSION/PROTONS π 500 #576	WILKES	EMULSION EXPOSURE	
PA-PP	PARTICLE SEARCH #400	PROFFLES	3 STACKS	
-PW	PHOTOPRODUCTION #458	LEE	UNSPECIFIED	
	FORWARD SEARCH #615	ANDERSON	UNSPECIFIED	

PENDING PROPOSALS (10):

EXTENT OF REQUEST

MA-M1	PHOTON SEARCH #614	ROSEN	300 HOURS	
-M2	DI-NUCLEON #589	MCKEETT	750 HOURS	
	CP VIOLATION #621	THOMSON	1,200 HOURS	
-M6	MULTIPARTICLE #523	DIZIERA	800 HOURS	
NA-15-FT	PARTICLE SEARCH #523	LAU	1,000 HOURS	
-30-IM	DETECTOR DEVELOPMENT #528	ROBERTS	100 HOURS	
	DETECTOR DEVELOPMENT #550	ATAC	TEST RUNNING	
PA-PE	PHOTOPRODUCTION #427	KNAPP	1,000 HOURS	
ITA-C-0	PROTON-PROTON SCATTERING #600	FRAMINI	1,000 HOURS	
MISC1	NUC CALIBRATION CROSS SECT #631	RAKKE	25 EXPOSURES	



John Rutherford addressing the Annual Users Meeting (see story on page 3).

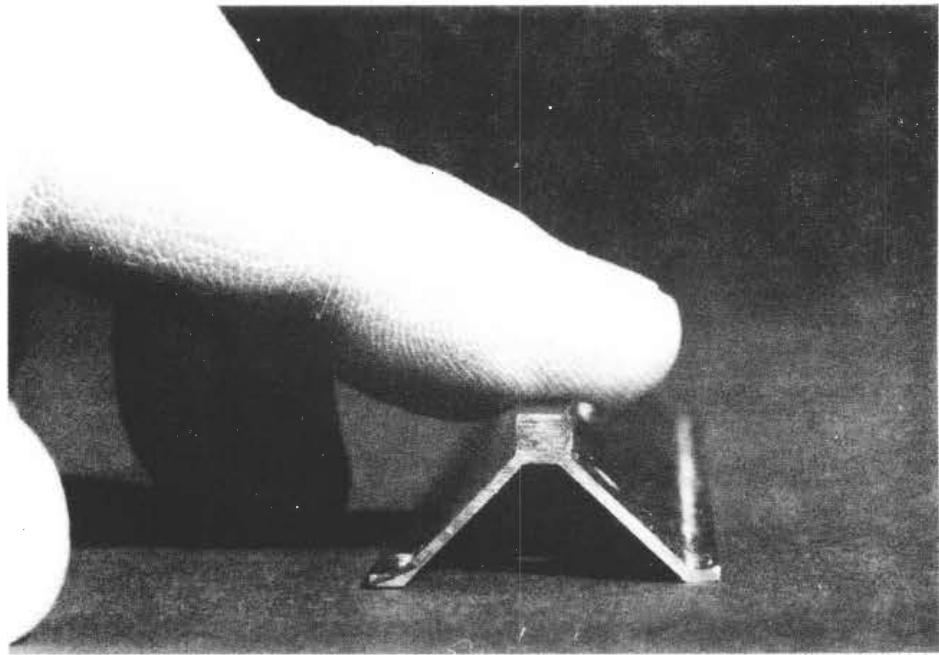
(Photograph by Fermilab Photo Unit)

