

## Lab Successfully Completes ISM Verification

On May 14, a team of 20 DOE and contractor personnel wrapped up a successful two-week verification of the Lab's Integrated Safety Management System, completing a significant step under BSA's contract with DOE.

Integrated Safety Management (ISM) is a DOE term to describe processes ensuring that the proper environment, safety & health considerations are systematically integrated into the way work is done.

The BSA contract required that DOE formally verify BNL's approach to ISM by the end of this fiscal year.

*The results were positive for BNL. No "deficiencies" were noted.*

Preceded by a week-long planning visit in April, the verification visit included review of more than 1,000 BNL documents and procedures, and nearly 500 interviews with BNL managers, supervisors and staff.

The results were positive for BNL. No "deficiencies" were noted, and the three areas termed "opportunities for improvement," had already been identified by the Lab's own self-assessment earlier this year. The review team will now recommend approval of BNL's safety management approach to Robert San Martin, Manager of DOE's Chicago Operations Office.

According to Ken Brog, Assistant Laboratory Director for Environment, Safety, Health & Quality, in the history of such reviews within DOE, only two other labs have been approved with no deficiencies the first time around: the Princeton Plasma Physics Laboratory and the Thomas Jefferson National Accelerator Facility. Neither is a multiprogram laboratory.

"Dr. Marburger has a vision of BNL being recognized as the best-managed laboratory in the DOE complex," Brog said. "In pursuit of this vision, he and his management team are implementing several new management systems that, collectively, constitute an integrated approach to laboratory management. ISM is one of those key management systems, and we are implementing it because it is good business practice, not just because it is a requirement in our contract with DOE."

Brog and Larry Kimmel, the Standards Based Management Systems development and ISM program man-



Kenneth Brog (left) and Larry Kimmel spearheaded ISM implementation at

Roger Stoutenburgh

ager, spearheaded the effort to implement ISM at BNL after successfully implementing a similar system at Pacific Northwest National Laboratory. "BNL was unique in that the schedule for ISM verification was in-

## RHIC Update: Circulating Beam

"It's like learning to drive at the Indy 500." That's how Derek Lowenstein, Chairman of the Collider-Accelerator Department, described ongoing attempts to get beams of gold ions circulating for extended lifetimes in the two rings of the Relativistic Heavy Ion Collider (RHIC). The RHIC team has been working around the clock to steer beams around the two tracks of the accelerator and ramp them up for the machine's first heavy ion collisions, which could come at any time, the scientists say.

There has been significant progress, despite a few unforeseen obstacles, since the last RHIC update (see Brookhaven Bulletin of April 14, 2000). Just as that story went to press, a problem developed in the power lead to one of the superconducting corrector magnets in RHIC's blue ring.

To fix this, one-sixth of both the blue and yellow rings needed to be warmed up to room temperature. After the repair was successfully

*(continued on page 2)*

credibly fast," said Brog. "The fact that BNL was successful without a single deficiency is a fantastic tribute to the commitment of BNL management and the skill and perseverance of our staff."

— Peter Genzer

## New Technologies to Use Dredged Harbor Sediment

The Port of New York and New Jersey is the busiest harbor on the eastern seaboard and the third largest port in the entire country. That status, and the associated economic advantages to the metropolitan area, including 180,000 related jobs, could change in a few years if the harbor is not successfully dredged.

"New York and New Jersey are involved in a life-and-death struggle to stay in business," said Keith Jones, Environmental Sciences Department. "Without dredging, the next generation of big container ships will move on to Baltimore, Halifax or some other port." On average, four million cubic yards of sediment, enough to fill both World Trade Center

towers, are dredged each year to make efficient shipping operations possible.

The harbor sediments are widely contaminated by metals and by organic pollutants that include polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and dioxins, all of which

*(continued on page 2)*

In this composite photo, New York/New Jersey Harbor is the real-world laboratory for BNL's sediment decontamination project. Familiar landmarks are seen with the center inset giving an example of commercial activities in the Port. Upper left: Keith Jones, BNL, on board a U.S. Army Corps of Engineers (ACE) boat docking at the Army's Caven Point Facility in New Jersey. Upper right: Looking at sites to get dredged material for tests are (from left) Tim Lafontaine, U.S. ACE; Huan Feng, BNL; Eric Stern, EPA; and Jones.





