

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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April 5, 1993

Docket Nos. 50-213

50-245

50-336

50-423

B14432

Chairman Ivan Selin
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Chairman Selin:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1, 2, and 3
Final Policy Statement on
Possible Safety Impacts of Economic Performance Incentives
Nuclear Safety Engineering Group Evaluations

In its Final Policy Statement on Possible Safety Impacts of Economic Performance Incentives, dated July 24, 1991, 56 Fed. Reg. no. 142, pp. 33945-33947 ("Final Policy Statement"), the NRC expressed its concern that certain forms of economic performance incentive regulation have the potential for adversely affecting nuclear plant operation and public health and safety. In particular, the NRC stated its concern "about any State public utility commission's undue reliance on a utility's corrective actions following an incident to justify the disallowance of costs related to the incident" 56 Fed. Reg. 33947. The NRC expressed its intention to continue to monitor state regulatory actions to identify changes in existing programs and how the programs have been implemented. The NRC also urged licensees to inform the NRC of economic performance incentive programs that can affect safety.

Northeast Utilities (NU) has been periodically providing the NRC with information relevant to this matter. One example⁽¹⁾ dealt with a proposed disallowance at our Millstone Unit No. 2 facility stemming from an isolated employee error performing routine surveillance.

⁽¹⁾ E. J. Mroccka letter to S. J. Chilk "Draft Policy Statement -- Possible Safety Impacts of Economic Performance Incentives: Report of NNECO, Proposed Economic Disallowance Penalty," dated March 28, 1991.

Further to our continuing dialogue on this matter, Northeast Nuclear Energy Company (NNECO) hereby notifies the NRC of a decision by a hearing examiner of the Massachusetts Department of Public Utilities (DPU) which NNECO believes has the potential to adversely affect plant operation and public health and safety. The hearing examiner's decision was diametrically opposed to the decisions of the Connecticut Department of Public Utility Control (DPUC) on the same issue. The Connecticut decisions were provided to the NRC in January of this year. Pending review of the final order from the hearing examiner, Western Massachusetts Electric Company (WMECO), a subsidiary of NU, intends to request that the hearing officer's decision be reviewed by the DPU, who may benefit from any thoughts the NRC may have about the possible impact of such a decision on public health and safety.

The Massachusetts decision grants the Massachusetts Attorney General's motion to compel WMECO, NNECO's affiliate, to produce reports and other documents prepared by NU's Nuclear Safety Engineering Group (NSEG) in an economic regulatory proceeding in Massachusetts, subject to a confidentiality agreement. WMECO objected to the Attorney General's request, on the grounds that such documents are subject to the privilege of self-critical assessment and therefore are not discoverable, and that, whether or not the privilege is applicable, strong public policy reasons support nondisclosure. In particular, there is a strong public policy in favor of encouraging candid internal self-assessments by operators of nuclear power plants. If NSEG documents are used as evidence to support an economic disallowance, the employees whose job it is to prepare such reports will view adverse decisions from economic regulators as incentive to be less than fully candid in future NSEG reports. Because the NSEG's function depends upon absolute candor and complete attention to the details of operational events at nuclear plants to prevent recurrence, without regard to other potential implications of their work, any diminution of that candor could have an adverse impact on plant operation and public health and safety.

This issue arose in the context of the DPU's annual review of the performance of the generating units in which WMECO owns an interest, including Millstone Units Nos. 1, 2, and 3, the Haddam Neck Plant, Vermont Yankee, Maine Yankee, and Yankee Rowe. The Massachusetts performance review program is described in NUREG/CR5975, "Incentive Regulation of Investor-Owned Nuclear Power Plants by Public Utility Regulators," Sec. 2.9. If the DPU finds, as a result of its review, that management's activities with respect to any outage during the performance year were imprudent, it is authorized to disallow the recovery through rates of replacement power costs related to that outage.

The 1991-92 performance review is currently in the discovery phase. As required by the DPU's rules, WMECO has filed voluminous contemporaneous documentation concerning the outage events at each plant during the performance year. WMECO has also responded to almost 700 detailed information requests from the Attorney General, the purported advocate for consumer interests in Massachusetts. It is anticipated that the Attorney General will argue for disallowance of replacement power costs based on its analysis of the information filed by WMECO. WMECO's total exposure is greater than \$20 million.

As part of its massive discovery effort, the Attorney General has requested WMECO to provide reports and other documents prepared by NSEG. The NSEG is the group that NNECO has tasked with performing independent assessments of operational events at plants operated by NNECO and Connecticut Yankee Atomic Power Company. The NSEG also recommends corrective actions to prevent their recurrence. The Attorney General is sponsoring two witnesses whose usual method is to extract self-critical statements and conclusions from the NSEG reports and submit them to the economic regulator as evidence of imprudence.

NSEG reports were similarly sought by the Connecticut Office of Consumer Counsel (OCC) for use by one of the same adversary witnesses in a Connecticut DPUC proceeding investigating the prudence of outage costs incurred by The Connecticut Light and Power Company (CL&P), NNECO and WMECO's Connecticut affiliate. In September 1992, in a decision previously provided to the NRC, the Connecticut DPUC sustained CL&P's objection to producing such documents to the OCC, on the grounds that:

"[t]he self-critical assessment conducted by the NSEG is consistent with the type of evaluation conducted by the NRC, and is designed not to assign fault for a particular incident but to improve reliability and achieve higher levels of safety in the future operation of CL&P's nuclear facilities. Such self-critical assessment is governed by the privilege against disclosure of self-critical assessments. Clearly, there is a strong public interest in encouraging continued internal performance assessments by operators of nuclear power plants. That public interest is not served if disclosure of the result of such performance assessments is compelled, resulting in a chilling effect on the thoroughness and candor with which those assessments are performed. Furthermore, the benefits of the search for improved safety at nuclear power plants far outweigh the interest in disclosure of the information sought by the OCC in Interrogatories 8(b) and 8(c)."

NNECO submits that, unlike the Connecticut decision quoted above, the Massachusetts hearing examiner's decision compelling WMECO to produce the NSEG reports is precisely the type of regulatory activity that was identified as a cause for concern in the NRC's Final Policy Statement. If the employees responsible for preparing NSEG reports know that their evaluations will be used as the basis for imposing a financial disallowance, there is a risk that they will be less candid in preparing their reports. The potential for economic disallowance will have a chilling effect on their work, and the ultimate result will be an adverse effect on nuclear safety.

