BROOKHAVEN BULLETIN
Vol. 45 - No. 3 January 18, 1991
BROOKHAVEN NATIONAL LABORATORY

The LaSalle Incident: Plant Analyzer First to Tell All

"Have Engineering Plant Analyzer — will investigate."

This could be the motto of the scientists and engineers of the Plant Analyzer Development Group (PADG) in BNL's Department of Nuclear Energy.

These researchers have combined advanced modeling methods with a highly specialized computer — the BNL Engineering Plant Analyzer — to answer questions about nuclear power plant events accurately, swiftly and at a fraction of the cost of other methods.

One recent investigation is described in a BNL report that will be released shortly. It was prompted by an unusual event at the LaSalle II nuclear power plant, in Illinois on March 9, 1988.

During a maintenance procedure, a technician closed the wrong valve while testing a pressure switch. This caused both recirculation pumps to trip off, greatly reducing the flow rate of cooling water to the reactor core.

The plant's power level began to oscillate more and more as the heat generated by the reactor core was no longer matched by the cooling water flow.

The reactor operators failed to restore stable operations. Then, five minutes after the recirculation pump trip, as they were preparing to scram the reactor, or shut it down, it shut down automatically, as it was designed to do.

There were no public consequences of the event. However, because of PADG's ability to respond quickly, the Nuclear Regulatory Commission (NRC) asked the group to find out what had caused the unexpected power oscillations and what might have been the outcome had the reactor not scrammed.

Whys and Wherefores

"Using the Engineering Plant Analyzer, which is a very fast and reliable computer system we built between 1982 and 1985, Hsiang-Shou Cheng, Alexander Mallen and I started work on the assignment," recalled Wolfgang Wulff, PADG leader. "After about a week, we had simulated the first answers from preliminary plant information. Then we waited until more information came through in September. By about November of 1988, most of the calculations were done."

In the Department of Nuclear Energy's Reactor Analysis Division (RAD), the Plant Analyzer Development Group (PADG) is responsible for the BNL Engineering Plant Analyzer. Gathered around the computer are (clockwise from top left) Alexander Mallen, PADG; James Guppy, RAD Head; Wolfgang Wulff, PADG Leader; and Hsiang-Shou Cheng, PADG.

Roger Stoutenburgh

The oscillations were found to be thermohydraulic instabilities. Wulff commented that boiling water reactors (BWR) like LaSalle have been so well studied that standard reactor design and operation usually prevent hydraulic instability occurring. However, the unusual condition of moderately high power combined with low coolant flow produced an unstable state.

The team found two other conditions that contributed to the event. First, the reactor was near the end of the refueling cycle, when power tends to be distributed more strongly toward the bottom of the core. This destabilizes the reactor.

Also, the original mistake of closing the wrong valve in turn shut off a feed-water preheater. Cold feed water entered the core, intensifying the power oscillations, which grew until they were swinging from 30 to 120 percent of normal. But when the power peak reached the set point of the protection system, the reactor automatically scrammed.

"The three causes we established as being responsible for the event were agreed to by all the investigators, which included the owners' group of BWR plants and their consultant, the General Electric Company [GE]," said Wulff. "But originally, they rejected our second and third findings. Later, when they were able to check our results with their system, which gives somewhat more information than ours but takes several months longer to calculate, they accepted our analysis."

Because of the plant analyzer's speed, the PADG team was the first to recognize some new information about the oscillations. They found that power oscillations lead to bifur-

(continued on page 2)

FLC Northeast Region Meets at BNL

Roger Stoutenburgh

Gathered together at a BNL conference table are some participants at the semiannual business meeting of the northeast region of the Federal Laboratory Consortium (FLC).

The FLC was established in 1974 to facilitate the transfer of federally owned technology to state and local governments and to industry. The consortium is a national network of technology transfer representatives from about 600 federal labs, who have access to most unclassified, federally sponsored research.

Held on January 9 and 10, the regional meeting was coordinated by William Marcuse (second from right) of BNL's Office of Technology Transfer, with assistance from the region's deputy coordinator Albert Lupinetti (fourth from left), of the Federal Aviation Administration center in New Jersey. Some items on their agenda included planning for the national FLC meeting, which the northeast region will sponsor in Atlantic City next fall, and discussing demonstration projects, including business incubators and better linking of FLC member's tech transfer communications networks.

Others pictured at the table are: (from left) Joseph File of the Princeton Plasma Physics Laboratory, New Jersey; Herbert Mette, Army Electronic Technology Devices Laboratory, New Jersey; Stanley Smith, Stevens Institute of Technology, New Jersey; invited speaker Daniel Wilde of the technical information service NERAC, Connecticut; invited speaker Samuel Greenberg of the technology transfer organization US2U on Long Island; and Dorry Tooker, OTT.

See a Winner, Be a Winner

Roger Stoutenburgh

A display panel featuring the award-winning BNL-developed Wavefront Dividing Infrared Interferometer is one of 27 making up an exhibit on view in Berkner Hall now through January 31. Entitled "Near-Term Technology Opportunities From Department of Energy Laboratories," the exhibit describes the 27 inventions developed at DOE laboratories that won R&D 100 awards in 1990.

Shown here in front of the BNL panel are members of the National Synchrotron Light Source Department (NSLS) team that developed the winning device: (second and third from left) Gwyn Williams, Carol Hirschmugl and (right) Peter Siddons. They are joined by (left) Margaret Bogosian, Deputy Manager, Office of Technology Transfer (OTT); (fourth and fifth from left) Sy Baron, Associate Director for Applied Programs; and Dorry Tooker, OTT. Not shown is the NSLS team's collaborator K. Dieter Möller, Fairleigh Dickinson University.