# Using Dredged Harbor Sediments Productively

(cont'd.)

can harm the environment. This has led to severe restrictions on ocean disposal of a major fraction of the dredged material, with most of the material kept on land so that a variety of disposal options must be employed. Decontamination of the sediments followed by beneficial use of the treated material is one component of a comprehensive plan that is being devel-

*“Ideally, the treatment technologies will generate marketable products that can help defray the costs.”*

oped by federal and state agencies, the Port Authority of N.Y. and N.J., and public groups.

Since 1994, BNL has been collaborating on a decontamination demonstration program for the port with the U.S. Environmental Protection Agency Region 2 (EPA), the U.S. Army Corps of Engineers New York District and Rensselaer Polytechnic Institute. The project extends from basic research on contaminant chemistry and transport, to actual testing and large-scale implementation of sediment processing.

Jones points out that sediment-cleaning options must work on the different types of contaminants found in the harbor and that they must also be environmentally safe and cost-

*“What is learned and applied to the NY/NJ harbor can potentially be used anywhere that contaminated sediments are a problem.”*

effective. “Ideally, the treatment technologies will generate marketable products that can help defray the costs and result in the beneficial use of the material,” he said.

In 1998, BNL and EPA awarded contracts to build and operate two large-scale treatment facilities for processing dredged material from the port.

Funded through the federal Water Resources Development Act, the contracts were awarded to BioGenesis Enterprises of Milwaukee, Wisconsin, and the Institute of Gas Technology of Des Plaines, Illinois. The two techniques being demonstrated are designed to destroy, remove or immobilize organic and metal contaminants and leave clean material that can be used to make a manufactured soil or a construction-grade cement.

BioGenesis has teamed with Roy F. Weston, Inc., to implement a sediment-washing technique. This tech-



Roger Stoutenburgh

**At the Festival of Science and the Environment held at BNL last October, Keith Jones (right) showed visitors samples of semi-treated and treated NY/NJ Harbor sludge and some of the products that had been manufactured from it.**

nology is currently being installed on a site in Kearny, N.J. When operational next year, the facility will be capable of processing up to 250,000 cubic yards annually.

The Institute of Gas Technology will use a natural gas-fired kiln operating at high temperature to destroy the organic contaminants and bind the metals into the matrix of the construction-grade cement that is the final product. Construction of the kiln is now complete and it is awaiting installation on a site in Linden, N.J. Initially, the facility will be able to process 30,000 cubic yards a year. Operations are scheduled to begin at the end of 2000.

## Progress

“We have moved into a highly cooperative relationship with the state of New Jersey,” said Jones. New Jersey Congressmen Frank Pallone and Rodney Frelinghuysen have been instrumental in getting funds for the demonstrations. Recently, the EPA/BNL team began a cooperative relationship with the New Jersey Office of

Maritime Resources, who will share expenses through funding from a New Jersey Environmental Bond Act.

Groups in New York are also interested in the technologies for clean up of several waterways around New York City. For example, the decontamination approach could help find disposal options for contaminated sediments taken from Long Island Sound.

## Wider Horizons

According to EPA's Eric Stern, manager of the decontamination demonstration, “What is learned and applied to the NY/NJ harbor can potentially be used anywhere that contaminated sediments are a problem. This includes locations on other continents such as the Port and Lagoon of Venice in Italy.”

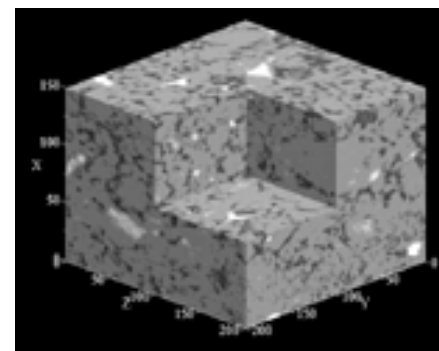
In February, the EPA group, including Stern, Jones and Nicholas Clesceri from Rensselaer, traveled to Venice to participate in a workshop devoted to considering application of decontamination technologies there. Jones said, “The Venetians have done outstanding work on characterization

of the sediments and are now looking at best ways to proceed toward a comprehensive solution to their port problem. We are now working together.”

