

Automating site survey effort has payoff

In December, it became necessary for the Laboratory to complete an analysis of the sufficiency of the beam line shielding in terms of existing Fermilab guidelines prior to the start up of the upcoming fixed target run. This analysis had to be conducted in a short period of time. In just four days, **Linda Even** (Construction Engineering), **Terry Sager** (RD/Exp. Areas Support), members of the Alignment group and physicists were able to produce complete survey drawings of all the beam lines. The speed at which this task was accomplished was due in part to the use of a new software package, VANGO, which runs on the FNAL VAX cluster.

This was not the first success of the survey mapping data automation effort. The capabilities of VANGO have been used in such projects as planning for the Main Injector, the construction of the prairie interpretive trail and in the preparation of the National Environmental Research Park proposal.

About three years ago, Larry Ketcham, then Alignment group leader—now with the SSC—perceived a need to automate the survey mapping data so that various engineering questions could be quickly answered. This

led to the acquisition and implementation of the VANGO program.

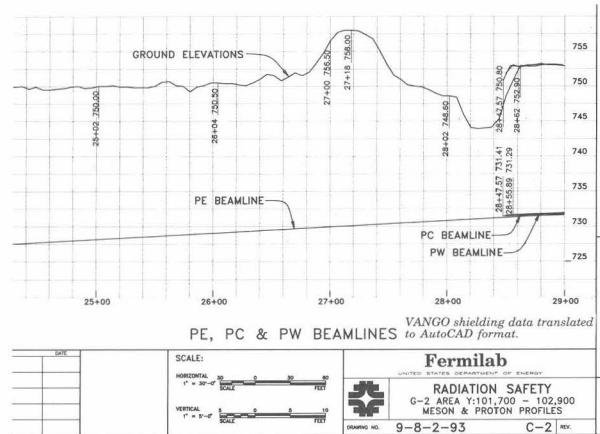
“The purchasing of an automated system was a lengthy process,” said Larry. “We needed a software package that would run on the VAX mainframe, so that we were not locked into a stand alone system. It also had to be user friendly.” After studying many available systems, VANGO was selected for reasons of economics and its abilities to be tailored to the Laboratory’s needs. VANGO was described by Larry as a useful tool for construction engineering and designing.

In order for this tool to be useful, however, data collected from site aerial photographs and surveys had to be entered into the system. Terry Sager was responsible for setting up the data base and keeping it current. “It took about

a year to integrate the data base and the aerial photos into a site-wide data base potential,” said Sager. Over 2.8 million, 3-dimensional, DUSAF coordinate points are currently in the data base.

“One of the attributes of the system is that it is a real time data base. If anyone changes anything in the data base, everyone can see it,” said Terry. This is a plus for Linda Even, who frequently uses the program. “As more points are added to the VANGO data base, anyone on the site can obtain both above and below ground features.” Linda describes VANGO as a good design and construction drawing tool which, using KERMIT, she is able to interface with AutoCAD.

In as much as maps and site locations underlie the activities **VANGO continued on page 6**



Quality Corner

Employees encouraged to "power down."

Don Carpenter (RD/Mechanical Depart.) recently sent a suggestion to the Quality Corner column recommending that all supervisors and managers be encouraged to make sure that their facilities are secured and "powered down" at the end of the shift. This suggestion was submitted shortly after the Employee Energy Conservation awards were announced.

"I appreciate and concur with energy-saving suggestions, contributions and subsequent implementation," said Don. "However, by my observation, not enough employees participate. Powering down at the end of a shift should be a Lab-wide employee responsibility."

Don Carpenter's suggestion is one that has been part of his group's daily activities for several years. Located in the Meson Assembly Building, the Mechanical Department Technicians group, of which Don is group leader, has had a lock-up roster program in place for almost fifteen years.

The original idea for the program stemmed from Don's idea that the evening lock up should be a shared responsibility and that there ought to be someone who was accountable for the activity. "We initiated the program back in 1977, when the group was lo-

cated in Lab 7. Its implementation was really quite simple," stated Don. With the program in place, each employee of the group is responsible for lock up on a weekly rotating basis." The Technicians group posts a roster which identifies the employee responsible and also designates an alternate in case of illness or unplanned vacation time.