PROPOSALS RECEIVED FROM OCTOBER 2, 1979
THROUGH MAY 16, 1980

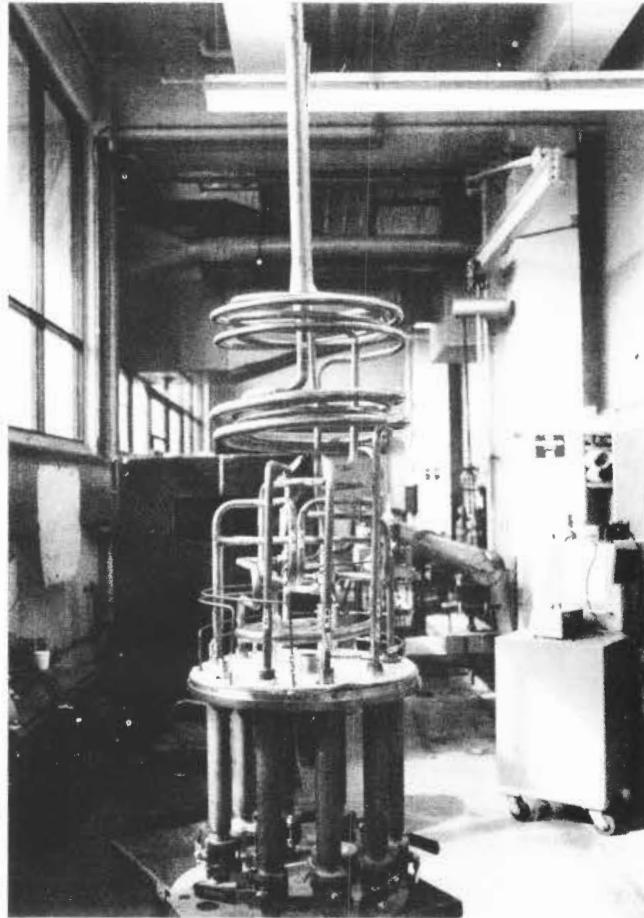
<u>No.</u>	<u>Title</u>	<u>Spokesperson</u>
629	Proposal to Fermilab to Measure Direct Photon Production in Hadron-Nucleus Collisions	T. Ferbel
630	Study of B Particle and Charmed Particle Production and Decay Using a High Resolution Streamer Chamber	J. Sandweiss
631	A Proposal to Measure Nuclear Calibration Cross Sections for Protons between 100 and 1000 GeV	S. I. Baker
632	An Exposure of the 15-Ft Bubble Chamber with a Neon-Hydrogen Mixture to a Wideband Neutrino Beam from the Tevatron	D. Morrison
633	Proposal to Study Neutrino Interactions in a Beam Dump Experiment with the 15-Ft Bubble Chamber at Tevatron Energies	V. Kaftanov
634	Proposal to Measure Neutrino and Anti-Neutrino Interactions in a Large Magnetized Iron Detector with Very Good Acceptance and Resolution at the Tevatron	No Spokesperson Given
635	Proposal to Measure $\nu_\mu e^-$ and $\nu_\mu e^-$ Elastic Scattering, Neutrino Oscillations, and Decays of Long-Lived Neutral Particles at the Tevatron of Fermilab	L. Mo
636	Neutrino Interaction Studies at Tevatron Energies Using a Beam Dump Technique to Produce the Neutrino Beam	I. Pless
637	Proposal to Study Neutrino and Antineutrino Interactions in Deuterium with 15-Ft Bubble Chamber at Tevatron Energies	V. Ammosov V. Kaftanov
638	Antineutrino Interactions in Deuterium at Tevatron Energies	No Spokesperson Given
639	Tevatron Proposal for a Study of Deep Inelastic Muon Scattering and Electroweak Interference at 600 and 750 GeV	H. Anderson
640	The Multimuon Spectrometer at the Tevatron	S. Loken

No.	Title	Spokesperson
641	A Tevatron Proposal: Neutrino-Deuterium and Antineutrino-Deuterium Interactions in the 15-Ft Bubble Chamber Using an 800-1000 GeV/c Quadrupole Triplet Beam	T. Kitagaki
642	Proposal for an Extension of Experiment E-545 to Study Neutrino Interactions in Deuterium in the 15-Ft Chamber with Plates and High Resolution Optics Using the 400 GeV/c Wide Band Beam	G. Snow
643	An Open Geometry Magnetic Spectrometer for the Tevatron Muon Beam	G. Brandenburg
644	Further Studies of Prompt Neutrinos with the E-613 Detector	M. Longo
645	Muon Production in a Neutrino Beam Dump	M. Glaubman
646	Search for the ν_τ and Study of ν_e and $\bar{\nu}_e$ Interactions	C. Baltay
647	Development of a "Fermilab Neutrino Hybrid Spectrometer (FNHS)" for Neutrino Physics at the Tevatron	V. Peterson
648	Deep Inelastic Weak and Electromagnetic Interactions of Muons	No Spokesperson Given
649	Proposal to Study Nucleon Structure Functions at High Q^2	F. Taylor
650	Request for a Continuation of E-567	No Spokesperson Given
651	Letter of Intent for an Experiment at Tevatron with Wide Band Neutrino and Antineutrino Beams in the 15-Ft Chamber Filled with Deuterium (or Light Neon) and with an Internal Electromagnetic Calorimeter	No Spokesperson Given
652	Neutrino Physics at the Tevatron	F. Sciulli M. Shaevitz
653	A Proposal to Measure Charm and B Decays Via Hadronic Production in a Hybrid Emulsion Spectrometer	N. Reay
654	Fully Active Neutrino Target Assembly	W. Lee

<u>No.</u>	<u>Title</u>	<u>Spokesperson</u>
655	An Experiment to Search for $\nu_e^\mu \rightarrow \nu_\tau$ Neutrino Oscillations Using an Enriched $(\nu_e/\bar{\nu}_e)$ Beam	No Spokesperson Given
656	Proposal to Study Neutrino Interactions in a Beam Dump Experiment	S. Whitaker
657	Proposal for Studying Hadroproduction of Charmed Particles Using the 30-Inch Bubble Chamber	L. Voyvodic
658	A Letter of Intent to Study Hadronic Final States in Deep Inelastic Lepton Scattering by the Addition of a Vertex Detector to a Forward Spectrometer Pro- posed for the Tevatron Muon Beam at FNAL	V. Eckardt



A new beam target before installation.
(Photograph by Fermilab Photo Unit)



Energy Saver valve box.
(Photograph by Fermilab Photo Unit)



Tree planting at Fermilab's Arbor Day by Chinese visitors
(left to right) Zhang Chuen-Ming, Xiao Yi-Xuang, Shi Yin-Sheng,
and Ding Ji-Ping and Manuel Garcia, Fermilab employee.
(Photograph by Fermilab Photo Unit)

DATES TO REMEMBER

May 28-31, 1980

International Symposium on the History of Particle Physics (contact L. Hoddeson, Symposium Secretary, at Fermilab for further information).

June 16-17, 1980

Workshop on Helium Refrigeration for High Energy Accelerator Systems (contact W. B. Fowler, Fermilab, for further information).

June 21-27, 1980

Summer meeting of the Physics Advisory Committee (Aspen).

July 24-25, 1980

Fixed Target Workshop (contact Program Planning Office for details).

July 28-August 1, 1980
