FERMINEWS

Fermi National Accelerator Laboratory

Operated by Universities Research Association Inc.
Under Contract with the United States Department of Energy

Vol. 3, No. 35

September 4, 1980

SOPHISTICATED BEAM ABORT SYSTEM BEING CONSTRUCTED

A massive, 300-ton beam dump - with graphite as its heart - is being constructed just south of the Internal Target Area at C-zero.

It is designed to accept aborted beam either from the Main Ring or from the Energy Saver. "A beam abort system is an emergency device that is used to dispose of beam circulating in the accelerator when there is an indication that something is misbehaving and may cause the beam to depart from its prescribed orbit," explained Frank Turkot, project leader for the abort systems.

This is the first time graphite has been used at Fermilab as part of a beam dump system, said Thorton Murphy, associate head of the Accelerator Systems Department within the Energy Saver Division.

The new Main Ring system, when it is complete, will take the place of the present abort system now primarily located at D-zero. "Although the old Main Ring abort system has served well over the seven years of operation, it is not adequate to cope with certain types of failures," Turkot said. "More important, the present beam dump is installed inside the tunnel at the D-zero straight section and eventually will be displaced by construction of the Saver there. A highly effective beam abort system is essential to the operation of the Energy Saver due to its superconducting magnets."

The heart of the beam dump is two slabs of graphite side-by-side, each one 15 feet long and six inches high and wide. To carry off heat, a water-cooled aluminum box surrounds the two graphite blocks. Then comes steel shielding to absorb any radiation. Enclosing all of this is a skin of waterproofed concrete. The entire block, when it is finished, will measure 29 feet long and 9 feet high and wide. It will be buried under 20 feet of earth.

* * * * *

The partially-constructed beam dump along side of the Main Ring tunnel near C-zero. The graphite-filled core box is in its final position. Shown are Thornton Murphy (holding shovel), N. V. Mokhov, John Kidd, Max Palmer, Bob Vanacek, Brian Hendricks, Elvin Harms, Frank Turkot and Jim Moncrieff. The vertical unit behind Murphy contains ducts for water flow and electrical controls.

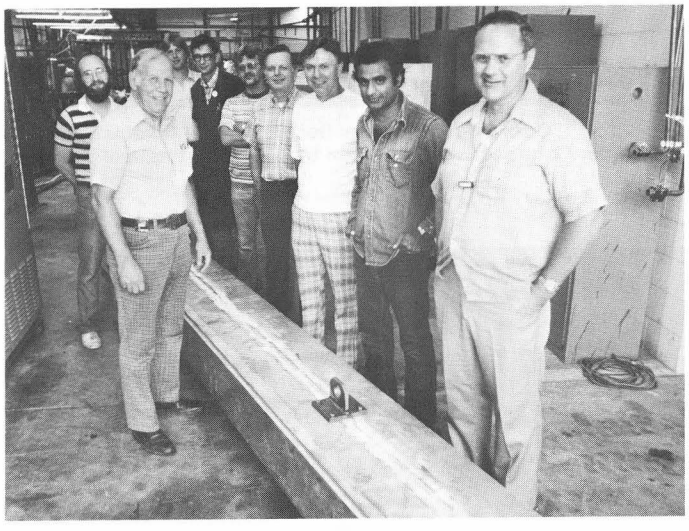
THE PEOPLE WHO MADE IT HAPPEN

The conceptual design of the entire abort system was done by Frank Turkot and Helen Edwards more than a year ago, when they were still with the Accelerator Division. Tim Toohig of the Energy Saver Division did the initial conceptual design of the beam dump, and Thornton Murphy refined the initial concept to meet the radiation containment standards of the Safety Section.

The construction project necessary to plant this beam dump deep in the earth near C-zero was designed by John Kidd, Architectural Services, and has been inspected and supervised by Jim Moncrieff and Mel Magnuson, also members of Architectural Services. Coordination between the construction project and the necessary work by the Accelerator and Energy Saver Divisions has been handled by Bob Vanecek.

(Continued on Page 2)

(Continued from Page 1)



Heart of beam dump system, two slabs of graphite encased in water-cooled aluminum jacket. From left are Brian Hendricks, Max Palmer, Elvin Harms, Doug Booth, Danny Snee, Don Szarzynski, Don Breyne, Chander Sood and Frank Turkot.

The heart of the dump system, the graphite-filled core box, was engineered by Max Palmer, head of the Mechanical Support Group of the Accelerator Division. He was assisted by designer Don Breyne. The core box was fabricated by Don Szarzynski, Chander Sood, Doug Booth and Danny Snee of the Fermilab Machine Shop under the guidance of Bill Jones, Luke Hardy and Jim Forester.

