



# The Office of Fossil Energy: Striving for Environmental, Security, Safety and Health Excellence

## Annual Report Fiscal Year 2002



Office of Environment,  
Security, Safety and Health

# Office of Fossil Energy Commitment to Environment, Safety and Health: FY 2002

We are committed to conducting our mission to achieve the greatest benefit for all our stakeholders, including our employees and the public, while actively adhering to the highest applicable standards for environment, safety and health (ES&H). We will continuously improve our practices through effective integration of ES&H into all facets of work planning and execution. We will make consistent, measurable progress in implementing this Commitment throughout our operations while striving to eliminate injuries, incidents, and environmental releases.

## **Implement Integrated Safety Management**

- We will strengthen our mission by making ES&H an integral part of all mission activities. We will employ the Department's policies on Integrated Safety Management to provide an integrated standards-based approach for the integration of ES&H into all elements of program management.

## **Strive to Eliminate Injuries and Incidents**

- We believe that injuries and occupational illnesses, as well as safety and environmental incidents, are preventable. We will strive to eliminate injuries and incidents, and will establish annual site-specific objectives to drive FE towards this goal.
- Should an incident occur, we will investigate to understand the cause, implement corrective actions, and apply lessons learned to prevent further incidents.
- We will assess the environmental impact of each facility we operate and will design, build, operate and maintain all of our facilities so they are safe and meet all applicable requirements.
- We will be prepared for emergencies and will assist our local communities to improve mutually supportive emergency preparedness capabilities.

## **Promote Environmental Protection and Pollution Prevention**

- We will take all reasonable and responsible actions to prevent environmental releases, giving priority to those that may present the greatest potential risk to health or environment.
- We will reuse and recycle materials to minimize the need for treatment or disposal and to conserve resources. Where waste is generated, it will be handled and disposed of responsibly.
- Where past environmental practices have created conditions that require correction, we will responsibly correct them.

## **Adopt Highest Applicable Standards of Performance**

- We will adhere to the highest standards that are applicable to the safe operation of our facilities and the protection of our workers, the public and the environment in which we operate.
- In addition to compliance with Federal, state and local environmental, safety and health requirements, we will engage in practices tailored to our work and the associated hazards to ensure the necessary protection.
- We will strive to identify all risks associated with work in the planning stage and implement strategies to achieve an acceptable minimum level of risk.

## **Ensure Management and Employee Accountability**

- All FE managers will ensure that policies are in place, clear assignments of authority and accountability are established, and actions taken to achieve this Commitment.
- Compliance with this Commitment and applicable requirements is the responsibility of every Department of Energy employee, contractor and sub-contractor acting on our behalf and a condition of their employment or contract. The goals and expectations will be reflected in contractor incentives and Department of Energy personnel evaluations.
- FE management is responsible to educate, train and motivate employees to understand and comply with this Commitment and applicable requirements.
- We will allocate necessary resources to meet this Commitment and will do so in a manner that strengthens our mission. We will share ES&H expertise and information across programs to ensure cost-effective performance improvement.

## **Encourage Worker Participation**

- Active worker participation is considered essential to meet this Commitment. Workers must be involved in reviewing work activities, identifying associated risks and implementing corrective measures.
- Workers will be given access to ES&H information, encouraged to report unsafe acts without retribution, encouraged to provide input to ES&H policy and to stop work when hazardous conditions or circumstances place workers in imminent danger.

## **Facilitate Public Participation**

- We will have open discussion with our stakeholders on our work and its impacts on their environment, safety and health.
- We will build alliances with governments, policy makers, businesses, professional societies, academic institutions and advocacy groups to develop sound policies and practices that improve environment, safety and health.

## A Letter from the Assistant Secretary

December 2002



It is my pleasure to share with you the Office of Fossil Energy's (FE's) FY 2002 Annual Report on Environment, Security, Safety and Health (ESS&H). The mission of our office is to respond to the technological challenges of President Bush's energy and environmental initiatives. To meet these initiatives, we are developing a new generation of cleaner pollution control technologies for coal-fired power plants; working to increase the efficiency of power production; working on new exploration and production processes to produce clean burning natural gas; verifying the feasibility of low-cost carbon sequestration; and pioneering new power technologies that reduce carbon dioxide emissions. To help ensure a strong energy and economic future, we continue to add oil to the nation's Strategic Petroleum Reserve, maintain readiness of the Northeast Home Heating Oil Reserve, and develop better ways to find and produce the domestic crude oil that current processes leave behind. In pursuit of this mission, we are committed to ensuring the well being of our employees, their families, and the communities in which we work.

Five years ago, we developed FE's Commitment to Environment, Safety and Health (ES&H), which continues to be the foundation for our ES&H programs. This report presents the progress that we have made in 2002, the ESS&H challenges encountered, and our outlook for the future. I am very proud of our achievements and of the contributions of our managers and employees in

performing our mission in a manner that is protective of our workers, the public, and the environment. In response to the President's mandate to make security a top priority, we significantly increased our security and emergency preparedness posture through enhancements in physical infrastructure, recruitment of additional technical expertise and guard force personnel, and extensive training and drills.

While making security a top priority, we also continued to improve our ES&H performance. We have benchmarked our performance against top performers in the Department of Energy and industry and some of our sites rank among the "best of the best." Some of our sites are recognized as superior performers by external organizations, including EPA, OSHA, and the International Organization for Standardization (ISO). We have expanded our efforts to reduce waste generation and have made notable progress on environmental cleanups. We continue to foster the cross-fertilization of innovative practices across our sites through our recently established best practices database and our achievement award programs.

In the months ahead, we will leverage our strengths and experience by assisting one another in pursuit of ESS&H excellence. In FY 2003, we will strive to achieve OSHA Voluntary Protection Program (VPP) and ISO 14001 certification at all of our field sites. We will continue to enhance the security at our sites through continued infrastructure improvements, exercises and drills, and employee training. We also will ensure that our programs are cost effective. To maximize our overall effectiveness, ESS&H will continue to be an integral part of our business strategy.

We invite you to review our performance and appreciate any suggestions that you may have for improving our ESS&H programs.

A handwritten signature in black ink, appearing to read "Carl Michael Smith". The signature is fluid and cursive, written over a horizontal line.

Carl Michael Smith  
Assistant Secretary,  
Office of Fossil Energy

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## I. Introduction

Strong ESS&H performance is essential for FE to achieve its mission of responding to the technological challenges of the nation's energy and environmental initiatives. To fulfill this mission, we must ensure the highest levels of security at our facilities and provide our employees a safe work environment. As a Federal agency responsible to the public, we must be regarded as exemplary environmental stewards by the communities in which we work and a valuable partner in preparing for and responding to local emergencies. In addition, to continue our successful partnerships with leaders of industry on cutting-edge research and development (R&D) projects, we must meet or exceed industry's highest ES&H standards.

In the wake of the September 11<sup>th</sup> terrorist attacks, FE implemented, integrated, and increased physical security measures to enhance the level of protection for FE personnel, property, and sensitive information, and heightened the overall employee security awareness. This emphasis on security, however, functions hand in hand with our continued commitment to strong ES&H programs, as laid out five years ago in FE's Commitment to Environment, Safety, and Health. The Commitment to ES&H continues to serve as our strategic vision for performing our mission in a manner that protects our workers, the public, and the environment by: integrating ES&H into all program activities; striving to eliminate injuries and incidents; promoting environmental protection and pollution prevention; adopting the highest applicable standards of performance; ensuring management and employee accountability; encouraging worker participation; and facilitating public participation, while at the same time, ensuring the highest levels of protection of the assets of our sites.

This report summarizes our FY 2002 performance in responding to the President's mandate to enhance security and meeting the goals set out in the Commitment to ES&H. The report includes information on the National Energy Technology Laboratory (NETL) including the National Petroleum Technology Office (NPTO) and the

Arctic Energy Office (AEO); the Strategic Petroleum Reserve (SPR) and the recently established Northeast Home Heating Oil Reserve; the Albany Research Center (ARC); the Naval Petroleum and Oil Shale Reserves (NPOSR); and FE Headquarters (HQ). More than 2,500 employees, including onsite Federal and site contractors and subcontractors, work at these sites.

Chapter II highlights our key ESS&H accomplishments in FY 2002. Chapter III presents quantitative results of our FE-wide performance for key ES&H performance indicators. Chapter IV outlines some of our key challenges in striving to improve our performance and presents our key initiatives for 2003.

### *The FE Sites*

NETL, the newest of DOE's national laboratories, develops new technologies and approaches to assure safe, clean, and affordable use of coal, oil, and natural gas resources. With sites located in Morgantown, West Virginia; Pittsburgh, Pennsylvania; Fairbanks, Alaska; and Tulsa, Oklahoma, NETL is a multi-purpose, DOE-owned and -operated laboratory whose primary functions are to shape, fund, and manage external research, development, and demonstration (RD&D) projects, conduct onsite science and technology research, and support energy policy development and best business practices within the Department.



