

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	7x10¹⁴ @350 GeV BS-3B shorted	591	326 (PW) 516 (PE)	595 (N5) 610 (N1) 594 Test (N0)	580 (M6) 585 (M4) 595 (M1) OFF (M2, M3)
Wed. 4/2					
Thu. 4/3					
			Accelerator M & D		
			Accelerator Startup		
Fri. 4/4	ORRHM tripped 6x10¹⁴ ppp @350 GeV	591	326 (PW) 516 (PE)	595 (N5) 610 (N1) 594 Test (N0)	580 (M6) 585 (M4) 515 (M1)
Sat. 4/5	1.0 sec flattop MAC-C disc; Linac	RF#9			M2 Tests OFF (M3)
Sun. 4/6					
Mon. 4/7	ORRHM				
Tue. 4/8					
Wed. 4/9					
			Accelerator M & D		
Thu. 4/10	1.4x10¹³ ppp @350 GeV	591	326 (PW) 516 (PE)	595 (N5) 610 (N1)	580 (M6) 585 (M4) 515 (M1)
Fri. 4/11	1.0 sec flattop 200 MeV chopper				M2 Tests OFF (M3)
Sat. 4/12					
Sun. 4/13					
Mon. 4/14	Necessary Rep. Linac.				
Tue. 4/15	MR Conv. Feed.				
Wed. 4/16					
Thu. 4/17					
			Accelerator M & D		
Fri. 4/18	Water Leak & Feeder	591	326 (PW) 516 (PE) 497 Tests (PC)	595 (N5) 610 (N1)	580 (M6) 585 (M4) 515 (M1) M2 Tests OFF (M3)
Sat. 4/19	Booster clock & MR Quad				
Sun. 4/20					
Mon. 4/21	Necessary Rep. MR Safety			Neut. Area Off; Controls problems	
Tue. 4/22					
Wed. 4/23					
			Accelerator M & D		
Thu. 4/24	Quad #5 Linac	591	326 (PW) 516 (PE) 497 Tests	595 (N5) 610 (N1)	580 (M6) 515 (M1) 585 (M4) M2 Tests OFF (M3)
Fri. 4/25	Linac at				
Sat. 4/26	1.5x10¹³ ppp @350 GeV 1.5 sec flattop				
Sun. 4/27	ES3B short; Linac#2				
Mon. 4/28					
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 ($\times 10^{18}$) 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

PAGE 1 FERMIL 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 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 (259):

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

MA-M2	CHARGED HYPERON MAG MOMENT #620	PONDROM	900 HOURS	22 JAN 1980
-M3	PARTICLE SEARCH #584	WINSTEIN	400 HOURS	22 JAN 1980
MA-MO-DICHRON	NEUTRINO #616	SCIULLI	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	350 HOURS	1 OCT 1978
-M2	QUARK #622	GUSTAFSON	UNSPECIFIED	1 JUL 1979
-M4	PAOS CHARGE EXCHANGER #585	FRANCIS	1,250 HOURS	1 APR 1980
-M6	PARTICLE SEARCH #580	GREEN	400 HOURS	1 APR 1980
MA-MO-NORM	15-FOOT NEUTRINO/H26NE #53A	BALTAY	163K PIX	1 JUL 1977
	NEUTRINO #531	BEAT	1,150 HOURS	1 JUL 1979
	15-FOOT & EMULSION/NEUTRINO#564	VOTTOGIC	EMULSION EXPOSURE	1 JUL 1979
	15-FOOT ANTI-NEUTRINO/D2 #390	GARFINKEL	10K PIX	1 APR 1979
	15-FOOT ANTI-NEUTRINO/H26NE#180	ERNOLOV	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	ROSENSTEIN	300 HOURS	1 JAN 1980
MA-MOON/HADRON	HADRON JETS #557	MALAMUD	250 HOURS	1 APR 1980
-15-PT	PARTICLE SEARCH #610	KIRK	150 HOURS	1 APR 1980
-OTHER	PARTICLE SEARCH #595	BODEK	600 HOURS	1 APR 1980
PA-PF	QUARK #549	LONGO	1 TARGETS EXPOSED	1 OCT 1978
-PW	PHOTOPRODUCTION #516	NASH	650 HOURS	1 JAN 1980
	DI-MOON #326	SCHOCHET	400 HOURS	1 APR 1980
	DI-MOON #537	COI	200 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	BOE	1,000 HOURS
MA-MO-DICHRON	NEUTRINO #554	WALKER	PARASITIC RUNNING
PA-PC	CHARGED HYPERON #497	LACH	400 HOURS
-PW	C-TEST #302	WITHEBELL	400 HOURS

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

EXTENT OF APPROVAL

NOTE: THE ABILITY TO SET UP THESE EXPERIMENTS DURING THE NEXT YEAR IS CONTINGENT ON THE AVAILABILITY OF FUNDS.

