

Inhalation Toxicology Facility Reopens With Ceremony

BNL's Inhalation Toxicology Facility (ITF) was formally reopened with a ribbon-cutting ceremony on November 1, after extensive renovations to make it one of the most modern inhalation laboratories in the country.

Located in the Medical Department, Bldg. 490, ITF is now being used to test the toxic effects of inhaled gases, vapors or aerosols of compounds in the forms of mists or dusts. Before the formal ceremony, in fact, one part of a study had already been completed, involving a compound used for the space shuttle by the National Aeronautics and Space Administration (NASA).

With its reopening after four years, BNL's ITF became DOE's third and most up-to-date inhalation lab, and one of about a dozen and a half in the country. Among these, ITF is unique, in that its ventilation system

and layout of corridors were set up to ensure the proper flow of air and of people, equipment and laboratory animal traffic, respectively, through the facility to protect both animals and personnel.

Since ITF meets standards established by the National Toxicology Program (NTP), data generated at the facility can be considered in establishing acute through chronic inhalation-exposure standards for the workplace and environment.

"Without well-designed inhalation studies to determine chemical toxicity, there is no way to predict whether or not there will be adverse health effects resulting from the inhalation of many materials of industrial and national importance," explains Arjun Chanana, Chairman of BNL's Medical Department. "With the reopening of the ITF, Brookhaven has a state-of-the-art facility to fulfill the

critical national need for inhalation toxicity testing."

Lab-Industry Collaboration

The facility was renovated under a collaborative agreement between Associated Universities, Inc., and NSI Technology Services Corporation, a subsidiary of ManTech International Corporation. Located in Research Triangle Park, North Carolina, NSI's Environmental Science Division has been performing government-sponsored toxicology research for more than two decades to identify and measure the adverse health effects of workplace chemicals and environmental pollutants.

To undertake its work, NSI has stationed three of its scientists at BNL: NSI Program Manager Bruce Stuart, inhalation toxicologist Darrol Dodd, and chemist Simon Rothenberg.

With U.S. Department of Energy (DOE) approval, AUI and NSI were able to enter into the agreement under the Stevenson-Wydler Technology Innovation Act. Passed by Congress in 1980, the act encourages U.S. industry to utilize federally funded facilities, as well as encouraging the exchange of scientific and technical personnel between federal labs and private firms.

"There are four reasons to celebrate the reopening of ITF," explained Richard Setlow, BNL's Associate Director for Life Sciences, before the ribbon was cut.

"First, it is a new and exciting opportunity for BNL and NSI researchers. Second, since there are important inhalation toxicology studies that need to be done, it fills a national need. Third, it is the epitome of technology transfer because both parties have given a lot already and have a lot to exchange in the future. And finally, because both parties envision a long-term collaboration, it is a triumph of long-range vision."

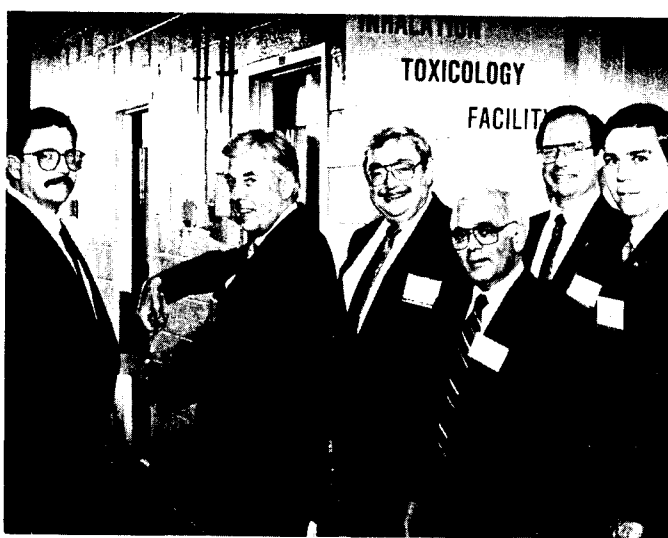
Under the agreement, BNL and NSI are collaborating in using the ITF for toxicology testing, and for research into improved inhalation models and toxicology testing procedures. Any projects carried out at ITF require Brookhaven's participation.

In addition, ITF is also available for DOE work or research of interest to BNL staff in collaboration with other parties.

Finding the NOEL

Four types of toxicological tests will be carried out within ITF: Acute tests are single exposures of up to four hours; simulated workplace exposures are carried out for six hours a day, five days a week over two weeks; subchronic exposures go on for three months; and chronic exposure testing lasts two years.

