

MAIN-RING MAGNET FAILURES IN 1979

Rod Gerig

The reliability of the Main-Ring magnets has improved dramatically since the bad old days when more than one magnet a week was lost. The road to this reliability has been one of hard work. The efforts of many people over many years are paying off in far fewer magnet failures. Only 14 Main-Ring magnets failed in the entire year of 1979 and only four of these took any time away from operation.

The glorious table below gives a comparison of 1979 with the two previous years.

	<u>Total Magnet Failures</u>	<u>Failures by Shorting</u>	<u>Failures Requiring Downtime</u>	<u>Downtime From Failures</u>	<u>Percentage of Total Downtime</u>
1977	30	21	14	92 h	5.8
1978	43	40	28	251.8	14.5
1979	14	9	4	42	3.0

Of the nine magnets that developed shorts in 1979 five were dipoles and four were quadrupoles. Four of the five dipoles were ferreted out by routine electrical measurements after the 450-GeV run in March. Three of these four were original, early-production magnets that developed turn-to-turn shorts, a situation familiar in other periods of especially high energy running.

The fourth was a recent magnet embodying our latest improvements (grooved sleeve joints). The autopsy did not find anything conclusive. The other dipole shorted during operation on September 21. It was an original early-production magnet. The cause of its failure could not be determined.

Of the four quadrupoles that failed, two shorted from internal water leaks and two from leaking manifolds.

During 1978, 10 magnet failures could be attributed to overvoltage conditions, but during 1979 none of the failures could be attributed to this reason. The difference is the installation of a new overvoltage-limiting system.

During 1978, there were six failures caused by broken insulators and five caused by ground water coming through the tunnel walls. During 1979 there were no failures from these causes. Tunnel sealing, improvements in humidity control, and great care by those working in the tunnel appear to be the primary reasons for the improvement.

There were 12 failures in 1978 for which no reason could be found. There were only two such failures in 1979. The better overvoltage protection may be responsible for some of the improvement. We have worked hard at maintaining constant magnet temperatures and reducing thermal cycling, particularly when the cycle time is changed.

We have improved greatly in numbers of magnet failures and particularly in downtime caused by them. We need more improvement in water leaks in quadrupoles, beam-induced vacuum leaks and collapsed chambers and we plan to work hard on these in 1980.

NOTES AND ANNOUNCEMENTS

FERMILAB SUMMER HOUSING...

The Housing Office is now making plans and taking reservations for summer accommodations. Since there is always an influx of experimenters during the summer months, the office has established March 28 as the deadline for receipt of reservations for on-site housing.

This year we will attempt to satisfy the annual summer housing crisis by a procedure of decision making based upon individual needs and optimization of the Laboratory program. We will use a lottery only as a last resort.

All requests should be in by March 28, and responses will be mailed out by April 18. Requests can be for any period in the summer and need not commence on June 1. People currently in Fermilab housing may request extensions into the summer but are reminded that current occupancy does not guarantee placement.

All people using housing for the summer will be asked to state that they will make steady use of the housing for the period they request. If the space will not be used for some portion of the visit, they should notify Housing. In accord with recommendations from the Users Executive Committee, a fee equal to two weeks rent will be charged to an individual or group if **two weeks notice** of cancellation or postponement is **not** given prior to the scheduled arrival.

Five dormitory rooms will be set aside for the use of people actually running for stays of a minimum of three weeks. These rooms must be reserved at least one month prior to expected date of occupancy.

Double occupancy will not be employed for dormitory rooms unless it is requested. The charge for the second person will be \$4.00/night.

Allocation Priority

1. Theorists - six houses or apartments and five dorm rooms.
  2. Long-term commitments (foreign experiments at Fermilab under official exchange agreements).
  3. Running experiments, experiments in test stage, and experiments setting up for summer and fall.
    - a. Families -- at least one house or apartment per experiment in this category.
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- b. Individuals -- at least one dormitory room per experiment in this category.
- c. Remaining dormitory rooms, houses, and apartments will be assigned until as many requests as possible from persons in this category can be met.

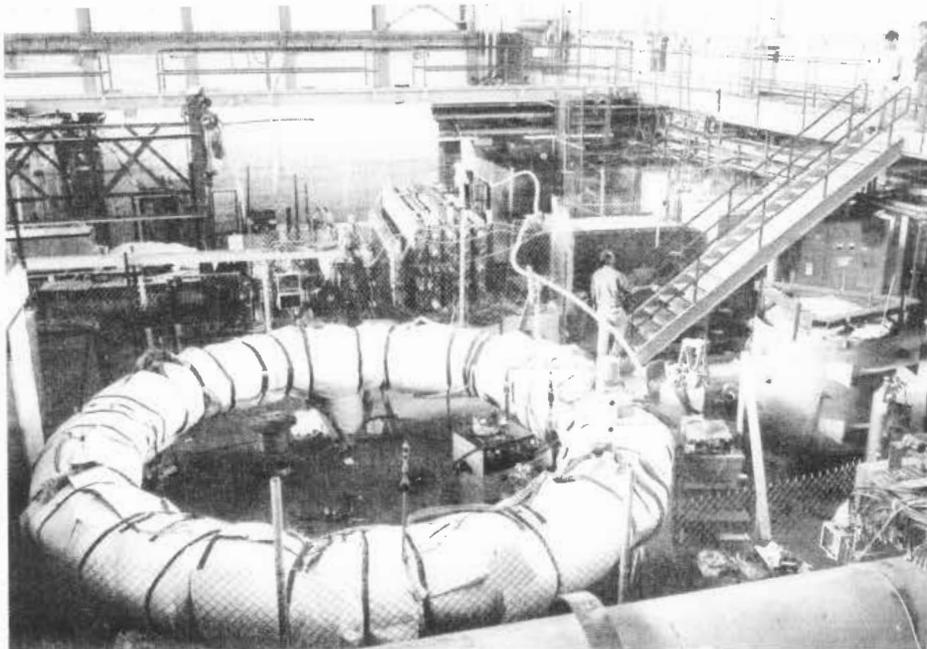
The starting dates for summer occupancy will be staggered over the week of May 29 through June 4.

In the event that on-site housing facilities are filled, the Housing Office will assist in finding off-site accommodations.

APPOINTMENTS...

**Norman Gelfand** has joined Fermilab and has become a member of the Program Planning Office. He will serve as secretary of the Program Advisory Committee; in this assignment, he will play a constructive role in the liaison between experimenters and the Committee in the course of preparation for proposals. Proposals can be addressed to him. He succeeds **Thomas Groves** as PAC secretary. Groves continues as head of the Program Planning Office.

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Superconducting coils for the Chicago cyclotron being built  
in the Meson Detector Building.  
(Photograph by Fermilab Photo Unit)