Sponsored by *Research & Development* magazine for the past 28 years, the annual R&D 100 competition recognizes the top 100 technological achievements of each year. Since 1963, DOE labs have garnered more than 275 of these awards — more than any other organization in the competition. BNL is fifth among DOE labs with 13 awards.

If you are inspired by the exhibit, consider entering the next R&D 100 competition, which will recognize technology that was completed and delivered by a federal laboratory, or became available for contract or licensing during 1990. BNL pays all entry fees and any expenses associated with winning. Applications are available from OTT, Bldg. 902C, Ext. 2078. Entries must be received by OTT by February 22.

BNL Course Introduces Students to Computers

Since November, twelve fifth and sixth grade students from the South Country School District have been participating in a new Introduction to Computers course sponsored by BNL.

At the Victory Church of God in East Patchogue, the students learn computer basics on twelve Commodore 64C computers purchased by Associated Universities, Inc. Frances Ligon of BNL's Office of Equal Opportunity coordinates the program and helps teach the course along with several other BNL volunteers.

In 1985, BNL started an Introduction to Computers course for seven to 15-year-olds at the First Baptist Church in Riverhead. The 12-hour course, which meets weekly for six weeks, is offered four times per year at each location. And future classes of the South Country program will expand to 24 students.

"Understanding computers is a necessity for today's students," said Ligon. "The Laboratory is pleased to present this program as a community partnership."

Ligon also thanked the Victory Church of God, whose pastor, Reverend Anthony Seaton, donated time and space for the program; the South Country School District; the Bellport Community Center; Concerned Citizens for Bellport; and other Bellport residents.

For information about either the South Country or Riverhead programs, call Fran Ligon, Ext. 3709.

Roger Stoutenburgh

Frances Ligon of BNL's Office of Equal Opportunity (top) and Mohammad Raheen, a local parent, help students from the South Country School District who are participating in a new BNL-sponsored Introduction to Computers course.

Plant Analyzer (cont'd)

cation, a term signifying a change, which, in this case, meant a doubling of the time periods between the growing power peaks.

In another first, the team found that the oscillations are self-limiting because of the way neutrons are generated, interact and are absorbed in a reactor.

At the peak of large power oscillations, there are too many water vapor bubbles and too high a fuel temperature in the reactor core for neutrons to multiply. Thus the growth of power shuts off, even if the reactor does not scram automatically.

The BNL team also found out that, averaged over the time taken by several growing oscillations, the power from the reactor rises.

At first, GE rejected this result, but researchers at Oak Ridge National Laboratory subsequently confirmed it, and GE later accepted it. The time-averaged power is important, because it measures the amount of steam discharged under accident conditions into the reactor containment. There, it might increase the atmospheric pressure and risk outside release.

Bargain Model

Calculating one transient, or change in the state of a reactor, costs about $3,000 using BNL's plant analyzer. With the more detailed, but much slower system used by the BWR owners' group, one transient calculation costs roughly $500,000.

"We did over 90 different calculations, each representing six to eight preliminary calculations," said Wulff. "This volume of computing would not have been possible with any other technology, because of the cost — $45 million, as compared to $270,000 for ours."

The plant analyzer's advantages have already been recognized abroad. While Wulff, Cheng and Mallen, along with former BNL employee Stanley Lekach were developing the analyzer, they were joined by Kasuo Fujiki from Japan and Andrej Streltar from Yugoslavia. These researchers came to learn how to transfer this technology to their own countries.

Soon after the LaSalle incident the NRC invited PADG to join a new technical program group on BWRs. Work with this group is now concluding with an analysis to determine how uncertainties from knowledge of plant conditions, from mathematical modeling and from computing combine in the uncertainty of the suppression pool temperature.

Said Wulff, "In an accident, a BWR's suppression pool has to act as a heat sink, absorbing heat that is generated but has nowhere else to go. So a reliable estimate of the uncertainty in predicting the suppression pool temperature is important to safety." — Liz Seubert

Patent Awarded for Imaging Method

Advancing the use of positron emission tomography at the Lab, Senior Chemist **Joanna S. Fowler**, Chemical Associate **Robert R. MacGregor**, Senior Chemist **Alfred P. Wolf**, and BNL Research Collaborator **Bengt Langstrom** recently patented their new method of imaging certain enzymes in the human body.

The four were awarded U.S. Patent No. 4,913,891 for their method of quantifying and mapping the distribution of certain human enzymes in vivo using radiolabeled enzyme inhibitors that bind irreversibly to those enzymes. Mapping enzyme distribution can be an important step in determining the molecular basis of certain diseases.

The patent specifically covers the strategy and radiotracers used to image the enzyme monoamine oxidase, alterations in which have been implicated in a number of mental disorders and diseases. Two inhibitors of different forms of the enzyme are used: clorgyline, which binds with monoamine A, and L-deprenyl, which binds with monoamine B. These inhibitors are labeled with carbon-11, a positron emitter with a half-life of 20.4 minutes, at the N-methyl carbon, using carbon-11 labeled iodide.

The [^{11}C]clorgyline and the [^{11}C]-L-deprenyl are injected intravenously into a patient. There, each binds with the proper form of monoamine oxidase. Positron emission tomography (PET) is then used to map the regional distribution and concentration of this enzyme by detecting the body-penetrating photons arising from positron emission.

The patent holders noted that it may be possible to map other important human enzymes, such as alcohol dehydrogenase and dopamine B-hydroxylase using PET and positron emitter-labeled enzyme inhibitors.

Addled Addresses

- US Gov Upton
  Brookhaven Natl Labs
- Brookheaven Natinal Lab
- Chief Bldg. Inspector
  City Hall, City of Upton
- Brookheaven Material Lab
- Brooklyn Natural Lab (BNL)

Global Climate Change Is Focus Of New DAS Seminar Series

A new seminar series on global climate change is being initiated by the Department of Applied Science (DAS) Global Research Coordination Committee (GRCC).