(continued on page 2)



At the ribbon-cutting ceremony formally reopening BNL's Inhalation Toxicology Facility: (from left) Jerome Hudis, Vice President-Programmatic Affairs, of Associated Universities, Inc. (AUI); William Houston, NSI Vice President; Nicholas Samios, BNL Director; Marvin Kushner, AUI Trustee; Richard Setlow, BNL Associate Director for Life Sciences; and Donald Gardner, NSI Vice President.

(From left) Robert Ward, NSI Senior Vice President; J. William Jenkins, NSI President; Donald Gardner, NSI Vice President; Arjun Chanana, BNL Medical Department Chairman; Bruce Stuart, NSI Program Manager at BNL; and Bernard Adkins, NSI Program Manager.

BNL Lecture: A Scintillating Search For a Rare Kaon Decay

So small that it can barely be imagined, with a life span so brief that it can scarcely be conceived, a kaon flies out of the Alternating Gradient Synchrotron (AGS) ring — part of an intense beam of like particles all headed for collision with a scintillating fiber target.

With that collision, the kaon's brief life ends. But it does not go unnoticed.

The kaon's death comes in decay — into other charged particles, the momentum and energy of which are caught in flashes of scintillating light and measured by the detectors of AGS Experiment 787 (E787). When these measurements are analyzed, the E787 team will know whether this kaon decay was the rare one for which they have been searching.

"A Scintillating Search for a Rare Kaon Decay" will be described by Physicist John Haggerty, Physics Department, when he delivers the 264th Brookhaven Lecture, on Wednesday, November 14, at 4 p.m., in Berkner Hall. Haggerty will be introduced by Laurence Littenberg, who heads E787.

The E787 collaboration includes physicists from BNL, Los Alamos National Laboratory, Princeton University, and TRIUMF in Canada. In the primary rare decay for which they are searching, a kaon (K) would decay into three particles — a positive pion (π^+), a neutrino (ν), and an antineutrino ($\bar{\nu}$) — a decay that is written $K^+ \rightarrow \pi^+ \nu \bar{\nu}$.

To understand why the E787 col-



In the "counting house" where incoming data from AGS Experiment 787 is acquired and counted, John Haggerty holds a large pc-board called the transient-digitizer smart controller, which is used for data acquisition and uses the AM29000 microprocessor that Haggerty holds in his left hand.

Photos on this page by Roger Stoutenburgh.

laborators are searching for this decay, Haggerty will give a brief introduction to high energy physics since the mid-1960s. He will explain that the standard model of weak and electromagnetic interactions predicts that this decay will occur, though extremely rarely — perhaps less than once in ten billion decays.

How the E787 collaboration is trying to find that one in ten billion will be the next part of Haggerty's talk, as he describes the complicated array of scintillators, transient digitizers and detectors that are on the alert for the telling decay products.

So far those decay products have told the physicists that this rare K

decay has not occurred within the confines of their detector. As Haggerty will explain, this does not show that the decay does not occur, but it does show that more sensitive detection may be the key to observing it.

Thus, Haggerty will describe the steps that E787 is taking to achieve a higher sensitivity — and why the collaboration feels that this scintillating search is important, no matter what the outcome.

John Haggerty earned his B.S. in physics and mathematics at Manhattan College in 1976, then went on to Harvard University, where he obtained his A.M. in 1977 in physics.

As a Ph.D. student at Harvard, Haggerty worked on his thesis at the CLEO detector at the Cornell Electron Storage Ring, from 1977-81. After obtaining his degree in 1981, he went to Fermi National Accelerator Laboratory as a research associate working on Experiment 400, a look at charm hadro-production. In 1983, he went to Lawrence Berkeley Laboratory as a research associate, to work on the MARK II detector at PEP and the Stanford Linear Collider.

Haggerty joined BNL in 1986 as an assistant physicist on E787. He was promoted to associate physicist in 1988 and physicist in 1990.

After the lecture, those attending are invited to join the speaker for discussion and hors d'oeuvres. Those interested in also joining the lecturer for dinner at a restaurant off site, should call William Morse, Ext. 3859.

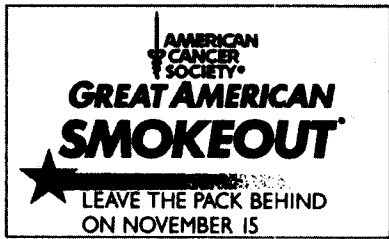
Leave the Pack Behind — Join the Great American Smokeout

Next Thursday, November 15, is the American Cancer Society's Great American Smokeout — a day during which smokers across the country try to quit.