While in Venice, Jones discussed some of the scientific aspects of the project back home, such as the BNL-developed visualization of sediment data collected in several harbor studies. Hong Ma, Environmental Sciences Department (ESD), was instrumental in starting this work, and Mike McGuigan, Gordon Smith and John Spiletic, Information Technology Division, have furthered the computational aspects of the data visualization.

Jones and his ESD colleague Huan Feng both work on another related project — characterization of the sedi-

*“We need a better understanding of the chemistry that governs the way organic and inorganic contaminant compounds interact with the sediments.”*



**Three-dimensional image of the grain structure of sediments taken from Newtown Creek, which lies between Brooklyn and Queens, using computed microtomography at the NSLS. The lightest areas indicate the open pore structure and the darkest areas are the solid material. The results can be used to model the microstructure of the sediments and as the basis of theoretical calculations of fluid and contaminant transport.**

size level, using the analytical capabilities of the National Synchrotron Light Source. As Jones explained, “We need to have a better understanding of the chemistry that governs the way organic and inorganic contaminant compounds interact with the sediments so that we can understand their transport in the sediments and find improved chemical means for removing them from the dredged material.”

Others at BNL who have or are now working on the dredging program are: Lore Barbier, ESD; Joe Carelli, Non-proliferation & National Security Department; Rob Klein, now at Yale; Michael Rowe, now retired; and Rick Wilke, ESD. — Mona S. Rowe



**Venice, like NY/NJ Harbor and many other harbors in the U.S. and worldwide, must dredge its waters to remain a viable port.**



## Debate: Health Effects of Low-Level Radiation

A debate on the health effects of low-level radiation will be held on Monday, June 5, at 7 p.m. in Berkner Hall, sponsored by the Community Advisory Council (CAC), a diverse group of community organizations that advises Laboratory Director John Marburger on issues of interest to the community.

The four speakers will be: Bernard Cohen, University of Pittsburgh; Diane Quigley, Clark University, Massachusetts; Otto Raabe, University of California, Davis; and Steven Wing, University of North Carolina. The CAC has invited these internationally known experts to participate in the debate and answer questions that the community may have about any health impacts of low-level radiation. Everyone is encouraged to attend.

## BNL Software Store Will Have New Hours

The Software and Documentation Store run by the Information Technology Division will soon have new hours. Effective Thursday, June 1, the store will be open for new orders (including phone orders) and pickup from 1 to 5 p.m. only. All orders placed via e-mail, interoffice and Web requisitions will be accepted and processed as usual.

## Equipment Demos

**Omnipoint, Today, Berkner Hall  
Selectron, Zober, 5/31**

On Wednesday, May 31, in Berkner Hall, 10:30 a.m.-2 p.m., W&H Associates will display Selectron Management Corporation's optical engineering products and technology and equipment from Zober Industries, Inc.

Selectron capabilities include producing high-end precision optical components; coatings from ultraviolet to far infrared, using nonradioactive materials applicable to most substrates, and more.

Zober offers complete circuit board assembly services, including double-sided PCB assembly, laser topography and x-ray inspection, and more.

For more information, call Ray Hartzog, (856) 753-8200.

## Retirement Counseling

A TIAA-CREF representative will visit the Lab on Tuesday and Wednesday, June 20 and 21, to answer BNL employees' questions regarding the TIAA-CREF retirement plan, in one-on-one counseling sessions.

Questions employees might ask:

- What are the differences between TIAA and CREF?
- How should I allocate my money between TIAA and CREF?
- What options and flexibilities do I have for my existing dollars with TIAA-CREF?
- What are my retirement options?

A limited number of 45-minute appointments are available; to arrange one, call Duane Walden, 800 842-2733, Ext. 7289 (not on-site Ext. 7289).