Speakers in these Global Climate Change Seminars will be outstanding scientists chosen for their dual ability to inform the general Lab community on important issues related to global climate and to stimulate BNL researchers who are already actively involved in this field.

First in the series is Robert Cess of the State University of New York at Stony Brook, who will talk on "The Greenhouse Effect and Climate Change" on Friday, January 25, at 11 a.m., in the Hamilton Seminar Room, Chemistry, Bldg. 555. An opportunity for discussion with the speaker will follow at a luncheon in Room A, Berkner Hall. The cost is $6.95. Anyone wishing to attend may contact Marie Hobson, Ext. 7678.

Said DAS Chairman Leon Petrakis, "BNL's Global Change Program is bringing together the many strengths at Brookhaven as well as cooperating with other national laboratories and selected universities for the very best cohesive approach to this issue. In order to provide continuity and further momentum to our overall activities, we are initiating this series of seminars."

Senior Scientist Paul Michael, DAS, has been charged with selecting speakers for the new series. He said that upcoming seminars will include such topics as modeling climate change and detecting actual changes in global climate, and he welcomes suggestions on speakers and topics for future presentations.

Seminars will be announced in BNL's Weekly Calendar and in *Global Studies*, a DAS informal newsletter edited by GRCC coordinator Joyce Tichler.

Celebrating Service Anniversaries

These Department of Applied Science (DAS) staff who celebrated major BNL service anniversaries during the second half of 1990 were guests last month at a reception hosted by (seated, second from left) DAS Chairman Leon Petrakis: (seated, from left) Rich Wilke, 10 years; Kevin Wyman, 10; (standing, from left) Jim Sutherland, 30; Don Horne, 35; Devinder Mahajan, 10; and Vasilis Fthenakis, 10. Not pictured: Kathy Dargan, 10. — Photos by Stoutenburgh

A reception was held in December for members of the Physics Department staff who observed service anniversaries in 1990. Shown here with Department Chairman Peter Bond (front, left) are the honorees: (front, from left) Nancy White, 10 years; Sharon Smith, 25; Violet Bezler, 10; Richard Larsen, 35; (center, from left) William Love, 30; Theodore Robinson, 30; Francis Loeb, 10; David Kirby, 10; Peter Pyne, 25; Thomas Morris, 35; (back, from left) Harvey Wegner, 30; Charles Carlson, 25; Mordechai Montag, 25; Kenneth Asselta, 25; George Munoz, 30; Donald Gardner, 30; and Richard Watson, 25. Not pictured: Lawrence Leipuner, 35; Thomas Mogavero, 20; Frank Paige, 20; Howard Gordon, 20; and Ole Hansen, 10.

Atlantic City Trip

The next BERA-sponsored, one-day trip to Atlantic City will be to Trump Castle Hotel and Casino on the Marina, on Saturday, March 9. The bus will leave the Brookhaven Center promptly at 9 a.m. and return approximately 11:45 p.m. There will be an extra pickup at LIE Exit 63, if necessary.

The initial cost will be $20, but the hotel/casino will give a $12.50 coin return, $4 towards food and a $5 deferred-return bus voucher, which can be redeemed on the next BERA bus trip scheduled for Saturday, April 20. Tickets are on sale now at the BERA Sales Office in Berkner Hall, weekdays from 9 a.m. to 2 p.m.

For information, call Louisa Barone, Ext. 3347; Rosalie Piccione, Ext. 3160; or M. Kay Dellimore, Ext. 2873.

Walk and Run To Raise Heart $$$

BERA and the American Heart Association (AHA) invite you, your family and friends to join the AHA's "Heart Walk and Run" on Saturday, March 2, to help raise funds to benefit heart-disease research and education.

The five-kilometer, all-weather, indoor and outdoor event will be held at the H. Lee Dennison Building, Hauppauge, at 10 a.m. You may walk or run as an individual, a family, or a team of co-workers. Prizes will be given for participation.

Information and registration packages can be picked up at the BERA Sales Office in Berkner Hall, weekdays, 9 a.m. to 2 p.m. If you have any questions, call AHA, 567-7900, or, on site, Louisa Barone, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

Camera Club

The Camera Club will hold its monthly meeting in Berkner Hall on Thursday, January 24, at 5:30 p.m. As always, interested nonmembers are invited to attend.

During the meeting, the photos on the club's exhibit board will be changed. Both members and nonmembers are invited to contribute photos that meet the exhibit's display criteria.

For information, contact Lew Jacobson, Bldg. 134C, Ext. 5193; Ripp Bowman, Bldg. 911B, Ext. 4672; or Anne Baittinger, Bldg. 134, Ext. 5055.

ANS Meeting

John Graham, Director of the Regulatory Services Division of Atomic Energy of Canada, Ltd.-Research, will speak on "The Regulatory Scene North of the Border," at the next meeting of the Long Island Section of the American Nuclear Society (ANS), on Wednesday, January 23, at the Bavarian Inn in Lake Ronkonkoma, at 8 p.m. Following cocktails at 6 p.m. and a buffet dinner at 7 p.m., the speaker will be introduced by James Guppy, who heads the Reactor Analysis Division in BNL's Department of Nuclear Energy. To make reservations call 436-4227.

BROOKHAVEN BULLETIN

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

ANITA COHEN, Editor
MARSHA BELFORD, Assistant Editor
LIZ SEUBERT, Reporter

35 Brookhaven Ave., Upton, N.Y. 11973
(516) 282-2345

Fox Family Bluegrass Returns

Fox Family Bluegrass

BNL country music enthusiasts were able to enjoy the exciting energy and smooth harmony of Fox Family Bluegrass at a BERA-sponsored concert last summer.