The NRC also recognized the possibility of such an adverse effect in the Final Policy Statement and reiterated that concern with specific reference to use of

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SALP ratings in economic incentive programs in NUREG/CR5975, where it stated that:

"The NRC Staff focuses on the issues identified in the SALP report and apparent root causes of problems. The NRC's concern is that the safety of the unit could be adversely affected if the issues identified in SALP reports are obscured because of concerns over the financial consequences incurred as a result of specific SALP ratings"

"[t]he NRC perceives a program that employs SALP ratings as one that could inhibit the operating staff and management from disclosing safety-significant information, which is cause for major concern."

In the same NUREG, it was acknowledged that:

"[i]ncentive programs that focus on nuclear safety rather than economic operation of nuclear units have one more drawback. They may interfere with the exclusive Federal regulatory authority under the Atomic Energy Act over safety matters at nuclear power plants (56 FR 33947)."

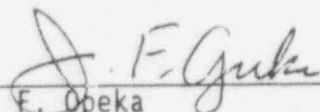
SUMMARY

Pending the DPU hearing examiner's final decision, which the company will forward to you, this issue will be presented to the full DPU for review through the Company's appeal of the hearing examiner's decision. If the NRC has views on this issue that were not expressed in earlier statements concerning the possible effects of performance incentive regulation, it may wish to express those views at this time.

We appreciate your consideration of the above matters and will continue to keep you informed. Please contact me at (203) 665-5323, or Richard M. Kacich at (203) 665-3298 if you have any questions.

Very truly yours,

NORTHEAST UTILITIES



J. F. Opeka
Executive Vice President

cc: See Page 2

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cc: Commissioner J. R. Curtiss
Commissioner G. DePlanque
Commissioner F. J. Remick
Commissioner K. C. Rodgers
J. M. Taylor, Executive Director for Operations
T. E. Murley, Director, Office of Nuclear Reactor Regulation
F. P. Gillespie, Director, Program Management, Policy Development &
Analysis Staff

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Connecticut Yankee-Power Company
Breakout of c/KWH

	1970	1980	1992
Operating Revenues	21,951,110	78,552,000	206,831,422
Sales	3,537,721	3,563,138	3,891,764
c/KWH	0.62	2.20	5.31
Major Components-Dollars			
Fuel	5,204,871	18,422,000	31,366,495
Non Energy O&M	5,468,868	37,894,000	95,918,458
Depreciation	3,765,600	5,234,000	19,015,437
All Other	7,511,771	17,002,000	60,531,032
Total	21,951,110	78,552,000	206,831,422
Major Components c/KWH			
Fuel	0.15	0.52	0.81
Non Energy O&M	0.15	1.06	2.46
Depreciation	0.11	0.15	0.49
All Other	0.21	0.48	1.56
Total	0.62	2.20	5.31
Book Value - \$ in Millions	\$46	\$51	\$100

Millstone 2 Refueling Outage Highlights

By Mike Ciccone
Millstone 2 Staff Engineer

One of the most complex and challenging outages ever undertaken at NU concluded January 24 when Millstone 2 returned to service, following replacement of its two steam generators. Ambitious outage goals for schedule, safety and radiation exposure challenged NU's workforce to consistently give their best, and they rose to the occasion.

The original steam generators, manufactured by Combustion Engineering, were replaced because they had developed defects in approximately 40 percent of their tubes.

The replacement generators incorporated significant advances developed since Millstone 2 began operation in 1975.

Their state-of-the-art materials and design should preclude similar tube defects in the future, and facilitate inspection and maintenance activities. These include:

- Significantly improved materials in the tubes and tube supports.
- Changes in generator design to improve access and reduce future radiation exposure for workers.

Although unexpected challenges—including unanticipated pipe movement during the cutting of the reactor coolant pipes—prevented the completion of the outage on the original schedule, the outage enjoyed many significant accomplishments.

The outage plan included numerous improvements and innovations in the areas of radiation exposure reduction, shutdown risk management and core melt frequency reduction.

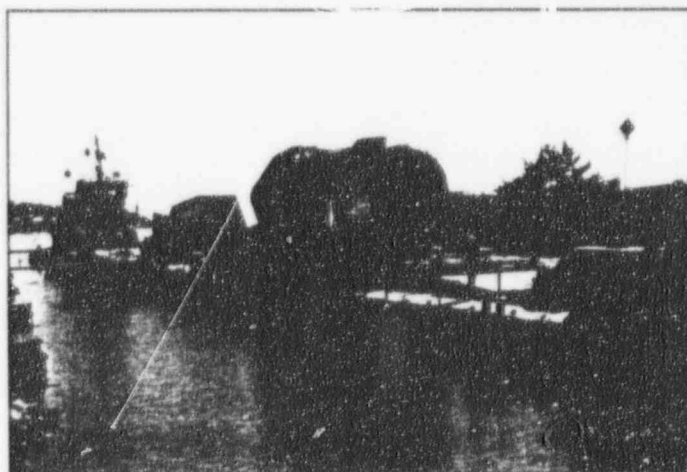
Radiation exposure control is always a priority and this outage included aggressive As Low As Reasonably Achievable (ALARA) radiation reduction initiatives:

- Pipe-end decontamination before welding dramatically reduced exposure;
- Reactor coolant system decontamination during plant shutdown resulted in a 15-20 percent reduction in containment area radiation levels;
- Narrow-groove welding reduced the amount of time required to complete the job in radiation fields;
- The exclusive use of electronic dosimetry allowed for careful tracking of total person-rem exposure, provided workers with real-time



ABOVE: Operations

LEFT: The steam generator waits for transport to a waste storage site in Barnwell, S.C.



BELOW: Engineering



Please see Refueling, Page 7

MECHANICAL AND CIVIL ENGINEERING

Who decides what kind of pipes are needed in our nuclear plants? How do we know if these pipes are sturdy or if they would crack under stress? How do erosion and corrosion affect them? Would they withstand a hurricane or an earthquake?

Mechanical and Civil Engineering, headed by Matthew Kupinski, routinely answers such questions and more. The 43 members share support from secretaries JoAnn Crispo and Terry Perugini and clerk Marie Kurdzo. The Berlin-based department is divided into four groups:

- * Civil Engineering, headed by Walt Briggs;
- * Engineering Mechanics, headed by Subhash Chandra;
- * Chemistry and Materials, headed by John Klisiewicz;
- * Stress Analysis, headed by Tom Mawson.