To encourage employees who smoke to kick the habit at least for that day, Health Promotion Specialist Mary Wood will be in Berkner Hall from 11 a.m. to 1:30 p.m., handing out Smokeout literature and buttons along with gum and lollipops. She'll also have tips on how nonsmoking employees can adopt a smoking co-worker for the day.

Among the tips offered to quitters: Discard all cigarettes and matches, and hide ashtrays and lighters; when you have the urge to smoke, practice deep, rhythmic breathing — inhaling clean air instead of poisonous gases; cleanse your body of nicotine by drinking lots of noncaffeinated and nonalcoholic liquids; and keep your hands and mind busy.

For those smoking BNLers who wish to participate in a quit-smoking program, Wood will be taking names for on-site programs in the near future. See her in Berkner next Thursday, or call Ext. 5923 or 4567.



At the presentation of his Outstanding Individual Effort Award from the U.S. Department of Energy (DOE), Mark Culp (center), Plant Engineering Division, stands with (left) DOE Assistant Secretary Charles Tierney, Deputy Associate Director for Administration, Information and Facilities Management; and Michael Davis, DOE Assistant Secretary for Conservation and Renewable Energy.

One Moment Can Cost Deer



Roger Stoutenburg

At this time of year, deer are often seen on site, especially in the early morning and as people are going home. Usually, they are protected by the woods, like the doe photographed here, but they quite frequently cross the road in front of cars — usually so suddenly that there is almost no time to avoid collision. They tend to stay in groups of two or three, so if you see one, more may follow.

In the past ten days, four accidents involving deer have occurred at BNL — one at each gate, and one on site. In each case, vehicles were damaged, and the deer had to be destroyed. It's worth driving with extra attention to prevent such accidents.

ITF Reopens

(cont'd)

"The reasoning behind these tests is to find the NOEL, the no observable-effect level which is the air concentration of the compound under evaluation that yields no difference between the exposed and the control animals," states NSI's Bruce Stuart.

For instance, during the first experiment undertaken in the refurbished ITF, dilutions ranging from 500 parts per million (ppm) to 4,000 ppm of a compound known as DMES were used for an acute test. DMES is used by NASA to waterproof the heat-shielding tiles on the space shuttles.

During exposure, lab animals are monitored for body-weight changes, morbidity and mortality. Autopsies and pathology studies are performed post-exposure.

Adds Stuart, "If any compound is found to cause ill effects at a certain level, there are three alternatives: The workplace ventilation can be in-

creased to dilute the air concentration of the compound, workers may be fitted with respirators to wear while working around the compound, or use of the compound may be eliminated by changing the process."

To prevent compounds being tested at ITF from being released into the facility or the environment, the exhaust vents from the exposure chambers are each fitted with a high-efficiency particulate air filter and an activated charcoal purification system. In addition, the exhaust from the entire facility passes through another set of filters on the roof of Bldg. 490.

To evaluate the efficiency of all the filters, BNL's Russell Dietz, Deputy Head of the Environmental Chemistry Division of the Department of Applied Science, and his tracer-technology staff were called upon. After release of perfluorocarbon tracer into the filters, their analysis revealed that the chamber filters alone were effective in removing at least 99.9996 percent of materials.

"This facility could not have reopened without the dedicated effort of members of the staff of BNL's Plant Engineering and Safety & Environmental Protection [S&EP] Divisions," concludes Chanana. "Plant Engineering delivered a facility that meets the standards of the National Toxicology Program, and S&EP helped to ensure that ITF operations will be in compliance with all applicable state and federal environmental regulations." — Marsha Belford

Arrivals & Departures

Arrivals

Aharon Friedman.....NLS
Joseph M. Carelli.....Reactor
Virender K. Sharma.....Chemistry

Departures

This list includes all employees who have terminated from the Lab, including retirees:

Raymond J. Heus.....App. Science
Louise M. Honikel.....Medical
Carol Lambert.....Medical
Daniel V. Wilson.....Accel. Dev.

Mark Culp Wins DOE Award For Huge Energy Savings

For saving the Lab an estimated \$4,650,000 in electricity charges, Mark Culp, Supervisor of mechanical engineering and energy management in the Plant Engineering Division (PE), has won an Outstanding Individual Effort award from the U.S. Department of Energy In-House Energy Management Program. It was presented to him in Washington, D.C., on October 26.