On Friday, February 15, the quartet from the Adirondack Mountains will return to the Lab for an encore performance presented by BERA. It will be held at 8 p.m. in Berkner Hall.

Winner of the talent contest at the Winterhawk Bluegrass Festival in 1989, the group is composed of a fiddle player, banjo player, bass player and guitarist. They made their initial debut in their hometown of Old Forge in 1982. Since then, they have appeared in numerous concerts and music festivals, mainly in upstate New York.

Last year in Old Forge, the Fox Family organized the first Annual Fox Family Bluegrass Festival, which also featured The Lynn Morris Band, Southern Rail and several other New York bands. Recent engagements have included several appearances at the Eagle Tavern in Manhattan and a performance at the 1990 Peaceful Valley Bluegrass Festival.

Tickets for the concert cost $6 each. They are on sale now at the BERA Sales Office in Berkner Hall from 9 a.m. to 2 p.m. daily; at the Recreation Office in Personnel, Bldg. 185, after 2 p.m.; or from the following people: Rick Backofen, Bldg. 197B, Ext. 2973; Michelle Cummings, Bldg. 459, Ext. 2077; Kay Dellimore, Bldg. 185, Ext. 2873; Elizabeth Pergan, Bldg. 179A, Ext. 2937; Jean Ramirez, Bldg. 197C, Ext. 2119; Maryann Reynolds, Bldg. 703, Ext. 5241; and Sharon Smith, Bldg. 510A, Ext. 3995.

Tickets may also be purchased at the door.

Inside Info

Senior Physicist **Laurence Littenberg**, Physics Department, was honored in December 1990 by being elected a Fellow of the American Physical Society. He was cited "For his outstanding contributions to high energy physics, especially to the study of rare K decays."

Each year, a few outstanding APS members are elected to the status of Fellowship — those who have contributed to the advancement of physics by independent, original research, or who have rendered some other special service to the cause of the sciences.

At BNL, Littenberg is co-spokesman for Experiment 787 at the Alternating Gradient Synchrotron. The researchers are seeking the rare decay of a positive kaon (K) into a positive pion, a neutrino and an antineutrino.

Service Awards

The following employees celebrated their BNL service anniversaries during the month of December 1990:

Thirty-Five Years

Rudolph M. Funn.....Staff Services
Richard C. Larsen.....Physics

Thirty Years

Wilbur V. Bailey.....Staff Services
Paul Bezler.....Nuc. Energy
Reginald Ellington.....Plant Eng.
Robert C. Kehl.....Accel. Dev.
William A. Love.....Physics
John C. Rothmann Jr......Nuc. Energy
Frances M. Scheffel.....Nuc. Energy

Twenty-Five Years

Walter E. Jahnig.....Saf.& Env. Prot.
Robert Kowalski.....AGS

Ten Years

Eugene M. Cummings.....Plant Eng.
David R. Dougherty.....Nuc. Energy
Vasilis Fthenakis.....App. Science
Michael W. Langhorn.....AGS
Bom Soon Lee.....Nuc. Energy
George M. Leskody.....Plant Eng.
J. Bruce Medaris Jr......Plant Eng.

Arrivals & Departures

Arrivals

Yanjun Ma.....NSLS
Subhash Sengupta.....S&EP

Departures

None

Speakers Bureau

Robin Apel, Physics; **Betty Jellett**, Chemistry; **Ruth Kempf**, DNE; **Victoria McLane**, DNE; **Chu Ng**, Physics: BNL Minority Apprenticeship Research Program Students, "Careers at BNL," July 24, August 6.

Meyer Steinberg, DAS: Rotary Club of Centereach, "Energy and the Environment," August 14.

Avril Woodhead, TID: Stony Brook University Round Table, "Medical Ethics," September and October.

R. Christian Anderson, Ret.: Island Trees Elementary School, "The Importance of Energy Research," September 27.

Anne Baittinger, DO; **Robert Howe**, S&EP; **Gail Penny**, DOE: Yaphank Taxpayer's Civic Association, "BNL and the Environment," October 3.

Meyer Steinberg, DAS: Rotary Club of Smithtown, "How to Solve the World's Problems by Turning Gold Into Lead," October 10.

William Marcuse, DO: Electromagnetic System Division of Raytheon, "Technology Transfer," October 16.

Scott Willenbrock, Phys.: Custer Institute, "Neutrino Astronomy," October 20.

William Marcuse, DO: New York Society of Inventors, Long Island Chapter, "X-Ray Lithography," October 31.

Donald Gardner, Physics: Center Moriches High School, "Careers in Engineering," November 13.

Anne Baittinger, DO; **Robert Howe**, S&EP: Senior Citizens of Ridge, "BNL and the Environment," November 14.

R. Christian Anderson, Ret.: Institute of Environmental Sciences, "BNL General Update," November 15.

Anne Baittinger, DO: Middle Island Rotary Club, "BNL and the Environment," November 19.

Swapna Mukherji, PE: Career Awareness Day at Half Hollow Hills High School, "Careers in Engineering," December 4.

Anne Baittinger, DO; **Robert Howe**, S&EP; **Gail Penny**, DOE: East Yaphank Civic Association, "BNL and the Environment," December 6.

Eleanor Grist, Biology; **Avril Woodhead**, TID: 26th Annual Shelter Island Science Fair, Science Fair Judges, December 7.

Note to Employees:

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

Wanna Race?

Roger Stoutenburgh

If so, don't count on beating these guys — they are members of the BNL Swim Team, which for the second year in a row finished first among small teams in Empire State Masters Swimming competition during the 1989-90 indoor season.

The 1989-90 winning team includes: (from left) Wlodek Guryn, who individually placed second among men age 35-39 for the year; Ron Wittlock, who won the men's 55-59 individual category for the year; Peter Heotis, who was first among men 35-39; Roger Klaffky; and Paul Michael.

