

Energy Systems at Portsmouth

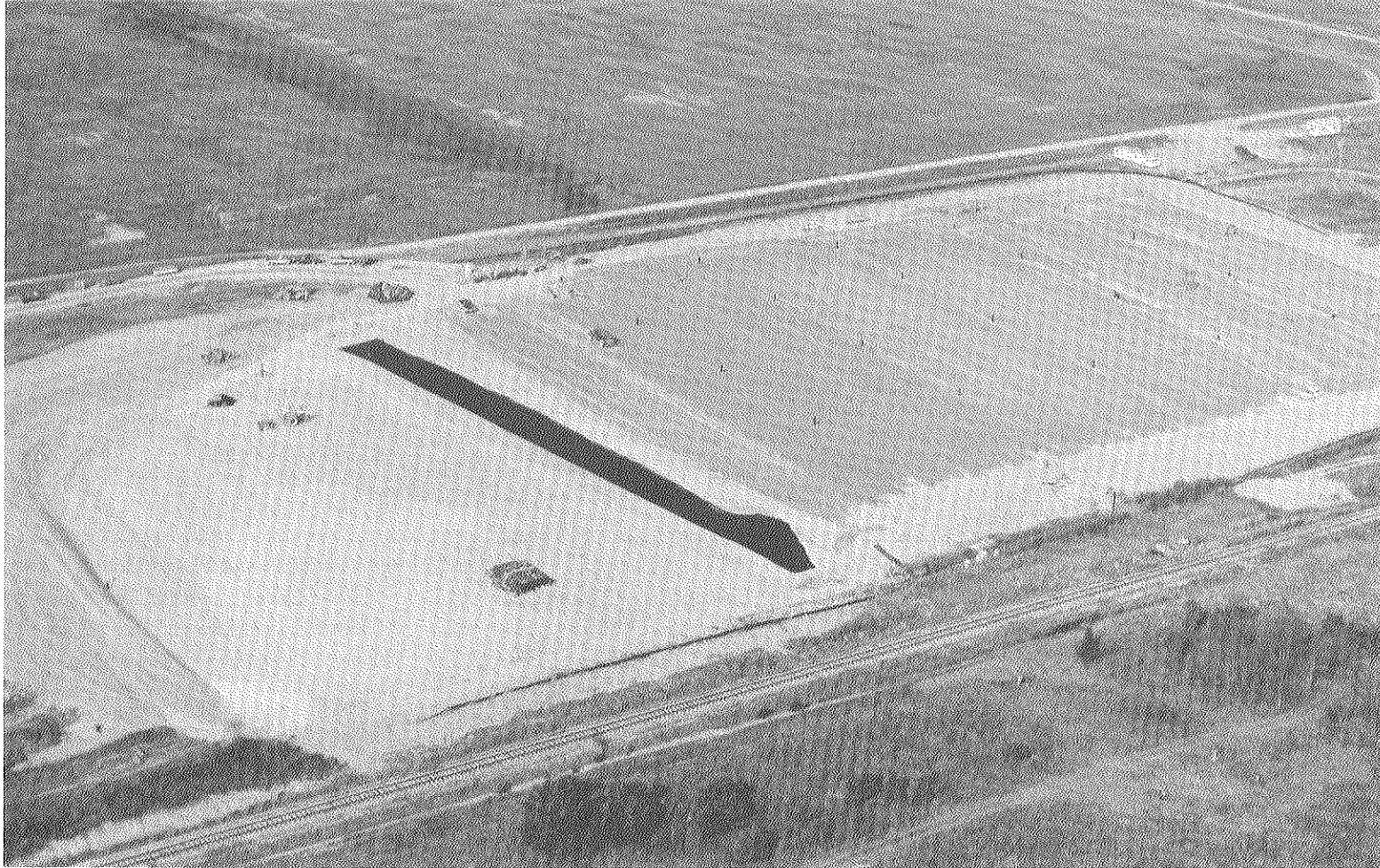
A Monthly Newspaper for Portsmouth Gaseous Diffusion Plant Employees of Martin Marietta Energy Systems, Inc.

Volume 7

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Number 1



Cap work continuing at the X-749 landfill

More than 10,000 truck loads of sand and dirt have been used for this multilayer cover at one of four sites the U.S. Department of Energy is restoring at its Portsmouth Gaseous Diffusion Plant. Work is under way to enclose a former low-level radioactive waste landfill and stop ground water contamination. Work on the cover, which is designed in accordance with Environmental Protection Agency guidelines and the Resource Conservation and Recovery Act, began on Nov. 30, 1990, as part of the overall environmental restoration program at the plant. (Story and additional photographs on Page 2)

Four-year plan outlines company mission

Energy Systems' Long-Range Operating Plan (LROP) for 1992-1996 has been completed. The plan is updated each year by the Energy Systems Senior Planning Group, which consists of President Clyde Hopkins, the company's vice presidents, and Dan Robbins, director of Energy Systems' Information Resources and Administration.

The plan not only articulates the overall vision for the organization, but also reflects the perspective of each of the strategic business areas — energy research and development (ORNL); uranium enrichment (Paducah and Portsmouth plants); weapons component production (Y-12 Plant); and applied technology (AT), including emphasis on environmental management projects (centrally managed from the K-25 Site).

The plan, which encompasses a 10-year horizon with a five-year focus, serves as a blueprint for decision-making within Energy Systems.

The updated plan covers an Energy Systems overview of performance and resources indications/trends, progress made against key issues in the 1991-1995 LROP,

vision and long-term key issues, and challenges and strategic direction. In addition, each business area's mission, major strategic objectives, a business overview, technical and business perspective, and strategic issues and required actions are covered. A separate section also is included that covers operational considerations — management and contractual factors; environmental, safety, and health compliance; and environmental restoration.

The LROP was prepared under the direction of Bill Martin, associate director of the ORNL Engineering Technology Division, with material supplied by Bob Burditt, Y-12 Plant; Bill Christenberry, Uranium Enrichment; Jim McBrayer, Applied Technology; and Amanda Renshaw, ORNL. It was edited by Gail Anderson of the Executive Offices Publications Office.

Missions Stated

The updated plan includes the mission of Energy Systems and each business unit.

MISSIONS: Current Energy Systems operations are in four main business areas: energy research and development (R&D);

uranium enrichment (UE); weapons component production; and applied technology (AT), including emphasis on environmental management projects. We are committed to success and excellence as we perform our mission and are dedicated to empowering all our people to act within the framework of strategic goals and directions and to achieving Total Quality Management. We intend to be the best in each of our endeavors as perceived by our team, our peers, DOE, and other DOE customers. Ethical behavior and adherence to our Energy Systems Values are vital to our success. Our mission is achieved through four Strategic Business Units, which have individual missions as follows:

- **ENERGY R&D** — To focus on basic and applied research, on technology development, and on other technological challenges that are important to DOE and to the nation. The laboratory also performs R&D for non-DOE sponsors when such activities complement DOE missions or address important national or international issues. The laboratory is committed to the pursuit of ex-

cellence in all its activities, including the commitment to carry out its missions in compliance with environmental, safety, and health laws and regulations. Principal elements of the laboratory's missions include activities in energy production and conservation technologies, physical and life sciences, scientific and technological user facilities, environmental protection and waste management, science and technology transfer, and education.

