



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

Annual Report Fiscal Year 2009



Office of Environment,
Security, Safety and
Health

A Letter from the Assistant Secretary

March 2010



The Office of Fossil Energy (FE) is dedicated to providing our Nation with energy solutions, both through its stockpile at the Strategic Petroleum Reserve (SPR) and cutting-edge research at the National Energy Technology Laboratory (NETL), and Rocky Mountain Oilfield Testing Center. During fiscal year (FY) 2009, FE focused on growing its clean energy research and development through partnerships with public- and private-sector organizations and universities. These partnerships foster a broad array of discovery in areas like clean coal technology and carbon capture and sequestration. Building on those priorities, the American Recovery and Reinvestment Act has allowed FE to further invest in the Nation's economic and national security.

In the pursuit of its initiatives, the safety and health of our employees has always been paramount. In that tradition, FE is committed to strong environment, security, safety and health (ESS&H) programs that involve employees from across the organization in contributing to a culture of safety and wellness. In addition, FE has continued to mitigate its environmental impacts, clean up existing legacies, and find new ways to achieve pollution prevention and energy efficiency goals. Multiple FE sites were honored in FY 2009 for their innovative efforts to provide a better environment for their neighbors and partners. For example, SPR invented a method for removing methane from crude oil before it is shipped to customers, and NETL's new decontamination technology provides a safer way to remediate its environmental legacies.

The Office of Fossil Energy has also continued to strengthen its security and emergency management training and infrastructure. Sites have upgraded their physical security, cyber security, found new efficiencies in vetting and training new employees, and identified emerging threats, including pandemic flu.

Looking forward, FE will continue to implement advanced safety processes, including Human Performance Improvement techniques and Integrated Safety Management. These systems allow us to rigorously identify the most effective ways to prevent employee injuries. The Office of Fossil Energy will also work to engender a culture of safety and environmental stewardship that includes employees, their families, and local communities. In addition, FE is committed to an integrated strategy for sustainability, including reducing greenhouse gas emissions, as set out in President Obama's Executive Order 13514.

Our employees are committed to achieving the highest standards of ESS&H excellence. It is my pleasure to share this record of our achievements and vision for the future with you and to invite your input and suggestions.

A handwritten signature in black ink, appearing to read 'James J. Markowsky'. The signature is stylized with a long horizontal stroke and a vertical stroke crossing it.

James J. Markowsky
Assistant Secretary
Office of Fossil Energy

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I. Introduction

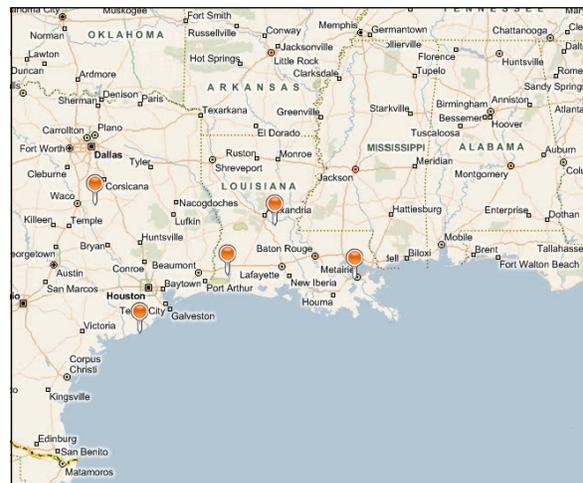
With 86 percent of the Nation's energy supplied by fossil fuels, the Department of Energy's (DOE) Office of Fossil Energy (FE) has a critical role in ensuring fossil resources are clean, affordable, and reliable. FE's mission includes establishing reserves to protect the Nation against rapid fuel supply changes and researching new technologies such as clean fuels, carbon capture and sequestration, and more efficient fuel delivery systems.

FE is committed to maintaining the highest standards for the environment, security, safety, and health (ESS&H) of its sites and operations. FE has dedicated itself to the core values of ensuring the highest level of protection for FE's physical assets; maintaining strong emergency preparedness and response programs; integrating ESS&H into all program activities; eliminating 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. These core values help FE focus on integrating ESS&H into all aspects of the work planning and implementation processes.