Important calculation of the temperature rise in the core of beam dump were done by Andy VanGinneken, Energy Saver Division, and Nicolai Mokhov, a visiting scientist from the Soviet Union. These calculations led the scientists involved to realize that graphite was the only available material that could handle the narrow, high-intensity beam anticipated in the Energy Saver.

The instrumentation package for the dump was a cooperative effort between Glenn Lee of the Accelerator Division's Mechanical Support Group; a trio from the Division's Operations Group, Elvin Harms, Brian Hendricks and Ted Williams; and machinists, Gene Olszanowski and Joe Rodriguez.

The abort system for the Main Ring is expected to be completed in the fall of 1981, and that for the superconducting accelerator about a year later, Murphy added.

* * * * *

CANOE RACE BEING ORGANIZED

Fermilab's popular canoe race--the seventh one--will be held Sept. 20.

The race will begin at 11 a.m. from F4 on the Main Ring. Competitors who want to register should contact Larry Allen, ext. 3271 or Helen McCulloch, ext. 3126. The deadline is Sept. 15.

The race is open to all Fermilab employees and users as well as their families. The only restriction is that entrants must be age 14 or older.

There is no entry fee. The canoes must seat two rowers. Competitors will have to carry their canoes over 15 portages.

Race organizers also need volunteers to help set up the course and remain at strategic points throughout the event. Volunteers should call either Allen or McCulloch.

The decision will be made shortly after Sept. 15 about whether there are enough competitors to hold the race, said Allen. If there are, then registrants may be accepted as late as Sept. 18. However, it's important to register early, Allen emphasized, so that the race will definitely be held.

Last year, John Martin, a post doctoral researcher at that time, and Bob Sheperd, a graduate student, teamed up to paddle the winning canoe home in 50 minutes and 25 seconds.

Finishing a scant 55 seconds behind the winning canoe were Leon Lederman, Fermilab director--with one shoe dangling in his hand--and George Luste, a physicist with the University of Toronto. Nine canoes battled it out in that race. The first race was held in 1973.

The world record for the race is 45 minutes, 19 seconds, set in 1976 by John Cumalat and Luste.

* * * * *

EMPLOYEES HELP WITH TOURS

Fermilab employees who helped the Office of Public Information with tours during August are George Biallas, Joseph Biel, Steve Bracker, Al Brenner, Robert Mau, Bill Merz, Steven Pordes and Randy TenHaken. Chuck Ankenbrandt spoke to a group off-site.

* * * * *

HEALTH CARE RUNS IN HIS FAMILY

Meet Dr. Charles A. Lang, Fermilab's medical officer. He's been a practicing physician for nearly 30 years. Before he came to Fermilab in May 1975, he was chief medical officer and director of the DuPage County Health Department for 19 years, retiring in January 1975.

Now meet his daughter, Dr. Mary Lang. She's the oldest of four sons and five daughters. "Since she was a little girl, she's always wanted to be a doctor," said her father. Mary earned her medical degree at the Chicago Medical School and is certified by the American Board of Family Practice. She studied family practice during three years of residency at the Cook County Hospital in Chicago.

She has been with the Glen Ellyn Clinic since October of last year, and at the beginning of this September will join the staff of the Anchor Health Maintenance Organization, Chicago. In that position, she'll be on the staff of Presbyterian-St. Luke's Hospital and each week will spend three days at a neighborhood clinic in north Chicago and two days at the Rush Presbyterian Medical Center.

Meet another daughter, Dr. Andrea Lang, 1-1/2 years younger than Mary. Andrea has traveled throughout the world, armed with a degree in music and mathematics. While in Japan, she taught English. But it was only recently that she decided to become a physician, went back to school to complete her prerequisites, then last June she received her medical degree from Rush Medical College. She has started her residency in internal medicine at Presbyterian-St. Luke's Hospital.

But that's not all for the Lang family. Gabrielle, a senior at St. Francis High School in Wheaton, is seriously thinking about a career in nursing. And then there's Mary, Dr. Lang's wife. She's a nurse.

During the Vietnam conflict, Lang's son, Christopher, served as a medical corpsman for two years with the U.S. Navy. He's now a student at Northern Illinois University.

As for Dr. Lang himself, his amiable personality and his patience have won him many friends and have made him one of the most popular men on site. He too, like Mary, wanted to enter health care as a youngster. One of his older sisters was a nurse anesthesist.

* * * * *

Dr. Charles A. Lang with his daughters, Dr. Mary Lang (left) and Dr. Andrea Lang.