CIVIL ENGINEERING provides support services to the Project Services Departments and the Nuclear Licensing group. The group ensures that modifications to a unit won't weaken it structurally and keeps track of regulatory changes on existing structures. The group also has expertise in the impact from external events, or natural disasters like earthquakes, floods, hurricanes or tornados. The members are now evaluating CY and Millstone 1 and 2 to ensure that all critical structures can withstand impact from external events like a natural disaster.

ENGINEERING MECHANICS has myriad duties, but their big job these days is developing and implementing the corporate Erosion/Corrosion program. This deals with the issue of thinning walls in carbon steel piping and components. The program outlines methods for finding likely trouble spots and provides criteria for inspections, as well as spelling out how worn pipes should be repaired or replaced. The Engineering Mechanics group also analyzes mechanical and electrical equipment to determine what effect an earthquake would have.

CHEMISTRY AND MATERIALS is responsible for three major technical areas: chemistry, steam generators and materials. Chemistry includes primary and secondary system chemistry control, reactor chemistry, initiatives to reduce workers' radioactive exposure and evolving Electric Power Research Institute project activities.

Steam generator responsibilities include short- and long-term strategic planning and associated engineering programs, studies for preoutage and outage support. The area of materials includes metallurgy and materials science, failure analysis of steam generator and balance of plant components, corrosion engineering, non-metallic materials and materials selection and recommendations.

STRESS ANALYSIS has the primary responsibility of deter-



Chemistry and Materials



Engineering Mechanics



Terry Perugini, left, and JoAnn Crispo



Civil Engineering



Stress Analysis



Matthew Kupinski

mining how much pressure mechanical components can take day-to-day or in an extreme event like an earthquake. Group members also analyze and design pressure vessels and piping systems at CY and Millstone. Stress Analysis reviews plant design changes and evaluates their impact on the system or component being modified.

The group also is often involved in determining system operability to justify continued plant operation and in handling plant nonconformance reports and Reportability Evaluations. It has lead responsibility for certain issues such as the high energy line break program for the nuclear units, reactor vessel structural integrity and fatigue monitoring.



SEABROOK REACTOR ENGINEERING

While it may be a small department at Seabrook Station—with just five people—Reactor Engineering handles a very big job: the quality and operation of the 193 fuel assemblies in the plant's reactor.

Reactor Engineering is responsible for the plant's fuel for its entire life at Seabrook Station, from the time it is delivered to the site and used in the reactor until it is placed in the spent fuel pool for storage.

"Our job begins the moment new fuel arrives on site," explained Paul Gurney, Reactor Engineering Department manager. "We conduct a visual inspection of the fuel assemblies to ensure that the fuel has arrived safely."

A typical delivery consists of 12 fuel assemblies per truckload. North Atlantic's fuel is fabricated by Westinghouse's Commercial Nuclear Fuel Division in Columbia, S.C. The fuel inspection and testing is conducted by Gurney and the other members of the department: Alan Merrill, Pete Nardone, Anne Marie Chesno and Mitch Lindquist.

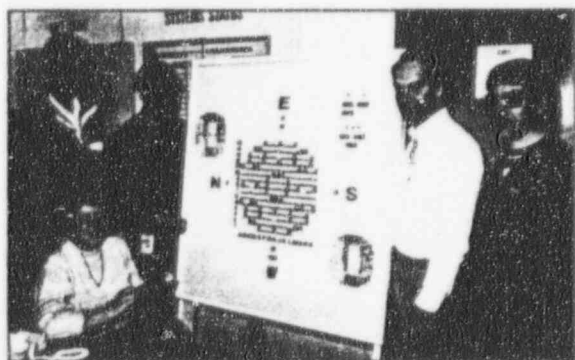
Once the fuel has passed inspection, it is stored in the spent fuel pool until needed for the actual refueling. In preparation for refueling, Reactor Engineering designates the exact location in the reactor core where each assembly will go.

"Each fuel assembly has a unique location in the reactor core," Gurney said. "Placing the assemblies in these exact locations ensures the most efficient and safe use of our nuclear fuel."

When it comes time for a refueling, one-third of the core is replaced with fresh fuel, and the used fuel assemblies are moved out of the reactor through the transfer canal and into the spent fuel pool—a process that takes place completely under water. Before being stored in the spent fuel pool, however, each of the removed assemblies is carefully examined to ensure that it operated properly while in the reactor.

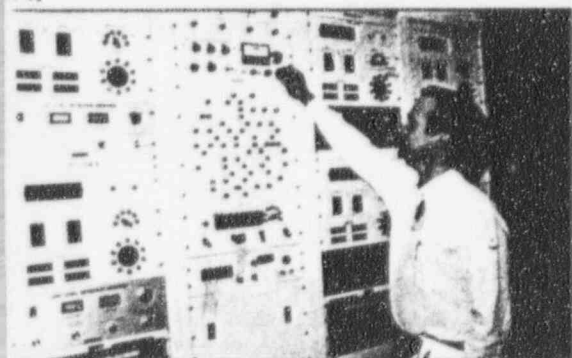
When low-power physics testing and power ascension testing begin, Reactor Engineering—through the use of equipment such as the reactivity computer—will verify that the core is operating within design parameters. When the reactor is in full-power operation, Reactor Engineering continues to monitor the fuel and reactor performance with the in-core detector system and conducts other Technical Specification surveillances.

"While we're obviously busiest during a refueling outage," Gurney said, "but our work doesn't stop there. We continually check and recheck to ensure that during normal operation, we're using the fuel in the most efficient and safest manner possible."



LEFT: Members of the Reactor Engineering Department at the "tag board," which is used during refueling to track the position of fuel assemblies. From left, Mitch Lindquist, Anne Marie Chesno, Paul Gurney, Alan Merrill and Pete Nardone. **BELOW LEFT:** Alan Merrill stands before the flux mapping system, used to monitor the performance of the reactor core. **BELOW RIGHT:** Anne Marie Chesno and Pete Nardone.

