December 16, 1982
FERMI NATIONAL ACCELERATOR LABORATORY

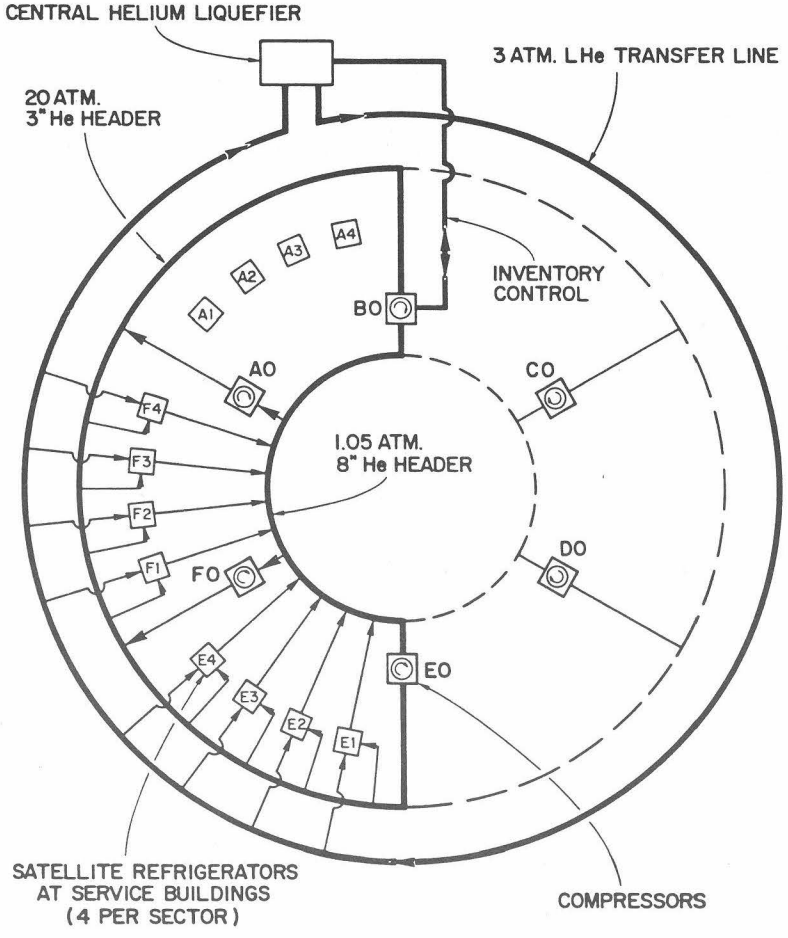
FermiNews

BEGIN ENERGY SAVER/DOUBLER COMMISSION

November 19 marked the beginning of efforts to cool down and operate the E and F Sectors of the new Saver superconducting accelerator. This test is the beginning of the Saver commissioning.

Last winter and spring one-eighth of the Saver ring was tested. Included in the test were 2 compressor buildings (A0 and B0), 3 refrigerators (A1, A2, and A3), 2 miles of transfer line, and 2700 feet of superconducting magnets. By comparison, the E and F Sector test is a one-third ring test consisting of 3 compressor buildings, 8 refrigerators, the complete 4-mile transfer line, and 7200 feet of the accelerator. The two sectors include 258 dipoles, 80 quadrupoles, and about 100 other tunnel components.

The goals of this test are well defined. Successful operation of the controls system, refrigerator and compressor reliability, power supply performance, and the quench protection monitoring system communication are complex tasks that have added to the excitment around the Main Control Room during the last few weeks.



Schematic drawing of the liquid and gaseous helium system for the Energy Saver.

During November the F0, E0, and A0 compressor buildings were started up, liquid nitrogen transfer from the Central Helium Liquefier was begun, and the VAX/PDP-11 computers were integrated into the controls system. By December 1 the system was operating on pure helium and on December 3 cool down of both E and F Sectors was begun.