The 2009 Annual Report summarizes FE-wide ESS&H performance for fiscal year (FY) 2009 and includes data from the National Energy Technology Laboratory (NETL), the Strategic Petroleum Reserve (SPR), the Rocky Mountain Oilfield Testing Center (RMOTC), and FE Headquarters (HQ). Chapter I of the report introduces the document and the FE sites. Chapter II provides a comprehensive overview of key accomplishments during FY 2009. Chapter III presents the quantitative results of the FE-wide performance for key ESS&H performance indicators. Finally, Chapter IV outlines the key challenges, plans, and initiatives for improvement during FY 2010.

The FE Sites

FE is headquartered in Washington, DC and Germantown, MD, and has field sites in Morgantown, WV; Pittsburgh, PA; Fairbanks, AK; New Orleans, LA; Casper, WY; Albany, OR; and Houston, TX. With more than 2,500 Federal employees, contractors, and subcontractors, FE continues to explore diversified ways to obtain supplies of fossil energy in the future, maintain and increase the U.S. petroleum reserves, and lead state-of-the-



Based in New Orleans, SPR has four current storage sites in Louisiana and Texas.

art research and development focused on fossil energy, carbon sequestration, and technology research.

FE has an extensive tradition of building public-private research partnerships. FE is currently pursuing a broad array of research through programs like the Clean Coal Power Initiative (CCPI). CCPI, administered by NETL, offers funding to private researchers who develop clean coal technology. The program promotes the adoption of these technologies by domestic energy producers.

FE is also responsible for \$3.4 billion in programs funded through the American Recovery and Reinvestment Act. The new legislation allows FE to further invest in the



A NETL researcher inspects a steam turbine rotor assembly. NETL is partnering with researchers and equipment suppliers to develop turbine materials for more efficient coal power plants.

development and deployment of cleaner, more efficient coal production and improved technology for capture and storage of emissions from coal-fired power and industrial plants.

SPR is a DOE-owned, contractor-operated complex of sites that store oil in 62 large, subterranean salt dome caverns along the Gulf Coast. Each oil cavern holds between 6 and 35 million barrels. With a total of about 725 million barrels of crude on reserve as of November 9, 2009, the SPR is the largest stockpile of Government-owned crude oil in the world.

SPR is headquartered in New Orleans, LA, and has four storage sites: Bayou Choctaw and West Hackberry in Louisiana and Bryan Mound and Big Hill in Texas. The four sites are managed and operated by an onsite contractor, DynMcDermott Petroleum Operations Company.

The purpose of the SPR is to maintain the readiness of the Nation's oil stockpile for emergency use at the President's direction. In 2009, SPR took advantage of lower fuel prices

to begin replenishing its stores to near full capacity. Oil refiners reimbursed SPR for 5.4 million barrels of crude oil that it released in Fall 2008 when Hurricanes Gustav and Ike damaged the petroleum industry's infrastructure. SPR also purchased 12 million barrels to restore supplies released following Hurricanes Katrina and Ike, and by FY 2010 it had received more than 10 million barrels from crude producers who pay royalties with oil instead of cash. These replenishments have allowed SPR to reach full capacity.

FE also manages the Northeast Home Heating Oil Reserve, which has about 2 million barrels of fuel oil at three sites throughout the Northeast. Because people in the Northeast tend to rely on oil to heat their homes, it is important to maintain this reserve, especially during the cold winter months.

NETL has the distinction of being the only U.S. national laboratory devoted primarily to fossil research. Its expertise in coal, natural gas, oil technologies, and energy systems and international energy analysis allows NETL to form research partnerships with industry, universities, and other Government entities. Those partnerships, coupled with its federally owned laboratory research, allow NETL to pursue new systems and technologies that will promote affordable and sustainable energy solutions.



Crude oil pipelines at SPR's Bryan Mound site.



NETL's fuel cell research is conducted in partnership with universities, industry, and government.

In addition to enhancing America's energy independence through research, NETL also seeks to enhance America's energy security, improve the environmental acceptability of energy production and use, and ensure a robust U.S. energy future. NETL conducts research on topics including secure and reliable energy; coal, oil, and natural gas efficiency; carbon sequestration; global climate change; the future role of hydrogen; clean power generation from coal; and critical infrastructure assurance.