FERMILAB TO OBSERVE ILLINOIS ARTS WEEK

by Ruth Ganchiff
Cultural Editor

Illinois Arts Week will be observed at Fermilab with an arts and crafts exhibit in the Central Laboratory atrium.

Employees and members of their families who are painters, sculptors, weavers, potters, quilters, metal craftsmen, woodworkers and other creators are invited to submit pieces for the show. Please call me at ext. 3211 or Pat Yost at ext. 4365.

The deadline for submitting works is Sept. 15. Selections will be determined by the availability of space and quality of the art. If you are interested, please call as soon as possible so that we can determine space requirements.

The exhibit will be on display Oct. 4-11 to coincide with the statewide festival in recognition of the arts. During the past three years, the Illinois Arts Council has sponsored this program. Because of its popularity, it has grown and now involves more than 200 communities. Thousands of artists and performing groups participate.

* * * * *

MORE OF ROAD D TO BE CLOSED

Road D, where it runs past the Central Helium Liquifier Facility, will be closed Sept. 8. The closing will last approximately five days. Road D runs from the Central Laboratory to Batavia Road just before it crosses Eola Road. Detour signs will be posted.

* * * * *

REMINDER ABOUT CONCERT

Natalie Hinderas will perform in concert Sept. 13.

The program will begin at 8 p.m. in the Central Laboratory auditorium. Tickets at $5 each may be obtained at the ticket sales desk in the atrium.

Presented by the Fermilab Auditorium Committee, the piano concert is another in the Laboratory's performing arts series. Hinderas has been internationally acclaimed for her deft touch and sensitive interpretations. She has performed with major orchestras, including the Chicago Symphony, Philadelphia Orchestra, New York Philharmonic and the Los Angeles Symphony.

* * * * *

GARDEN CLUB TO MEET

The Fermilab Garden Club will meet Sept. 18 to discuss the use of water and other rules. The session will begin at noon in Curia II, CL2W. Ray Carra described this as an "important meeting" and urged members to attend. They can eat lunch during the session.

* * * * *

WANTED: RACQUETBALL BUFFS

You can be an expert or a beginner. It makes no difference, because there's a racquetball league for your level of skill.

Players who are interested in joining racquetball leagues should contact Larry Allen, ext. 3721, or Mark Augustine, ext. 4420, before Sept. 15. Competition will begin the first week in October, and play will be at Country Courts on Kirk Road in Geneva.

* * * * *

BALL PARTY AROUND CORNER

Tomorrow (Sept. 5) NALREC's annual ball party rolls around.

It'll begin at 5:15 p.m. in the Village near the Barn with a golf event and a prize for the top man and woman competitor. The entry fee for this event is 50 cents. At 6 p.m., fans can watch the outstanding players in the Fermilab Softball League go at each other in an all-star game. At the same time, the best players in Fermilab's two volleyball leagues will compete in an all-star contest.

Activities continue with a dance from 7:30 p.m. in the Barn. A band will perform there until 10:30 p.m. Hamburgers, hot dogs and a variety of beverages will be available. Although admission to the ball party is free, there is a charge for food and drinks.

* * * * *

AEROBIC DANCE DEMONSTRATION

A demonstration in aerobic dancing will be held by instructors from the Aurora YMCA Sept. 8. It will begin at 5:15 p.m. in the Village Barn. Anyone interested in attending a class starting Sept. 15 at Fermilab can register following the demonstration. The classes will be held three times each week, on Monday, Tuesday and Thursday.

* * * * *

BIRTH

Emily Jean was born to Fred and Judy Ullrich on Aug. 26 at 11:55 a.m. at Delnor Hospital, St. Charles. The child weighed 8 lbs. 1 oz. She is the couple's first child. Ullrich is with the Public Information Office.

* * * * *

"THIEVES LIKE US"

Presented by Fermilab International Film Society

Friday, Sept. 12 — 8 p.m. — Central Laboratory Auditorium

Directed by Robert Altman ("Images" and "M*A*S*H*"), the film tells the story about young love--inevitably doomed--during the depression when survival is difficult. Altman ties peripheral stories of bank robberies and other adventures into the fabric to catch the mood of the times.

Color — 123 minutes — Rated PG — Released 1973 — Adults, $1.50, Children, 50¢

FERMINEWS is published weekly by the Public Information Office of the Fermi National Accelerator Laboratory — P.O. Box 500 — Batavia, Illinois 60510 — Phone: 312-840-3351. ☆ U.S. GOVERNMENT PRINTING OFFICE: 1980—651-139/14