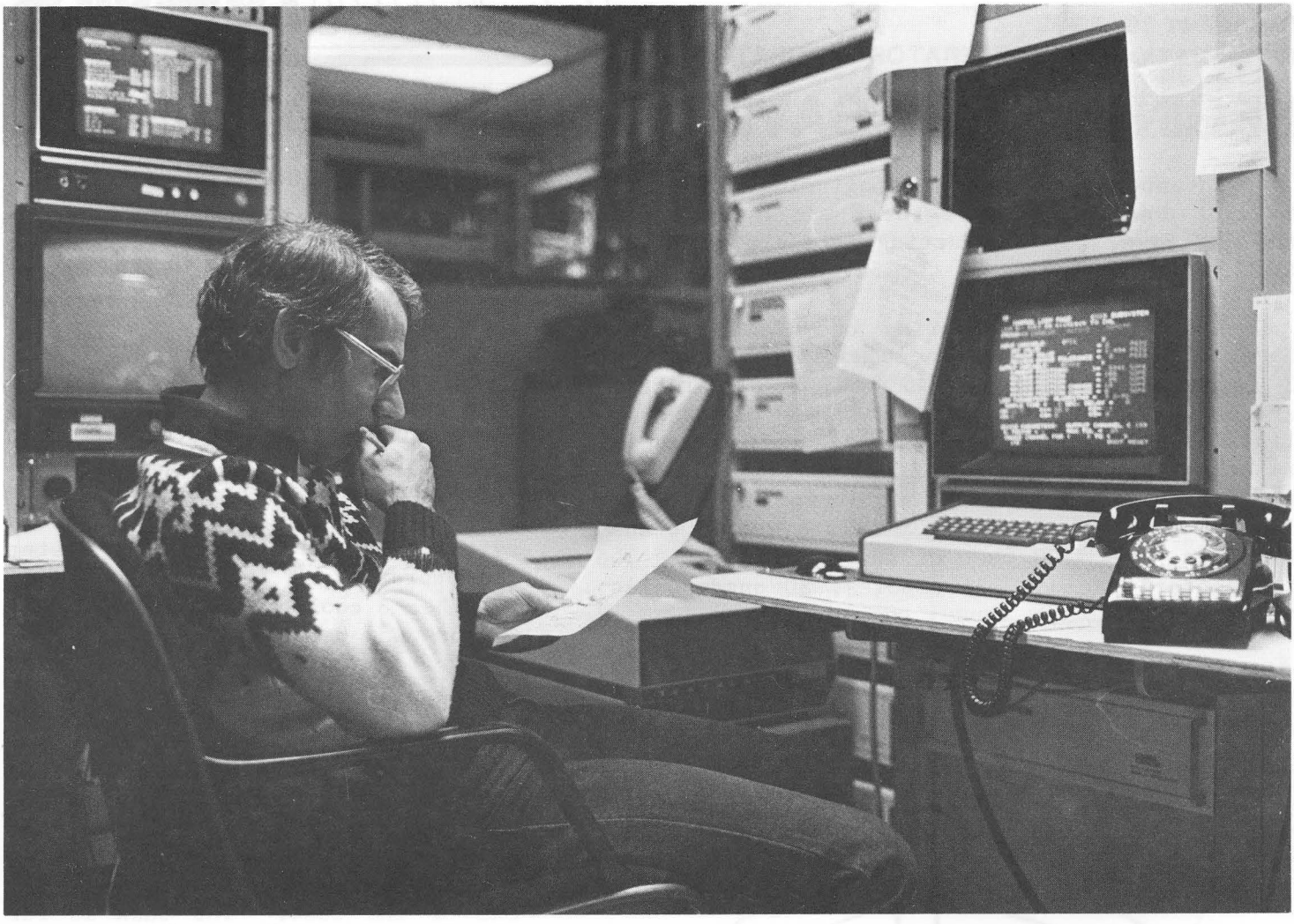
This test is crucial for the controls system. With the knowledge obtained from the A-Sector test several improvements in the algorithms to control the refrigerators and compressors have been made and will now be fully tested. One goal is to have a fully automatic system by the end of the test. The task is far from easy; with two sectors working and three compressor buildings and the Central Helium Liquefier in operation, 53 feedback control loops must work in harmony. This number will steadily increase as the rest of the ring becomes operational. Upon completion of the Saver commissioning, there will be 353 control loops in operation.

A second goal for the controls system is to have a "system" approach to the controls of the compressors to avoid possible oscillations in the transfer line. The compressor controls will be centralized using the VAX system instead of only using distributed intelligence residing in the microprocessors that control each of the compressor houses.

The power supply and quench protection tests in E and F Sectors

(cont'd. on pg. 2)

E,F SECTOR "COOL DOWN" CRUCIAL FOR ENERGY SAVER



Manuel Martin at the Saver control console recalculating parameters for loop controls for compressors.