NETL has more than 1,100 Federal and contractor employees at sites located in Morgantown, WV; Pittsburgh, PA; Albany, OR; Houston, TX; and Fairbanks, AK. In total, NETL manages more than 1,800 projects in the United States and more than 40 projects overseas. Total contract value of NETL projects is more than \$9 billion, and private sector cost-sharing is more than \$5 billion. NETL funds nearly 500 university research projects, helping to train the next generation of energy scientists.

During FY 2009, NETL formed several partnerships to test carbon capture and storage techniques, clean coal technologies, and hydrogen power. For example, NETL is heavily involved in awarding \$1.4 billion in grants from the American Recovery and Reinvestment Act

for industrial carbon capture and storage projects. NETL is also researching smart grid technology, analyzing the costs of smart grids, and designing more efficient energy storage, including high-capacity lithium-ion batteries. These technologies have the potential to revolutionize the way Americans power their homes, use transportation, and conduct business.

For NETL, FY 2009 marked the win of four prestigious Research and Development (R&D) 100 Awards from *R&D Magazine* for its in-house innovations. NETL researchers have won more than 30 R&D 100 awards in the last decade. The four winning innovations were: a clay-liquid CO₂ removal sorbent; a process that extracts partially burned coal from a pulverized coal-fired combustor using a suction pipe; special software that allows engineers to design and optimize power plants in a virtual engineering environment; and ultra-sensitive technology that detects CO₂ leakage from geological storage reservoirs.

NETL is also building upon previous research to better understand how to design more efficient home appliances. Hosted at the Morgantown, WV campus, the new Appliance Technology Evaluation Center is a facility specially designed for engineers to evaluate methodologies used to test the efficiency of modern appliances. Better testing methods can



NETL Morgantown is finding new ways to evaluate the energy efficiency of household appliances.

help improve regulatory processes, yield new innovations, and improve appliance energy use.

Located in the Teapot Dome oil production field near Casper, WY, RMOTC (formerly referred to as Naval Petroleum Reserve No. 3) is a Government-owned and operated facility performing technology research. RMOTC partners with private manufacturers and companies to test, evaluate, and demonstrate new ideas and technologies in the oil and gas industry. It also partners with environmental firms to find ways to manage, mitigate, and prevent environmental risk. RMOTC also collaborates with national laboratories, research universities, and Government organizations to test innovations in a real-world setting.

With a 10,000-acre operating field, about 1,300 historic well bores, and 600 producing wells in 9 producing reservoirs ranging in depth from 500 to 5,000 feet, RMOTC provides organizations with the opportunity to field test their theoretical assumptions and ideas in a practical environment.



RMOTC is located on the 10,000-acre Teapot Dome Oil Field, which has about 600 producing wells.

Currently, RMOTC is focused on continuing large-scale upgrades of its oil rigs, including purchasing 600 feet of heavyweight drill pipe for use in rotary steerable system testing. The first phase of upgrades included smaller spinners to improve workforce safety and mud cleaners and upgrade pumps to improve efficiency.

RMOTC focused on using technology to promote alternative energy research, including a successful partnership to test the use of oilfield wastewater for geothermal electrical generation. RMOTC partnered with Casper College to build a 6 kilowatt wind turbine at the Teapot Dome oil field.

II. Highlights of FY 2009 ESS&H Accomplishments

FE identified a number of priorities for FY 2009 that integrate ESS&H into all aspects of the project planning and execution processes. FE specifically targeted these issues with increased resources to ensure the continuous improvement of the organization.

This section summarizes FE accomplishments in FY 2009 related to the following priorities:

- Protecting workers and meeting DOE security and emergency response needs;
- Striving for "zero" injuries and illnesses;
- Eliminating environmental legacies and maintaining strong environmental and pollution prevention programs;
- Integrating safety into all activities as an integral practice;
- Achieving self-assessment and external certification of ESS&H programs;
- Building a strong ESS&H culture;
- Increasing on-site quality assurance; and
- Fostering a continuous learning environment.

Protecting Workers and Meeting DOE Security and Emergency Response Needs

In an effort to identify and confront ongoing and emerging threats, FE continued to increase protection of its personnel and site infrastructure. During FY 2009, FE strengthened employee and site security by:

- Ensuring compliance with DOE regulations and policies;
- Continuing to strengthen the security of FE facilities; and

- Hosting organization-wide emergency response training, drills, and exercises to prepare for potential security threats or emergency situations.