- **URANIUM ENRICHMENT** — To manage the nation's enrichment facilities to meet production commitments in a cost-effective manner while protecting UE employees, the public, and the environment; to develop improved enrichment technologies; to assist DOE in creating new enrichment business opportunities; and to provide commercially oriented enrichment services.

- **WEAPONS COMPONENT PRODUCTION** — To manufacture high-quality nuclear weapons components and support other programs of national importance.

(Continued on Page 2)

Former low-level waste site is capped

After more than 10,000 truckloads of sand and dirt, work is being completed to cap the northern half of the X-749 low-level radioactive waste landfill.

The project involved construction of a multi-layer cover designed to eliminate infiltration of surface water and restrict ground water flow beneath the buried waste site.

The 7-1/2 acre disposal facility is located at the southern edge of the plant. Since the late 1950s, the site was used for storage and disposal of solid wastes contaminated with low-level radiation and scrap materials, including roofing materials, concrete, insulation and other non-burnable items. These wastes were placed in metal drums and buried in trenches covered with a compacted clay soil.

Recent studies indicated the existence of contamination in the ground water beneath the disposal site. Primary contaminants were trichloroethylene (TCE) and trichloroethane (TCA), degreasing solvents. These contaminants have not gone off the site.

Construction of the cover, designed in accordance with Environmental Protection Agency guidelines and the Resource Conservation and Recovery Act, began in November 1990 as part of the environmental restoration program at the plant.

The site was initially graded and a solid foundation built from soil taken from another area of the plant. A vent layer consisting of a combination of geotextile material and ventilation pipes was placed on top of the borrow soil to dissipate any buildup of gases from the buried wastes. Two feet of low-permeable clay and a 40-mil synthetic liner were added to pre-

vent any moisture from entering the clay below. More than one foot of fine sand and a second geotextile layer were added for drainage purposes. A three-foot thick, approximately 45-foot-deep slurry wall constructed of clay of very low permeability was also installed to deflect the primary

source of ground water from the area.

With this type of cover, surface water penetrates through the geotextile and sand layers, flows along the synthetic liner to the outside of the cap, and is drained from the structure.

Water within or surrounding the site is

being pumped to a treatment facility where the contaminants are being removed.

The final layer consists of at least two feet of soil to support a vegetative cover. The area will then be seeded and mulched to prevent erosion. More than 85 percent of the vegetative cover has been completed.

Company horizons expand

Pinellas plant joins Martin Marietta family

Martin Marietta Corporation has been selected by the U.S. Department of Energy (DOE) to manage and operate the Pinellas electronics components plant at Largo, Florida, beginning June 1.

Martin Marietta and DOE soon will finalize negotiations on a five-year contract for management of the facility. The contract is expected to have an equivalent sales value of \$750 million to Martin Marietta, based upon an annual operating budget of \$150 million.

The Pinellas plant employs approximately 1,600 and is responsible for development and production of a wide range of electronic components, including detectors, generators, batteries, capacitors and switches for DOE requirements.

"Our selection to operate the Pinellas plant further demonstrates Martin Marietta's commitment to cost-effectively manage DOE facilities in full compliance with all federal requirements," said A. Thomas Young, president and chief operating offi-

cer of the Corporation. "Our proposal emphasized our strengths in key DOE mission areas and critical disciplines, including environmental management, health and safety, precision manufacturing, quality assurance, materials science and human resources management."

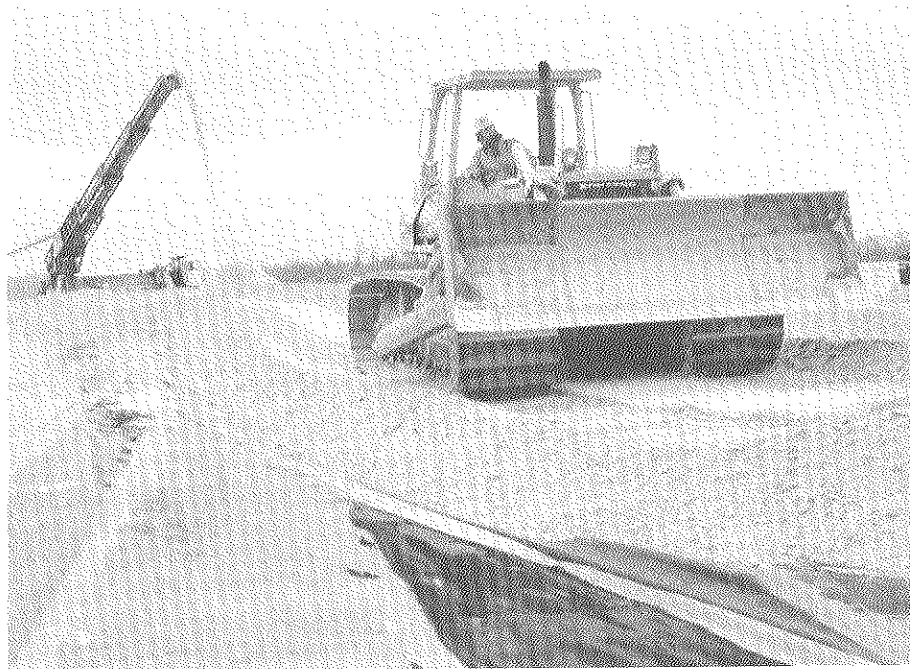
The Pinellas plant will be managed by a newly formed, wholly owned subsidiary of the Corporation, Martin Marietta Specialty Components, Inc. Dr. Charles Hall has been named president and general manager of the subsidiary, which will report directly to the Corporation's executive office.

Young also noted, "This new business responsibility complements our strategy to expand our proven skills into appropriate government markets in addition to defense. In the past two years, that strategy has resulted in more than \$5 billion in non-defense orders. We will vigorously continue our pursuit of additional DOE opportunities as part of our strategy."