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will take on a considerably different flavor than they had during the A-Sector test earlier this year. The A-Sector test included attempts to stress the components to their worst-case conditions. This winter, the approach is one of kid gloves, not a sledge hammer. Any spectacular, large-scale quenches will be unscheduled.

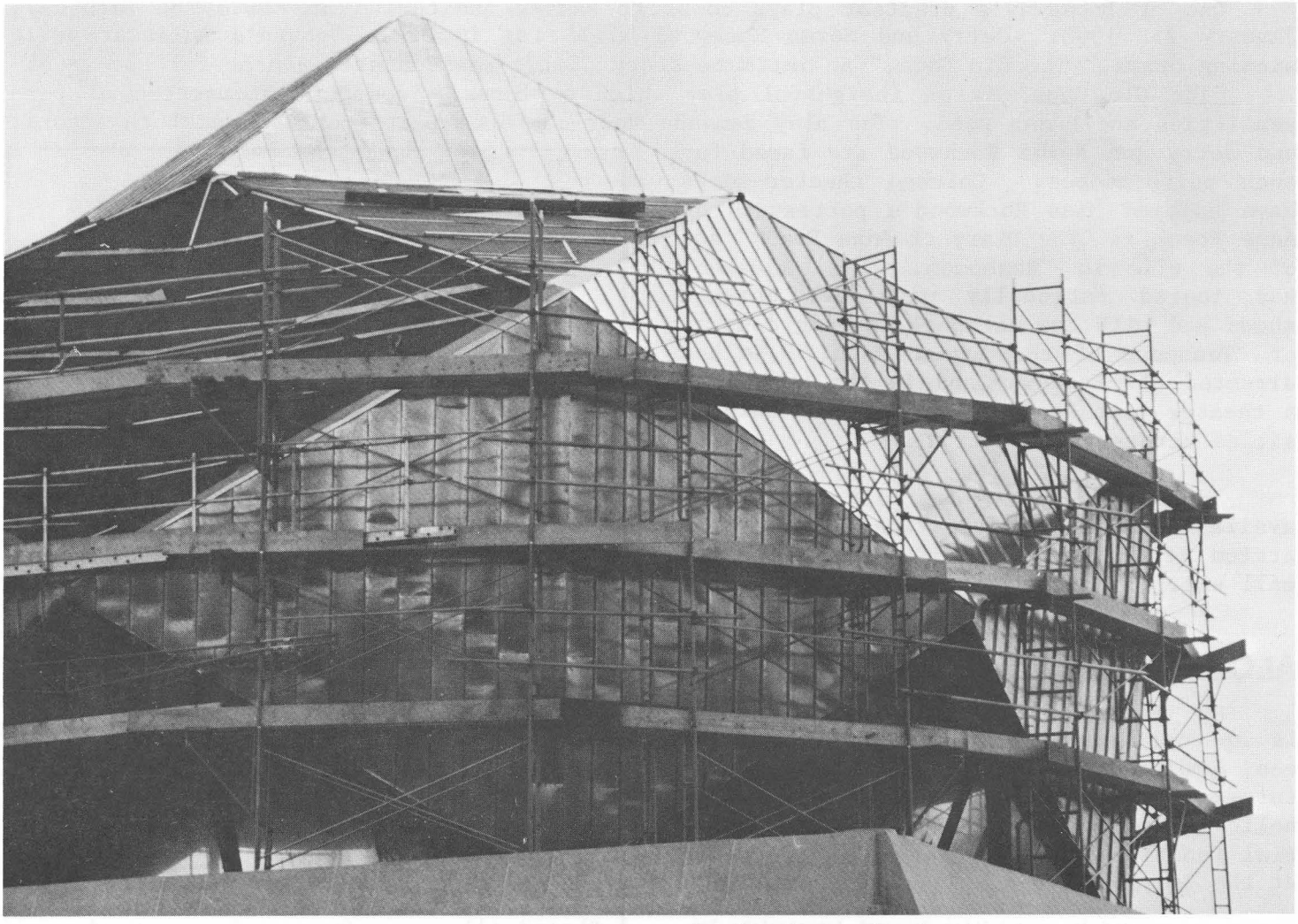
The system has grown considerably in complexity in moving to one-third ring testing. There are four 1 kV power supplies in use, and 8 quench protection monitors communicating through a new link that is in place around the ring. There was much activity both in the service buildings readying the hardware and in the software development. The magnets are full of liquid helium and have successfully been hipotted, and the cables between the superconducting bus and the quench protection hardware have been connected. The plans include controlled tests of failure modes, a few detailed studies of certain aspects of the quench protection system, and attempts at extended periods of ramping.