MA-M3	CP VIOLATION #617	WINSTEIN	1,000 HOURS
-M6	HADRON JETS #609	SELOVE	UNSPECIFIED
MA-10-1W	JO-1WCH HYBRID #570	FLESS	1,500 HOURS
	JO-1WCH HYBRID #565	PLESS	PARASITIC RUNNING
	JO-1WCH HYBRID #597	WHITMORE	1,000 HOURS
PA-PZ	PHOTON DISSOCIATION #612	GOULIANOS	1,150 HOURS
-PC	B & CHARM PARTICLE PROD. #630	SANDWEISS	600 HOURS

F. OTHER APPROVED EXPERIMENTS (10):

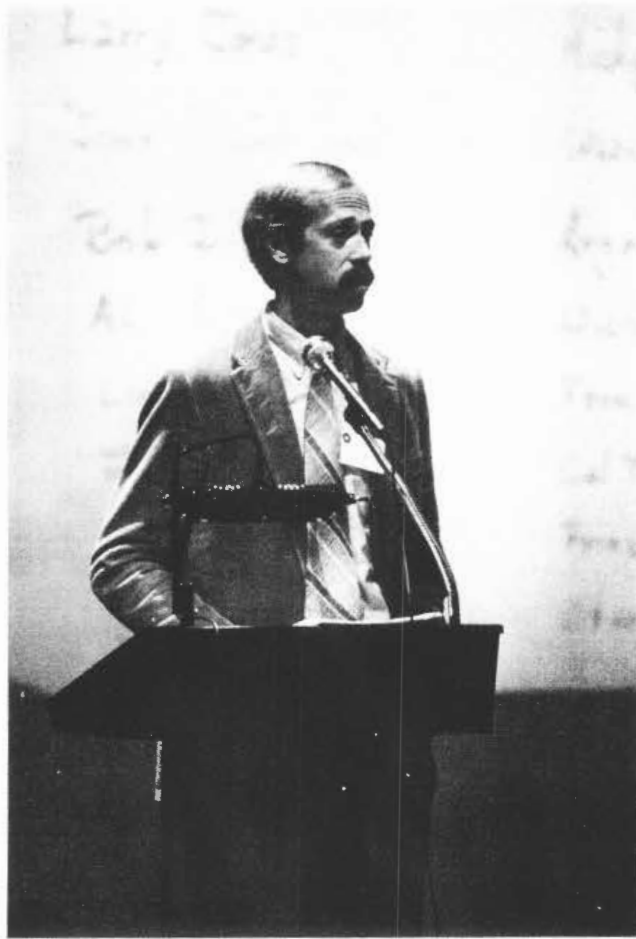
EXTENT OF APPROVAL

MA-M1	HIGH MASS PAIRS #605	BROWN	1,000 HOURS
-M2	TRANSITION MAGNETIC MOMENT #619	DEVLIN	250 HOURS
	NEUTRAL HYPERON #555	DEVLIN	450 HOURS
MA-OTHER	POLARIZED SCATTERING #581	TOKOSAWA	UNSPECIFIED
	EMULSION/PROTONS # 500 #568	WOLTER	EMULSION EXPOSURE
	EMULSION/PROTONS # 500 #524	WILKES	EMULSION EXPOSURE
	EMULSION/PROTONS # 500 #576	HEBERT	3 STACKS
PA-PF	PARTICLE SEARCH #400	PROPLES	UNSPECIFIED
-PW	PHOTOPRODUCTION #458	LEE	UNSPECIFIED
	FORWARD SEARCH #615	ANDERSON	1,000 HOURS

PENDING PROPOSALS (10):

EXTENT OF REQUEST

MA-M1	PHOTON SEARCH #614	ROSEN	300 HOURS
-M2	DI-MOON #589	MOCKETT	750 HOURS
	CP VIOLATION #621	THORSON	1,200 HOURS
-M6	MULTIPARTICLE #523	DIENERBA	800 HOURS
	PARTICLE SEARCH #623	LAJ	1,000 HOURS
MA-15-PT	DETECTOR DEVELOPMENT #528	ROBERTS	100 HOURS
-10-1W	DETECTOR DEVELOPMENT #550	ATAC	TEST RUNNING
PA-PZ	PHOTOPRODUCTION #627	FRAPP	1,000 HOURS
ITA-C-0	PROTON-PROTON SCATTERING #5000	FRANZINI	1,000 HOURS
MISC1	MUC CALIBRATION CROSS SECT #631	BAKER	25 EXPOSURES