Plan will include technology program

(Continued from Page 1)

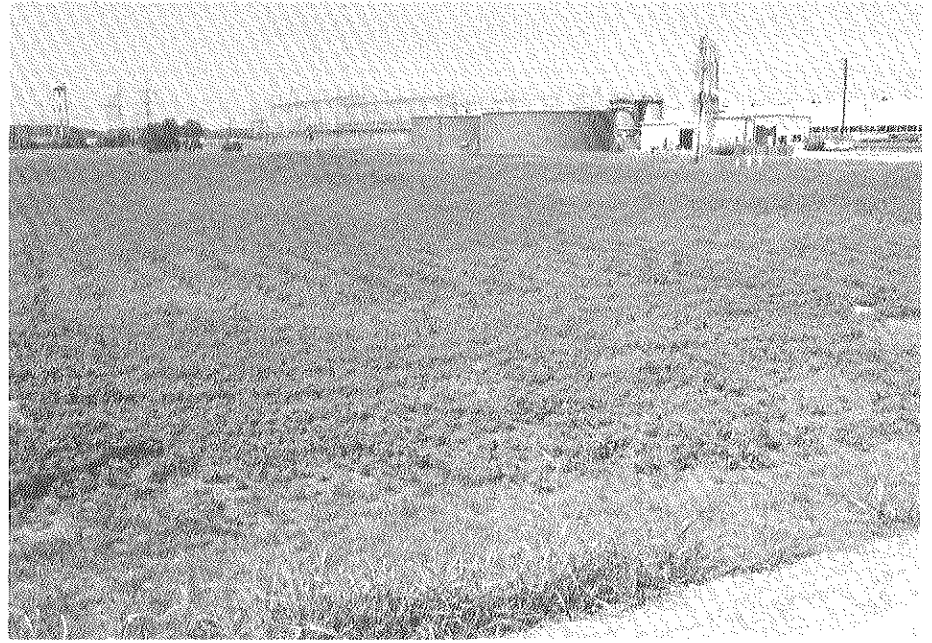
• APPLIED TECHNOLOGY — To serve DOE by applying the special Oak Ridge capabilities to a variety of programs of national interest. AT is responsible for providing technical leadership and program management for all Energy Systems environmental management programs, including Decontamination and Decommissioning, Environmental Restoration, HAZ-WRAP, Technology Development, and Waste Management; applying the Oak Ridge technology base to the solution of important national problems facing DOE and other federal agencies through the WFO program; facilitating transfer of WFO technology applications to U.S. industry; and building an expanded base of continuing DOE work at the K-25 Site, especially emphasizing its role as an Energy Systems central waste treatment and storage facility. AT also has responsibility for managing the various K-25 facilities, with appropriate attention to ES&H, and for providing cost-effective support services to all K-25 Site tenants, clients, and customers.



A layer of sand was spread over the layer of clay soil to promote vegetation and reduce the damage of erosion (above).

Soil was taken from another area of the plant and moved by more than 10,000 dump truck trips to this covered former low-level radioactive landfill at the south end of the plant (below).





Containment lagoons (left) that once held hexavalent chromium sludge were one of four areas requiring environmental restoration identified by the U.S. Department of Energy at the Portsmouth Gaseous Diffusion Plant. The chromium, used to inhibit corrosion in the plant cooling water system, was replaced by a more environmentally acceptable phosphate-based corrosion inhibitor. A grassy field (right) now stands where chromium-laden sludge once stood in the containment lagoons.

Environmental recovery projects continue

A significant phase of environmental recovery has been achieved with the removal of chromium sludge from the X-616 Effluent Treatment Facility containment lagoons.

The sludge has been detoxified and placed in special areas, or monocells, of the plant's sanitary landfill.

Following excavation, the open lagoon sites were filled with dirt, covered with topsoil and seeded. Closure of the landfill monocells will be completed this spring.

In the past, water containing hexavalent chromium, a component of the chemical formerly used to inhibit corrosion in the plant's process cooling water system, was treated and then discharged to the open surface lagoons, where the sludge was formed. The chemical has now been replaced with

a more environmentally acceptable phosphate-based corrosion inhibitor.

The lagoons are one of four sites at the plant identified for closure under the Resource Conservation and Recovery Act, a federal law which governs handling of hazardous waste. Agreement to close and restore the lagoon sites also was part of a Joint Consent Decree signed by the Energy Department and the State of Ohio in August 1989.

The site's Environmental Restoration Program is designed to find, analyze and correct contamination problems at the plant as effectively and quickly as possible. Before being implemented, plans for all investigative and restoration activities meet both federal and state guidelines and approval.

The Ohio Environmental Protection

Agency, which oversees the administration of the Consent Decree at the plant on behalf of the State, approved the plans for closing the contaminated lagoons and placing the material in the plant landfill.

The closure project began in December 1989 when DOE awarded a contract to Waste Abatement Technology, Marietta, Georgia, for the removal, dewatering and

detoxifying of the approximately three million gallons of chromium sludge contained in the two lagoons and the placement of the detoxified material in the landfill monocell areas.

The landfill areas were then covered with vinyl sheets followed by layers of sand, gravel and then topsoil. Seeding will be done when weather permits in the spring.



Chromium sludge was completely removed from two containment ponds at the U.S. Department of Energy's Portsmouth Gaseous Diffusion Plant, detoxified, and placed in these specially-built monocells located at the plant's sanitary landfill. Completion of this project marks a significant phase in environmental recovery at the plant.

Waste moves to incinerator

In mid-December, 6,000 gallons of hazardous waste oil left the plant and headed south. The oil was being stored from environmental restoration projects pending final approval for its shipment to Oak Ridge.

The U. S. Department of Energy (DOE) recently authorized operation of the Toxic Substances Control Act (TSCA) Incinerator following reviews by its own experts and those from Martin Marietta.

The incinerator is an important element in the DOE's waste management program. It is used to destroy uranium-contaminated polychlorinated biphenyls (PCBs) and other hazardous organic materials found in solvents, water solutions, absorbents, sludges and soils and waste oil.

Construction of the \$26 million TSCA Incinerator was completed in June 1987. Test operations have been conducted since June 1990 to evaluate instrumentation, monitoring and treatment systems.

New Arrivals

Daughter, Shawna Marie, Jan. 11, to Debbie Gleason (D-378).

Daughter, Hannah L., Jan. 2, to Tammy (D-222) and Delmar (D-727) Scowden.

Daughter, Catlin Alyce, Jan. 29, to Bonnie (D-021) and Joe (OVEC) Shilling.

MARTIN MARIETTA

Energy Systems at Portsmouth

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EAP provider explains program

Understanding employee assistance benefit

By Joseph M. Carver, Ph.D.

EAP for ASSURED Health Systems, Inc.

By now you've heard of the Employee Assistance Program (EAP) currently available for employees and dependents of all Martin Marietta Energy Systems facilities. Energy Systems contracted with ASSURED Health Systems, Inc. to provide an off-site EAP Psychologist for Piketon plant employees and families. The search for a regional psychologist then led to my office, Southern Ohio Psychological Services, Inc. in Portsmouth. As your EAP provider, I thought it would be helpful if I let you know some of the specific details of the EAP at the Piketon plant.

Your Family Psychologist

Most families accumulate a support system of professionals over the years. Most can list their family physician, family dentist, and family pastor. The EAP provided by Martin Marietta now adds another option to the list of family supportive services — your family psychologist. A psychologist has a special body of knowledge beyond that available through your dentist, physician, or pastor. By specializing in mental health treatment and services, your EAP can provide guidance, advice, consultation, and information regarding a variety of mental health concerns and topics. Your family needs may range from mental health treatment or consultation to obtaining information about particular conditions. For the specific needs of your family, you now have an Employee Assistance Program as one of your resources.