RHIC Update (cont'd)

completed and the rings were cooled again, commissioning with beam resumed on April 28. On May 7, beam was successfully circulated in the yellow ring.

“We now have gold beam that survives long enough at injection energy to fill both rings and start accelerating beams to higher energies,” said Thomas Roser, head of the Accelerator Division.

In fact, on May 14, the scientists successfully accelerated beam in the blue ring to just below — and on May 17, beyond — the so-called transition energy, where the velocity of the ions balances the tendency of the ions on the outer edge of the beam to take longer to make it around the circular track. RHIC is the first superconducting, slow-ramping accelerator that needs to cross this energy barrier, where the particle bunches become unstable and acceleration can cease.

Once the ions pass transition energy, about 20 billion electron volts (GeV) per nucleon in the case of RHIC, they can be ramped up to 70 GeV per nucleon, the energy at which scientists will attempt first collisions. At press time, beam in the blue ring had been accelerated to nearly 60 GeV with a lifetime of more than three hours.

The lessons learned by crossing transition energy and accelerating beam in the blue ring are now being applied to the yellow ring. “Hopefully, before the end of May, beam will be circulating in both rings at the same time, and the techniques to bring the beams into collision can be commissioned,” Roser said.

— Karen McNulty

Plan Leisure Travel at Omega Travel Office

Omega “Leisure” Travel Office, located just a step from the BERA Store in Berkner Hall (see photo), is open for business Monday through Friday, from 8:30 a.m. to 3 p.m. At this full-service agency, Carol Mancuso will help you find the best available fares on everything: airline tickets, cruises, Caribbean and Disney packages, rail passes, hotels, car rentals — and much more. Call Mancuso, Ext. 5918, for more information.

Arrivals & Departures

<b>Arrivals</b>	
<b>Garfield A. Jones</b> .....	Physics
<b>Arthur J. Mango</b> .....	Physics
<b>Dimitrios S. Nikas</b> .....	Physics
<b>Departures</b>	
<b>Gina Flippen</b> .....	Medical
<b>Gary Jayne</b> .....	Reactor
<b>Alexander Lenderman</b> .....	Physics

**BROOKHAVEN BULLETIN**

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New Look for BERA Sales Office



At the sales counter of the BERA Sales Office, Andrea Dehler (second right) and Cynthia Chorzempa (right) assist customer Kathryn Clifford (left), Radiation Control Division. In the background is the Omega Leisure Travel Office (see below, left), where Carol Mancuso (rear left) helps a potential traveler.

The BERA Sales Office in Berkner Hall has a new window and a new look, and from Monday through Friday, 9 a.m. to 3 p.m., all are welcome to have film developed and browse or find gifts among the BNL souvenirs and other items for sale (listed below). Andrea Dehler, Human Resources (HR) Division, runs the store, and in her absence, Cynthia Chorzempa, HR, takes over.

As the Recreation Supervisor, M. Kay Dellimore, explained, although BERA stands for Brookhaven Employees Recreation Association, BERA membership is automatically given to all retirees, facility users, BNL visitors, and their immediate families, as well as to BNL employees and their families. “So, just about everybody on site is a BERA member,” said Dellimore. “All are welcome to join BERA activities, to use our discounts, and to participate in all BERA trips.

BERA offers group trips by bus to New York City, Atlantic City, New Jersey, Yankee games, the U.S. Open Tennis, and the Bronx Zoo. A wine tour and tasting trip is planned for fall. Anyone with new suggestions for trips, sales or discounts should feel free to call Dellimore, Ext. 2873, or e-mail Dellimore@bnl.gov.

**BERA Store items for sale**, many displaying the BNL logo, include: balloons, disposable cameras, entertainment book, fanny packs, film, Frisbees, greeting cards, hats, hi-liters, lanyards, luggage tags, magnets, maps: (Long Island and New York City), mugs, pencils, postcards, post-its, sweatshirts, T-shirts, and tote bags.