*NETL Gas Process Development Unit*

Key programs at NETL include the development of advanced coal, natural gas, and oil technologies, and the development and deployment of environmental technologies that reduce the costs and risks of cleaning up DOE's nuclear weapons complex. NETL also is working jointly with other agencies, such as the Department of Defense and

the National Institute for Occupational Safety and Health, on projects that benefit the national interest.

ARC is a DOE-owned and -operated research laboratory located in Albany, Oregon, offering a broad suite of capabilities and expertise in materials research. Researchers address fundamental mechanisms and processes; melt, cast, and fabricate materials; completely characterize the chemical and physical properties of materials; and manage the waste and by-products of materials processes. During the past 55 years, ARC established recognized expertise and capabilities in wear and corrosion, melting and casting, and in materials development. ARC researchers provide analyses and solutions to industrial problems that bridge the gap between laboratory studies and “real world” applications.



*Experimental systems at ARC include real-world applications, such as 1-ton-per-hour, 1-megawatt cupola furnace*

SPR is a DOE-owned, contractor-operated complex of four sites that serves as the nation's first line of defense against an interruption in petroleum supplies. It is an emergency supply of crude oil stored in underground salt caverns along the coastline of the Gulf of Mexico. Headquartered in New Orleans, Louisiana, SPR oversees the operation and management of the four sites in Bayou Choctaw and West Hackberry in Louisiana, and Bryan Mound and Big Hill in Texas. Today, SPR has the capacity to hold 700 million barrels of oil and is the largest emergency oil stockpile in the world. Together, the facilities and crude oil represent more than a \$20 billion national investment. In managing SPR, FE's overriding objective is to maintain the readiness of the oil stockpile for emergency use at the President's

direction. In addition, the SPR manages the Northeast Home Heating Oil Reserve. This Reserve is comprised of 2 million barrels of home heating oil, stored in commercial tank farms in the Northeast, which provides a 10-day supply of oil for Northeast customers to compensate for interruptions in supply or severe weather.



*Aerial view of SPR*

The NPOSR originally was comprised of DOE-owned oil and oil shale facilities in California, Colorado, Utah, and Wyoming, serving the national defense. As a result of privatization actions and other land transfers, the Department now owns and operates Naval Petroleum Reserve # 2 (NPR-2) and is responsible for the oversight of environmental cleanup at NPR-1, both in Bakersfield, California (referred to in this report as NPRC); and continues to operate the Teapot Dome NPR-3 located near Casper, Wyoming. Environmental cleanup also is underway at part of the NPR-3 site. A portion of the field is used as the Rocky Mountain Oilfield Testing Center (RMOTC), where independent oil companies and others come to test exploration and production innovations in an actual field setting.



*Oil drilling rig at NPR-3*

## II. Highlights of FY 2002 ESS&H Accomplishments

In FY 2002, FE significantly enhanced its security and emergency response capabilities, in addition to achieving continuous improvement in ES&H programs. Overall, performance trends improved in association with targeted improvements and upgrades to site infrastructure, strong worker training and involvement initiatives, and external certification and recognition programs.

### ***FE Sites Respond to the President's Mandate to Make Security a Top Priority***

In the wake of the September 11<sup>th</sup> terrorist attacks, DOE upgraded the security condition (SECON) level at its sites to the highest level ever. To respond to this mandate, FE implemented and integrated into our operations increased physical security measures at our sites, and heightened the overall security awareness of our employees.

Security enhancements implemented at our sites include: increased protective forces including bomb-sniffing dogs and HUMVEE vehicles; improved site perimeter defenses; expanded electronic surveillance; new mail and package screening; enhanced entry control procedures; stricter foreign visitor policies and procedures; upgraded cyber security mechanisms; and improved coordination with local law enforcement officials. FE reviews security assets and conducts formal assessments on a regular basis, continuing to identify areas where it can further enhance security, and seeking to expedite the implementation of recommended security projects. FE personnel also began implementing Integrated Safeguards and Security Management as an integral part of all employee activities. Project managers, site managers, supervisors, and other site personnel are encouraged to take an active role in security functions, and employees are briefed and receive updates on matters of security interest.

SPR increased the effectiveness of its already strong security systems by adding staff to the security force, upgrading the weapons systems, procuring HUMVEE vehicles, enhancing access

controls systems, and providing additional training. Specific activities included procuring explosives, detection dog teams, and special operational equipment designed to improve the detection, response, and neutralization of threats.



*New or improved entry portals for all SPR sites*

NETL's SECON implementation plan includes stricter parking restrictions, increased identification checks on workers and visitors, access to bomb-sniffing canine corps, and enhanced mail inspection and package x-ray scanning. NETL completed a site-wide Integrated Access Control System plan. Entry access gates are guarded by protective force personnel and controlled by identification card access equipment. NETL also installed upgraded camera surveillance systems.



*Scott Lowe with new security monitors at NETL Morgantown*

NPR-3's expanded security measures include enhanced property and facility protection, increased surveillance and security training, and enhanced mail and delivery inspections. NPR-3 personnel also are working closely with outside agencies, including the Natrona County Sheriff's Office, Wyoming Army National Guard, and

General Services Administration's (GSA) Law Enforcement, to coordinate security plans. NPRC security enhancements include electronic key systems to control access and stricter procedures for controlling security alarm systems.

ARC designed and contracted improved security measures, including additional fencing, automatic gates, a security post, and improved vehicular traffic pattern paving. The site established a 24-hour 7-day a week security force contract to respond to DOE's heightened SECON requirements.

### ***FE Sites Complement Heightened Security with Enhanced Emergency Preparedness and Response Capabilities***

All FE sites continued to expand their emergency response capabilities in the event of a terrorist attack or other emergency situation by updating procedures, enhancing partnerships with local emergency response organizations, working closely with members of the local communities, and conducting emergency drills and exercises.



*BCTSRT dog handler Kathy Holbert guides bomb location dog, Adam, through a search of an office during an emergency response exercise at NETL*

For example, NETL acquired bomb search capabilities and personal protective and mobile communication equipment, provided additional employee training, and developed a "return to work" safety procedure for bomb threat

management. This safety procedure applies novel risk assessment and investigative tools to bomb threat situations, and earned NETL the FY 2002 FE ESS&H Achievement Award. NETL also conducted tabletop exercises, and recently completed a DOE Office of Security (SO) survey. NETL now is implementing corrective actions based on the findings.



*EOD Squad members from a state police detachment dress to approach an identified bomb during a simulated bomb threat exercise at NETL*

SPR enhanced its emergency response capabilities through the acquisition of communications equipment, including decision support software to provide decision makers with real-time information. Personnel also conducted in-house modeling of potential toxics, thermal, and over-pressure impacts of all cavern wellheads under a number of release scenarios to better inform site personnel and local emergency response teams of potential hazards. SPR conducted exercises and drills and participated in DOE HQ No-Notice exercises performed by SO.

During the past year, ARC improved its overall emergency management program, including performing emergency response exercises and engaging local officials and emergency response coordinators in these activities.

In the aftermath of September 11<sup>th</sup>, FE HQ staff spearheaded efforts to enhance the emergency response capability of DOE employees in the Washington, DC, metropolitan area. FE HQ developed a 10-point plan of recommended corrective actions resulting from lessons learned from the Department's response to the terrorist incidents. FE HQ established an ad hoc steering committee consisting of representatives from each DOE line program organization and support office to review and update HQ occupant emergency plans and procedures. The committee formally established a DOE HQ Occupant Emergency Planning Team; updated online occupant emergency plans; established designated assembly areas; conducted training and exercises for employees and emergency responders; and installed a public address system.

### ***FE Continues to Improve on ES&H Performance Indicators***

FE is proud to report a significant improvement over our already strong prior year's performance on nearly every ES&H performance indicator. The following summarizes our FY 2002 ES&H performance for a Federal and contractor workforce of approximately 2,500 employees:

- Total Recordable Case (TRC) rate decreased by 15 percent
- Lost Workday Case (LWC) rate remained unchanged
- The safety and health cost index, which measures the costs associated with accidents and illnesses, decreased by 69 percent
- The number of operational occurrences decreased to 25 – 42 percent lower than in FY 2001
- The number of environmental releases decreased to 8 – a 58 percent reduction from FY 2001
- Regulatory violations remain low at 3
- Hazardous waste generation decreased by 39 percent
- Sanitary waste generation decreased by 13 percent

Recently, FE HQ ESS&H staff benchmarked FE's performance on two performance indicators used by the Department – TRC rate and LWC rate – against “best in class” organizations within the Department and private industry. The results demonstrated that FE-wide performance is nearly as strong as DOE's VPP organizations. Notably, ARC's LWC rate of 0.0 was better than “best in class” private-sector organizations. Chapter III of the report provides more details on these indicators.



*NETL workers oversee the offloading of the first shipment of sulfuric acid for the Syngas Generator*

### ***FE Continues to Make Progress on its Environmental Performance and to Demonstrate Strong Pollution Prevention/Waste Minimization Programs***

In FY 2002, FE continued its strong environmental performance at its operating sites, and furthered progress on environmental cleanup activities, thus reducing threats to the environment and eliminating potential future liability costs. In keeping with the Department's 14 pollution-prevention and energy-efficiency leadership goals, FE sites continued to demonstrate strong performance in the areas of pollution prevention and affirmative procurement. In fact, one of the FE sites, SPR, received both the DOE National Pollution Prevention Award for Waste/Pollution Prevention and the White House “Closing the Circle” Certificate of Achievement for its

innovations in minimizing paint waste from site operations.