Eligibility

The employee and all members of his or her family are eligible for services under the EAP. Under some circumstances, additional members of the extended family are eligible if their problem directly affects the employee. As an example, a family meeting to discuss Grandmother's diagnosis of Alzheimer's Disease is within the realm of the EAP.

Additionally, consultation within the EAP need not necessarily involve the employee. A son or daughter, a spouse, or various family members can be seen in consultation. The key to the EAP is both flexibility and coverage, meeting the needs of the employee and his/her family as needed.

Services Provided

Southern Ohio Psychological Services, Inc. (SOPS), your EAP office, can provide psychological counseling, brief counseling and treatment, consultation, professional referral, and psychological testing. You may suspect your child has a learning disability or is hyperactive. You may need advice and guidance dealing with job or personal stressors. You may require counseling and referral for stress-produced physical problems such as ulcers, panic/anxiety attacks, etc. You may need referral for drug or alcohol treatment. You may need mental health information or you may just need a confidential, professional family psychologist to evaluate your situation.

Situations most often considered in EAP programs are those involving drug/alcohol concerns, mental health concerns such as

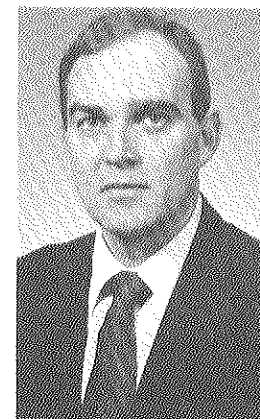
depression, anxiety, stress disorders, and crisis events (divorce, separation, death in the family, etc.). Family concerns are often parent-child conflicts, child behavior problems, learning difficulties in children, and marital conflicts. Work-related stress, drug and alcohol issues, and self-improvement are also commonly addressed in an EAP. Your EAP also facilitates referrals to other professionals, much in the same manner as your family physician may refer you to a medical specialist.

All consultations are treated confidentially.

Your EAP Office Staff

Southern Ohio Psychological Services, Inc. (SOPS) is a private practice located in Portsmouth. A psychologist with the practice is also located in Chillicothe. The office staff consists of four therapists, all registered with the Ohio Board of Psychology, to provide psychological services to Ohio residents. Office hours are flexible to allow appointments after regular working hours (after 5:00 p.m.).

ASSURED Health Systems, the EAP contractor to Martin Marietta Energy Systems, Inc., also provides a 24-hour counseling service, available through their main office by calling (800) 222-3778. Appointments with the local office can be arranged by contacting this ASSURED number.



Newton

Newton named superintendent

Kenneth F. Newton has been promoted to Department Superintendent, Purchasing (D-320). He reports to Robert D. Bush, Manager, Business Services Division.

Newton joined the Portsmouth Gaseous Diffusion Plant in September 1973 as a Buyer. He became Buyer, Sr., in February 1980; Section Head, Purchasing, in February 1981; and Section Supervisor, Purchasing, in March 1990.

Newton was graduated from Ohio University in 1973 with a bachelor of science degree in industrial technology.

He and his wife, Patty, have two children and live in Chillicothe.

Jenkins promoted in Engineering

Jack L. Jenkins has been promoted to Department Head, Engineering Services (D-634). He reports to Bonnie J. Rumble, Department Superintendent, Project Administration.

Jenkins came to work at the Portsmouth Gaseous Diffusion Plant in November 1979 as a Drafter. He became Drafter I in December 1980 and Drafter II in April 1981.

Jenkins attended the University of Rio Grande College full-time beginning in September 1985 and returned to the plant in July 1988. He became Administrative Specialist in October 1989 and Administrative Assistant I in March 1990.

Jenkins was graduated from Rio Grande College in 1987 with a bachelor of science degree in business management, minoring



Jenkins

in computer science. He is now pursuing a master's degree in computer engineering.

He and his wife, Lora, have two children and live in Wellston.

Gift aids Children's Hospital

The Business Services Division's annual Christmas gift to Children's Hospital in Columbus was valued at \$619.67 this year. The division purchased and donated 45 VHS videotape movies and two checks totaling \$60.

"It is our sincere pleasure to help the

children that you serve," said Bob Bush, Business Services Division Manager, in the letter of transmittal to the hospital. "We hope our gift will provide entertainment to the children in the Children's Hospital Hematology/Oncology Wing."

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*ASSURED HEALTH SYSTEMS IS ADMINISTRATOR FOR THE ENERGY SYSTEMS EMPLOYEE ASSISTANCE PROGRAM

Promotions

Procedures System Management Department has established a new organizational structure. The group now includes three Section Heads who report to John S. McCormick, Department Head.

Lisa E. Morris has been promoted to Section Head, Operations Services. She will supervise the procedure specialists assigned to the Operations, Technical Services and Waste Management procedure efforts.

Eugene C. Seesholtz has been promoted to Section Head, Plant Support Services. He will supervise the procedure specialists assigned to the Maintenance, Environmental Safety and Health, Business Services, Quality Programs, and Safeguards and Security procedure efforts.

Richard A. Larson has been promoted to Section Head, Document Control. He will supervise the technical staff assigned to the administration of the document control and tracking requirements established for the plant.

Waste reduction awards are given

Richard E. Blake, Environmental Control, and Randall E. McGinnis, Operations, have been recognized for innovative projects to minimize waste generated as part of operations at the Portsmouth plant.

Blake and McGinnis initiated a program to minimize polychlorinated biphenyl (PCB) leaks in process buildings. The project significantly decreased the amount of PCB contaminated waste per year, saving \$364,000 per year in cleanup costs.

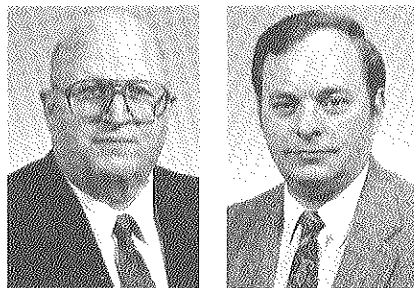
Energy Systems employees were also recognized for projects at the three Oak Ridge facilities and the Paducah uranium enrichment plant.

The DOE Waste Minimization Awards are presented annually to recognize projects that will reduce the amount of wastes generated at DOE facilities managed by the DOE's field office in Oak Ridge. Since 1987, 53 projects have been submitted for consideration in the awards competition, reporting a total savings and avoiding cleanup costs of more than \$88 million. The volume of generated waste has been reduced by 12.5 million kilograms and 36,000 cubic meters.