During the week that an employee is responsible for lock up, he or she checks that all doors, tool cabinets and cribs are secured, locks all vehicles, reduces the air conditioning during the summer months and checks that all sensitive items are properly stored. All lights, except security lights, are turned off and the computers are shut down. The employee responsible for lock up also unlocks the facility in the morning.

There have been many benefits from this program aside from the obvious ones of decreasing the potential for theft and saving energy. One of the benefits derived from all the group members being involved is that they become more aware of the security of the facility and will alert the supervisor to unusual situations. The group also takes the initiative of



Glenda Adkins, Jorge Martinez and Don Carpenter review roster

the shared responsibility. "If the rare occasion occurs when both the designated lock-up person and the alternate are gone, a group member will automatically fill in. It has become second nature for us to secure and power down the building and we all feel ownership and responsibility for the activity," stated Don.

According to **Chuck Anderson** (BS/Section Office) and **Vic Kuchler** (BS/FO/Eng.), "Ideas such as Don's reflect an employee awareness to energy conservation that is a critical part of the overall Fermilab In-House Energy Management Program. Large scale retrofit projects, such as conversions of electric heating and air conditioning units to natural gas, electrical light fixture improvements and the re-

Quality continued on page 5

Give it your energy

When the heat is on...

Energy saving tips:

Lower your thermostat to about 65° F during the day and 60° F at night. You can save on your fuel costs for every degree you reduce the average temperature in your home.

Keep windows near your thermostat tightly closed, otherwise it will keep your furnace working after the rest of the room has reached a comfortable temperature.

Have your oil furnace serviced at least once a year, preferably each summer to take advantage of off-season rates. This simple precaution could save you 10% in fuel consumption.

Clean or replace the filter in your forced-air heating system each month.

Check the duct work for air leaks about once a year if you have a forced-air heating system. To do this, feel around the duct joints for escaping air when the fan is on. Relatively small leaks can be repaired simply by covering holes or cracks with duct tape.

More stubborn problems may require caulking as well as taping.

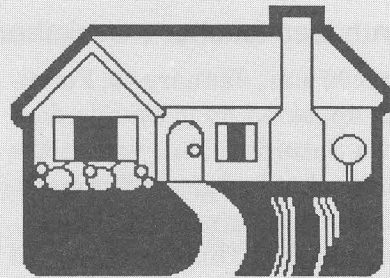
If you have oil heat, have your service person check to see if the firing rate is correct. Chances are it isn't. A recent survey found that a large majority of the furnaces checked were over-fired.

Don't let cold air seep into your home through the attic access door. Check the door to make sure it is well insulated and weather-stripped, otherwise you'll be wasting fuel to heat that cool air.

Dust or vacuum radiator surfaces frequently. Dust and grime impede the flow of heat. If the radiators need painting, use flat paint, preferable black. It radiates heat better than glossy.

Keep draperies and shades open in sunny windows; close them at night.

For comfort in cooler indoor climates, use the best insulation of all—warm clothing. The human body gives off heat, about 390 Btu's per hour for a man, 330 for a woman. Dressing wisely can help you retain natural heat.



If every household in the United States lowered its average heating temperatures 6 degrees over a 24-hour period, we would save the equivalent of more than 570,000 barrels of oil per day.

Wear closely woven fabrics. They add at least a half degree in warmth.

For women: slacks are at least a degree warmer than skirts.

For men and women: a light long-sleeved sweater equals almost 2 degrees in added warmth; a heavy long-sleeved sweater adds about 3.7 degrees; and two lightweight sweaters add about 5 degrees in warmth because the air between them serves as insulation to keep in more body heat.

The Education Office

Enthusied teacher + workshop experience = exciting educational opportunities for students

At 8:00 a.m., January 19, Fermilab appeared as it usually does on a Saturday. But, within the hour, what had started as an ordinary day turned into the extraordinary. This Saturday was a particularly busy day at the Education Office. Two teacher training programs were taking place and areas of the Lab had been "taken over" by teachers.