It's the beginning of new and exciting things for Fermilab. We're breaking new ground every day.

Credit Union Holiday Hours

Hours	Date Observed
Closed	December 23 and 24
Open until 1:00 p.m.	December 30
Closed	December 31

GEODESIC DOME AT LAB A RECEIVES COPPER FACE LIFT



Repair and renovation in progress on the geodesic dome of the 15-foot Bubble Chamber Assembly Building.

by John Paulk

Remember the multi-colored geodesic dome--the most prominent feature of the Neutrino beam line? Well, it's still there but it has been clad in copper sheeting.

The reason for the rehabilitation was because of bad leaks between the panels and the structural grid. Another problem was unsightly color fading of the fiberglass panels due to exposure to the sun's ultra-violet rays.

Several alternatives were carefully examined before selecting copper sheeting. They included an entire new roof system, replacement of aluminum-coated panels, prefabricated clear glass panels, sprayed-on urethane coating, a single-ply membrane covering and terne metal sheathing.

Of all of these, copper was economical and judged to be the best choice. It virtually assured no leaks indefinitely and it could be fabricated in place by a local firm. As the copper weathers, a green oxidation film will form.

PHYSICS COLLOQUIUM JANUARY 5

Jorge Williamson, Schlumberger Ltd., will present "Geometric Criticality and Paths of Least Resistance," at the Physics Colloquium on January 5, 1983, at 4 p.m. in Ramsey Auditorium.

When electric current encounters resistors in parallel, the current is partitioned between the resistors. There exists transport problems of interest in which the path of least resistance is selected by the system. An example of a problem of this type--flow of oil through reservoir rock--will be described.

PULITZER PRIZE WINNING DRAMA COMES TO AUDITORIUM

One of Broadway's greatest plays comes to Ramsey Auditorium at 8 p.m. on Saturday, January 15, 1983. Jerry and Norma Rockwood will star in D. L. Coburn's Pulitzer prize winning drama, "The Gin Game," an intimate story of two residents in a home for the aged.

"The Gin Game" is an insightful play which explores a complex interaction of personalities and human need. The play demands tour-de-force performances from both actors, and Jerry and Norma Rockwood are famed for such performances. Chicago theater-goers have enjoyed Miss Rockwood's portrayals of Anne Frank in "The Diary of Anne Frank" and of the wife in "Rashomon." Mr. Rockwood has toured nationally with two one-man shows and with the national touring company of "Teahouse of the August Moon." He has directed off-Broadway and is the author of a theater text used at colleges and universities across the country.

Admission is $5, and tickets are now available at the Information Desk in the atrium of Wilson Hall. To reserve seats, call ext. 3353.

-Jane Green

Cafeteria Holiday Hours

Hours	Date Observed	Day
Breakfast only	December 23	Thursday
Closed all day	December 24	Friday
Closed all day	December 25	Saturday
Closed all day	December 26	Sunday
Breakfast only	December 30	Thursday
Closed all day	December 31	Friday
Closed all day	January 1	Saturday
Closed all day	January 2	Sunday

ALCOHOLIC BEVERAGES RESTRICTED

As the holiday season approaches, it is appropriate to remind Fermilab employees, users, and visitors that the Laboratory does not permit the serving of alcoholic beverages on the site except at official functions, in residential quarters, or at the Users Center.

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DAY CARE CENTER HELPS TO PLANT PRAIRIE SEEDS IN MAIN-RING PLOT

Linda Braddy (right), director of the Fermilab Day Care Center, and her "children" help broadcast prairie flower seeds at the corner of Feldott and Holter in the Main Ring. Left to right are Magin Jones, Ryan Tokarek, Kris Gutierrez, and Yoko Ando. This fall the Fermilab Prairie Committee planted 60 acres using a salt spreader, for a total of 260 acres. The Committee hopes to plant 60 more acres in the spring. **(Photograph by Maury Goodman)**