In 1990 as well, Ron Wittlock was named to the U.S. national list of Top Ten masters swimmers in his age group for his times in the 100-yard, 200-yard, 50-meter, 100-meter and 200-meter backstroke.

Bowling

Red/Green League

R. Eggert had a 223/212, S. Dimaiuta 223/205, H. Arnesen 222/204/606 scratch series, F. Griswold 213/208/611 scratch, N. Carter 211, F. Hohmann 210/205, R. Mulderig 203, T. Prach 203. The Pinball Wizards are the first-half winners.

White League

Ken Riker had a 226/200, Dick Adams 200, Maryann Reynolds 191, Annamarie Spira 182.

Purple League

John McCarthy had a 211, Sharon Smith 206, Pat Manzella 190.

Volleyball

Standings as of January 9

Open League		League I	
Phoenix	27-9	Cannonballs	25-5
GTEAM	23-10	Upfagrabs	22-8
Me & the Boys	21-12	Rude Dogs	16-14
Magnum	21-12	Dinkers	15-15
Dig It	16-20	Network News	11-19
Penetrating Vollies	10-23	Upsetters	1-29
Jet Setters	3-33		

League II		League III	
Fossils	27-3	High Volley'em	15-9
Netwits	23-7	Nutcrackers	15-12
Nuts & Bolts	20-10	NoKaOe	14-13
Pteropods	17-13	Good Timers	14-13
Upton Ups	11-19	Renegades	13-14
Slammers	10-20	Undertakers	10-14
Chunga's Revenge	9-21	Sourcerers	9-15
Aces	3-27		

Note to Diners

The Cafeteria will operate only the snack bar service from 9 a.m. to 2 p.m. on Monday, January 21, due to the Martin Luther King Jr. holiday.

Center Club hours on Sunday, January 20, and Monday, January 21, will be 5 p.m. to 8 p.m.

Cafeteria Menu

Monday, January 21
Martin Luther King Jr. Day
Snack bar service - 9 a.m. to 2 p.m.

Tuesday, January 22	
Soup: Beef Calcutta	.75/.95
Entree: Chef's choice	3.10
Entree: Baked vegetable lasagna	3.10
Fitness: Fish Italiano	3.10
Carvery: Hot roast beef sandwich	2.85
Grill: Grilled Monte Cristo	2.85
Wednesday, January 23	
Soup: Homestyle chicken rice	.75/.95
Entree:Baked eggplant Parmesan	3.10
Entree: Spicy sausage jambalaya	3.10
Fitness: Chef's choice	3.10
Carvery: Hot Black Forest ham sandwich	2.85
Grill: Double cheeseburger	2.35
Thursday, January 24	
Soup: Cream of broccoli	.75/.95
Entree: Baked stuffed pepper	3.10
Entree: Pot roast of beef	3.10
Fitness: Szechuan chicken	3.10
Carvery: Hot corned beef sandwich	2.85
Grill: Super chili burger	2.00
Friday, January 25	
Soup: Boston fish chowder	.75/.95
Entree: Baked macaroni & cheese	3.10
Entree: Spaghetti w/red clam sauce	3.10
Fitness: Chef's choice	3.10
Carvery: Hot turkey sandwich	2.85
Grill: Tuna melt	2.35
Breakfast w/coffee, 7:30 - 10:30 a.m.	2.65

Mon.: 2 eggs, bacon & pancakes
Tue.: Western omelet, French fries, toast
Wed.: Spanish omelet, home fries, toast
Thu.: 2 eggs, bacon, cheese on croissant, fries
Fri.: French toast, 2 eggs, bacon, home fries

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position. Consideration is given to candidates in the following order: (1) present employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present employees within the Laboratory; and (3) outside applicants. In keeping with the Affirmative Action plan, selections are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Personnel, and, second, for general recruiting under open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people.

Except when operational needs require otherwise, positions will be open for one week after publication.

For more information, contact the Employment Manager, Ext. 2882.

The vacancies listed below have been exempted by the Director's Office from the current freeze on open requisitions.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

MK 8630. DEPUTY DIVISION HEAD - Requires an advanced degree in an environmental, safety or health field, extensive knowledge and substantial management experience in the ES&H environment. Will assist in the overall planning, coordination, direction and management of the Division. Will aid in developing and administering policies, practices and procedures to achieve the assigned goals and objectives of the Division. May be responsible for directing an assigned aspect of the Division and serve as Acting Division Head when required. Safety and Environmental Protection Division.

DD 8662. ENGINEERING POSITION - Requires BS in science or engineering and several years' experience in industrial safety programs. Will assist project management in design criteria review, technical support, review of safety analysis reports, safety review of equipment development and cryogenic safety. Will assist in construction safety program implementation and coordinate interdisciplinary reviews of projects. CSP certification and/or PE license desirable. Safety and Environmental Protection Division.

DD 8664. TECHNICAL POSITION - Requires BS in chemistry, engineering or related field, or equivalent experience. Responsibilities will include a wide range of duties with regard to operations conducted at the Hazardous Waste Management site. Duties include on-site transport, handling and packaging of chemicals and radioactive materials, operation of light and intermediate range machinery, maintenance of protective equipment and record keeping. Safety and Environmental Protection Division.

NS 0618. ENGINEERING POSITION - Requires BS degree in engineering and five years' nuclear reactor experience in compliance or NRC licensing activities. Excellent communication skills and the ability to work with a wide variety of technical personnel is essential. Ability to obtain DOE "Q" clearance is required. Reactor Division.