Waste Minimization Awards are presented on the basis of innovation, measurability of results, and projected cost savings for projects started in 1990. The U.S. Environmental Protection Agency and the U.S. Department of Energy signed an agreement-in-principle in August 1990 as part of the federal Toxic Substances Control Act (TSCA). This agreement establishes a plan and schedule to bring gaseous diffusion plants into full compliance with PCB regulations.



Morris



Seesholtz

Larson

New Employees

December 16

David B. Lambermont, Procedures System Management (D-072).

December 30

Robert K. Johnson, Quality Programs Statistical Services (D-412).

January 6

Lawrence P. Raque, Health Physics (D-102).

Ricky L. Dennis, Library and Distribution Services (D-351).

Nancy L. Vastine, Operations Training (D-226).

Vonda G. Burton, General Employee Training (D-227).

Donald R. Tomilson, Civil Engineering (D-621).

January 13

Troy D. Martin, Health Physics (D-102).

Karen S. Stanley, Employment (D-024).

Jennie L. Snyder, Procedures System Management (D-072).

January 20

Reeca S. Ball, Medical (D-111).

February 3

Clarence W. Britton, Health Physics (D-102).

Michael S. McCrae, Procedures System Management (D-072).

Amanda J. Johnson, Quality Programs Statistical Services (D-412).

February 10

Mary A. Novotny, Organic Analytical Services (D-554).

Melissa A. McGovern, Materials & Services (D-331).

February 17

Sherry L. Thompson, Uranium Analysis (D-512).

Monti R. C. Kelley, Health Physics (D-102).

Virginia L. Gammon, Employment (D-024).

Thomas M. Marshall, Procedures System Management (D-072).

Rodney A. Miller, Accounting (D-378).

Obituaries

Chester W. Davis, 80, Chillicothe, Nov. 22. Davis was a Janitor (D-426) at the time of his retirement in October 1967. Survivors include his wife, Mary Lou.

Jerome Gabel, 73, Cincinnati, Dec. 2. Gabel was in Materials (D-424) at the time of his retirement in April 1981.

Loren A. Fleshman, 60, Chillicothe, Dec. 6. Fleshman was in Fire Protection (D-921) at the time of his retirement in May 1988. Survivors include his wife, Anna.

Helen Brown, 87, Avon Lake, Dec. 7. She was the widow of William A. Brown, who was Manager, Plant Engineering and Maintenance, at the time of his retirement in Dec. 1966.

Opal Dials, Dec. 10. Survivors include sons William R. Dials (D-831) and David A. Dials (D-712).

Gertie Stone, 77, Beaver, Dec. 12. Survivors include a daughter, Barbara Scott (D-377), and a son-in-law, Bill Scott (D-729).

Jimmie Ray Locke, 51, Waverly, Dec. 22. Locke was a Maintenance Mechanic I/C with a continuous service date of June 23, 1975. He is survived by his wife, Carolyn, and one son, Kevin.

Kerry Stone, 26, Kansas City, Kansas, Dec. 30. Survivors include his parents, Marilyn G. Stone (D-346), and Ronald F. Stone (D-921).

Robert E. Wagner, 75, Portsmouth, Jan. 1. Survivors include his daughter, Susan Jones (D-020).

Robert Versaw, 67, Michigan, Jan. 6. Survivors include his daughter, Bonnie Rumble (D-630).

Hilda Channel Helm, Wellston, Jan. 6. Survivors include her son, Arthur K. Channel (D-722), and cousin, Jim Channell (D-726).

Orville Ferguson III, 24, Columbus, Jan. 12. Survivors include his mother, Gail Twist (D-823).

Kay Wishart, Centerville, Jan. 14. Survivors include her husband, George Wishart (D-321), and two daughters.

Harold Jenkins, 42, Portsmouth, Jan. 15. Jenkins was a Security Inspector with a continuous service date of September 10, 1984. Survivors include his wife, Beverly, and three sons.

Carol Jones, 54, Jackson, Jan. 22. Survivors include her stepson, Clayton Jones (D-378).

Norman W. Moore, 73, Minford, Jan. 25. Survivors include his son, Jerry Moore (D-223).

Harold "Bud" Radabaugh, 65, Lucasville, Jan. 26. Survivors include his wife, Jean Radabaugh (D-901).

Warren C. Lauderback, 76, Minford, Jan. 26. Lauderback retired from the Maintenance Division in June 1979. Survivors include son Ken Lauderback (D-723), daughter-in-law Pam Lauderback (D-912), and nieces Linda Ortman (D-001) and Phyllis Smith (D-923).

Mildred "Mickey" Sheward, 71, Jackson, Jan. 28. Survivors include her son, Buck Sheward (D-010).

Lucy McLaughlin, 88, Danville, Virginia, Feb. 3. Survivors include her son, Wayne McLaughlin (D-020).

Walter E. Gordon, Melbourne, Florida, Feb. 4. Gordon was a Maintenance Foreman at the time of his retirement in February 1985. Survivors include his wife, Edith.

Robert I. Bethel, 61, Coalton, Feb. 6. Bethel was an Assistant Cascade Coordinator, Plant Control Facility (D-817), with a continuous service date of August 1954. Survivors include his wife, Cora, and several children.

SERVICE MILESTONES

February 1992

35 years — John E. Thompson.

30 years — Jarvis E. Vanderpool Jr.

20 years — Esther L. Downey.

15 years — Jacqueline S. Keller, John W. Oyer, Gregory S. Lang, John E. Taphorn III, Charles J. Troncone, Robert W. Minton, Chester L. Beach, Jerry L. Knight and Clarence S. Johnson Jr.

10 years — Elizabeth K. Hutchison.

March 1992

25 years — Linda Y. Ortman and Billy D. Lewis.

20 years — Selva J. Radabaugh.

15 years — Dean L. Armstrong, Homer F. Kight, Harry N. Eyre, Robert L. Lallier, Stanley W. Ingham, Joseph E. Kuhner, Perry S. Coriell, Andrea C. Young, Phyllis A. Harris, Clara L. Clemens, Phillip W. Gullett, John D. Sanders, Fawn L. Landrum, Forrest S. Bauer, Jeremy L. Galloway, Charlene Griffin, Mary M. Dettwiller, Mark B. Veach, Richard D. Bussa, Janet M. Hicks, William P. Holmes, George W. Bolden, Anita J. George, James M. Sturgeon, Doris C. Valentine, Clark J. Deffenbaugh, Eloyse Johnson, Scott M. Buckler, Mark A. Jones, Lanny S. Adkins, Allen R. Ferguson, Robert M. Flaig, Robert H. Givens, Billy E. Browning, Kenneth R. Messer and Zachary D. Hardman.

10 years — Gary A. Plante, William P. Roll and Larry R. Dingess.

STRESS

Plant Protective Force gets special training through interactive video

By John Christian

The kind of STRESS that Commander Jim Snodgrass of the Portsmouth Protective Force Training Section is talking about these days is the Security Training and Evaluation Shooting System used to train the plant's protective force.