SPR developed a broad Site Security Plan that addresses security programs, training, counterintelligence, budgeting, and access control. The Site Security Plan, which is part of a larger effort to ensure SPR meets DOE's Graded Security Protection policy, also includes a detailed analysis of site vulnerabilities.



Members of SPR's Emergency Response Team participate in a fire suppression drill at a Beaumont, TX fire academy.

During FY 2009, SPR conducted a series of internal assessments and programs to ensure compliance with DOE security protocols and requirements. In response to SPR's Operational Security Working Group's triennial evaluation, SPR began an effort to improve its compliance with Federal regulations regarding the handling of sensitive information by implementing an awareness program to remind employees to use locked shredding boxes when disposing of Government documents.

SPR also established a Classification and Information Control Program and has successfully completed its transition to a more complex classification system. Two new classification officers are now fully trained and certified, and a Classification and Information



Security personnel patrol the facilities at NETL Albany.

Control Plan has been developed to facilitate their duties.

SPR also completed Validation Force-on-Force exercises, the results of which are under review for inclusion in its Site Security Plan. Force-on-Force exercises use drills and scenarios to assess physical protection systems and strategies. In addition to these exercises, during FY 2009 SPR requalified 100% of its site Emergency Response Team (ERT) personnel. Their training program includes successful participation in quarterly training, drills, and exercises and completion of a week-long training at an off-site fire academy.

In FY 2008, Hurricanes Ike and Gustav caused significant impact and damage across SPR sites, including evacuations, flooding, power outages, and debris. Beyond the initial cleanup, SPR continued training and infrastructure improvements borne out of lessons learned during its response to the Gulf Coast hurricanes.

Communications upgrades were completed on SPR's Emergency Command Vehicle. The upgrades were based on challenges identified during the response to hurricanes Gustav and Ike. Two new high-water vehicles have also been deployed at West Hackberry and Big Hill, facilitating rapid re-entry to flooded sites in the event of severe weather.

SPR conducted multiple inclement weather exercises, including bi-monthly drills in Incident Command System (ICS) requirements and exercises on hurricane landfall response. In addition, SPR conducted a small-scale telecommuting exercise to verify its ability to shift its computer network from New Orleans to an alternate data site in Irving, TX.

Also in response to recent hurricanes, SPR has procured water-filled portable berms for its sites. These berms will provide an additional layer of protection against flood water damage, though they can also be used in release response operations.

SPR also updated required Hazard Assessments and Hazard Surveys at all of its sites.

Building on similar efforts in FY 2008, NETL worked to improve its physical security through more efficient screening and enrollment of new employees, as well as by leveraging new security technologies such as biometric access systems.

During FY 2009, NETL installed an enrollment and activation station at its Albany site. The station improves screening of NETL employees and prevents lost work time. Employees used to travel to Portland, OR to complete the enrollment and activation process. This improvement is part



NETL Morgantown recently installed a new gate to bolster security.

of a larger, multi-year effort to improve employee screening, enrollment, and activation.

Recognizing the emerging importance of cyber security, NETL also installed and tested biometric security systems for its server facilities, which will enhance the physical security of its high-impact network systems. In addition, a new security gate was installed at NETL Morgantown, providing different lanes for employees and visitors and improving security officers' control facilities. NETL Albany also completed the design phase for upgrades to its physical access control system.

Finally, NETL Morgantown and Albany are replacing their radio communications equipment. The new radios will improve communications effectiveness and reliability. The new radios provide longer battery life, a lighter physical load, and an extended range.

NETL improved its emergency response exercises and training, while adhering to strong protocols and procedures already in place. Training, exercises, and drills were completed at all sites, and computers were updated at all emergency operations centers. In addition, a project is underway to upgrade NETL Morgantown's emergency notification system.

NETL improved management of its emergency response program by consolidating previously independent programs at Albany, Morgantown,



Security officer Leah Marlborough (right) at NETL Albany was recognized for superior performance.