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

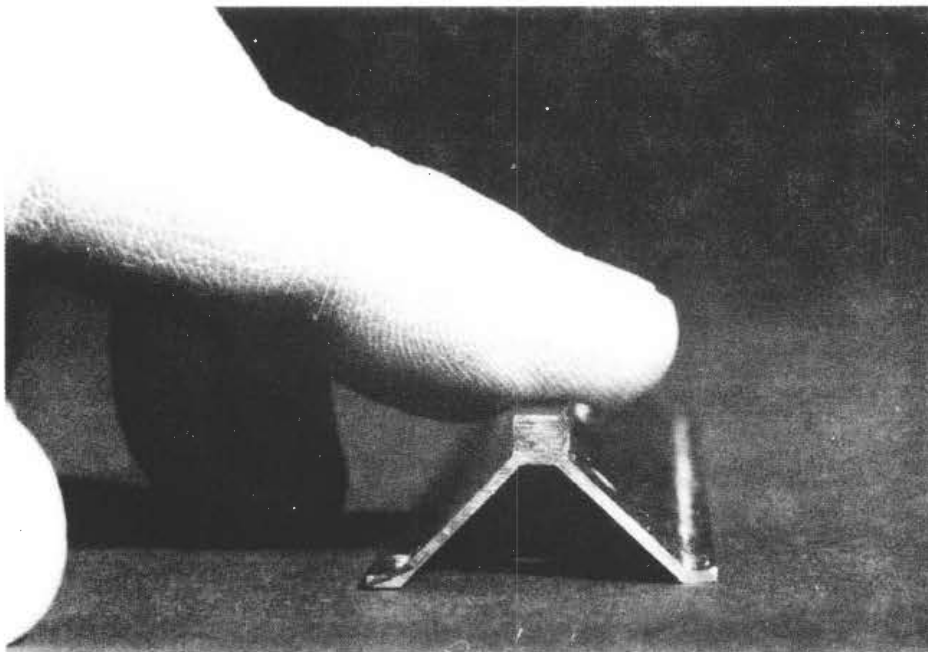
(Photograph by Fermilab Photo Unit)

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

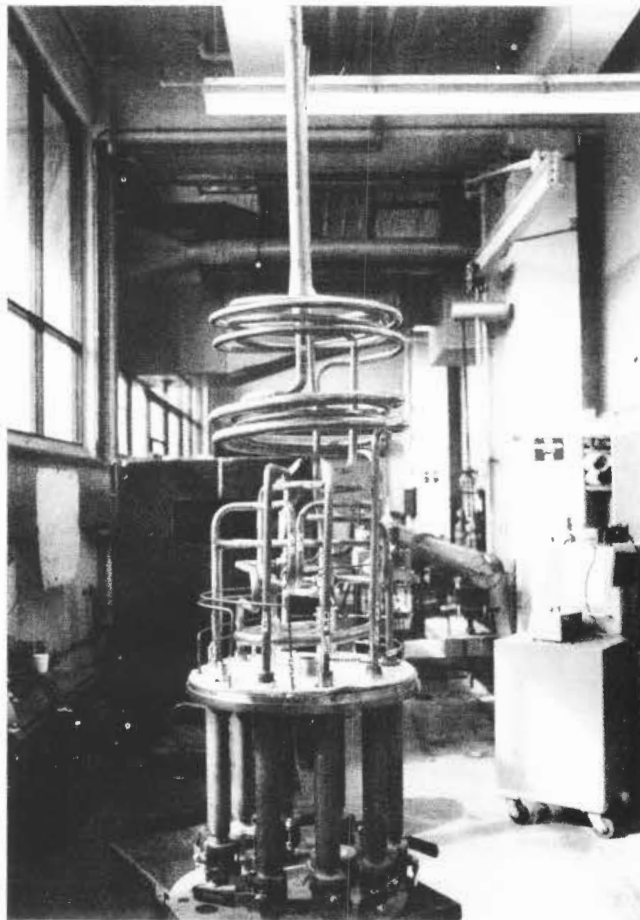
<u>No.</u>	<u>Title</u>	<u>Spokesperson</u>
629	Proposal to Fermilab to Measure Direct Photon Production in Hadron-Nucleus Collisions	T. Ferbel
630	Study of B Particle and Charmed Particle Production and Decay Using a High Resolution Streamer Chamber	J. Sandweiss
631	A Proposal to Measure Nuclear Calibration 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 $\bar{\nu}_\mu e^-$ 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

<u>No.</u>	<u>Title</u>	<u>Spokesperson</u>
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 July 28-August 1, 1980	Fixed Target Workshop (contact Program Planning Office for details).