Motor Vehicles & Supplies

90 TOYOTA TERCEL - h/b, 5-spd., 2.5k, ac, am/fm cass., estate sale, $6,500. 924-3183.

89 T-BIRD - full power, 32k mi., 100k mi. warranty, excel. cond., $10,500. Jeff, Ext. 5262.

86 SUBARU GL - 2-dr. h/b, am/fm cass., power pkg., sunroof, only 26k mi., excel. cond., $5,400. Devinder, Ext. 4985 or 331-8459.

86 BUICK CENTURY - 4-dr., 6-cyl., 75k mi., a/t, ac, loaded, mint, best offer; '79 Datsun 210 wagon, 72k mi., a/t, good cond., $600. 821-6321.

85 SUBARU XT - fwd, 5-spd., ac, telescopic steering wheel, sunroof, am/fm radio, light blue, good cond., 757-1973.

85 FORD LTD WAGON - 6-cyl., ac, a/t, excel. cond., $4,000. Barbara, Ext. 2456.

85 CORVETTE - a/t, p/b, 73k mi., clean, sound, extras, $11,500 neg. Philly, 475-4982.

84 PLYMOUTH RELIANT - s/w, good cond., asking $1,200; '84 Dodge Aries, runs well, asking, $1,000. Yasuo, Ext. 2256.

84 PONTIAC FIERO - a/t, ac, immac., excel. cond., maintained well, $2,300. Warren, Ext. 4939 or 924-7552.

84 NISSAN STANZA - recently tuned, new cylinder head, sunroof, nice body, $2,700 or best offer. Elhaj, Ext. 3449.

83 CHEVETTE - a/t, ac, am/fm cass., new brakes, water pump & timing belt, v.g. cond., $1,550. Ralph, Ext. 4171.

81 KAWASAKI 440 LTD - 13k mi., new battery, tires, chain sprockets, rear brake, sissy bar, v.g. cond., must sell, moving, $500 neg. 474-5715.

80 BUICK REGAL - 2-dr., maintained well. Ext. 3076.

79 HONDA ACCORD - h/b, high mi., running cond., $450. Ext. 5177 or 689-5152.

79 MERCURY GRAND MARQUIS - 2-dr., loaded, 72k mi., excel. cond. in/out, $1,900. Ron, Ext. 2525 or 286-0353.

72 DODGE VAN - set up for camping, many new parts, rebuilt eng., ask. $1,000. Don, Ext. 2694.

64 COVAIR MONZA - 2-dr. coupe, solid, running, easy restoration, $250. Kevin, 281-8031.

TIRES - 2, 205x15, all-season radials, almost new, installed, balanced, valves, $60/both. Fred, Ext. 4798.

TIRE - Goodyear AT-Tracker, 10-15 LT (31-10.5-15 LT), new, $50; set of 4 wire wheel hubcaps for GM 14" wheels, new, $100. Tony, 269-9510.

Boats & Marine Supplies

19' INVADER - 1977, i/o, 4-cyl., glass, best offer. Todd, 929-4753 eves.

13' BOMBARD - inflatable, 1987, 30-h.p. Mariner, trailer, all access., excel. cond., great scuba diving, must sell, moving, asking $3,500. 474-5715.

13' CANOE - ready to go, $150. Don, Ext. 2694.

Furnishings & Appliances

CABINET - for stereo, VCR, etc., $20; goose neck desk lamp, $10; electric heater, $20; wicker chair, $100. Kathy, 744-2203.

DESK - wood, buffet w/desk, $50/ea.; large buffet, $30; 1925 player piano, needs work, $100; illuminated beer signs & clocks. 751-2655.

DINING ROOM SET - Broyhill, 48" round table w/2 leaves & pads, 4 chairs, china cabinet, $200. 286-1097.

DINING ROOM SET - maple, oval table w/3 leaves, 2 arm & 4 side chairs, $500; china closet, $375, $800/both. Arleen, Ext. 4519 or 924-6051.

MICROWAVE - Magic Chef, very large, excel. cond., $80; Simplicity ride-on mower, electric start, bag attach., like new. Ext. 4120 or 689-7963.

REFRIGERATOR - GE, hardly used, orig. $170, sell for $100. 821-6321.

REFRIGERATOR - 11 cu. ft., 2 doors, white, 1½ yr. old, excel. cond., $150. 944-5149.

REFRIGERATOR - 18 cu. ft., freezer on bottom, frost-free, $75; pasta maker, w/ravioli attach., manual operation, $20. Ext. 5177 or 689-5152.

RUGS - white/gray, 12'x12', asking $55; dusty rose, 15'x15', asking $50; round table w/4 chairs, glass, asking $65. 474-3799.

SOFA - loveseat, chair, large, brown beige country print, $400. Judy, Ext. 7121.

WALL LAMPS - 2, antique, brass, matching, $30; baby walker, free. Bente, 474-5939.

WATER BED - waveless, queen, oak frame & headboard, like new, $300. Ext. 7918 or 744-3068.

Tools, House & Garden

COAL HOPPER - for Golden Flame stove, used once, $50. 689-9234.

HEATER - portable, electric, oil filled, thermostat controlled, 600-1,500 watts, like new, orig. $40, sell for $25. 924-3236.

KEROSENE HEATER - Kerosun Omni 105, $65. Jeff, Ext. 5262.

KEROSENE HEATER - Omni, 18,000 Btu, $75; storm door, 30", $100; stall shower, 36", terrazzo base, glass door, $225. Tony, 269-9510.

STORM DOORS - unused, full glass w/screen, 35½"-36⅜"; crossbuck w/screen, 29½"-30⅜", at cost. Janet, Ext. 4049 or 744-8087.

WOOD - seasoned, delivered locally, $150/cord. 653-5473.

WOOD STOVE - Vermont Castings, Vigilant w/coal insert, $650. Ext. 7130 or 929-8323.