An officer at NETL Pittsburgh inspects an arriving vehicle.

and Pittsburgh. It is also working to ensure compliance with the National Incident Management System (NIMS), rewriting its mutual aid agreements with the municipalities where its sites are located. These mutual aid agreements provide for additional resources in the event of a complex incident and strengthen the site's cooperative efforts with the local community.

During FY 2009, RMOTC expanded its physical security access system to a sixth building, issued facility keypad codes to all new employees, and periodically altered the combinations of facility padlocks.

RMOTC also conducted an annual exercise, which included an after-action debriefing and the identification of corrective actions. A table-top confined space drill was also completed.

Striving for "Zero" Injuries and Illnesses

FE continued to strive for zero accidents and injuries in the workplace during FY 2009 by implementing programs to combat and mitigate employee error and equipment malfunction. These targeted programs focus on improving sites by:

- Promoting employee health and wellness through preparedness and prevention;

- Improving worker safety protocols and procedures through proactive management, addressing both new and recurring safety issues;
- Conducting extensive safety training to refine employees' skills; and
- Continuing to upgrade facilities and site infrastructure to ensure a safe work environment.

As part of its efforts to combat illness, FE sites responded to the emerging threat of influenza by operating under a comprehensive, DOE-wide response plan that provides detailed actions given different levels of exposure. This plan called for providing hand gels to employees, promoting awareness, and establishing a comprehensive Web site for DOE employees to access information about the virus. FE-HQ developed a specific response plan that details continuity of operations planning (COOP), telework logistics, and contingency programs. Sites also contributed to flu prevention efforts. For example, SPR provided flu immunization shots and workplace hand sanitizers.

During FY 2009, SPR implemented a managed care system, in which a contract nurse responds immediately to any non-life threatening accident or near miss. The nurse consults on first aid care, forwarding the case to a physician if the injury or illness is serious. When immediate medical care is required, the managed care doctor contacts the responding clinic or hospital and briefs their staff on the nature of the injury or illness and the patient's job duties. This personal advocacy speeds up medical response and improves care. In addition, the service follows injured or ill employees with daily contact until they are prepared to return to work. The immediate response from a medical professional often results in a case being classified as receiving only first aid rather than a more serious recordable case. SPR estimates cost savings of more than \$200,000 in the program's first 6 months.



From left: Excellence in ESS&H Award judges Dr. Jay Braitsch, Ed Kilroy, Dave Johnson, and Guido DeHoratiis appear with Director of ESS&H Mark Matarrese. SPR and NETL both won awards for their innovative efforts to improve site safety and health.

SPR's proactive programs in flu prevention and managed care earned it an FE Excellence in ESS&H Award.

FE sites also implemented proactive management tactics in order to decrease the number of injuries and accidents and enhance worker involvement in safety and health. For example, RMOTC encourages personnel to report near hits to share knowledge on the ways employees have averted accidents and injuries.

SPR also worked to prevent accidents by verifying and adopting several best practices. This includes benchmarking accident investigation procedures at other DOE facilities and revising its accident investigation processes accordingly. The revisions include new procedures for accident investigations, investigation teams, the use of Human Performance Improvement (HPI) techniques in accident investigations, and delivery of a final accident report. The New Orleans corporate site also adopted a Lean Behavior Safety Process, which uses techniques like "sweep observations" and targeting at-risk behaviors on an individual basis. This pilot program has exhibited initial signs of success and may be implemented at storage sites in FY 2010. These process improvements are designed to help SPR identify



A technician checks the valve on a wellhead assembly at SPR's Big Hill site.

accidents with systemic causes more quickly and in a more structured manner.

SPR also evaluated and resolved ergonomic issues at workstations in office and field environments, reducing the risk of repetitive stress injuries.

During FY 2009, SPR further expanded the use of hydrogen sulfide alarm monitors. Personal hydrogen sulfide monitors, or "crickets," provide field personnel and security officers with an early warning of exposure. Because of the high quantity of hydrogen sulfide in the Degas Plant, SPR again provided certified, in-house hydrogen sulfide training to educate SPR employees working in or near the plant.