NETL completed a study on improvements to its Pittsburgh wastewater treatment facility that would eliminate Notices of Violations (NOVs) associated with exceedences of the new, more stringent pre-treatment permit levels for trace elements and organics. In response to the study's recommendations, NETL installed activated carbon and clay filters, incorporated additional polishing treatment, and is automating its wastewater treatment operations.

ARC made significant improvements to its infrastructure and buildings, including air pollution control/ventilation system upgrades, which minimized environmental compliance issues and reduced risks to workers. ARC disposed of nearly 8,000 pounds of legacy, low-level radioactive waste from its site, which was primarily ore samples and other naturally occurring radioactive materials from Bureau of Mines research conducted prior to ARC being incorporated into DOE. ARC also initiated an onsite ground water monitoring program to determine if there is any ground water contamination resulting from prior research activities.



*Austin Cooper, EG&G, adjusts a filter system to improve the quality of water discharged from NETL-Pittsburgh's wastewater treatment facility*

FE sites continued to make progress on environmental cleanups, employing a number of innovative approaches and technologies. For example, NETL implemented full-scale air sparge/bioremediation technologies at the Rock Springs, Wyoming, underground oil shale retort cleanup site. These new technologies reduced the ground water contamination levels of benzene,

toluene, methylbenzene, and xylene by nearly 80 percent so far. At the Hoe Creek, Wyoming, underground coal gasification remediation site, the air sparge/bioremediation systems are in their third year of operation and have removed 96 percent of the contaminants from the ground water.

ARC completed its cleanup of PCB-tainted transformers and PCB spills, thus eliminating any potential occupational exposure to employees, risks of spills, and waste disposal costs in the event of a release. Since ARC also completed a major lighting upgrade project during the year that included replacing older fluorescent fixtures containing PCB ballasts, these actions effectively eliminated PCBs from the ARC site.

NPRC continued to work with the State of California and private industry to remediate legacy waste sites. Activities in FY 2002 included archeological data recovery to address the protection of Native American cultural resources found onsite; cleanup of 19 nonhazardous waste trash scatter areas; and negotiations with California on the site's ecological/human health risk assessment. At NPR-2, DOE, in consultation with the Fish and Wildlife Service, developed a Biological Opinion as required under the Endangered Species Act, which specifies how DOE will protect the 5 endangered species at NPR-2. DOE also completed Phase I of an environmental assessment that addresses the transfer of NPR-2 to the Bureau of Land Management (BLM). DOE is working with BLM on an agreement regarding cleanup responsibilities as part of the transfer.

FE HQ reached a final settlement with principal responsible parties associated with a former coal gasification process development unit in Windsor, Connecticut, whose operation in the 1970's resulted in soil contamination. The settlement agreement that took effect in FY 2002 achieved a cost savings of approximately 50 percent and released DOE from any further liability from environmental contamination at the site.

In FY 2002, increased attention to process changes and other pollution-prevention and waste-minimization activities, such as recycling and reuse programs, enabled FE sites to decrease the

amounts of hazardous and sanitary wastes generated. For example, by implementing the recommendations of an independent pollution-prevention opportunity assessment, SPR reduced its hazardous waste generation by 58 percent. All of our sites segregate and recycle cardboard; recycle or reuse demolition debris and excavation material when possible; and evaluate opportunities to biodegrade or process for reuse onsite oiled materials wherever feasible.



*Scott Bernard of DynMcDermott with a new cardboard bailer installed at SPR*

Nearly all FE sites reached their affirmative procurement goals for all product categories in keeping with Executive Order 13101, which requires that sites purchase products with 100 percent recovered content whenever possible. Both NETL and NPR-3 met their goals for all categories. NETL developed affirmative procurement training specifically targeted towards purchasers using government credit cards, and consolidated affirmative procurement activities onto a "Green Page" on NETL's intranet.

FE sites also made significant progress in the area of energy management, conservation, and alternative fuels usage. Activities included implementing strategies to reduce energy consumption through design for new construction, retrofit projects, maintenance programs, relamping programs, and outreach to employees through the intranet and newsletters. As one example, NETL received a DOE Award for Leadership in Federal Energy Management. NETL actively pursued alternative financing and successfully obtained

funds from DOE's Federal Energy Management Program (FEMP) for an energy audit, a lighting retrofit, and replacement of two, 250-ton, Class I (ozone depleting) chillers. As part of the design construction teams for two major projects, NETL employees were instrumental in developing designs that incorporate energy efficiency and sustainable design criteria. Upon completion, the new buildings will meet the requirements for the EPA's ENERGY STAR® designation and the Leadership in Energy and Environmental Design's designation.

ARC completed a major lighting upgrade project during the year, offered through DOE's Bonneville Power Administration (BPA). ARC and BPA split costs as part of the BPA reinvestment program, while providing ARC an estimated cost savings of more than \$31,000 per year. ARC also received a FEMP-funded project for energy audits of various facilities. ARC also installed a slow-fill compressed natural gas (CNG) fuel station that will allow ARC to achieve the Department's alternative fuels goals by using alternative fuels in part of its GSA vehicle fleet.

### ***Improvements and Upgrades to Site Infrastructure Lower Risks and Exposures to Workers and Protect the Environment***

FE sites have aging infrastructure that continues to pose safety and health risks to workers and has the potential of hindering progress in achieving our mission. This past year, our sites made progress in upgrading their facilities, although much more needs to be done.



*ARC heat treatment furnaces, operated by ARC personnel, are evaluated constantly for ventilation, safety, and other performance upgrades*

At ARC, infrastructure upgrades continue to be a high priority for ensuring worker safety. In FY 2002, several system inspections were conducted, most notably, the high voltage electrical distribution system. Critical equipment that provides direct overvoltage protection to a significant portion of ARC was found to be in marginal condition and has been programmed for replacement in early FY 2003.



*Pittsburgh NETL facility undergoing asbestos removal in preparation for remodeling*

NETL replaced the existing HVAC system and ductwork in one of its buildings to meet ASHRAE standards and to provide employees with healthier indoor air quality. NETL also installed a decontamination tank and shower. To comply with the Clean Air Act requirement to phase out the use of CFCs, NETL completed the conceptual design and Phase 1 construction drawings for replacing two chillers at its Pittsburgh site. NPTO implemented a computer room and a fixed fire protection maintenance program, and overhauled and upgraded a fixed fire protection gas system.



*NPR-3 RMOTC drilling crew securing drilling-rig guy-wire*

NPR-3 undertook an aggressive maintenance program to reduce or eliminate the potential of leaky pipelines that contributed to operational

occurrences and environmental releases in the past. For example, NPR-3 removed old pipes and valves that crossed under Little Teapot Creek, thus removing the potential for future releases and regulatory violations.

### ***All FE Sites Continue to Strive for the Highest Standards of Performance through External Certification and Recognition Programs***

All of the FE sites are examining more ways to go beyond ISM implementation to improve ES&H performance, including seeking OSHA and DOE VPP certifications, ISO 14001 certification, and participation in other “excellence” programs. NETL continued its pursuit of ISO 14001 certification, which included training 40 Environmental Management System (EMS) auditors, conducting 4 EMS internal audits, providing ISO 14001 awareness training to all of its employees, developing an EMS implementation manual, and developing both an intranet and external Web site for NETL’s ISO 14001 activities. ARC is continuing to review the findings and implement corrective actions on its combined OSHA/DOE VPP, ISO 14001, and EPA NEAT gap analysis.



*SPR’s employees receive DOE VPP Superior Star and Star of Excellence Awards: (L to R) Randy Rodriguez, Vincent Orcino, Suzanne Broussard, Danny Duff, Jim Carlson, Brenda Ray, Rob Evers, Karen Madeley, Kenny Thomas*

SPR continued its strong ES&H performance necessary to retain OSHA VPP certification at all four of its sites. SPR also continues to maintain its ISO 14001 and EPA Environmental Performance Track memberships, demonstrating continued

strong environmental performance. SPR is one of only three federal facilities in EPA Region VI to attain National Environmental Performance Track membership, an EPA voluntary program that recognizes excellent performance in protecting the environment. Big Hill and Bryan Mound are two of the 11 facilities in Texas to achieve this membership.



*PTPA Board with EPA Administrator at First Annual Performance Track Participants Association (PTPA) Conference: Seated (L to R) Sara Ethier, Steve Groves, Ann Vogel-Marr, Standing (L to R) Bill Bozzo (PTPA Conference Chair), John Flatley, Bill Weber, Hal Brown, Christine Whitman (EPA Administrator), Dave Gunnarson, Sam George, Jeff Klieve*

Our sites continue to receive awards for their excellent performance. For the sixth consecutive year, NETL's Pittsburgh site received the Outstanding Achievement Award from the National Safety Council for outstanding accident prevention performance in occupational safety.