One of five presented annually, the award recognizes Culp's "on-going and superior accomplishments in energy management as Chairman of the Demand Coordination Committee at the Brookhaven National Laboratory."

Other Demand Coordination Committee members are Norman Fewell, National Synchrotron Light Source Department; Robert Gibbs, Accelerator Development Department; Joseph Glenn, Alternating Gradient Synchrotron Department; Albert Queirolo, Reactor Division; and Mark Toscano, PE.

Said Culp, "Though I got the award, it was really due to the committee's efforts. The savings came from electric-load management, and only a team working in very close cooperation can make this happen."

To save the estimated \$4,650,000, Culp and the committee met monthly since 1986 to discuss essential electrical usage for the next month. Once the projected demand was known, they worked out a schedule to ensure that, when one very large piece of

equipment was operating, others would be off, so that usage remained fairly constant and as near the peak demand as possible.

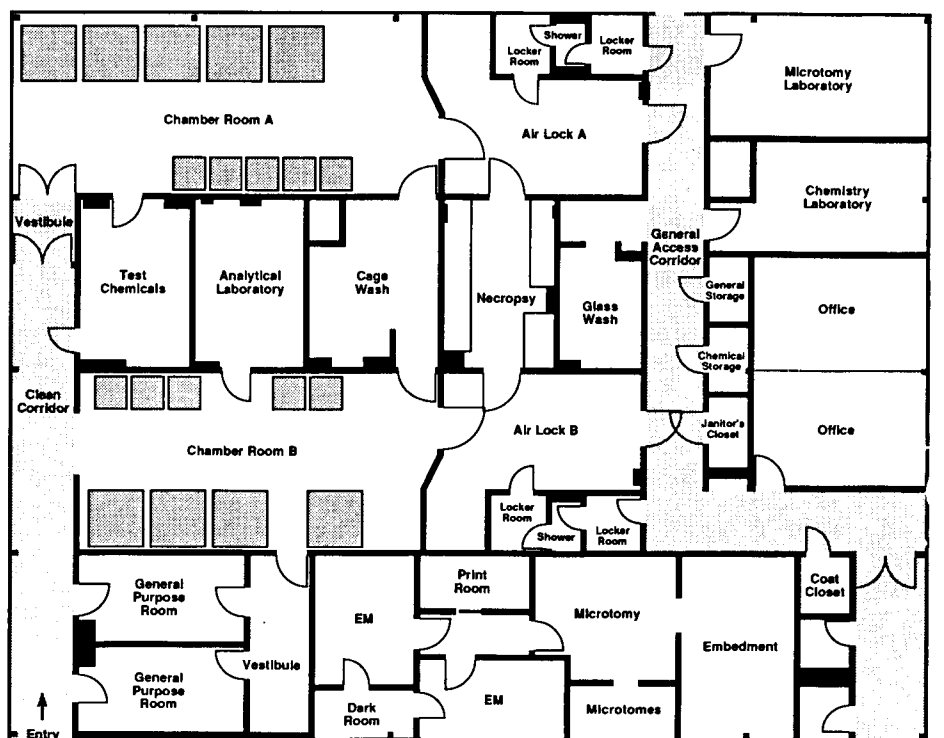
"Electric utility rates are made up of a demand charge that varies according to the peak demand each month, in addition to usage charges," explained Culp. "By always keeping the peak as low as possible, and, for example, by delaying or bringing forward certain projects to even out demand, we saved considerable sums. In fiscal year 1989 we saved approximately \$1,000,000."

To monitor how well monthly plans match usage, automatic electric-metering systems and automatic demand-limiting systems were installed in various control rooms around the Lab. As soon as demand reaches certain levels, alarms give warning, certain interruptible loads are reduced, and all users take extra care.

"We also save in other ways," Culp said. "For instance, in participating in the Long Island Lighting Company's Energy Cooperative program this summer, we saved \$240,000 by being available to shut off inessential services if necessary."

This energy management award is the fifth to be won by BNL in recent years. Meanwhile, Culp and the Demand Coordination Committee continue their work of finding new methods to reduce the Lab's electrical load.

— Liz Seubert



Layout of the Inhalation Toxicology Facility

Runners' Corner: Marathon Results

Five members of the BNL Road-runner Club ran the distance — all 26.2 miles of it — in the 25th New York City Marathon on Sunday, November 4, and club president Skip Medeiros reported on it:

In his first full marathon, Larry Kleinman decided to run "not fast enough to hurt anything," and so he finished in 5:05.