During FY 2009, FE continued to upgrade site infrastructure to prevent illness and injury. NETL continued planned asbestos removal at NETL Pittsburgh and chemical cleanup at laboratory facilities. Third-party, independent ESS&H assessments of several NETL programs were conducted, including emergency eyewash and shower equipment as well as spill prevention and control. NETL is currently implementing the recommendations from those assessments. In addition, independent experts are currently reviewing laboratory directives related to waste

management, transport, and disposal.

NETL Albany completed a program in FY 2009 to remediate the amount of beryllium in its laboratories, facilitating a significant reduction in hazardous materials exposure and returning more than 75,000 square feet of usable laboratory space to researchers.

In an effort to more quickly eliminate potential risks, NETL implemented a system to report urgent and serious corrective actions to management on a weekly basis. This has helped eliminate many late corrective actions and ensure follow-up completion. Similarly, there is an ongoing effort to mitigate deficiencies identified during the Safety Analysis and Review System (SARS) process. In addition, ESS&H, operations, and research personnel are collaborating on a strategy to resolve any life safety code compliance issues at NETL Albany.

RMOTC has been addressing site safety in its new employee orientation and training and when issuing personal protective equipment (PPE). Its annual family safety picnic continues to promote safety and health awareness in the workplace and at home. RMOTC employees also continued participation in formal health and safety inspections.



The host of "Wyoming's Dirtiest Jobs" learned about rig work and RMOTC's safety culture.



RMOTC's annual Safety Day provided hands-on training for employees in fall protection.

Eliminating Environmental Legacies and Maintaining Strong Environmental and Pollution Prevention Programs

FE is committed to maintaining robust environmental and pollution prevention programs as well as cleaning up environmental legacies from past activities. FE sites have implemented programs to:

- Prevent and remediate environmental legacies;
- Employ strong environmental protection and pollution protection management practices; and
- Aggressively pursue pollution prevention and energy efficiency goals.

FE has multiple efforts underway to prevent environmental legacies and clean up existing problems.

NETL continues to make progress on remediation activities at its research sites. For example, NETL Albany completed its correction

of legacy beryllium contamination. This effort significantly reduced hazardous exposure, decreased health effects, and improved environmental quality. Previously contaminated buildings at the site are now ready for use. Hector Rodriguez and Stace Johnson's innovative method for mitigating beryllium particulate is also safer and more efficient, earning them an FE Excellence in ESS&H Award.

All FE sites conduct both self and external assessments of environmental impact, waste generation, energy conservation, and pollution prevention. The sites have implemented functional Environmental Management Systems (EMS) to proactively manage their operations.

SPR strengthened its position as an environmental leader in FY 2009. As a charter member of the Environmental Protection Agency's (EPA) National Environmental Performance Track (NEPT) program, SPR continues to meet program requirements. DynMcDermott continues to hold the National Chairmanship for EPA's NEPT Participants Association. In this role, SPR has access to best practices at 250 facilities with leading environmental programs.



NETL's Robert McLendon adjusts a CT scanner used to measure in situ fluid displacement.

RMOTC conducted several assessments of its environmental impact, including surface water sampling to monitor chlorides entering and leaving its Casper, WY site. In response to changing environmental regulations in Wyoming, RMOTC began conducting more rigorous analyses of its surface water, sampling 28 locations across the site to develop a more comprehensive understanding of how RMOTC can improve area water quality.

Based on a past site-wide environmental assessment, RMOTC also developed a Hazardous Materials Management Plan and Green Purchasing Plan to facilitate better disposal of materials and procurements of environmentally friendly products. RMOTC also installed a new environmental management system, which identified an array of plans and programs ready for implementation and oversight.

NETL Pittsburgh also replaced filter media at its wastewater treatment facility, ensuring regulatory compliance and helping to clean wastewater. In addition, a new facility at NETL Morgantown to house a pH batch control system was completed in November 2009. The system will better control the pH level of NETL Morgantown's industrial wastewater effluent.

In addition to management and compliance, FE focused on reducing its carbon footprint and preventing pollution through a combination of research, new technology, and raising employee awareness.

In FY 2009, SPR won the National Pollution Prevention Roundtable's Most Valuable Pollution Prevention (MVP²) Award, for its method of preventing methane emissions from reaching its customers. SPR's Degas plant took full advantage of the methane in gassy crude oil, removing it from the oil and using it as fuel for the plant. Excess methane was destroyed using an incinerator, preventing methane emissions for downstream oil customers. This unique effort has prevented the emission of 1,205 tons of

methane to date, equivalent to 30,125 tons of CO₂.