3





Bob Kenefick
*Instrument and Control
Specialist
Connecticut Yankee*

My 18 years of experience in electronics, my 11 years of experience working for NU in Instrumentation and Control, and my ability to see the immediate effect my work will have on plant operations are the most important things I give NU. As I&C Specialists, we perform many high-risk tests. By high risk I mean if we make a mistake, we could potentially trip the plant. NU should provide us with value for value. In other words, NU expects me to do the best I can. I also expect NU to do the best it can regarding job security, job satisfaction, etc. I also expect upper management to make the best decisions for the company.



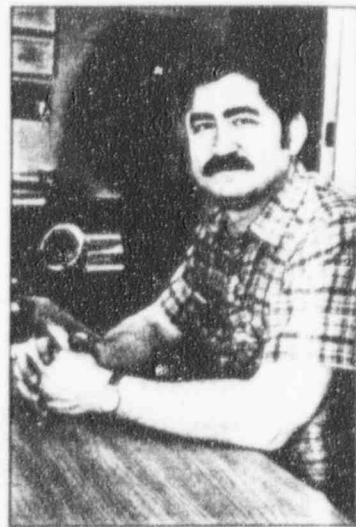
Cathy Ladd
*Nuclear Document Services
Clerk
Millstone*

Having been in Nuclear Records for six years, I've worked in the Berlin, Connecticut Yankee and Millstone Nuclear Document Services Departments, and my knowledge of the documents generated by NUSCO and NNECO is extensive. The most important things I give NU are my knowledge and my endurance. NU has given me room to grow. That's the most important thing I need, to be able to learn and apply my knowledge in a department where I'm appreciated.



Neil Herzig
*System Engineering
Performance Engineering Group
Senior Engineer
Berlin*

Devotion. By devotion I mean inspired, dedicated and committed to always do my best. To continually look to improve things, and to be trusted, are also key aspects of devotion. However, this does not mean blind devotion. The most important things NU can give me are security, knowing my job will be here, satisfaction, pride in my work, livelihood, a fair wage, and enjoyment and a good atmosphere to work in.



Rod Schlosser
*Electrician
Connecticut Yankee*

The most important things I give NU are my time and my skills. As an ex-operator, I experienced the stresses associated with NRC requalification exams and felt the other job-associated pressures. Having left Operations, I can reflect on the working conditions, and I feel NU should provide operators with a reason to remain in Operations. As for myself, the company now provides me with an opportunity to go home with a feeling of accomplishment.

Incentive Plan Extended To Nuclear Directors, Managers

As discussed in the December issue of *NUclear News*, an incentive program has been extended to Nuclear directors and managers.

The incentive program involves a trade-off — the 23 managers would no longer be eligible for overtime pay. Their ability to meet the deliverables in their respective action plans determined whether

or not they were eligible for the PEP incentive.

In some cases, Action Plan managers received less in the way of a PEP "bonus" than they would have received in overtime pay. The message was clear: Performance, not simply hours worked, is the basis for these incentive payments.

In 1993, this program is be-

ing extended to all nuclear directors and managers with the same trade-off. They are no longer eligible for overtime pay. An incentive program has also been established for all directors in the NU system.

Incentive programs like these are fairly common in the industry and in business in general, and, in fact, the Performance Reward Pro-

gram that affects most of the rest of us is just that: a "bonus" program where payout depends on performance.

Performance incentive programs, much like those now instituted at NU, place emphasis on what is delivered, not on the time required for individuals to meet the expectations inherent in a successful team effort.



Jude Stansbury
Senior Cost and Schedule
Analyst
Millstone 2

I've worked for NU for 20 years and have been involved in every Millstone 2 refueling outage. I'd say the experience I have from working in Operations, Engineering, Maintenance, and now in outage planning, is the most important thing I give NU. What NU needs to be consistent in giving me are the tools to do the job, like computer equipment and the management support necessary to accomplish our outage planning objectives.



Judi McKee
Information Resources Group
Documentation and Training
Analyst
Seabrook

The most important thing I can give NU is a willingness to stay flexible in the future, and a commitment to give 100% every day. The most important thing NU can give me is job security, in spite of the ups and downs we've experienced over the last few years, to know that Seabrook Station is going to be around in the future and that I'll have a job.



Nelson Azevedo
Mechanical & Civil Engineering
Stress Analysis Group
Senior Engineer
Berlin

The most important thing I can give NU is my commitment to ensure the safe and cost effective operation of the four Connecticut nuclear facilities, especially in the areas relating to reactor vessel embrittlement. The most important thing NU can give me is a stable and stimulating work environment and the opportunity to grow professionally.



Mark DuBois
Maintenance Department
Senior Mechanic
Seabrook

The most important thing I can give NU is a professional job, all the time. The most important thing NU can give me is an honest sense of job security in a workplace where cutbacks continue, year after year.

5

New Engineering Support Training Program Developed

Bruce McLeish
Millstone Training

A new training program designed for Engineering Support (ES) personnel has been developed by Nuclear Training and the site and corporate Engineering departments.

The ES Training Program consists of three parts:

1. Initial Orientation Training, a mix of courses on the fundamentals of nuclear power, such as Reactor Theory and Plant Systems, and major work processes necessary to keep our plants operating safely, such as Design Control and Procurement.
2. Initial Position Specific Training, based on Qual Cards

developed by each department with assistance from General Nuclear Training. The cards will replace those now in use to meet NEO 2.26.

The training will consist of a mix of classroom training, on-the-job training, structured self-study and contracted training.

3. Continuing Position Specific Training, conducted as necessary on such things as pertinent SOERs, changes to major programs and procedures, and position-specific training needs.

"The Initial Orientation program is based on solicited feedback from ES personnel and INPO guidelines," said Larry Chatfield, manager of General Nuclear Train-

ing. "This program belongs to our customers, the Engineering Support staff. Right now, we're surveying every NEO department to develop comprehensive qualification cards for every individual."

Engineering Support Training will be required for anyone who independently performs a task that affects plant safety or performs the final comprehensive review of the task. This means most of the Berlin-based NEO Engineering staff, as well as the plant-based staff that had been attending the Technical Staff and managers training program will be required to attend.

"We're going to run the program like a school," said Ted

Hodge, supervisor of General Nuclear Training. "That way new personnel can start their initial training on a given Monday and be completely finished eight weeks later." Schedules for 1993 are available from the Nuclear Training Department.

All ES personnel must either complete or validate from the Initial Orientation courses by the end of 1994, or for new hires, within one year of their start date with the company.