STRESS uses an interactive video to simulate potential life threatening situations. Officers use a "weapon" that shoots infrared "bullets" towards a screen. Behind the screen, a modified camera captures the beam and records a "hit" or "miss."

"The officers are out here to protect our facility," Snodgrass said. "We have to make sure our officers maintain the right combat mind set to be able to respond and resolve the situation using the minimal amount of force necessary to overcome the resistance. We test our people and prepare them for the worst."

STRESS is set up for security programs. It is designed to test the officer's judgment in dealing with potential hostile situations.

The STRESS system is like a life-size computer simulation of tactical scenarios. Working from a laser disc, it processes computer commands to match the ongoing scenario and allows the option of changing the scenario instantly throughout its progression.

"Basically what happens is the scenario program goes in through the computer program using a voice-generated system and a laser disc working together to throw an image up on the screen," Snodgrass explained.

Using videos filmed at various locations within the plant, officers work through scenarios with familiar surroundings. Snodgrass said examples of extremes are used, such as hostage situations, burglaries, and dealing with intruders.

STRESS "fires back" at the officer with

infrared weaponry. The officer wears a lightweight vest that is equipped with sensors. If he doesn't take the proper cover, then he gets "shot."

The system is also smart in that it knows just how many "bullets" the officer has. No cheating is possible. When the bullets are used up, the officer has to reload his weapon. If the officer is defeated, Snodgrass says, "we discuss his or her response to the challenge, reset the system, and attempt another scenario." This does not mean that the training is played down in any way. "We're testing this officer's knowledge, skills and ability."

Snodgrass says several factors come into play when designing scenarios. He feels the most important issue in any security confrontation is the command presence of the officer; how they take control of a given situation. "If you have an officer that looks sloppy, that really doesn't act as if he knows what he's doing, the potential of a negative situation occurring is much higher. Because of this, an officer must show he or she is in command."

Command presence is also used in the STRESS system to determine the next step of the scenario. If the officer appears to be in control, the scene moves forward in peaceful resolution. But, if the officer appears to be lacking control, the instructor can change the direction of the scenario by branching to a more difficult situation.

Energy Systems at Portsmouth was the first contractor in the United States to buy this system and write the first scenarios. "We wrote our own scenarios," Snodgrass said. "Our scenarios emphasize the response of the officer through command presence."

EG&G, designers of the STRESS system, have since used the scenarios written at the Portsmouth site to design scenarios for the nine other STRESS systems used in the United States.

All of the plant's protective force have had law enforcement experiences — some from military backgrounds, others from civilian agencies such as sheriff's departments.

The STRESS system is set up as a refresher. "Our officers, under DOE orders, are required to take a battery of examinations, either written, oral, or performance based," Snodgrass said. "With the versatility of the system, we can make ensure they can perform the basic scenario and then move on to more difficult ones."

Protective Force officers are required to qualify with assigned weapons every six months. They are also required to pass a physical fitness test every year.

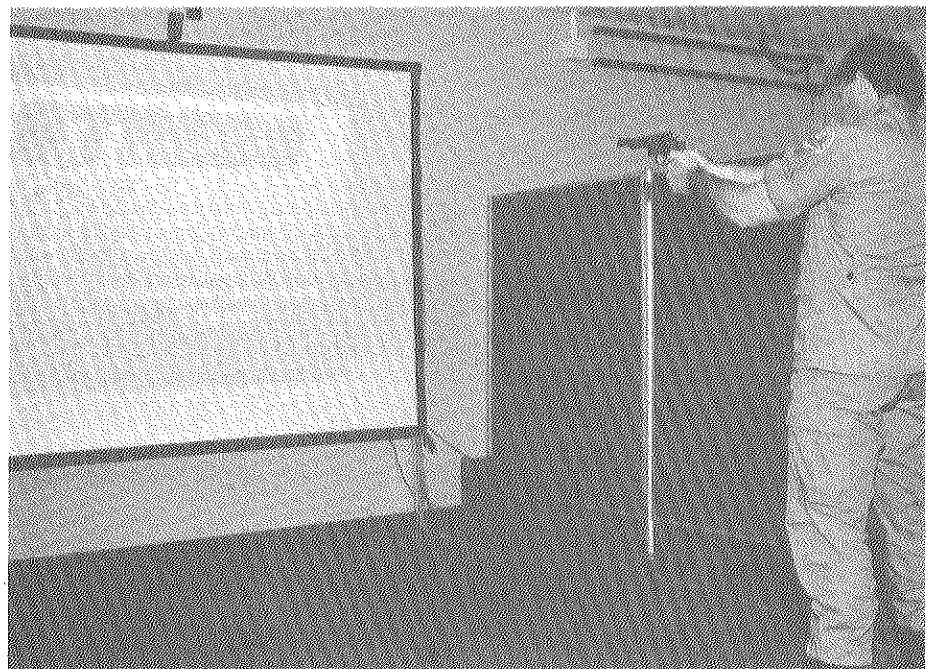
Testing is very stringent. The Protective Force Training Section completed over

22,000 hours of training last year. Each officer averages 124 hours of training annually. "The training is necessary," Snodgrass said, "to protect the plant and its employees."

Snodgrass added that the STRESS system is not only a remarkable asset to the training program, but is also available to local law enforcement agencies to enhance their already existing training programs.

Other members of the Protective Force Training section in addition to Snodgrass

are Mike Kelly, General Training Instructor, Firearms, Defensive Tactics and Physical Fitness; Dave Davis, Basic New Hire Instructor and Law Enforcement (subject matter such as defensive tactics) and Job Task Analyst; Tony Jones, Special Response Team and Firearms Instructor; Ed Knapp, Range Master responsible for firearms certifications and managing the outdoor and indoor ranges on the plant; Melissa Davis, Administrative Assistant; and Cherie Fitch, clerical support.



Dave Davis, trainer in the plant's Protective Force Department, demonstrates the technical aspect of the STRESS training system (below). The interactive video program is controlled by an operator who can watch the entire exercise through the large window. The operator can also manually switch scenarios to create more complex situations. Above Davis (top photo) is a complex computer that will project a scenario on the screen. When Dave pulls the trigger, the sound of a gun being fired is heard and a red dot appears on the screen exactly where he aimed. Later, the system will replay his scenario and show him where his shot fell within a target area.

Imagine it's the middle of the night and you are the guard on duty. You hear noises coming from an office. The person inside is ransacking the office, looking for something. You are responding to a report that the office should be empty at this hour of the day. You hear one or two voices behind the door that sound angry. You open the door. One of the men you see is drilling into a safe.

How would you take control of this situation? How would you take cover? Do you call for assistance? What would you do?

STRESS tests reactions to these and other scenarios through its series of interactive videos.

Secretary discusses weapons programs

Secretary of Energy James D. Watkins in mid-December discussed the status of the department's nuclear weapons program and the transition which the program continues to undergo in recognition of a changing world and President Bush's initiatives to reduce our nuclear weapons stockpile.