Because of the day's heat and Marilyn McKeown's recent stress fracture, McKeown and her long-time training partner Ronnie Evans participated in this marathon, their second together, as a fun run.

Evans slapped hands with about 5,000 onlookers, while at mile 16, McKeown gave an interview broadcast nationwide, to WABC TV reporters who wanted to know why a Long Island grandmother runs so far.

Meanwhile, BNL's two veteran marathoners were approaching the finish line.

Hobbling along since losing a toenail at the 16-mile mark, Gus Prince was happy just to see the end of the race. Wen-Shi Yu, however, found the weather "just perfect" — and so her run was perfect enough to place her 85th among some 5,000 women and as the probable winner of her age category.

In Memoriam

Frederick L. Horn, a chemical engineer in the Department of Nuclear Energy (DNE), died on October 31. He was 66 years old and had worked at Brookhaven for over 41 years.

Horn came to BNL in June 1949, as a technician in the Reactor Division, where he worked on the Brookhaven Graphite Research Reactor, which began operations in 1950.

He became an associate chemical engineer in July 1958, and continued in that capacity when he transferred in 1960 to the Nuclear Engineering Department, which became the Department of Applied Science in 1969. After transferring to the Medical Department in 1977, he returned to DNE in 1978 and was promoted to chemical engineer in 1983.

In DNE, Horn worked in the Reactor Systems Division (RSD). "Fred was in charge of thermal hydraulic experiments for our division," said James Powell, head of RSD. "He made many key contributions in this area."

Fred Horn was a resident of Sayville. He is survived by his wife Bobbie; his son and daughter-in-law Frederick and Laura, and his three grandchildren Meaghan, Frederick Brendan and Michelle; his son and daughter-in-law Jeffrey and Barbara; two other sons, Kenneth and Brian, and his brother Herbert.

Correction

In the service awards for October printed last week, Richard A. Carlsen, who observed his 25th BNL anniversary, should have been listed as a member of the Computing & Communications Division.

Coming Up

The Panocha String quartet will appear in concert at 8 p.m. on Thursday, November 29, in Berkner Hall. Their program will consist of Beethoven's Quartet in E Flat Major, Op. 74, *Harp*; Bohuslav Martinu's Quartet No. 5, and Leos Janacek's Quartet No. 2, *Intimate Letters*.

Tickets can be purchased at the door for \$12 general admission; \$9 students and those over 65; \$5 children under 18.

PSI Meeting

Elise Ross, Vice President of the New York State Division of Professional Secretaries International (PSI), will be the guest speaker at the next meeting of PSI's Upton Chapter.

She will talk about leadership and communication, on Wednesday, November 14, at 6:30 p.m., in the south dining room of the Brookhaven Center.

Calling All Carolers

Plan to sing with the BNL Choral Group on Wednesday, December 19, at the Christmas special luncheon in the Cafeteria, and at one or two other places around the Lab site.

The first rehearsal will be Friday, November 30, at Berkner Hall, at noon sharp! Subsequent rehearsals will be on Wednesdays and Fridays, December 5, 7, 12, 14, and Monday, December 17, at Berkner Hall. Rehearsals must end by 12:45 p.m., so please be on time!

Singers are needed in all parts — soprano, alto, tenor and bass. For more information, call John Weeks, Ext. 2617, or Janet Sillas, Ext. 2345.

Note to Employees:

Attendance at lectures, meetings and other special programs held during normal working hours is subject to supervisory concurrence.

Volleyball

Standings as of October 31

Open League		League I	
Phoenix	7-2	Cannonballs	9-0
Me & the Boys	7-2	Upfagrabs	6-3
G'Team	7-5	Dinkers	5-4
Magnum	6-3	Network News	4-5
Penetrating Veggies	5-7	Rude Dogs	3-6
Dig It	4-8	Upsetters	0-9
Jet Setters	0-9		
League II		League III	
Nuts & Bolts	9-0	No Ka Oe	5-4
Fossils	7-2	Nutcrackers	5-4
UptonUps	6-3	Undertakers	4-2
Pteropods	5-4	High Volley'em	4-2
Net Wits	4-5	Good Timers	4-5
Chunga's Revenge	2-7	Renegades	4-5
Slammers	2-7	Sourcerers	1-5
Aces	1-8		

Craft Show — Last Day Today

Visitors of all ages and tastes are finding something to enjoy at the Craft Show sponsored by the BERA Art Society this week at Berkner Hall, Rooms B and C. It's not too late to enjoy the show yourself: Come to the last viewing today, 11:45 a.m. to 1:30 p.m.