The scene that could be observed in the third floor conference room (theory group) was of twenty junior high school teachers participating in a *Beauty and Charm* workshop. This program is an introduction to particle physics and to the kind of work that is done at Fermilab. The workshop was taught by Jim Cox, junior high science coordinator from Hinsdale and **Robin Dombeck**, Outreach Coordinator, Education Office. Tom LeCompte of E705 (from Northwestern University) discussed questions and concepts posed by the participants. Teachers could be seen measuring size with a microscope, identifying properties of unseen objects and recreating collisions evidenced by "particle trails." The ideas and activities the teachers left with will provide the opportunity for several hundred students to learn more about Fermilab and particle physics. These select teachers and their sixth through ninth grade students will also be able to schedule a special tour of Fermi-



lab which includes an opportunity to talk with a physicist. The students' natural enthusiasm for learning can be reinforced by the teachers' new excitement. A topic that previously had seemed beyond their understanding is now concrete and fun to learn.

In 1990, approximately 1,900 sixth through ninth grade students and their teachers participated in the *Beauty and Charm* tours at Fermilab, and 4,505 students have toured since the program began in 1985.

"Fun" was the key word in the *Hands-on Science* workshop taking place in the second floor crossover area. Wayne Wittenberg, of Glen Ellyn School District #41, instructed the 15 participating elementary school

Wayne Wittenberg (top), Ben Franklin School, Glen Ellyn, shares insights with H-O Science participants. Two Beauty and Charm participants (bottom) use senses to identify characteristics of unseen objects.



teachers on how to work with the array of traveling exhibits Fermilab loans to schools. Teachers enjoyed learning by playing with exhibits entitled Gravity Accelerator, Linear Accelerator, Gravity Collider, and Ramps and
Education continued on page 6

Our Environment

Many conscientious and environmentally concerned members of the Fermilab community are initiating home recycling programs. Because of this, some employees have contacted the Public Information Office regarding the use of the recycling center in the Village. **The recycling center is for use by Village residents only.** "Wider use would be too difficult to manage at this time. Only certain items can be recycled through the Village center and because of this factor, drop offs must be controlled," said Dick Auskalis (BS, Purchasing), who heads the Fermilab recycling programs.

There are, however, many recycling drop-off centers open to the public that are within close proximity to the Laboratory. The *DuPage County Recycling Yellow Pages*, available at the information desk located outside of the Public Information Office, WH1W, publishes a directory of the recycling drop-off centers in DuPage County and the items these centers will accept. The

Quality continued

placement of existing equipment with more energy efficient units, are only part of the program. General employee participation is also a valuable component. Procedures like those in place in the Meson Assembly Building are a fine example of a simple and common sense approach to energy

management. It is one more way that all of us can help to make a difference and participate in energy saving."

The Mechanical Department Technicians group fabricates components that support both the fixed target and collider programs. Members of the group include: **Glenda Adkins, Don**

Carpenter, David Erickson, Walter Ewer, Charles Galauner, Jim Humbert, Jerry Judd, John Juneau, Gary Markiewicz, Jorge Martinez, William Moorhouse, Thom Nurczyk, Pat Richards, Ron Threadgill, Richard Treece, John Voirin, Terry Waldrop and Ed Weiten.

How recycling helps conserve valuable resources

Recycling	Saves	Used for
 <p>Newspapers</p>	 <p>17 trees for each ton of recycled newspaper</p>	 <p>newsprint paperboard products (shoe boxes, backings for writing tablets) cellulose insulation (attics of homes) building materials (wallboard, roofing felt, ceiling tiles)</p>
 <p>Aluminum cans</p>	 <p>95% of the energy needed to produce new cans</p>	 <p>new aluminum cans aluminum building materials</p>
 <p>Glass containers</p>	 <p>9 gallons of fuel (oil) for every ton of recycled glass</p>	 <p>new glass containers fiberglass insulation road beds (aggregate) concrete block 'glassphalt' (asphalt)</p>

Information courtesy of Recycle America - a service of Harris Sanitation

VANGO continued

of the many groups at the Laboratory, the utility of the Alignment group's approach has been in providing a mapping presentation capability on a widely accessible computing platform which many groups can access. Not only has Construction Engineering integrated this capability into their work, but the beam line physicists have brought it into their efforts as well.

Gaston Guitierrez (RD/Facilities Dept.) is in the process of entering enclosure measurements into the system. Enclosure N01 has been completed as part of the shielding project and soon all three primary Neutrino enclosures will be in the system. "At this point, it appears the use of the VANGO system is the most efficient way to do an accurate job of collecting shielding measurements. It allows us to eliminate the process of drawing all the enclosures by hand," commented Gaston. In the future, Larry Ketcham foresees that a beam line physicist could run TRANSPORT, load the results into VANGO and produce a map of the elements in place inside an enclosure.