**BERA Discounts**, which can be used by showing current BNL identification or by using discount cards available at the BERA store:

American Floral, Ridge	Health & Fitness Center	Premier Dry Cleaner, Middle Island
Broadway show coupons	Hershey Park	Sea World
Busch Gardens	Laser Zone, Family Entertainment, Shirley	Sesame Place
Catamount Ski	McDonald's, Ridge	Sprint Spree phone cards
Disney Magic Kingdom Club	Medieval Times	United Artists movie tickets
Dorney Park	Met Life/Liberty Mutual Insurance	Universal Studios
Estee Lauder/private sale	Multiplex Movie tickets	Water Country
Firestone Tire	P.C. Richards, Middle Island	WTC Tire
Great Adventure/Six Flags		

Brookhaven Organization of Scientists Seeks Wider Membership: Meeting 6/6

The Brookhaven Organization of Scientists (BOS) was formed in 1997 to provide a voice for scientists at the Lab. Through a periodic newsletter, e-mailed to all willing recipients, and through occasional meetings with the Laboratory Director, BOS continues to speak on a variety of issues on behalf of the interests of BNL scientists and staff.

To widen the base of employees whose interests it represents, BOS invites all BNLers to attend a meeting on Tuesday, June 6, at 5 p.m., in Room B, Berkner Hall. Complementary refreshments will be served.

BOS History

According to George Hendrey, the first BOS Secretary, on 27 May 1997, 51 BNL employees met at Berkner Hall to discuss concerns relating to the intent of DOE to remove AUI and replace it with a new contractor. Scientists were anxious to know that the change would not alter the relationships between them and “management” in such a way as to lead to a loss of scientific quality. There was a strong feeling that a spokesperson was needed to represent staff interests and to give voice to these interests in the selection process for the new contractor. A key concern, Hendrey recalls, was that the contractual relationships between the scientific staff and AUI should be carried forward, essentially intact, under the new contractor.

A consensus was reached on the formation of an employees’ organization now called Brookhaven Organization of Scientists (BOS). Steve Schwartz was elected President, Sid Kahana, Vice President, and Hendrey, Secretary. Kahana is the current President.

Schwartz noted that BOS has continued to serve as a focal point for expressing concerns generally related to maintaining the excellence of science at BNL, such as speaking out against lie-detector tests and badging of employees. BOS has also worked to maintain employee benefits, such as out-of-plan hospitalization coverage.

Coming Up Brookhaven Lecture

On Wednesday, June 14, at 4 p.m. in Berkner Hall, Fulvia Pilat, Collider-Accelerator Department, will give the 355th Brookhaven Lecture, “RHIC Commissioning: The Gold Rush Toward Collision.” All are invited.

Piano at Noon, 5/31

The Wednesday, May 31, noon recital will feature pianist Du Huang, who will perform selections from Domenico Scarlatti’s keyboard sonatas, Debussy’s *Images* and Brahms’ *Fantasies*.

A piano soloist with the Fort Collins Symphony Orchestra, University Orchestra of Colorado at Boulder, and Blue Lake Festival Orchestra, Huang trained at the University of Cincinnati with Eugene Pridonoff. He is currently studying for a doctorate with Gilbert Kalish. Huang has also performed in master classes with Leon Fleisher, and coached chamber music with members of the Tokyo String Quartet.

Noon concerts are informal, and audience members may bring lunch and come and go as they please.

Listening Ahead, 6/14

At noon on Wednesday, June 14, the Alhambra musicians will present a program of Sephardic music for voices and instruments.

Employee Assistance Outreach Program Neurobics Talk, 5/31

All are invited to a lecture on “Neurobics: Can Mental Exercise Do for the Brain What Aerobics Does for the Body?” by Randal Solomon, M.D., to be given on Wednesday, May 31, in Berkner Hall, Room C, from noon to 1 p.m.

It is advisable to register early for the event, because space is limited. To register, complete the form sent to all employees and return it to Dianne Polowczyk, Bldg. 490, before May 31.

Health Promotion Workshops Vegetarian Cuisine, 6/1

To learn new veggie cooking techniques, join the “Delicious Vegetarian Cuisine” workshop to be given by Marlisa Brown, president of Total Wellness, Inc., a nutritional consulting company. The workshop will be held on Thursday, June 1, from noon to 1 p.m. in the Medical Department’s Large Conference Room, Building 490.