— Photos by Roger Stoutenburgh



Microcomputer Club

The Microcomputer Club will visit the computer facility of the Illustration Group in the Photography & Graphic Arts Division, on Thursday, November 15, from noon to 1 p.m.

Illustration Supervisor Emil Caiazza will demonstrate the new services that his group now offers the Laboratory, including the ability to convert a hand-drawn graphic into a final draft utilizing Adobe Illustrator software, a document scanner, a high-quality Linotronics printer and a color printer.

Space is limited, so the group must be kept to fewer than 15 people. To attend, contact Frank Salzano, Ext. 4458, or Irving Montanez, Ext. 2540.

Cooking Exchange Thanksgiving Demo

A cooking demonstration with a Thanksgiving theme will be held at the Recreation Building in the apartment area on Wednesday, November 14, at 12:30 p.m.

All are welcome to come to enjoy the food and get acquainted. A donation of \$2 per adult is requested to cover expenses for the ingredients and tasting, and there is a \$1 charge per child for baby-sitting.

For more information, call Eiko Tanaka, Ext. 3017, Miriam Rothenstein, Ext. 3092, or Barbara Kowalski, 744-3569.

Bowling

White League

Ed Beadle had a 209/201, Andy War-kentin 203, Caryl MacDougall 190/188, Jeanne Penoyar 185, Dick Adams converted the 6/7/10 split, Ken Batchelor the 4/10.

Purple League

Pete Stelmaschuk had a 219/213/209 for a 641 scratch series, Ruth Sheehan 210, Gail Schuman 190, Pat Manzella 184, John McCarthy converted the 4/7/9.

Red/Green League

C. Dimino had a 223, C. Bohnenblusch 215, H. Dawson 209, R. Jansson 209, E. Sperry IV 209, R. Larsen 204.

Festival Cookbook: Call for Recipes

The Upton Nursery School is compiling a cookbook of festival foods from around the world. Contributions of recipes and descriptions of associated customs, or short anecdotes about festivals and celebrations are welcome. Please submit these to the Upton Nursery School, P.O. Box 324, Upton, NY 11973, or call Cal Roberts, 874-2992.

Time to Give Thanks — and Food!



Last month, the BNL Food Drive completed its second year with BNLers donating 2,980 pounds of food to Brookhaven Town's needy — bringing the year's total to 31,250 pounds.

But as one year ends, another begins — and the BNL Food Drive year begins with Thanksgiving.

The November food pickup is scheduled for next week, November 13-19; the collection will be delivered on November 20, just in time for Thanksgiving. Please help make it a good one for all of our neighbors.

Speaking of Thanksgiving, as the drive enters its third year, BNL Food Drive Chair Carole Kerr would like to give thanks to all those who have helped make the drive such a success:

- The employees from BNL and the American Physical Society who have given so generously month after month.
- Service America, which runs the Cafeteria, for monthly donations that have included such necessities as powdered milk and soups.
- Taystee Baking Company, which regularly donates bread.

- Schmitt Farms, which has donated crates of seasonal produce.

- The Food Drive helpers who watch over their group's collection areas: Leesa Allen, Louisa Barone, Charlie Bohnenblusch, Micki Breitenstein, Pat Campbell, Dave Comstock, Bob DiLello, Mabel Evans, Sue Foster, Georgia Irving, Dolores Janes, Frank Kito, Rita Kito, Kathryn Kolsky, Jo Ann La Forte, Harvey Lotko, Joe Mazzarella, Vera Mott, Cynthia Murphy, Carol Nager, Kathy Nasta, Betty Pegan, Jerry Quigley, Renie Rosati, Maryellen Savoca, Fran Scheffel, Donna Spellman, Arlean Vanslyke, Charlie Wilkins and Cheryl Williams.

Now that Kerr has thanked everyone, we'd like to thank her for all the time and energy she personally puts into the Food Drive every month.

In addition to food donations, Kerr accepts personal checks, then goes shopping and sends receipts back. She also accepts receipts from Finast and King Kullen supermarkets, which give a one-percent cash rebate that she can use when she goes shopping for the needy.

BROOKHAVEN BULLETIN

Published weekly by the Public Affairs Office for the employees of BROOKHAVEN NATIONAL LABORATORY

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