SPR received both OSHA and DOE VPP awards during FY 2002 for its strong performance. For example, SPR's Big Hill site received OSHA VPP's Star of Excellence Award, given for performance 90 percent or more below the Standard Industry Code rate. The other three SPR sites received OSHA VPP's Super Star Award for performance 75 percent or more below the SIC rate. DOE's VPP program also recognized SPR's exemplary safety and health performance by honoring Big Hill and Bryan Mound with the Star of Excellence Award and Bayou Choctaw and West

Hackberry with the Superior Star Award in FY 2002. For its waste minimization achievements, SPR also received the DOE Pollution Prevention Award for Waste/Pollution Prevention as well as the White House "Closing the Circle" Certificate of Achievement.

### ***FE Sites Foster Cross-Fertilization of Innovative Practices through Sharing Best Practices and Technical Resources***

FE HQ ESS&H staff, working closely with the field sites, have been developing strategies and implementing approaches for fostering cross-fertilization of innovative practices and sharing technical resources. For example, FE HQ, with assistance from the FE sites, developed the best practices database that is available through the FE intranet at <http://esh.fe.doe.gov>. Users can search for a best practice based on functional area, fiscal year, title, and other convenient fields within both FE and other DOE-linked best practice Web sites. Visitors also may submit new best practices and training information to share with others and provide feedback via the Web site. A ListServ enables staff to identify their specific needs, and receive applicable e-mail updates of new best practices as they are added.



*NETL's Rodger Dotson, Cynthia Mullens, Jan Wachter and Jeff Buterbaugh hold plaques for site and individual recognition for winning FE's 2002 ESS&H Achievement Award*

The annual FE ESS&H Achievement Award program provides another forum for sharing FE best practices. The program was established in 1995 to encourage and publicize innovation and

best practices, and to recognize individuals or teams who improved the efficiency significantly, reduced the cost, and improved the quality of FE's ESS&H programs. To date, 42 projects have been nominated with an associated cost savings of more than \$42 million. On October 29, 2002, Assistant Secretary for FE, Mike Smith, presented this year's Achievement Award to NETL for its efforts in improving the management of nontraditional threats by applying novel risk assessment and investigative tools. In addition to the NETL achievement, other noteworthy nominations included: (1) SPR for implementing security enhancements and Environmental Management Systems (EMS); (2) NPR-3 for implementing an employee safety incentive award program; and (3) ARC for enhancing its emergency response capability. All the nominations are available on the FE intranet for use by all of the sites.

Another example of FE sharing technical resources, best practices, and lessons learned is the combined HQ and field sites' effort to achieve FE-wide implementation of ISO 14001. To leverage ISO 14001 expertise and experience, staff from various FE organizations, including FE HQ, SPR, and the Department's Office of Environment, Safety and Health (EH), formed a technical assistance team to support ARC in its ISO 14001 activities. The team performed a gap analysis at the site and developed a corrective action plan for achieving ISO 14001 certification in a cost-effective manner. In addition, training materials and examples of required ISO 14001 policies, procedures, and documentation were compiled as part of an ISO 14001 "implementation tool box."

### ***FE Sites Work Closely with DOE and External Regulators to Streamline Requirements***

In response to the Department's Executive Safety Conference initiative to streamline ES&H requirements, FE HQ, together with the sites, have been working actively on strategies to tailor requirements, standards, reporting, and authorization basis to activities conducted at our sites. This will improve the value of the products,

while streamlining the response process and eliminating redundancies.

For example, NETL has nearly completed the merging of ES&H requirements for its Morgantown and Pittsburgh sites. This streamlining effort reduced ES&H directives by 40 percent by eliminating redundant or non-value requirements, and roadmapping and streamlining some of the critical ES&H processes at the sites. SPR participated in the Review of Directives and Deliverables in which it reviewed DOE and SPR requirements to eliminate those that could be eliminated or streamlined. The result of the effort was a 28 percent reduction in required deliverables.

FE HQ reached an agreement with EH whereby our sites will no longer be required to submit four separate annual reports but rather will submit one consolidated response that provides a more integrated view of safety and health performance. In addition, EH agreed that for FE sites that achieve ISO 14001 certification, EMS plans required under ISO 14001 will satisfy the requirement of DOE 5400.1 to develop and periodically update a site Waste Minimization and Pollution Prevention Plan.



*SPR's DynMcDermott's behavioral safety team conducts audit at Bayou Choctaw: (L to R) Brian Tuminello, Adolf Wesselhoeft, Randy Rodriguez, Harold Naquin*

Our sites also are continuing to work with regulators to streamline requirements, while, at the same time, ensuring full compliance. For example, SPR obtained a fast track air quality permit for the Big Hill degasification plant, which allows the site

to reduce monitoring when monitoring shows full conformance with the emissions allowances. This action reduced permitting costs by following Texas's streamlined permitting process, and provides the potential for significant monitoring cost reductions. In addition, SPR obtained concurrence with EPA and the states of Louisiana and Texas to exclude fill and drawdown from the Clean Air Act State Implementation Plan conformity requirement, avoiding \$51 million over the 25-year life cycle.

### ***Strong Training and Worker Involvement Programs Ensure High ESS&H Awareness across All FE Sites***

FE continues to stress the importance of worker responsibility and accountability for ESS&H performance, and provides workers with the training they need to meet these expectations. All of our sites continued to expand their training offerings to cover new requirements (e.g., enhanced security, ISO 14001) and to make more of them computer-based to reduce costs, increase availability, and allow employees' training status to be tracked and reviewed more easily.



*Specialized training is required for most analytical equipment, such as the scanning electron microscope at ARC (Cheryl Dahlin is performing the sample analysis)*

For example, NETL offered five new computer-based courses and updated several existing ones, and enhanced the reporting and administrative elements of the course to improve access to training records. NPR-3 purchased an extensive

set of safety videos that improved the safety awareness and knowledge of its staff.

FE HQ expanded the FE ESS&H intranet to include training schedules and materials for training courses offered by FE sites or other DOE and Federal organizations to allow all sites access to a broad set of training opportunities across the Department. The objective is to provide a corporate process in which FE organizations can develop and implement ESS&H training in a cost-effective manner.



*RMOTC work-over rig-crew and GEOTECH running wires downhole at NPR-3: (L to R) Robert Madding, Brett Whitaker, and Joe Rochelle*

Several sites also established formal programs to increase worker involvement in improving overall ES&H performance. For example, a key element of SPR's ES&H program continues to be its strong training and behavioral safety program, which increases the overall awareness of ES&H and actively involves front line employees in improving safety. SPR safety professionals shared its behavioral experiences and results with other DOE field sites. NPR-3 implemented a worker incentive program designed to reduce injuries by promoting individual worker safety awareness and teamwork.

### III. Summary of ES&H Performance

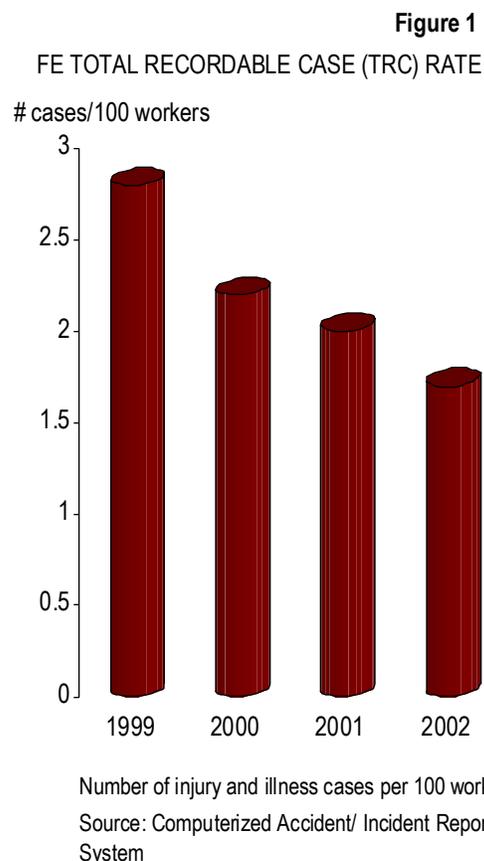
In FE's Commitment to ES&H, FE committed to making consistent measurable progress while striving to eliminate injuries, illnesses, and environmental releases. This section demonstrates our progress through quantitative results of our FE-wide performance on key ES&H indicators. Data related to FE's and DOE's safety and health performance, representing all workers including federal, contractor, and sub-contractor where available. Safety and health data were obtained from DOE's Computerized Accident/Incident Reporting System (CAIRS). Data on operational occurrences and environmental releases were obtained from DOE's Occurrence Reporting and Processing System (ORPS) system, and data on regulatory violations, affirmative procurement, and hazardous and sanitary wastes generation were obtained directly from the FE sites. The Appendix summarizes site-specific ES&H quantitative performance information, including comparison of FE performance to DOE overall and to DOE VPP sites.