VANGO is a commercial product developed by VLSystems, Inc., a California firm and is used in many smaller construction and survey companies to manage their data. The implementation in a large, multi-group survey, construction and computing en-

vironment such as Fermilab's, requires careful coordination and the working together of the various groups including the Alignment group, Construction Engineering, Data Communications, Computing Division and the Research Division.

The Alignment group has taken a continuing role in training the various segments of the Laboratory who wish to utilize the systems mapping presentation and analysis capabilities.

Education continued

Rolling. (These teachers were dropping balls down ramps and timing them, measuring the distances various types of balls travel, giving boosts of power to a ball bearing to make it travel through a linear accelerator and learning about many supplemental sources of information and classroom activity.) Their experiences will translate into new activities that bring hands-on science into their students' lives. *Hands-on Science* is currently in its second year and has been used by at least 80 teachers.

In total, 35 teachers and their students (approximately 1,000) will benefit from this enjoyable learning-packed Saturday at Fermilab. Information about Education Office programs can be obtained by calling x3092.

— Robin Dombeck

Cla\$\$ified ad\$

Miscellaneous:

Downhill skis, Atomic, 180 cm, \$80. Call Ann at x 2471 or 708-293-3915.

Diamond engagement and wedding ring set, 1/3 total wt., yellow gold, \$1,200 value, \$600 or best offer. Call Jenny at x4788.

Genie automatic garage door opener receiver, model #AR-75, Cryptar II and 1 transmitter (310 mhz), both in good working condition, \$25. Call Merle at x3958 or 708-964-0185.

Dogsled, wood with plastic runners, \$100 or best offer. Call Roy at x3144 or 708-665-8246.

Kitchen table & 4 chairs set, modern, ivory color, like new (6 mos. old), \$475. Call 708-896-6229.

Baby swing with canopy, \$10. **Adjustable Portacrib**, \$25. Call x3103 or 708-553-7644.

Memorex VCR with remote control, as is, \$45 or best offer. Call D. Ritchie x3940 or FNAL::RITCHIE.

Motorized vehicles:

1980 Honda Civic Hatchback, 5 spd., driven 112k mi. by a "little ol" school teacher. Report card: Mechanical, B+; Interior, B-; Exterior, Retained. Asking \$600. Call R. Janes x4083/3262 days or 708-879-1696 after 5:00 p.m.

Employee Assistance Program

You've got a friend...

Listed below are the phone numbers for information on support groups for relatives of military personnel serving in the Persian Gulf:

- Navy Family Service Center, Great Lakes Naval Training Center, 708-688-3603
- Army Community Service Center, Fort Sheridan, 708-926-2272
- Scott Air Force Base Family Support Center, 618-256-8668
- Lombard Mennonite Church, 708-627-5310
- Northwest Community Hospital, Arlington Heights, Coping with Desert Storm, 708-259-FIND
- Friends and Family of Desert Storm, Wheaton, 708-369-2373
- Desert Shield Support Group of Chicago, Rita Gallas, 312-252-3437
- Persian Gulf Anxiety Group, Des Plaines, 1-800-437-SAFE
- Christ Church, Des Plaines, 708-297-4230
- St. Thomas of Villanova, Palatine, 708-358-6999
- For the nearest Air Force base where a support group is located, Air Force Operation Desert Shield, 1-800-253-9276

For further information regarding support groups or services available for family members and friends of those serving in the Persian Gulf, contact Eleanor Thomas-Grumbach, Employee Assistance Office, x3591.