Breast Cancer, 6/6

Lisa Sclafanim M.D., will give a talk at noon in the Medical Department’s Large Conference Room, Building 490, on Tuesday, June 6, on “What’s New in Breast Cancer?” Topics to be discussed will include: imaging and diagnosis, surgical treatments, chemotherapy, and prevention. Sclafani, who is on the staff at Winthrop University Hospital and North Shore University Hospital, is a surgical oncologist specializing in breast cancer surgery. She is widely published and has been involved in several areas of research, and she has pioneered the use of sentinel lymph node biopsy in women with breast cancer on Long Island.

Space is limited, so register early for these workshops. To register, complete the appropriate flyer sent to all employees and return it to Mary Wood, Bldg. 490, before the given deadline. For more information, call Ext. 5923.



# Camera Club Meeting On Digital Photos

The BERA Camera Club will have a meeting on digital photography on Wednesday, June 14, at noon in Room D, Berkner Hall. Subjects covered will include scanners, printers, cameras, PhotoShop, Quark, Illustrator, and Corel Draw. Non-members are welcome. For more information, call club president Ripp Bowman, Ext. 4672.

Dosimetry badges will be exchanged on Friday, June 2. Therefore, please place your badge in its assigned rack space before leaving work on that day.

## Holiday Notes

In observance of Memorial Day, the Lab will be closed on Monday, May 29. As a result, the following schedules will be in effect:

- **Brookhaven Bulletin** — There will be no Bulletin next week; the next issue will appear on Friday, 6/9. The classified ad deadline for that issue is 4 p.m. on Thursday, 6/1.
- **Credit Union** — The Teachers Federal Credit Union branch on site will be closed on Monday, 5/29. The automatic teller machine in the foyer of Berkner Hall will be available.
- **Food Service** — The Brookhaven Center Club will be closed on Sunday, 5/28, and open on Monday, 5/29, 5-9 p.m. The cafeteria in Berkner Hall will be open Saturday through Monday, 7:30 a.m.-2 p.m.
- **Gym, Pool, Omega Leisure Travel Office, Recreation Hall & Research Library** — All will be closed Saturday through Monday, 5/27-29. The pool reopens on Tuesday, 5/30. The gym will begin its summer schedule, remaining closed on weekends until Saturday, September 9.
- **U.S. Post Office** — The U.S. Postal Service, Upton Branch, will be closed 5/29.

## Pool Schedule

The new three-month summer schedule at the swimming pool will begin on Thursday, June 1, and end on Thursday, August 31. Purchase tickets at the pool during open hours.

- **Monday through Friday**  
11 a.m. - 1:30 p.m. employees only  
5 p.m. - 8:30 p.m. employees, families & guests\*\*
- **Saturday**  
noon - 5 p.m. employees, families & guests\*\*

• **Closed on Sunday**

### Fee Schedule

- **Daily Admissions**  
employee or family member \$2.00  
guest \$3.00
- **Season Tickets** (fees not prorated)  
Individual \$42.00  
Family \$53.00

*\*The pool is closed on all Lab holidays.*  
*\*\* Guest ruling: All guests must be accompanied by the sponsoring employee. One guest per employee is permitted without prior arrangement. Advance arrangements for additional guests, up to five per employee at one time, must be made at the Recreation Office, Human Resource Division, Bldg. 185. At that time, an admission card will be issued stating the employee's life number, the number of guests permitted, the date of the visit, and the facility to be visited. The card must be shown at the main gate and at the swimming pool desk.*

## Defensive Driving

The training group of the Safety & Health Services Division will offer a six-hour defensive driving course on Saturday, June 24, 9 a.m.-3:30 p.m., in Berkner Hall, Room B.

The course is open to BNL, BSA and DOE employees, BNL facility-users, and their families, at \$23 per person. Completing the course entitles participants to a 10-percent discount on liability and collision insurance for three years. To register, send a check made out to Empire Safety Council, care of Scott Zambelli, P.O. Box 670, Mount Sinai, NY 11766. All checks must be received by June 16. Include your phone number on the check in case you need to be contacted.