Those personnel hired before December 31, 1987, may be validated from the entire Initial Orientation Training Program. If you have questions, call Ted Hodge, Millstone, x2567.

APPLAUSE

APPLAUSE

Drechsler Wins ASME Award



From left: Len Johnson, Gerry Drechsler, Bernie Fox

Gerry Drechsler has won the Engineer of the Year Award from the American Society of Mechanical Engineers (ASME), an engineering society focused on technical, educational and research issues.

About three dozen of his friends were on hand for Bernie Fox's presentation of the award on February 19. A letter Fox wrote to Drechsler informing him of his honor was turned into an engraved plaque, which Fox presented during the ceremony.

Drechsler, who has been at Northeast Utilities for 23 years, is now principal engineer for Component Test Services in the Field Services Department.

Drechsler has been involved in nuclear, fossil & hydro generating station equipment problems. A 27-year member of ASME, he has been involved in the group's Boiler & Pressure Code activities, its Operation & Maintenance Subcommittee on Steam Turbine Procurement Specification and its Operations & Maintenance Subcommittee on Vibration Monitoring.

Info Center Featured On WTNH

The Millstone Information and Science Center was featured on the WTNH-TV 8 6 p.m. newscast on January 8 as a good place for people to visit on day-trips in Connecticut.

While at the Center, Skip Church was impressed with the Center's attractiveness to children, its interactive exhibits and its straightforward and informative displays on nuclear power. Thanks go to the center's Reva Coleman for her on-camera interviews with WTNH's Skip Church.



Reva Coleman and Skip Church



ABOVE, from left: Matt Kupinski, Subhash Chandra, John Opeka

RIGHT, from left: Eric DeBarba, Matt Kupinski, Subhash Chandra, Bob Harris



EPRI Honors Chandra, Kupinski

Subhash Chandra, supervisor in Engineering Mechanics, and Matt Kupinski, manager of Mechanical and Civil Engineering, were awarded the 1992 Technology Transfer Award from EPRI.

John Opeka presented the awards on behalf of EPRI to Chandra and Kupinski in recognition of their leadership roles in the development and application of the EPRI CHECWORKS code for integrated corrosion control technology for Connecticut Yankee and Millstone 1, 2 and 3.



From left: John Hartzel, Lou Palone, Terry Waig, John Ferguson

Four CY Trainees Reunite

Over 20 years ago, in November 1972, John Hartzel, Lou Palone, Terry Waig and John Ferguson received their initial training together for employment at Connecticut Yankee.

Hartzel started as a mechanic and is now a CY maintenance supervisor. Palone and Waig started as auxiliary operators and Palone is now a senior analyst in the Millstone Nuclear Safety Engineering Group and Waig is a senior operator training instructor at Millstone. Ferguson started as a maintenance foreman and is now manager of the Millstone 3 Project Services Department.

"We held a similar luncheon at our 15th anniversary and have already made plans for our 25th year anniversary reunion," Ferguson said, "same time, same place."

Millstone 2 Refueling Outage continued



ABOVE LEFT: Maintenance

ABOVE RIGHT: Maintenance

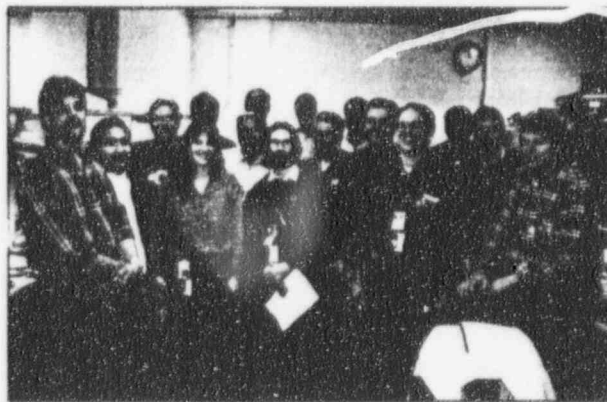
Planning

RIGHT: Outage Planning

BELOW LEFT: Nuclear Docu-

ments and Services

BELOW RIGHT: Instrumentation
and Control



Refueling continued...

indication of exposure and dose rates, and allowed for the use of preprogrammed alarms when either dose or dose rate limits were exceeded;

- Use of ultra-fine filters significantly reduced contamination and dose rates in some areas;

- Robotic technology was used extensively to inspect and videotape in high radiation areas, and was also used during some of the welding process.

- Comprehensive mock-up training minimized time spent in radiation areas.

Shutdown Risk Management initiatives were also an important part of this outage. These initiatives included:

- A procedure to better control and manage shutdown risks

Replacement of Millstone 2 steam generators is expected to significantly improve plant performance.

implemented for the outage. It was recently expanded and issued as a station procedure (ACP 3.38) applicable to all three units;

- More stringent controls for infrequently performed tests.

To reduce the risks associated with plant operations, five recommendations identified by the Probabilistic Risk Assessment

Group were implemented, including increased surveillances for DC switchgear ventilation and on injection check valves. These initiatives resulted in a 50 percent reduction in Millstone 2's core melt frequency calculation. The replacement of Millstone 2's steam generators is expected to significantly improve plant performance. It should eliminate mid-cycle steam generator maintenance outages, remove steam generator work from critical path during refuelings, result in significant savings in worker radiation exposure and enhance long-term safety of the plant.

NAME THAT NEWSLETTER

The Final Vote

Your votes have been tallied!! Your top four choices are Northeast Exposure, Northern Lights, NUclear News and In the Loop.

Cast your final vote by March 26 by calling Debbie Beauchamp at (203) 665-5188, VAX BEAUCDL, or Fax (203) 665-5072 or send a note to Berlin E-135.

You Asked Us...

Why is NUclear News printed on such expensive paper when we're supposed to be cutting costs?

We use coated recycled paper for NUclear News because photographs are much clearer and sharper than they would be on uncoated stock where the ink tends to spread. Because we use so many photos, we believe the slight extra cost of coated paper is reasonable.

Here is how the actual costs for recycled paper compare for a recent issue of NUclear News: coated stock - \$325; uncoated stock - \$275. Non-recycled paper would be about \$50 less.

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Nuclear, Berlin IRG Complete 1993 ITBP

By Chuck Scopelitis
Millstone Computer Services Manager

The Nuclear organization recently completed its joint effort with the Berlin Information Resources Group on the 1993 Nuclear Information Technology Business Plan (ITBP).