Sports, Hobbies & Pets

BMX BIKES - GT Master freestyle, Diamond Back Harry Leary Turbo w/3-piece crank, $150/ea.; K2 skis, 170cm, w/poles, $65. Scott, 722-4821.

CAMERA - Minolta automatic, 35mm, 38-90 micro lens, brand-new, in box, w/case, battery, orig. $239, sell for $165 firm. 474-3799.

DRYSUIT - Poseidon, man's large, like new, must sell, moving, orig. $1,500, asking $500. 474-5715.

EXERCISE BIKE - $40. Arleen, Ext. 4519.

EXERCISE CLIMBING MACHINE - Precor 718e, almost new, solid construction, LCD display, orig. $300, sell for $125. Richard, Ext. 4155.

FINCHES - young, red-eyed finches & orange-ear finches. T. Kelly, 744-3069.

GOLF BAG - full tubes w/cover, brown vinyl, orig. $85, sell for $40. Tony Montemagno, Ext. 2050.

HAM TRANSCEIVER - Kenwood TS520, $350; misc. electronic test equipment; Regency Act W10 scanner. Don, Ext. 2694.

MOUNTAIN BIKE - 18-spd., 26", $90; camping equip., Coleman propane stove, propane lantern, air mattresses, more. Arnim, Ext. 5240.

POOL TABLE - 4'x8', slate, complete, good bed, needs cushions, $100. Ken, Ext. 5110.

POTTERY WHEEL - foot operated, cement table, large. 289-7902.

ANTIQUE SLED - 2-person, horse drawn, good cond., needs restoring, $150. Tom, Ext. 4507 or 878-1060.

WEIGHTS - iron, two 50 lb. plates, $35; two 25 lb. plates, $20. Jeff, Ext. 5262.

Audio, Video & Computers

MONITOR - color EGA & card, $225; Koss headphones, wireless type, $50. Jim, Ext. 4584.

POWER AMPS - Tecknics #SE-A5MK2, 150 watts per channel, new, never opened, list $1,200, sell for $650 or best offer. Ext. 3992 or 331-1003.

SPEAKERS - Cerwin Vagas, 3-way, 10" woofer, brand-new, in box, guaranteed, orig. $395, sell for $300/pair. 474-3799.

COLOR TV - Zenith, 19", $50. Ext. 3016 or 3829.

TV - 41", Pro Screen, NEC stereo, excel. cond., $1,700. Pete, 727-7483.

Miscellaneous

BABY'S CRIB - $45; infant's car seat, $10; hop-skip-jumper, $10; musical mobile, $5; snowsuit, 9 mo., $10; breast pump, $10. Bente, 474-5939.

MINK STOLE - perfect cond., $100; mink collar, $20; mink scarf, $40. Tom, Ext. 4507 or 878-1060.

SEA SHELLS - 9, $50/all; 2 sea fans, $10. Ext. 2534.

WATER-PIK - w/electric toothbrush, never used, orig. $70, asking $55 or best offer; electric space heater, new, $20. S. Spark, Ext. 4111.

Free

COLOR TV - RCA console, hardwood cabinet, excel. cond., needs some adjustment. 286-1956 before 4 p.m.

PUPPY - female, shepherd mix, about 3 mo. old, found in Manorville, 12/21, housebroken, shots, sweet personality. Maria, Ext. 3228 or 924-3756.

RECLINER - green vinyl and blue cover, very good. Vasilis, Ext. 2830.

TV - black & white, needs work, also vacuum cleaner. Susan, Ext. 2184.

Lost & Found

FOUND - earring, on Parcourse, Wed. or Thurs., Jan. 9 or 10. John Mazzeo, Ext. 7668.

Car Pools

PLAINVIEW - Exit 43 LIE, 4th driver needed. Elliott, Ext. 2495.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed, sex or national origin of the applicant.

For Rent

EAST SETAUKET - 2 large, sunny, rm., ground floor, 7 min. to SUSB, sep. ent., all util., cable, use of w/d, single, nonsmoker, avail. Feb., $600/mo. Valerie, 751-6091.

HOLTSVILLE - 1-bdrm. apt. w/fp, kitchen, bathroom, priv. ent., 15 min. from Lab., no pets, nonsmoker, $625/mo., 1 mo. sec. 472-3254.

MASTIC BEACH - all new 1-bdrm. apt., full bath, full kit., priv. ent., yard, driveway, for single, $550/mo. pays all. Anthony, 281-2513.

MEDFORD - 3-bdrm. condo, 1½ baths, w/w, all appl., cac, attic storage, walk to clubhouse, indoor/outdoor pools, 9-hole golf, tennis. Ext. 3921 or 689-6117 after 5 p.m.

MIDDLE ISLAND - 2-bdrm. condo, 1½ baths, 4 yr. old., furn., all appl., 5 min. to Lab., $875/mo. + util. 751-8351.

MILLER PLACE - barn apt., 5 rooms, fp, deck, panoramic view of Mt. Sinai harbor, priv., semi furn., near beach, no pets, avail. Feb. 1, $800/mo. + util. Sue, 928-6368.

PORT JEFFERSON STATION - 1-bdrm. apt., l/r, eik, quiet, residential, priv. ent., no pets, single, $500/mo. incl. all. 757-1973.

SELDEN - 1-bdrm. apt., 1st fl., l/r, eik, priv. ent., avail. immed., $650/mo. incl. util., no pets. Walt, 698-0576 or 698-8360.

SHIRLEY - 3-bdrm. house, 5 min. from Lab., fenced yard, $900/mo., avail. Feb. 1. Bertrand, Ext. 3166, 281-7808 or 718-278-3349.

SOUND BEACH - 2-bdrm. apt., bath, l/r, eik, close to shopping & beach, $675/mo. + elec. Ext. 2671 or 744-3284 after 4 p.m.