## On-Site Service Station Closed 5/29 & 5/30

The on-site service station, Upton Industries, Inc., will be closed on Memorial Day, May 29, and also on Tuesday, May 30, for site maintenance.



LAB RECRUITMENT - Opportunities for Laboratory Employees Only.

**DD8467. ADMINISTRATIVE/SECRETARIAL POSITION** - Requires an AAS in secretarial science or equivalent experience and excellent demonstrated organizational and interpersonal skills, excellent written and oral communication skills, a comprehensive knowledge of Laboratory policies and procedures and proficiency in MS Word, PowerPoint, Excel and Outlook. Microsoft Access skills desirable. Must have the ability to work independently, function effectively as a team member, and exercise initiative and good judgement in a climate of changing priorities. Ability to develop and implement systems to improve Division efficiency and effectiveness also required. Will provide varied support, including travel arrangements, preparation of personnel records, records management, tracking deliverables and corrective actions, arranging meetings, coordinating schedules and editing of correspondence and reports. Environmental Services Division.

**MK8840. FIREFIGHTER/EMT-D POSITION** - Requires five years' progressive experience in a fire department, qualifications as a motor pump operator on a Class A pumper, and possession of a current NYS EMT-D certificate. In descending order of importance, the following criteria will be used for selection in the event two or more individuals meet the above criteria: certified OSHA Hazardous Materials Technician; Certified in Confined Space Rescue; current line officer in home department; and possession of an associate degree or higher in fire protection technology. Must be willing to work shifts at the completion of the training period. Emergency Services Division.

**OPEN RECRUITMENT** - Opportunities for Laboratory Employees and Outside Candidates.

**MK8589. SCIENTIST** - (part-time position) Requires a Ph.D., extensive experience in radiobiology research and in developing experimental radiation therapy programs. Candidate should have extensive experience in radiation oncology with focus on the in-vivo effects of ionizing radiation on normal and neoplastic tissues. Will provide radiobiology expertise for the Microbeam Radiation Therapy (MRT) program and assist the principal investigator in designing, executing and analyzing experiments and preparing manuscripts and developing proposals. Under the direction of A. Dilmajian. Medical Department.

**NS8869. ELECTRICAL ENGINEERING POSITION** - Requires a BSEE, MSEE preferred, and a minimum of five years' experience in the hands-on design of digital hardware. Excellent communication skills, and project planning and scheduling experience is necessary, as is familiarity with TTL and CMOS logic, programmable gate arrays and design tools for schematic capture and simulation. Embedded micro-controller hardware/firmware design and development systems experience is a plus; knowledge/experience with analog signal interfacing is desirable. Collider-Accelerator Department.

**NS8888. PROGRAMMERS/COMPUTER ANALYSTS** - Requires a bachelor's degree in computer science or a related field and at least two years' experience in system administration support for a significant user community. Knowledge of and experience with Solaris, Linux, and/or AIX computing tools and utilities is required. Experience in configuring and tuning systems for reliability, robustness and the performance of peripherals and the network is desirable. Familiarity with modern software development technology and tools would also be of value, as would experience in support of a scientific community. Responsibilities will include participation in the development and operation of computing facilities designed to satisfy the data processing needs of large particle physics detector systems. RHIC Computing Facility/Physics Department.

**NS8890. COMPUTER ANALYSTS/ASSISTANT PHYSICISTS** - Requires an advanced degree in computer science, physics or closely related field and at least five years' experience in support of large scale scientific computing. Knowledge of and experience with UNIX system support and administration, including networked file systems and other distributed computing tools and utilities is required, as is programming experience using modern programming techniques and languages, including C++ and/or Java. Knowledge of and experience with Object-Oriented Databases, ObjectBrokers, Hierarchical Storage Managers (particularly HPSS), and robotic tape systems are also desirable. One position's responsibilities include participation in the analysis of the evolving computer requirements of the RHIC detectors and the design, development and operation of computing facilities intended to satisfy those requirements. Another position's responsibilities include participation in the analysis of USATLAS computing requirements and the design, development and operation of computing facilities and infrastructure software intended to satisfy those requirements. RHIC/ATLAS/Physics Department.