New items in the stockroom

- 1110-0520 Connector, Ka-lug, one-hole tongue, for cop. cond., w/ allen head screw, burndy B/N KA4C, copper conductor range 14 sol. - 4 str.
- 1110-0525 Connector, Ka-lug, one-hole tongue, for cop. cond., w/ allen head screw, burndy P/N KA25, copper conductor range 4 str. - 1/0 str.
- 1110-0530 Connector, Ka-lug, one-hole tongue, for cop. cond., w/ allen head screw, burndy P/N KA28, copper conductor range 4 str. - 4/0 str.
- 1240-0940 Channel fitting, double gusset corner connection, b-line P/N B-276, green.
- 1246-4425 Pull line, Polypro, for pulling pull rope through conduit, not for pulling wire or cable, greenlee P/N 430, 1 ply x 6,500 ft. spool.
- 1315-0747 Staple cartridge, for Xerox model 1065/5046 copy machines, Xerox P/N 8R2253, 5 staple cartridges per ct.
- 1315-1070 Transparency film, for plain paper copiers, no sensing stripe, black image/clear background, 3M P/N PP2500, 8 1/2" x 11", 100 shts. per box.
- 1330-0145 Binder, looseleaf, 3-ring, vinyl covers, inside pockets, 1 1/2" cap., 8 1/2" x 11", blue.
- 1330-0150 Binder, view, looseleaf, slant 3-ring, vinyl covers, clear overlay on front/back/spine, 1 1/2" cap., 8 1/2" x 11", black.
- 1330-0155 binder, view, looseleaf, slant 3-ring, vinyl covers, clear overlay on front/back/spine, 1 1/2" cap., 8 1/2" x 11", white.
- 1345-0525 holder/dispenser, for pop-up note pads, plastic w/self-adhesive mounting squares, 3M P/N C-300-B, putty color.
- 1355-2785 Pad, note, self-stick, removable, yellow, fan folded, 3M pop-up note P/N R-330, 3" x 3", 100 sheets per pad.
- 2250-1200 Gloves, golden brown monkey fur, 16 oz., double palm, knit wrist, large size.
- Also available in the stockroom, a variety of self-tapping Phillips screws in both pan and flat heads.

The Art Series presents

Los Angeles Chamber Ballet
The Little Prince
Saturday, February 9 at 8:00 p.m.
Admission \$13

Antoine de Saint-Exupery's beloved tale of *The Little Prince* comes to life as the **Los Angeles Chamber Ballet** brings this ballet to Fermilab's Ramsey Auditorium on Saturday, February 9 at 8:00 p.m.

The Little Prince carbonates the air with excitement...The Chamber Ballet has a work on its hands that is not an imitation of anything else. The Company's standards are high and keep getting higher.—Sasha Anawalt, *L. A. Herald Examiner*. Founded in 1981 by Artistic Directors Victoria Koenig and Raiford Rogers, the Los Angeles Chamber Ballet (LACB) explores a broad range of dance styles. The company brings together dancers, choreographers, designers and composers to collaborate in an intimate, creative and stimulating working environment. Mixing European, Latin, Asian and American traditions and impulses, the Los Angeles Chamber Ballet combines freedom, spontaneity and experimentation with classic forms of dance.

The performance by LACB features the classic tale of the little prince who, through a series of travels and adventures, learns about love, friendship and life. *The Little Prince* was choreo-



The Los Angeles Chamber Ballet presents The Little Prince

graphed by Victoria Koenig, Raiford Rogers, Patrick Frantz and Stanley Holden with original music performed by International Collage. Also performed will be "So Nice" choreographed to Latin music, featuring Michael Marlin and "Andante Cantabile", a Pas de Deux featuring Victoria Koenig and Laurence Blake set to Robert Schumann's Quartet in E-Flat, Opus 41.

Tickets for the Arts and Lecture Series events are not refundable. For further information or phone reservations, call 708-840-ARTS weekdays between 10:00 a.m. and 12:00 noon or 1:00 and 4:00 p.m. Phone reservations are held for five working days but will be released for sale if not paid for within that time. All telephone orders the five days immediately preceding a performance must be paid for by credit card.

—Janet MacKay

FermiNews is published by the Fermilab Publications Office, MS 107, P.O. Box 500, Batavia, IL 60510 708-840-3278
FNAL::TECHPUBS
Editor: C. Crego
Circulation: S. Hanson
Photography: Visual Media Services
Fermilab is operated by Universities Research Association, Inc. under contract with the U.S. Department of Energy.

FermiNews is printed on paper stock containing at least 50% recycled materials. After reading, it is acceptable in the white office paper recycling boxes located in Wilson Hall.

The deadline for the Friday, February 15 *FermiNews* is Wednesday, February 6. Please send your article submissions or ideas to the Publications Office.