WADING RIVER - 2 bdrm., 1 bath, priv. ent., priv. beach, nice area, 10 min. to Lab., $625/mo. John B., Ext. 4028 or 929-1029.

YAPHANK - 4-bdrm. restored Victorian, patio, 5 mi. from Lab., large treed property, avail. now. 924-7106 days & weekends, or 924-3066 eves.

YAPHANK - 2-bdrm. house on wooded 2 acres, 10 min. to Lab., $750/mo. + util. John, Ext. 3675 or 924-3528 eves.

CLAREMONT, NH - 2-bdrm. condo, 40 mi. to Killington, Okemo, Magic Mt., Mt. Sunappe, $300/wk., $225/wknd. Frank, Ext. 7749 or 758-7913.

CATSKILLS, NY - 3-bdrm. chalet w/sleeping loft, fully furn., near Hunter & Windham Mts., great for skiing. Kay, Ext. 4501 or Bea, Ext. 3642.

SPRING HILL, FL - 2-bdrm. house, 2 bath, Deltona community, Gulf coast, rent montly or longer, only $400/mo. + util., furn. Ext. 4530 or 261-2719.

KEY WEST, FL - April 20-27, sleeps 4, on water, terrace, sep. bdrm., kit., w/d, jacuzzi, VCR, pool, gym, priv. beach, boat/water sport rental, walk to town, Tiki Bar. Sheryl, Ext. 5384.

ST. THOMAS - week of April 27 to May 4, 2 adjoining units at Bluebeard's Castle, each w/bath, mini kit., TV, ideal for 2 couples or family of four. John, 924-4262.

For Sale

BELLE TERRE - residential bldg. lot, village police, beach, children's programs. 928-1020.

CENTEREACH - 4-bdrm. hi-ranch, l/r, d/r, eik, 2 full baths, large fam. rm. w/fp, deck, pool, large fenced yard, $135,000. 698-8514.

CORAM - Strathmore East, 4-bdrm. ranch, 2 baths, cath. l/r, 2-car gar., gas heat, fenced corner lot, $120,000. Ext. 3791 or 928-7154 after 7 p.m.

MIDDLE ISLAND - 3-bdrm. ranch, eik, den w/fp, d/r, l/r, 1½ baths, screened porch, patio, full bsmt., wooded ½ acre, $155,000. 924-6051.

MIDDLE ISLAND - Lake Pointe, 2-bdrm. l/r-d/r area, cac, gas heat, all appl., w/d, wood deck off master bdrm., pool, tennis, clubhouse, bsmt., will pay ½ closing cost, ask. $69,000. Bob, 924-7316.

PORT JEFFERSON STATION - 3-bdrm., 4-yr.-old Colonial, l/r, d/r, den, eik, 1½ baths, gar., vinyl siding, fenced, ig sprinklers, gas util., sewers, $137,000. Ext. 4985 or 331-8459.

RIDGE - 2-bdrm. house in adult community Leisure Knoll, ac, newly carpeted & decorated, walking distance to rec. hall, pool, tennis, lots of extras, 5 mi. to Lab, $135,000. 744-3366.

SELDEN - 3-bdrm. L-shaped ranch, l/r, d/r, den, gar., new heat system, ac, w/w, agp, shed, $119,000. Ben, 698-0057.

SHOREHAM - 3-4 bdrm. contemp. ranch, ½ acre, eik, 1¾ baths, l/rm d/r, large workshop/storage rm., ig sprinkler, 5 appl., 5 min. to Lab., $149,500. Ext. 2833 or 744-7172.

HUBBARDTON, VT - 38 deeded acres, on town-maintained road w/power, phone, 30 min. to Killington ski area, views of Lake Bomoseen, ask. $35,500. Tom, Ext. 2823.

PALM BAY, FL - near Melbourne, 2-bdrm. condo, 2 full baths, l/r, d/r, kit., w/d, pvt. screened patio, completely furn., heated pool, near beach, malls, $65,000. 698-8514 after 5 p.m.

On-Site Services

FRIENDLY GULF SERVICE STATION - is doing inspections w/*new* machine at *old* price, $17. Call for appt., Ext. 4034.

Wanted

BIRD CAGE - large. 475-4199.

CAR COVER - 13', for small car. John, Ext. 7671.

ELECTRONIC PIANO - Yamaha, Clavinova or Roland. 689-7326.

GAY MEN & WOMEN - feeling isolated? join us at our next on-site meeting, Fri. Jan. 25, call for details. 758-0930 after 5:30 p.m.

HOUSEMATE - to share 2-bdrm condo, 1½ baths, partially furn., 5 min. to Lab., $450/mo. + ½ util. 751-8351.

MOTHERS & TODDLERS - to meet every Wed., 9:30-11:30 a.m., Rec. Bldg., all welcome, esp. w/young children. Terry George, Ext. 3009.

PEOPLE TO RAFT GAULEY RIVER, W.VA. - mid-Sept., anyone interested, leave name & ext. Doris, Ext. 4669.

TEDDY RUXPIN CASSETTES - full size, that co. no longer makes, for 2-yr.-old. Kelly, Ext. 2552.

TUBED AUDIO COMPONENTS - working or not, by Marantz, Macintosh, REL, ARC, also Collins S-line ham gear. Jim, Ext. 4584.

TOYS - used. Noemi, Ext. 3180.

VIEWERS - *The New Age*, 2-part video in Snyder Conf. Rm., AGS, Bldg. 911A, Jan. 22, noon. Pete, Ext. 3297.

In Appreciation

I would like to thank all our friends for their sympathy, support and caring on the loss of my husband Bob. — Marilyn Zane

Ads left out of this issue due to lack of space need not be resubmitted to appear in the next issue.