**NS8867. COMPUTER PROGRAMMER POSITION** - Requires a bachelor's degree in computer science, or a related field, and substantial experience writing software using C or C++. Experience in the following areas is desirable: Vxworks or other real-time OS, interfacing hardware, Epics, UNIX programming, control systems, Java. Must be able to work with a minimum of direction and interface with engineers and physicists to determine and implement requirements. Will be responsible for developing real-time software to control hardware and will work with a staff that is providing software and hardware to control a large accelerator. SNS Project/Collider-Accelerator Department.

**NS8520. PROGRAMMER/ANALYST POSITION** - (re-posting) Requires a BS in computer science, or other appropriate field, and demonstrated knowledge of UNIX web server administration, JavaScript, HTML, Perl/cgi, active page development, web/database integration, and web and document processing tools. Experience with C++ and Java a plus. Will be responsible for web-based document management, web

server administration, and support for operations and accelerator physics groups. Collider-Accelerator Department.

**DD8623. DRAFTER POSITION** - Requires significant experience with AutoCad in Windows 95/NT environment as well as familiarity with the ANSI Y14.5 Drafting Standards. Must be able to work with minimal guidance from engineers to prepare working drawings from layouts. Knowledge and/or experience in the areas of machine shop practice, welding, vacuum systems, cryogenic systems and magnetic components is highly desirable. National Synchrotron Light Source Department.

**DD8434. LASER TECHNICIAN POSITION** - (term appointment, reposting) The Experimental Systems Group of the NSLS is seeking a technician to participate in laser system development at the Deep Ultra-Violet Free Electron Laser (DUV-FEL). The DUV-FEL is a revolutionary fourth-generation light source, which utilizes state-of-the-art laser and optical technology in all phases of its operation. Responsibilities will include the regular operation and maintenance of an existing high power titanium:sapphire CPA system, and participation in the development of new optical sources and diagnostic systems. The successful candidate will have a BS or AAS in optical science or physics, or equivalent experience, and a knowledge of short-pulse solid state laser systems. Demonstrated capability in operation and troubleshooting of titanium:sapphire CPA systems is highly desirable. National Synchrotron Light Source Department.

**DD8868. TECHNICAL POSITION** - Requires a bachelor of technology degree in electronics or equivalent. The candidate should have experience with analog, digital and rf circuits. Construction skills and familiarity with Programmable Logic Controllers (PLCs) and associate application configuration is highly desirable. Good communication skills and the ability to work in a group setting are important. Responsibilities will include testing, fabrication, design, maintenance and repair of rf systems for particle accelerators. Collider-Accelerator Department.

**DD8555. TECHNICAL POSITION** - (term appointment, reposting) Requires a BS degree in a physical science (physics, chemistry, engineering), excellent communication skills, and a demonstrated ability to learn to operate complex apparatus and computer software. Experience in the operation of the UNIX computer operating system and in electromechanical debugging and troubleshooting is desirable. Under general supervision will assist users of the Structural Biology beamlines located at the National Synchrotron Light Source in the execution of x-ray diffraction experiments. Responsibilities include the maintenance and repair of apparatus as well as the performance of routine computer operations. Biology Department.

**DD8762. TOWER LINE PERSON POSITIONS** - (re-posting) Under minimum supervision, installs, repairs, and maintains overhead and underground electrical distribution lines systems, equipment, controls and related devices, ordinarily of 2300 volts and over. Duties include rigging, electrical and mechanical work incidental to the installation, maintenance, and repair of equipment, wires, lines, instrument, and fabricated metal on structures such as meteorology towers, pile stack an water tower. Will other wise perform duties of Electrician A. Plant Engineering Division.

**DH2000. SECRETARIAL/CLERICAL POSITIONS** - (temporary) Requires relevant experience in order to provide clerical/administrative support on a temporary, as-needed basis. Excellent word processing skills are required, as is computer proficiency (MS Word, Excel, and Outlook) and excellent communication skills. Will be assigned to various departments and divisions on an intermittent basis. Human Resources Division.