The Nuclear ITBP includes a five-year plan for software development priorities, personal computer acquisitions, and overall computer strategies. The ITBP will be consolidated with similar plans from other groups within NU and the combined effort will be established as the NU ITBP, a companion piece to the NU Business Plan.

The Nuclear ITBP will place additional emphasis on effective and efficient information exchange within the Nuclear organization, and throughout the corporation, by continued networking of PCs, collaboration on the use of standard or open products, and increased computer access for Nuclear employees.

The NU ITBP is expected to be issued very soon. To support the ongoing implementation of our ITBP, a Nuclear Information Technology Advisory Committee (NITAC) has been established by John Opeka.

For more information, feel free to contact your NITAC committee representatives:

Mike Bain, CY x3635
Tom Maynes, Seabrook x3123
Rick Borg, CY x3649
Ray Palmieri, MP x4286
Jeff Cataudella, MP x2603

Chuck Scopelitis, MP x4244
Lloyd Frazee, Berlin x5636
Bob Traggio, Berlin x3876
George Gram, Seabrook x4399
Marty Van Haltern, Berlin x5321

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LABEL

PROCESS MAPPING GIVES NUCLEAR OPERATIONS A NEW WAY TO WORK

Scenario 1: A frog was merrily hopping along when he leaped into a kettle of boiling water. He immediately skedaddled.

Scenario 2: A frog was hopping along when he leaped into a kettle of cool water. He stayed. A low flame slowly warmed the water. The frog adapted; he didn't realize the water was boiling until it was too late.

The moral: It's easy not to notice the gradual evolution of processes and procedures. But after years, the result is a tangled maze that interferes with work, says Bob Place, supervisor of the Administrative Control Procedures (ACP) Rewrite Group.

"We were like the frog, adjusting to the climate," Place said. "We didn't realize we were getting to the boiling point where processes were falling apart."

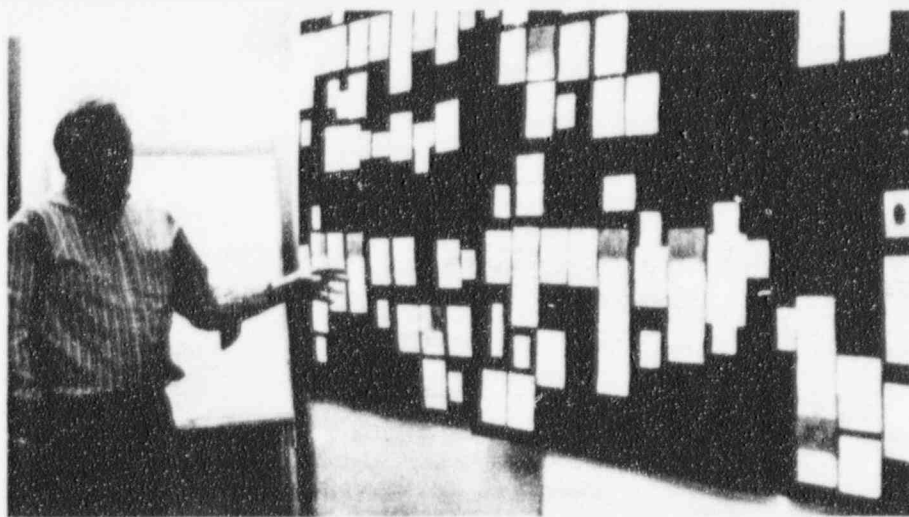
Six managers, supervisors and engineers from Millstone and Connecticut Yankee were loaned to form the ACP Rewrite Group in 1991. "We were just supposed to rewrite procedures. But we found that was not the issue anymore, we had process problems," Place said.

A concept called process mapping was used to analyze and simplify how work gets done. Procedures are the detailed steps of an action, while a process is the overall action. For example, if going to the store were the process, getting your checkbook, driving the car and walking in would be the procedures to accomplish it.

Bill Diffley Associates, a Madison-based consulting firm, introduced process mapping to NU. Diffley had used it at General Electric and offered it as a proven concept for any industry, Place said. It uses a standard methodology to pinpoint problems and work out solutions:

- Figure out all the steps you now take;
- Identify problem areas;
- Identify areas needing improvement;
- Set a mission statement, goals and specifications for the overall process;
- Outline the process as you want it.

Place, Paul Parulis, Paul Blomberg,



Paul Parulis shows steps in a map of the current work process.



Bob Place, ACP Rewrite Group

Roy Brown, Vincent Papadopolis and Ron Rothgeb were facilitators for about 60 mechanics, technicians, planners, supervisors, engineers and operators from Millstone and CY who spent two months mapping the work control process. "We brought together people from different departments because they know what it takes to get work accomplished," Place said. "This is the most important part, the people doing the work are the ones who design the new way of doing business."

Two groups working separately filled four bulletin boards each with colored squares, triangles, circles and arrows to show how work control is usually done.

They trimmed it to two boards after process mapping. They also cut it from six phases to three, which reduces the number of hand-offs and increases efficiency and control.

Fred Dacimo, Millstone Site Services director and the PEP Action Plan manager for Procedures, said employee input will be the key to the success of process mapping. "People in the know are telling us how it should be done," he said.

The biggest advantage to the new work control process is an integrated team concept. All planning will be done by an integrated team, and another group will perform the work. Four teams—one each from CY and the Millstone plants—will include key members from each department involved in the job who can automatically perform reviews and approvals.

The new mapping whittles an 80-page process to about 10 pages, Parulis said. Rewriting procedures, too, will help tighten the process. "We're reducing a lot of extraneous words," he said.

A Writer's Guide was developed to update procedures at Millstone and CY, make procedures more user-friendly and

See **WORK PROCESS** on back

NRC MILLSTONE ASSESSMENT PANEL GETS UPDATE ON PEP PROGRESS

Nuclear Regulatory Commission staff members say that NU is making progress toward implementing its Performance Enhancement Program.

Eight senior managers from NU presented components of the program to the NRC Millstone Assessment Panel, which called the meeting at Millstone on January 13. The panel's job will be to determine whether PEP is acceptable to the NRC.

James Wiggins, deputy director of the NRC Division of Reactor Projects, said the agency's role is not to scrutinize every detail of NU's plan. But NRC officials wanted an update to be assured that the program will improve performance at the four Connecticut plants.