Watkins stressed the need for the K-Reactor at the Savannah River Site and the importance of assuring that the United States has the capability to produce the tritium required to maintain the nuclear arsenal as determined by the President.

"As long as we have a nuclear arsenal, we cannot be without the capability to produce tritium. While changing world events have provided me the time to make responsible environmental and construction decisions on the New Production Reactor," Admiral Watkins said, "the sooner the K-Reactor has been demonstrated to be a viable tritium production source, the sooner K-Reactor can be shut down and placed in standby in anticipation of the New Production Reactor coming on line."

Admiral Watkins provided an historical perspective by noting that in December 1988, the Department of Energy had reported its intent to Congress to modernize and expand the nuclear weapons complex to carry out its future mission in support of a nuclear deterrent arsenal, still predicted then to be large.

The Department of Energy (DOE) was planning to reactivate three reactors at Savannah River shut down for safety concerns since 1988; maintain a back-up reactor at Hanford; site two New Production Reactors each of different design; and work to bring up all plutonium operations at Rocky Flats as soon as possible.

"Since December 1988," Admiral Watkins said, "the INF treaty, the START agreement, the dissolution of the Soviet Union, and President Bush's dramatic and more recent initiatives to reduce major tactical and strategic nuclear arms, have had an impact felt around the world, across the nation, and particularly here at DOE.

"One positive benefit of this reduction in the stockpile is that it will allow me to consolidate our non-nuclear, as well as the nuclear, production activities. This will result in a new complex that is less dispersed with smaller facility capacities."

The non-nuclear component activities can be consolidated and reduced independently of any decision concerning the nuclear facilities," he stated. This will result in a net workforce reduction of 4000 over the next four years. Additionally, Watkins noted, the changes in the DOE complex will result in a substantially reduced nuclear component workforce, several thousand over the next 10-15 years. But decisions relating to reconfiguration have not yet been made and are subject to NEPA review.

In contrast, the workforce for the Environmental Restoration and Waste Management program is expected to increase significantly in the future.

"In 1989, our environmental restoration workforce was just over 10,000," Watkins said. "By 1995, we expect to nearly triple that number."

Admiral Watkins noted that the U.S. nuclear weapons complex will never look the same again. "We can and we will reduce and streamline our nuclear weapons complex and make it more cost-effective, responsive to changing times, and less expensive to the taxpayer without abandoning our responsibility to support this nation's national security. The nuclear deterrent has been instrumental in preserving world peace for nearly half a century, and it must remain, as President Bush has indicated, a cornerstone of our national security policy," Watkins concluded.

Production Reactor Program Adjustments

Watkins announced further steps to implement his decision to incorporate the New Production Reactor (NPR) Environmental Impact Statement (EIS) into the Weapons Complex Programmatic Environmental Impact Statement.

DOE had published a notice in the Federal Register inviting public comment on incorporating its NPR environmental statement into the department's Programmatic Environmental Impact Statement (PEIS) for reconfiguring the nuclear weapons complex.

The decision to integrate the two EISs was announced by the Secretary of Energy on Nov. 1, 1991, and was made in light of the President's announcement of Sept. 27, 1991, to further reduce the nation's nuclear stockpile of nuclear weapons. The President's initiative allows DOE an opportunity to integrate the programmatic analysis on tritium supply with the programmatic analysis of other functional elements of the weapons complex.

Combining these efforts will permit maintaining both reactor design teams at minimum levels while allowing time to consider the impact of the changes resulting from recent events. Watkins stated, "These

changes will allow an orderly examination of all the related issues that comprise this nation's future nuclear deterrent."

The Admiral added, "We will now use

this time to our advantage to thoroughly examine all reasonable technologies and downsize designs based on the projected future requirements."

Service mandated repairs

It was a worst-case scenario of teleconferencing when service for about 1,700 plant telephones was upset in November and late December by outdated equipment.

According to Greg Lang, Department Head, Telecommunications, the administrative telephone switch became defective Nov. 7, setting off a chain of unintentional disconnections and conference calls.

Lang oversees telephone repairs, communications security operations and telephone administrative services.

Although November's particular problem in the switch had not happened before, other problems have occurred simply because of the age of the equipment, Lang said.

Since the problem was first identified, six people worked full-time to bring the system back into service. General Telephone Exchange (GTE) employees also offered support. At one point, the switch was completely shut down over night and restored one level at a time. "The problem was massive," Lang said.

Realizing the enormous size of the user load, Lang said his crews came in over the weekends and literally shut down the switch in order to bring it back in service in sections. "It's the only way, to take the users off," he said.

Telephone conversations during the three-week breakdown became party-line with frequent wrong numbers connected or misdirected. Operations Security distributed a reminder that employees be aware that calls could easily be heard by a third party.

Communication problems, Lang said, were limited to specific areas of the plant which receive the most use, such as Business Services, Purchasing, Employment and other administrative areas. Operational programs were not affected by the problems. The plant has several systems in-

cluding radio communications and high-frequency radio service, Lang noted.

Lang also pointed out that the plant's security was not in jeopardy. "At no time were we totally without communication."

Lang said repair of the administrative telephone switch used the philosophy of starting on trunk lines coming in from the outside first. "We started bringing the critical extensions up."

Crews were able to work on some lines while other lines were in service. This kept the service going, but at partial capacity. "By Sunday night (Nov. 24) we had 70 percent of it back up," he added. The following day, the system was restored 100 percent.

Lang said part of the project took longer to repair because people placed lines on hold to avoid excessive calls to the wrong extension and tied up the hook.

There may still be some problems with telephone lines. That can be expected on large systems, Lang said. Repair personnel are working on them independently.

The old system poses problems for the plant in locating new parts. Additionally, there is no guarantee how long the system will remain "up" even though it is working now.

Communication crews may not have to struggle with the old switch much longer, however. Another switch, one-fifth the size of the current one, is on order and should arrive soon, Lang said.

The new switch will be state-of-the-art, complete with computer features and services such as call forwarding and conference calling (this time intentional). Nearly 2,000 telephone users will be offered this new service which Lang describes as similar to local commercial telephone company service. He added that the new system will run a period of time before it is accepted by the plant.

Engineers wear Christmas shirts

Participants in the Engineering Division's second annual Christmas Sweatshirt Day included George Shoemaker, Bill Strunk, Jay Yerian, Scott Reiser, Shirley Walter, Bob Casari, Dick Dilts, Dave Ghearing, Flip Young, Dave Marr, Bobbi Hartwell, Glenn Russell, Debbie Jordan, Cheryl Whitt, Crystal Bays, Brian Barnes, Dian Spriggs, Sara Lowman, Carol Suively, Kathy Hoggard, Bonnie Rumble, Mike Edelmann, Gerry McGuire and Bill Dresbach.



Engineers Week: Honoring their talents

By Paul I. Davis, P.E.