#### **Total Recordable Injuries and Illnesses Rate Decreases by 15 Percent**

In FY 2002, FE had a Total Recordable Case (TRC) rate of 1.7, which is a 15 percent improvement over FY 2001's TRC rate and the third consecutive year of improved performance. FE's TRCs include injuries and illnesses incurred by Federal and contractor employees that were serious enough to result in medical attention, loss of consciousness, restriction of work activity, or time away from work. The TRC *rate* accounts for the number of injuries and illnesses that occurs in a given year, normalized for the hours worked at all FE sites. The basis for this normalization is 200,000 hours worked, which is equivalent to the number of hours worked for 100 workers in a year. A rate of 1.7 indicates that 17 of every 1,000 workers were injured at work or had a work-related illness.

FE's average TRC rate of 1.7 was lower than the DOE's average TRC rate of 2.0 in FY 2002. FE

site-specific performance, however, varied. NPRC and FE HQ reported no reportable cases in FY 2002, continuing a four-year trend. NETL improved its TRC rate by 32 percent with a TRC rate of 1.5. NETL's TRC rate made them one of the best performers in the Department, beating the 1.6 average TRC rate of DOE VPP sites. On the other hand, SPR and NPR-3 experienced a slight increase in their TRC rates in FY 2002. ARC's rate increased by 100 percent though the number of cases was still low at 4.



In FE, virtually all of the TRCs (47 cases in total) were a result of injuries rather than illnesses, ranging from such simple accidents as a worker falling in inclement weather or cutting a finger while operating machinery, to suffering a serious back injury while lifting equipment. The root causes of most of these injuries and illnesses were: (1) improper application or lack of diligence in utilizing work procedures; (2) lack of sufficient care in poor climate conditions resulting in slips, trips, and falls; and (3) improper lifting techniques or usage of lifting equipment resulting in sprains. Typically, these injuries were incurred by

experienced workers while performing their normal routine operations. Developing and implementing mechanisms that hold supervisors accountable for performing their ES&H responsibilities, such as planning work in conjunction with their workers, and monitoring the performance of work to ensure it is performed in compliance with plans, procedures, and requirements, should help to avert many of these accidents. Also, providing positive incentives for workers and supervisors to recognize and report near misses, and point out hazards, unsafe behaviors, and noncompliances to exposed workers so they can be corrected immediately before an accident can occur, should help to reduce the number of injuries.

### **Lost Workday Case Rate Remains Steady at a Four-Year Low**

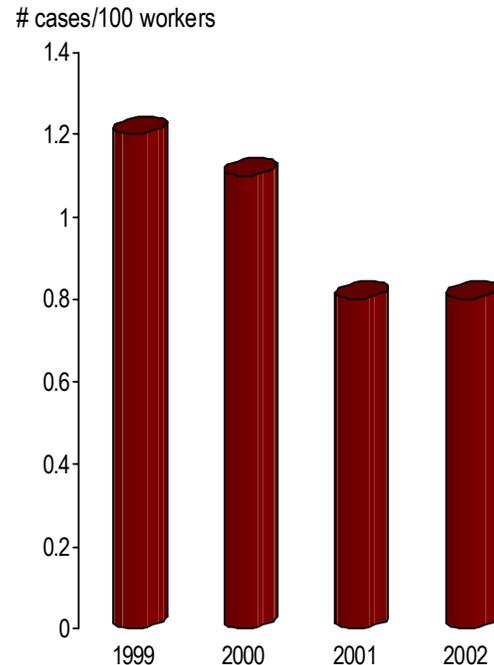
In FY 2002, FE's Lost Workday Case (LWC) rate was 0.8, unchanged from its strong performance last year. LWCs represent the number of work-related injuries that occurred at FE sites that resulted in employees missing days of work or returning to work on restricted duty. The LWC rate is normalized to hours worked as was discussed previously for the TRC rate. This category of injuries has the most serious consequences and is the most costly for organizations. Other personnel must be assigned to complete the injured worker's assignments while the worker recuperates, or completion of the work is delayed until the worker returns. A rate of 0.8 means that 8 of every 1,000 FE workers suffered a work-related injury or illness that resulted in a lost workday.

ARC, NPRC, and FE HQ, for the fourth year in a row, had no accidents that resulted in lost workdays or restricted duty. All of the FE sites, except NPR-3, performed better than DOE, which had an average LWC rate of 0.93. In addition, SPR, NPRC, and FE HQ exceeded the performance of DOE's VPP sites. FE's LWC rate was 14 percent lower than DOE's, suggesting that injuries incurred by FE workers were somewhat less serious than those at other DOE sites.

FE's FY 2002 LWC rate is based on 21 of the 47 total reportable cases resulting in lost workdays. Contributing factors were defective or inadequate procedures, lack of procedures, inadequate

supervision, and/or other management problems. More effective work planning, and follow-through on those taught procedures during day-to-day operations could be helpful in reducing the severity of incidents that occur, and thus, reducing the number of accidents leading to lost workdays or restricted duty.

**Figure 2**  
FE LOST WORKDAY CASE (LWC) RATE



Number of cases resulting in lost workdays or workdays with restricted duty per 100 workers

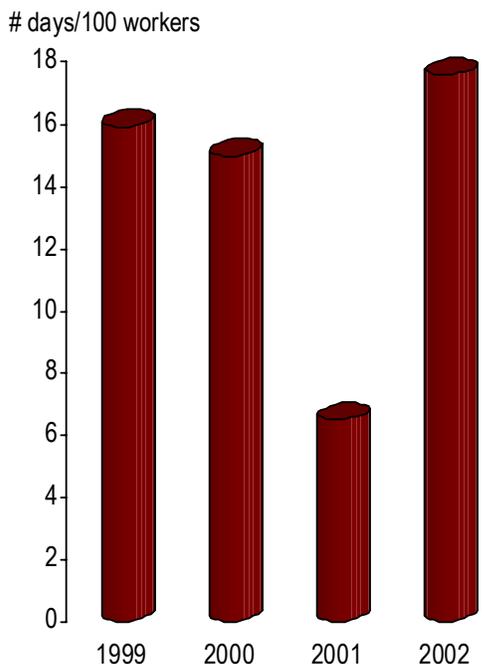
Source: Computerized Accident/ Incident Reporting System

### **Lost Workday Rate Nearly Triples**

In FY 2002, FE's lost workday (LWD) rate nearly tripled from 6.5 in FY 2001 to 17.5, almost all attributed to a limited number of accidents at NETL that resulted in extensive LWDs. SPR and NPR-3 also experienced an increase in their LWD rate in FY 2002. No LWDs at ARC, NPRC, and FE HQ in FY 2002 offset the increased LWD rate at the above sites. In spite of an increase in the number of LWDs associated with several of FE's accidents in FY 2002, FE's overall performance, as measured by the LWD rate, still is 20 percent lower than DOE, suggesting that FE injuries, on average, are much less severe than those in other

DOE sites. In FY 2002, of the 484 reported LWDs that resulted from the 21 LWCs, half involved workers who were on the job but working under restricted duty.

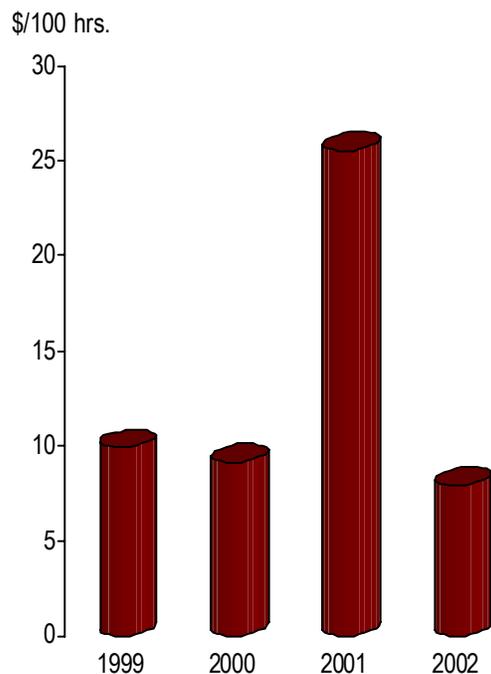
**Figure 3**  
FE LOST WORKDAY (LWD) RATE



Number of lost workdays or workdays with restricted duty per 100 workers  
Source: Computerized Accident/ Incident Reporting System

for FE in FY 2002 from approximately \$1.2 million to \$433,400, for the lowest costs in four years.