Wiggins said the NRC was particularly interested in NU's presentation on three areas of PEP:

- scope, to ensure that the Action Plans are adequately addressing root causes;

"We see a lot of preliminary work, but as you indicated, the vast majority of your work has yet to go."

— James Wiggins, NRC

- communications, to ensure that information about PEP is reaching into all levels of the organization;

- implementation, including the validation and verification process that will be used to ensure that PEP really is achieving its goals.

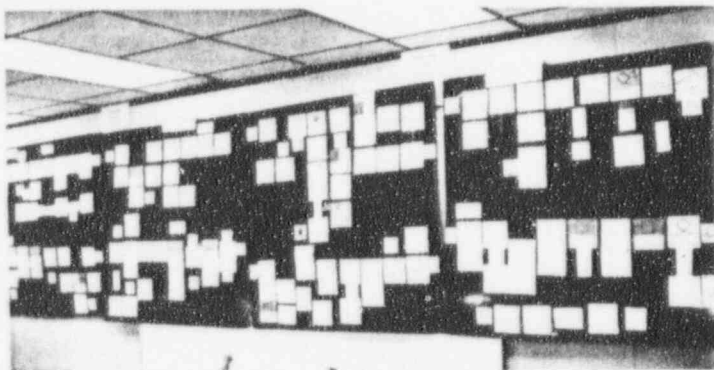
"We see a lot of preliminary work, but as you indicated, the vast majority of your work has yet to go," Wiggins said. NRC's Richard S. Barkley said the panel hopes to complete its evaluation of PEP by spring.

Seven of PEP's 42 Action Plans are finished, and their effectiveness is currently being evaluated. Seventeen PEP

programs will be completed in 1993, eight will be done in 1994 and the rest will be finished by 1997.

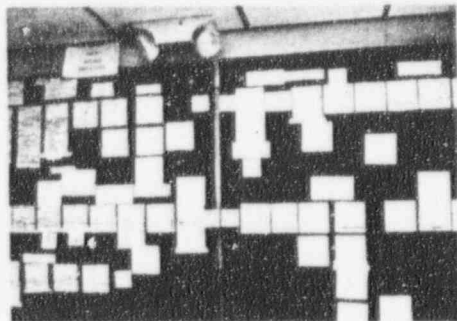
John Opeka said NU spent only \$12.2 million of the \$19.2 million budgeted for the program in 1992, including hiring 226 workers. More than \$30 million is budgeted for 1993.

"It's a very complex process and undertaking," Opeka said. "But the value of PEP will become more and more obvious as new PEP initiatives are put into place, existing programs are streamlined, unnecessary paperwork is eliminated, and we see real, tangible results."



TOP, Procedures for the current work control process take up four bulletin boards.

RIGHT, a streamlined process fits on two boards.



PROCESS MAPPING continued

improve procedure compliance. It also will help to standardize procedures. The new work control plan is scheduled to take effect in late April, Dacimo said. "We'll feel some growing pains," he said, "but by June we'll see results." Process mapping has been done for safety tagging and is under way for design control in Berlin. It also is planned for material control and documentation control.

The ACP Rewrite Group is scheduled to work on process mapping through 1993 and may continue beyond then. But process mapping should go on indefinitely, Place said.

"Familiar patterns for doing something should always be changing," Place said. "They have to be dynamic. This concept is being accepted throughout the business world to position companies for the year 2000 and beyond. The only businesses that will survive and be profitable are those that can work like this and be ready to make customer-focused changes."

WORK ORDERS

Number of work orders each year			
MP1	12,000	MP2	18,000
MP3	27,000	CY	15,000

LABEL

Published for the NU Nuclear Organization by the Nuclear Information Services section of Corporate Communications.

The Tie Line

4/1/93

NU Nuclear Organization

Four of NU's five nuclear units are on-line;
today's generation is 3,387 MWe of electricity

- o The NRC exit from the Millstone 1 Licensed Operator Regualification Re-examination was held on 3/31 and preliminary results indicate that the operators passed all sections of the examination. The NRC noted a substantial change in NU's performance standards and recognized a significant improvement in the quality of instruction, as evidenced by the performance of the operators. Congratulations to the Operations Department and the instructional staff for this exemplary performance.
- o The **NU Nuclear Newsreel**, a new nuclear communications video established as part of the PEP Communications Plan, provides nuclear employees with information on key events and projects. The first edition includes features on the Millstone 2 steam generator replacement project; a PEP story on the work control process; and a fascinating look at the history of the Seabrook project. This edition also has "mini-features" on the osprey at Millstone and the CY 25th Anniversary celebration.

The video has been distributed to directors and managers in Connecticut and New Hampshire for showings at department meetings and will be shown at Millstone on TargetVision. VHS copies will be available for loan from your manager or from Gail Saucier, Nuclear Information Services, Berlin extension 5189.

- o Osprey returned earlier this week to two of the six active nests at Millstone Station. The male and female returned to the Bay Point nest, which is located near the A-frame, and the male returned to the Fox Island nest, located near the Environmental Lab.
- o The Kansai Electric Power Company (KEPC) in Japan recently announced plans to replace the 21 steam generators at its seven pressurized water reactors. The KEPC found a number of defects in existing generators during the annual outages, including a total of 356 cracked tubes at the Takahama-2 plant. The steam generator replacements are scheduled for 1994 through 1995.

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**NORTHEAST UTILITIES
MEETINGS WITH NRC
COMMISSIONERS AND SENIOR STAFF**

APRIL 7, 1993

After A Difficult Period, There is a Sense of Cautious Optimism Imbuing Our Nuclear Organization

- Performance Enhancement Program
- Operational Improvements
- New Incentive Programs
- Enhanced Communications
- Improved Handling of Nuclear Concerns

Performance Enhancement Program is Moving Ahead

- Process Mapping Will Have Positive Effects
- Programmatic Engineering Approaches to Critical Areas (MOV's, Reliability Centered Maintenance, Erosion/Corrosion, EQ, HELB) are Coming into Place
- Deliverable Schedules Being Met/Tracked Closely

Operational Improvements are Beginning to Appear

- Continued Strong SALP Scores at Haddam Neck
- Capacity Factors Returning to High Levels
- Millstone 2 Steam Generators Working Well
- Operator Requalification Training Program Improvements