Each year, the nation's engineers undertake a special effort to focus public attention on their contributions toward improving the quality of our lives.

National Engineers Week has been celebrated annually since 1951. It is held during the week of George Washington's birthday, since our nation's first president was a military engineer and a land surveyor.

Washington was responsible for establishing the first U.S. engineering school at Valley Forge, which was later moved to West Point, where it became the U.S. Military Academy. Profoundly stated by Nate Hurt, 1992 National Engineers Week chairman and former plant manager (1977-86): "Our world today is a product of engineering and our world tomorrow will be even more so. Today engineers are searching for solutions to endless problems, ranging from disposal of waste to extending the limits of the human body. This week (Feb. 16-22, 1992) we marked National Engineers Week, to celebrate the engineering successes of the past and present and look to the successes of the future. Engineers continue to explore the frontiers of technology, all with one goal: to make this world a better place in which to live."

"The basic foundation that leads to success in our industry begins with engineers who act as the architects," commented Plant Manager Ralph Donnelly. "Because of their creative foresight, we have been able to attain our ultimate objectives."

During this annual week-long observance, thousands of engineers undertake special projects to promote their profession. Engineering has the largest number of professionals, except for teaching. It is a problem-solving occupation that uses science, technology and common sense to design, construct, maintain and distribute goods, services and information.

Another goal of Engineers Week was to look into the future of the engineering profession. Using technology, engineers turn ideas into reality.

According to estimates, 35,000 robots are in use in the United States today. The day is not far off when a brain surgeon will be able to rely on a robotic helper during surgery to position and focus a surgical in-

strument. Within a few years, dentists will be able to scan a patient's teeth with a laser, and then have a computer automatically design and manufacture a replacement crown while the patient waits.

The future is challenging. By the year 2000, manufacturing engineers will have to be familiar with twice as many technologies as they know today, and most manufacturing engineers will work in teams rather than individually.

While earthquakes are an inevitable hazard, they are not certain disaster. Engineering practices are available for designing and constructing earthquake-resistant buildings. Worldwide compatible high-definition television and simultaneous translation of human speech from one language to another will become realities by the year 2010.

Over the next 20 years, engineering and technology will have a positive effect on the global environment. Engineers are uniquely qualified to address the urgent issues of competitiveness, energy and the environment.

The future calls for the engineering profession to tackle the nation's most critical environmental problems of hazardous waste disposal, lack of natural resources, clean air and water shortages.

An estimated 40,000 tons (about 36,300 metric tons) of waste are generated every day, 95 percent of which are being placed in landfills that are rapidly reaching the end of their disposal capacity.

Artificial body parts may become off-the-shelf items to be purchased when needed and we will inhabit the moon and man-made planets, according to a survey of life in the 22nd century.

The engineer's past has been exiting and much has been done such as landing on the moon, communicating by satellites, applying microprocessors to almost everything, designing products with computers, manufacturing by aid of computers, applying

CAT scan, building jumbo jets, transmitting information over fiber-optic cable, and the list goes on.

America needs a steady supply of well-educated motivated young people to fill the depleting ranks of the engineering profession. Young people who are interested in helping preserve our national competitive edge and cleaning up and protecting the environment should consider careers in engineering. No other profession will make a greater contribution to these and other demands we face in the 1990s.

High school is an important place for future engineers to start planning and preparing. Engineering requires firm grounding in the fundamentals of mathematics and science, with particular emphasis on physics and chemistry.

Paul E. Lego, chairman and chief executive officer of Westinghouse Electric Corporation and honorary chairman of National Engineers Week 1991, said, "Recent comparisons showing American 13-year-olds scoring lowest along industrialized nations in math and science skills point to a national concern as serious as any of the economic and environmental challenges we will face in the future."

Professional engineers, parents, teachers, and industry leaders need to attack this national concern with all the resources at hand. Engineers are natural partners with teachers in the very important task of improving science and math education and engineering literacy.

"It (National Engineers Week) lets me focus attention on a vital profession, one with tremendous professional opportunity. And it gives me a chance to encourage students to become engineers — so they can make important contributions to our society, be challenged and stimulated and, in the process have some fun." — Jack D. Kuehler, president, IBM Corporation and Honorary chairman of National Engineers Week, and an engineer.

Our nation needs well-motivated young people to become professional engineers. Young people who are interested in turning ideas into reality should consider careers in engineering. Every time we turn on a light, watch TV, open a refrigerator, cross a bridge, or make a telephone call, we are using inventions and designs of engineers. Turning ideas into reality requires a firm foundation in the fundamentals of mathematics, chemistry, physics, and communication.

High school is the turning point for young men and women towards preparing for an engineering career. Participation of women, African Americans, Hispanics and Native Americans in the U.S. engineering programs in universities increased to all-time levels in the fall of 1990.

To show students that we care deeply about their future, Energy Systems distri-

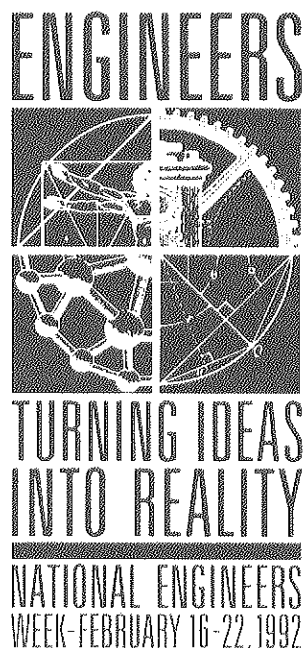
buted posters, brochures, and bookmarks, and personally visited local schools.

Paraphrasing Mr. Kuehler's remarks, we hoped to give the local students the chance to sit behind the "wheel" of our professional lives so that at the very least, they can imagine the roads to their future.

One such resource is the Junior Engineering Technical Society (JETS). JETS is a national nonprofit educational organization dedicated to preparing pre-college youth for the challenging world of tomorrow. JETS Programs includes tests of Engineering Aptitude, mathematics, and science (TEAMS), an academic competition in which school teams challenge each other; National Engineering Aptitude Search (NEAS), a guidance test that measures mathematical understanding, scientific reading and reasoning ability and conceptual problem solving strengths; and National Engineering Design Challenge (NEDC), a program that teaches students real-life application of engineering concepts when they design and build a product to address a specific need.

JETS guidance materials and teacher resources are available from JETS Guidance, 1420 King Street, Suite 405, Alexandria, Virginia 22314-2715, telephone (703) 548-5387.

President Truman was the first U.S. president to send a public message of appreciation to the nation's engineers for Engineers Week. Every U.S. president since has also sent a message.



Ethics Hotline

To report possible wrongdoing or to obtain clarification on ethical matters, contact your Ethics Representative at extension 2554 or call the Corporate Ethics Office at (407) 356-9400.

In addition, the Martin Marietta Corporate Ethics Office has a 24-hour toll-free number: 1-800-3-ETHICS (1-800-338-4427).

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