**Figure 4**  
FE OCCUPATIONAL SAFETY & HEALTH COST INDEX



Estimated cost of injuries and illnesses per 100 work hours  
Source: Computerized Accident/ Incident Reporting System

**Safety and Health Cost Index Decreases by 69 percent to Reach a Four-Year Low!**

FE's FY 2002 occupational safety and health cost index of 7.85 is 69 percent lower than the FY 2001 cost index and the lowest in four years. The cost index performance indicator represents the normalized estimate of the costs of FE's injuries and illnesses, including fatalities, which were incurred by FE sites. The most significant reason for this large reduction in costs is the absence of fatalities in FY 2002, which cost SPR nearly \$1.0 million in FY 2001. FE sites outperformed DOE by having a 17 percent lower cost index. SPR, ARC, NPRC, and FE HQ also outperformed DOE VPP sites on this measure. The actual costs of all injuries and illnesses also decreased significantly

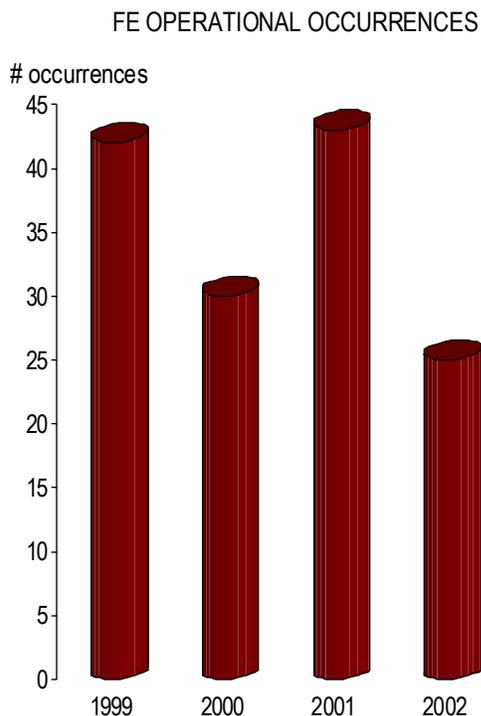
**Vehicle Accident Costs Decrease by 59 Percent**

Because of the extensive amount of driving that FE personnel do as a routine part of business operations, the number and costs of vehicle accidents are important indicators of safety performance at the sites. In FY 2002, FE personnel drove more than 3.2 million miles – 64 percent were driven by SPR personnel; 25 percent by NETL; 10 percent by NPR-3; and the remaining 1 percent by ARC. In FY 2002, FE incurred 14 vehicle accidents, costing FE \$22,440. These costs were 59 percent lower than the costs incurred in FY 2001, suggesting that the accidents were less serious in nature, despite the fact that the number of accidents increased from 11 to 14.

All but one of the 14 FE vehicle accidents occurred at SPR, which continued a two-year upward trend. SPR is concerned that this trend could lead to serious consequences in terms of loss of human life. The majority of the accidents were attributable to driver inattention, leading SPR to develop a computer-based driver-training course for all contractor personnel, including the security force. They also initiated a performance improvement team to analyze the data, including the root cause(s), and to develop immediate, interim, and long-range corrective actions that will control the hazard.

**Number of Operational Occurrences Decreases by 42 Percent for a Five-year Low**

Figure 5



Number of operational events or conditions that adversely affect or may affect DOE or contractor personnel, the public, property, the environment, or the FE mission

Source: Occurrence Reporting Processing System

In FY 2002, the number of operational occurrences at FE dropped 42 percent from 43 to 25, the lowest number of occurrences since 1998. The operational occurrences performance metric

represents the number of operational events or conditions that adversely affect, or may adversely affect, DOE or contractor personnel, the public, property, the environment, or the DOE mission. FE contributed only 1 percent to DOE's total operational occurrences. At least half of these occurrences are attributable, at least in part, to personnel error and management problems.

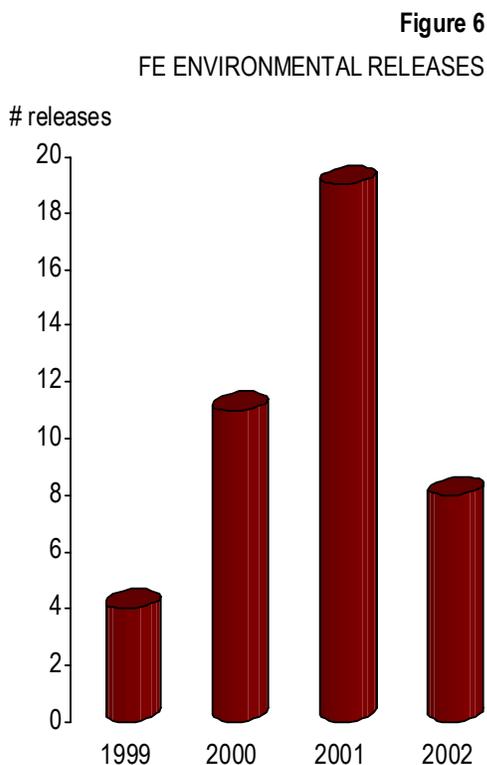
All of the FE sites, except ARC, reduced the number of occurrences reported in FY 2002. Nearly half of FE's operational occurrences occurred at SPR sites, although every FE site, except NPRC, recorded at least 1 occurrence. While NPR-3 contributed 16 percent of the total number of FE occurrences, the site improved its performance significantly from FY 2001, reducing the number of occurrences from 15 to 4, all of which were spills. This reduction is due largely to increased preventative maintenance programs at the site. The major causes for FE's occurrences this year were defective or failed parts, materials, or procedures. Continued efforts to replace aging infrastructure and piping should help further reduce the number of failures, defects, and spills.

**Number of Environmental Spills and Releases Decreases by 58 Percent**

FE reduced the number of environmental releases during FY 2002 by 58 percent from 19 to 8, which was the lowest since 1999. Environmental releases represent the total number of spills, leaks, and discharges of hazardous substances, oil, and regulated pollutants to the environment. FE's releases represent 22 percent of DOE's overall total releases this past year.

Five of the 8 releases involved leaks of minimal amounts of crude oil, 1 involved brine water, and 2 were wastewater discharges. For the fourth year in a row, NETL and NPRC reported no environmental releases. Of the 8 environmental releases in FY 2002, NPR-3 was responsible for 4, ARC 2, and SPR 2. There was a significant reduction in the releases reported at NPR-3 from 15 to 4, achieved through implementation of an aggressive maintenance program to prevent leaking pipelines. In some cases, NPR-3 permanently removed old pipes that crossed under Little Teapot Creek. SPR also reduced its

environmental releases, primarily due to the completion of the Life Extension program that identified and fixed many of its potential leaky pipes and valves.



Number of spills, leaks, and discharges  
Source: Occurrence Reporting Processing System

### **Number of Environmental Regulatory Violations Remains Low**

In FY 2002, FE received 3 regulatory violations, which was the same as in FY 2001. The regulatory violations performance metric refers to the total number of violations or citations received from external regulatory agencies during the fiscal year such as EPA or state regulatory agencies. NPR-3, SPR, and NPRC received no regulatory violations in FY 2002.

NETL received one notice of violation related to cyanide levels in the industrial wastewater that exceeded its industrial sewer-use permit limits. NETL is reviewing the analytical methods used to measure cyanide levels to ensure their accuracy, and hired an outside contractor to recommend

ways to increase the effectiveness and consistency of wastewater treatment performance.

**Table 1**

FE REGULATORY VIOLATIONS

Fiscal Year	# of Violations
1999	0
2000	2
2001	3
2002	3

Source: Field Sites

ARC received 2 notices of violation related to its Industrial Wastewater Discharge Permit. One was for exceeding its discharge limits for nickel. The source was analytical testing for precious metals that involved acid digestion of nickel crucibles. All wastes from this analytical testing method are now collected separately and disposed of properly. The second violation was issued for exceeding the pH discharge limit. The source was a malfunctioning acid neutralization system in their analytical laboratory. Until a new automatic acid neutralization system is installed, acid wastes are being collected separately and neutralized properly before disposal.

### **Hazardous Waste Decreases by 39 Percent**

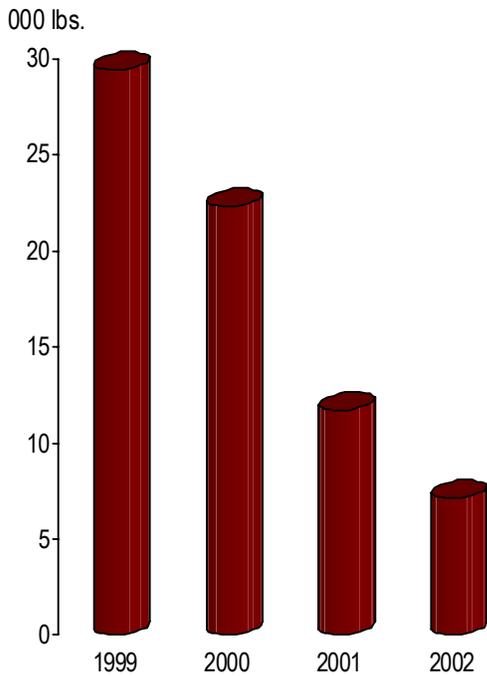
FE generated 7,133 pounds of hazardous wastes (defined as wastes classified as hazardous under EPA's RCRA regulations) during FY 2002, a 39 percent decrease from last year's total. NPR-3 and NPRC generated no hazardous waste. Both NETL and SPR reduced the amounts of waste generated through recycling and reuse activities. For example, SPR reduced its hazardous waste generation by 58 percent as a result of process changes in its paint and laboratory waste streams. These efforts earned SPR the DOE 2002 Pollution Prevention Award.

ARC increased its hazardous waste generation in FY 2002 slightly as a result of an increase in one-time cleanup operations. Hazardous wastes generated from routine operations (e.g., research activities, air pollution control devices, laboratory wastes), however, decreased at ARC by more than 80 percent.