New Incentive Programs Designed to Enhance Success

- Focussed on Key Safety and Operational Issues
- Good Performance is a "Carrot"
- Stronger Link Between Corporate Goals and Individual Compensation
- All Nuclear Employees will Soon be Participants, Including Unionized Personnel

Enhanced Communications Vehicles

- Heightened and More Frequent Management Presence
- Nuclear News/TieLine
- Nuclear Newsreel
- PEP Brochures
- Positive NU Stories Including Non Nuclear Issues

Some Additional Areas of Ongoing Focus

- Economics of Nuclear Facilities
 - Haddam Neck Plant
 - Haddam Neck Steam Generators
 - Requirements Marginal to Safety
 - Utilization of Risk Based Insights
- Economic Regulation

Connecticut Yankee Power Company
Breakout of c/KWH

	1970	1980	1992
Operating Revenues	21,951,110	78,552,000	206,831,422
Sales	3,537,721	3,563,138	3,891,764
c/KWH	0.62	2.20	5.31
Major Components-Dollars			
Fuel	5,204,871	18,422,000	31,366,495
Non Energy O&M	5,468,868	37,894,000	95,918,458
Depreciation	3,765,600	5,234,000	19,015,437
All Other	7,511,771	17,002,000	60,531,032
Total	21,951,110	78,552,000	206,831,422
Major Components c/KWH			
Fuel	0.15	0.52	0.81
Non Energy O&M	0.15	1.06	2.46
Depreciation	0.11	0.15	0.49
All Other	0.21	0.48	1.56
Total	0.62	2.20	5.31
Book Value - \$ in Millions	\$46	\$51	\$100

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PEOPLE PROFILE

NORTHEAST UTILITIES



WE SERVE THE NORTHEAST WITH
NATURAL GAS, ELECTRICITY, AND
WATER. WE ARE COMMITTED TO
EXCELLENCE IN SERVICE AND
PROTECTION OF THE ENVIRONMENT.

P.O. Box 270

Hartford, Connecticut 06101-0270

RICHARD M. KACICH



Richard M. Kacich is director of the Nuclear Licensing Department in Nuclear Engineering and Operations within Northeast Utilities (NU), a registered holding company formed in 1966 whose principal operating-company subsidiaries are The Connecticut Light and Power Company, Holyoke Water Power Company, Public Service Company of New Hampshire, and Western Massachusetts Electric Company, and whose principal service-company subsidiaries are North Atlantic Energy Corporation, North Atlantic Energy Service Corporation, Northeast Nuclear Energy Company, and Northeast Utilities Service Company. In addition, Charter Oak Energy, Inc., and HEC Inc., are NU's nonutility subsidiaries. He directs the planning, scheduling, and coordination of all licensing activities for NU's

four nuclear generating units. These activities include the primary interface with the Nuclear Regulatory Commission.

Born in St. Louis, Missouri, he earned a bachelor of engineering degree in nuclear engineering from Rensselaer Polytechnic Institute (RPI) in Troy, New York, in 1974. The following year he received a master of engineering degree in nuclear engineering from RPI. While at RPI, he was an instructor at the RPI Critical Facility, wrote A Manual of Experiments for the Rensselaer Reactor Facility, and held a senior reactor operator's license. He joined NU in 1975 as an assistant engineer. He participated in the initial core loading and start-up testing of Millstone Unit 2 during his assignment to the Millstone Station in 1975-76. He subsequently served in various positions in the licensing organization and was promoted to licensing supervisor in 1982. In 1987, he was promoted to manager, Generation Facilities Licensing, which involved coordination of all licensing activities for NU's fossil, hydroelectric, and nuclear generating facilities. He assumed his current position in March 1992. In July, 1992, he earned an Executive MBA from the University of Hartford. He is a member of the American Nuclear Society and a registered professional engineer in the state of Connecticut.

Kacich has participated in numerous owners groups and industry activities, including the SEP Owners Group (chairman), the BWR Owners Group, the Nuclear Utility Fire Protection Group, the Nuclear Utility Group on Environmental Qualification, the Nuclear Utility Backfitting and Reform Group, and various Atomic Industrial Forum and NUMARC activities.

Kacich is active as an instructor in pre-cana conferences for engaged couples and as a member of the East Hampton Playscape Committee. Kacich and his wife Barbara and daughters Michelle and Bethany live in East Hampton, Connecticut.

September 1992

A/20

PEOPLE PROFILE

NORTHEAST UTILITIES


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JOHN F. OPEKA



John F. Opeka is executive vice president--Nuclear for Northeast Utilities (NU), a registered holding company formed in 1966 whose principal subsidiaries are The Connecticut Light and Power Company, Holyoke Water Power Company, Western Massachusetts Electric Company, Northeast Nuclear Energy Company, and Northeast Utilities Service Company. He is responsible for overall technical support and operation of NU's nuclear facilities.

A native of Forest City, Pennsylvania, Opeka received a bachelor of science degree in electrical engineering from Pennsylvania State University and a master's degree in business administration from Rensselaer Polytechnic Institute at the Hartford Graduate Center. He also completed the Program for Management Development course at the Harvard Business School. He served in the United States Navy from 1962 to 1967.

Opeka began his utility career with NU in 1970 as an engineer in the Nuclear Production Department at Berlin. He was assigned to the company's Millstone Nuclear Power Station in that capacity in 1972 and was made senior engineer there in 1973. He obtained a senior reactor operator's license in 1975 and later that year was named Millstone plant services superintendent. In 1977 he became assistant station superintendent and was named station superintendent in 1978. In this position, Opeka was responsible for the overall operation and maintenance of Millstone Units 1 and 2. He was named system superintendent--Nuclear Operations, in 1980, becoming responsible for the overall operation and maintenance of both Millstone units and the Connecticut Yankee nuclear plant. He was elected vice president--Nuclear Operations in June 1981, was named senior vice president--Nuclear Engineering and Operations in 1985, and was named executive vice president of Engineering and Operations in 1986. He assumed his present position in November 1991.

He is a member of the American Nuclear Society and the Pennsylvania State University's Alumni Association, and is a fellow of the American Leadership Forum. He is also on the Board of Directors for the Opportunities Industrialization Center of New London County and on the Board of Trustees for the Thames Science Center.

Opeka and his wife Jacqueline have two daughters and live in Old Lyme, Connecticut.

May 1992