NETL reduced its hazardous waste generation by 53 percent in FY 2002. This was primarily a result of an initiative to reduce the amount of chemicals and samples from research projects that were stored onsite, as well as the decommissioning of a few research projects.

**Figure 7**

FE HAZARDOUS WASTE GENERATION



Source: Field sites

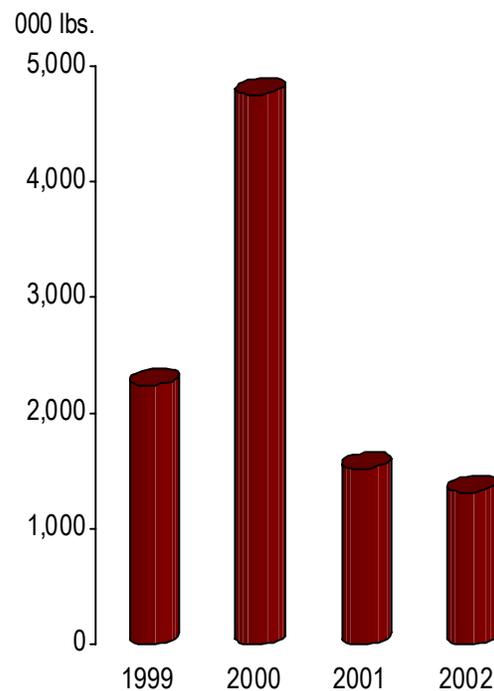
**Sanitary Waste Decreases by 13 Percent**

FE sites generated 1.3 million pounds of sanitary waste in FY 2002, which is a 13 percent reduction from last year. Sanitary waste is defined as all wastes generated, excluding RCRA hazardous wastes and recycled wastes. NETL generated about 35 percent of the sanitary waste, SPR generated 37 percent, and ARC and NPR-3 generated the remainder. In response to the Department's pollution-prevention goals, all the sites have instituted aggressive onsite recycling and reuse programs and other activities. For example, FE sites recycle toner cartridges, office supplies and paper, magazines, corrugated cardboard, newspaper, telephone books, scrap metal, aluminum cans, vehicle tires, wood pallets, and fluorescent lighting tubes.

SPR routinely communicates with counterparts to emphasize costs associated with waste reduction and reports cost savings in its monthly project reviews. SPR expanded its recycling efforts where feasible and currently is evaluating opportunities for reusing and recycling demolition debris and excavation material. Oiled material resulting from ongoing activities is biodegraded or otherwise processed for reuse onsite when possible. Through these efforts, SPR reduced its sanitary waste generation by 20 percent in FY 2002.

**Figure 8**

FE SANITARY WASTE GENERATION



Source: Field sites

ARC decreased its generation of sanitary waste by 19 percent over last year. ARC recycles used oil, batteries, mercury/mercury devices, and precious metals, and increased its EPA-designated recycled-content items by 90 percent. ARC is in the process of developing an affirmative procurement policy. In accordance with DOE's pollution prevention goals, ARC is reducing waste resulting from cleanup, stabilization, and decommissioning activities by 10 percent on an annual basis. Although the amount of sanitary waste remained the same, NPR-3 also focused on

the reduction of waste resulting from cleanup, stabilization, and decommissioning activities.

NETL's sanitary waste generation increased in FY 2002 by 3 percent over last year due to an increase in combustion research and construction activity, and additional wastewater generated from the installation of new boilers. In an effort to meet goals for recycling and waste reduction, NETL is developing programs for recycling/reusing steel cans and plastic beverage containers. Programs for composting are limited to onsite lawn, yard, and leaf waste. NETL is implementing a campaign to educate and increase awareness among employees concerning recycling sanitary waste.

### ***FE Meets Nearly 100 Percent of the Department's Affirmative Procurement Goals***

Federal agencies are required to purchase products with recycled content as designated by EPA. These categories are: paper and paper products; construction; non-paper office; vehicular; transportation; and landscaping. EPA allows Federal agencies to exclude from their total purchases those purchases where a product with recycled content is not available at a reasonable cost within a reasonable period, or does not meet performance standards. Accounting for adjusted total purchases, NETL and NPR-3 met their goal of 100 percent affirmative procurement purchases for all categories, and SPR met its 100 percent goal for virtually all categories (99.7 percent for paper and paper product purchases). ARC met its goals in all categories except for construction purchases, in which it is achieving 62 percent of its goal.

## IV. Next Steps in the Pursuit of ESS&H Excellence

We are proud of the progress made over the last year in demonstrating a level of ESS&H performance comparable to or better than the best in the government and private sector. However, FY 2002 performance indicates that we are not finished in our efforts to establish the highest levels of security and emergency preparedness and to achieve a continuous improvement, zero accident and occurrence program. This section summarizes some of the challenges that our organization faces on a Corporate-wide basis, and the initiatives we plan to pursue in the year ahead to continue to improve our ESS&H performance. A summary of site-specific initiatives that have been committed to in the FY 2003 budget also is presented below.

### KEY CHALLENGES AND INITIATIVES

#### ***Fully employing our experience, expertise and innovation***

Many of the ESS&H challenges facing FE sites are crosscutting. In the coming year, we will continue our focus on the sharing of innovative ideas and best practices, technical expertise, and training resources from across our sites to solve generic performance problems within FE. We will continue to enhance our best practice and training databases to provide timely access to this information to all FE employees. We will send out best practices bulletins via e-mail and print media, make them available on the FE ESS&H Web site, and ensure they are disseminated to all levels of management and onsite workers. We will take advantage of every opportunity to exhibit and highlight the capabilities of our best practices database, and integrate best practices into FE's day-to-day activities. Technical assistance teams comprised of experts from throughout FE and championed by FE HQ will be established to provide targeted support to FE field sites. In addition, we will focus on recognizing, reporting, and analyzing near miss incidents and continue our efforts to understand and address the root causes to achieve a zero accident program.

#### ***Achieving excellence through external certification***

We will use external certification of our ES&H programs by organizations such as OSHA VPP, EPA National Environmental Performance Track, and ISO 14001 as a means to achieve further performance improvements at our field sites. Our SPR sites already achieved OSHA and DOE VPP Star Status, ISO 14001 accreditation, and are charter members in EPA's National Environmental Performance Track program. Other FE sites conducted gap analyses and corrective actions, and plan to be certified or perform at a level equivalent to certified organizations in late 2002 and 2003. Using the numerous resource tools developed by FE HQ and our field sites, FE HQ will work closely with ARC to achieve its ISO 14001 certification, and will assist NETL during its ISO 14001 external certification audit.

#### ***Maintaining security and emergency preparedness***

Maintaining an effective security and emergency response posture is a priority. In the coming year, we will continue to upgrade our infrastructure and expand employee awareness. We will enhance our readiness through implementation of unannounced training drills and exercises to reduce potential risk from terrorist activities and site emergencies. We will strengthen our personnel and property protection programs through continued maintenance of heightened SECON levels at both headquarters and field sites. We also will work closely with local communities to coordinate response activities, share resources and knowledge, and continue to be a valued community partner.

Specific challenges include enhancing security and emergency management self-assessment programs; increasing protective force training; improving security badging processes; maintaining Federal and contractor personnel tracking programs; and maintaining long-term heightened SECON measures. FE also will continue on making Integrated Safeguards and Security Management an integral part of all employee activities. Project managers, site managers, supervisors, and other site personnel will be

further encouraged to take active roles in day-to-day security activities.

### ***Using ESS&H as a primary productivity improvement tool***

The steps to improve productivity and ESS&H are similar. Inappropriate attention to ESS&H should be viewed as a productivity obstacle. In the coming year, we plan to use ESS&H as a primary productivity improvement tool. We will review existing ESS&H requirements and examine opportunities to eliminate non-value added activities. We will ensure ESS&H issues are factored into strategic and project planning and budgeting activities. We will look for cost-effective performance improvements that will reduce our ESS&H costs and allow us to redirect these resources towards accomplishing our mission.

### ***Eliminating worker exposure to hazardous substances and unsafe behaviors***

Potential exposure of workers to hazardous substances and unsafe behaviors remains a concern at all Departmental sites including those of FE. In the coming year, we will pursue efforts to upgrade ventilation systems to improve indoor air quality, remove/contain asbestos, eliminate lead exposure, and complete facility upgrades to improve safety and health conditions for our workers. In addition, we will assist the sites in increasing the ability of workers to identify and correct hazards and unsafe behaviors as they occur. We will assist sites in providing incentives for workers and supervisors to carry out their responsibilities, such as planning work to identify hazards, reviewing work plans with assigned workers, and monitoring work to ensure hazards and behaviors are corrected.

### ***Pursuing environmental cleanup and restoration***

Past practices left residual contamination at onsite and offsite locations. In the coming year, we will continue cleanup efforts and seek agreements to release DOE from future financial liabilities at sites where FE performed work. This will include continuing cleanup at NPRC as part of DOE's obligations under a privatization agreement,

further cleanup at NPR-2 and NPR-3, and ongoing restoration and monitoring at sites where FE previously conducted research, development, and demonstration projects. We will attain and, where appropriate, go above and beyond regulatory requirements in our cleanup activities and work in a close partnership with all of our regulators. We will be proactive in our protection of the environment as demonstrated by the ground water monitoring wells installed at ARC.

## **SITE-SPECIFIC INITIATIVES**

### ***Albany Research Center (ARC)***

- Fully implement heightened security plan, including completion of security upgrades (e.g., fencing, guard shack, automatic gates, upgrades to traffic patterns) and training of the contracted security force
- Enhance emergency preparedness by executing MOUs with all appropriate external emergency response organizations, conducting exercises and drills, and continuing to refine site emergency response systems and plans
- Reduce hazards through facility upgrade projects (e.g., lead-based paint and asbestos abatement; upgrades to aging systems, outdated equipment, deteriorating infrastructure)
- Continue ISM implementation, focusing on upgrading the job hazard analyses, improving the performance tracking and trending and the management assessment programs, enhancing the Corrective Action Tracking System, EMS, and the chemical inventory system, and responding to gaps identified in the ISO 14001/OSHA VPP/EPA NEAT gap analysis
- Formalize and implement an EMS
- Recruit an ES&H manager
- Increase safety and health and environmental monitoring (e.g., process occupational exposure, quarterly ground water monitoring sampling and analysis)
- Achieve ISO 14001 certification in early FY 2004

### ***National Energy Technology Laboratory (NETL)***

- Achieve ISO 14001 certification
- Continue emergency readiness activities, including implementing emergency power systems for ES&H critical operations, completing the HVAC shutdown/shelter-in-place project in Morgantown, and conducting site-wide emergency response exercises at Morgantown and Pittsburgh sites
- Continue remediation activities at off-site project locations
- Complete facility upgrades to improve safety and health conditions for employees and maintain environmental compliance (e.g., upgrades to ventilation systems and indoor air quality, asbestos removal, renovations to chemical handling facilities, chiller replacement to eliminate ozone depleting substances)
- Upgrade wastewater treatment facility to achieve full compliance with discharge permit
- Improve energy management activities to comply with Executive Orders
- Continue upgrades to fire protection system in NPTO offices in Tulsa, Oklahoma

### ***Naval Petroleum and Oil Shale Reserves (NPOSR)***

- Continue implementation of ES&H training program at NPR-3
- Close out VPP/ISO 14001 gap analysis findings at NPR-3
- Implement a behavior observation process at NPR-3
- Continue closure of the landfarm at NPR-3 working closely with the state agencies to address cultural resource issues
- Continue oil field cleanup at NPR-3
- Negotiate new multiparty agreement for the cleanup of NPR-1 with the State of California and private industry parties

- Complete cleanup of nonhazardous waste trash scatter areas at NPR-1
- Continue working on the cultural resource assessment and finalize the workplan for the ecological and human health risk assessment at NPR-1
- Negotiate agreement with BLM regarding cleanup responsibilities for NPR-2

### ***Strategic Petroleum Reserve (SPR)***

- Continue security and emergency management enhancements, including annual field training exercises at each site, and upgrades to orthographic technology to produce better graphics and mapping for the active pipelines
- Continue to maintain an ES&H leadership position by maintaining VPP and ISO 14001 certifications and EPA Performance Track membership, applying for membership in the State of Texas Clean Texas Program, and performing a gap analysis for expanding the management system to include OHSAS Occupational Safety and Health Assessment Series
- Complete full implementation of the behavioral environmental program to enhance environmental awareness in support of pollution prevention, waste generation reduction, and reduction incident occurrences
- Implement lessons learned from near miss accidents, particularly related to electrical hazards and critical lifting, to improve safety and health conditions for employees
- Continue to play a lead role in the Department's ISM program, including participating in ISM conferences and special implementation teams

## Appendix. Summary of FE 2002 Performance Measures: Percentage Change from FY 2001 Performance

METRIC	FE TOTAL	FE HQ	SPR	NETL	ARC	NPR-3	NPRC	DOE TOTAL	DOE VPP SITES*
Total Recordable Cases	47 (-2%)	0 (NC)	19 (+27%)	19 (-27%)	4 (+100%)	5 (NC)	0 (NC)	2,687 (+5%)	606 (-50%)
Total Recordable Case Rate	1.7 (-15%)	0 (NC)	1.6 (+7%)	1.5 (-32%)	4.2 (+100%)	7.5 (+4%)	0 (NC)	2.0 (-23%)	1.6 (-11%)
# Lost Workday Cases	21 (+5%)	0 (NC)	7 (+17%)	10 (NC)	0 (NC)	4 (NC)	0 (NC)	1,200 (+10%)	254 (-32%)
Lost Workday Case Rate	0.8 (NC)	0 (NC)	0.6 (NC)	0.8 (-11%)	0 (NC)	6.0 (+3%)	0 (NC)	0.93 (-16%)	0.65 (-18%)
# Lost Workdays	484 (+214%)	0 (NC)	28 (+64%)	397 (+322%)	0 (NC)	59 (+37%)	0 (NC)	29,007 (+24%)	5,626 (-66%)
Lost Workday Rate	17.5 (+170%)	0 (NC)	2.34 (+37%)	32.26 (+303%)	0 (NC)	89.1 (+43%)	0 (NC)	21.9 (-8%)	14.65 (-4%)
Occupational Safety and Health Cost Index	7.85 (-69%)	0 (NC)	2.45 (-95%)	13.38 (+138%)	4.23 (+104%)	28.08 (+43%)	0 (NC)	9.48 (-16%)	6.08 (+7%)
Estimated Injury & Illness Costs	\$433,400 (-64%)	0 (NC)	\$58,800 (-94%)	\$329,400 (+150%)	\$9,000 (+100%)	\$37,200 (+37%)	0 (NC)	\$25,145,000 (+33%)	\$3,582,600 (Not Available)
Estimated Vehicle Costs (e.g., boats and cars)	\$22,440 (-59%)	0 (NC)	\$20,336 (-62%)	\$2,104 ***	0 (NC)	0 (NC)	0 (NC)	\$444,408 (+17%)	\$253,777 (Not Available)
# Vehicle Accidents (including boats and cars)	14 (+27%)	0 (NC)	13 (+18%)	1 ***	0 (NC)	0 (NC)	0 (NC)	154 (+35%)	89 (Not Available)
# Operational Occurrences	25 (-42%)	0 (NC)	12 (-29%)	6 (-33%)	3 (+50%)	4 (-73%)	0 (NC)	2,177 (-16%)	981 (Not Available)
# Environmental Releases	8 (-58%)	0 (NC)	2 (-50%)	0 (NC)	2 ***	4 (-73%)	0 (NC)	36 (-44%)	7 (Not Available)
# Regulatory Violations	3 (NC)	0 (NC)	0 (NC)	1 (-66%)	2 ***	0 (NC)	0 (NC)	Not Available	Not Available
Lbs. Hazardous Waste Generated	7,133 (-39%)	0 (NC)	708 (-58%)	3,320 (-53%)	3,105 (+6%)	0 (NC)	0 (NC)	Not Available	Not Available
Lbs. Sanitary Waste Generated	1,317,346 (-13%)	0 (NC)	484,059 (-20%)	462,587 (+3%)	365,700 (-19%)	5,000 (NC)	0 (NC)	Not Available	Not Available
Hours Worked	5,520,618 (+17%)	316,000 (-2%)	2,396,185 (+17%)	2,460,935 (+5%)	189,024 (-2%)	132,473 (-4%)	26,000 (Not Available)	265,052,426 (+38%)	76,825,257 (Not Available)

\*DOE VPP Sites include: Femald, Kansas City, Savannah River, WIPP Project, PNNL, Hanford, INEEL, West Valley, and Nevada Test. Also note, DOE VPP and DOE data are from the four most recent quarters of available data (FY 2001

NC = No Change from FY 2001

\*\*\* = FY 2001 number equated zero

# Office of Environment, Security, Safety and Health

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## Office of Environment, Security, Safety and Health

### FE FY 2002 Site Awards

- FE Environment, Security, Safety and Health Achievement Award – NETL
- OSHA VPP "Super Star" Awards – Bayou Choctaw, West Hackberry, and Bryan Mound, SPR
- OSHA VPP "Star of Excellence" Award – Big Hill, SPR
- DOE VPP "Star of Excellence" Awards – Big Hill and Bryan Mound, SPR
- DOE VPP "Superior Star" Awards – Bayou Choctaw and West Hackberry, SPR
- Western Pennsylvania Safety Council "Outstanding Achievement" Award – NETL
- DOE P2 Award for Waste/Pollution Prevention – SPR
- DOE Energy Management Award – NETL
- White House "Closing The Circle" Certificate of Achievement – SPR
- EPA National Environmental Performance Track membership – SPR
- Texas General Land Office OSPRA Award for Excellence in Spill Preparedness, Prevention, and Response – Bryan Mound, SPR
- EPA Regions VI, VIII, IX, & X Certificate of Appreciation for "From EMR to ISO 14001 to Performance Track" presentation – SPR