SPR met or exceeded all of its waste management goals. SPR's waste generation awareness campaign has contributed to the facilities' success with target waste reduction.

NETL completed several key efforts to reduce its carbon footprint. A contract to refit NETL's electric lighting devices was largely completed in FY 2009. This initiative involved the installation of more than 3,000 energy-saving devices that will reduce electrical usage by more than 400,000 kWh per year—savings of about \$25,000 per year. As part of this effort, 21,000 light bulbs were replaced with energy efficient, low-mercury fixtures. These new bulbs provide energy savings and reduce mercury levels by nearly 38,000 mg.

A similar initiative installed more than 330 water-saving devices, including new or retrofitted flow and spray moderators, faucets, toilet bowls, and shower heads. This effort, which was completed at NETL Pittsburgh in FY 2009, will reduce consumption by more than 1 million gallons annually once fully completed in FY 2010.



The National Pollution Prevention Roundtable (NPPR) announced on August 18, 2009, that the SPR had won the 2009 NPPR Most Valuable Pollution Prevention (MVP²) Award for "Pollution Prevention of Greenhouse Gases" for the degasification of crude oil process. From left: Jeff Burke (NPPR); Chad Bourgoin (DOE HQ); Rob Evers, Bill Bozzo, Terry Baxter (DynMcDermott); and J. Brad Wallace (DOE SPR).

Achieving Self-Assessment and External Certification of ESS&H Programs

Internal and external ESS&H assessments, as well as third-party certifications, assist FE in identifying best practices, recognizing exemplary performance, and targeting areas in need of improvement. Assessment and recognition of ESS&H programs demonstrates FE's commitment to safe, secure, and environmentally sound programs to customers, communities, and academic and business partners.

NETL conducted a self-assessment of its quality assurance systems, resulting in several recommended corrective actions that are currently being implemented. NETL also organized independent assessments of its emergency eyewash and shower equipment, spill prevention and control management, waste management, pollution minimization and prevention programs, and hazardous materials disposal programs. Recommendations from those assessments are currently being either formulated or implemented.

SPR's site security specialists at each site conducted security self-assessments, which were then validated by a team of physical security specialists who travel to each site. In addition, SPR conducted a Pollution Prevention Opportunity Assessment to identify projects that



Safety Specialist Kevin Cannon (left) awarded the 2009 RMOTC Recycling Award to Bill O'Keefe.

can be integrated into the sites' work practices. Fire and hazard assessments were also conducted at each site; these were validated by a third-party assessment.

RMOTC conducted a site-wide environmental assessment to evaluate the impact from the facility's activities. As a result of this effort, RMOTC improved its environmental impact and operational conditions.

External certifications and recognition help identify areas of leadership and innovation at FE sites. For example, all four of SPR's storage facilities maintained their leading-edge status in occupational safety, earning Voluntary Protection Program (VPP) status with the Occupational Safety and Health Administration (OSHA). Two of the facilities were inspected by OSHA teams and recertified; the remaining two will undergo inspection in FY 2010. The New Orleans, Bayou Choctaw, and West Hackberry sites also won National Safety Council awards for their low accident rates.

SPR maintained its ISO 14001 certification. It also continued to meet requirements of the Clean Texas Program and EPA National Environmental Performance Track, of which it is a charter member, helping to reduce volatile organic compound (VOC) emissions and toxicity in cleaning products, reserve land for wildlife at storage facilities, and develop green building standards. As discussed, it was also awarded the National Pollution Prevention Roundtable's MVP² Award for efforts to reduce greenhouse gas emissions from its products.

NETL achieved ISO 14001 recertification for its Pittsburgh, Morgantown, and Albany sites. NETL Albany also achieved ISO 9001 certification, while NETL Pittsburgh and Morgantown achieved compliance with OHSAS standards. FE-HQ conducted an Integrated Safety Management (ISM) System Verification Assessment, noting NETL's strong ESS&H culture, support from senior management on ISM topics, and demonstrated incorporation of ESS&H throughout the organization.

NETL was also awarded an EPA Region 3 Environmental Achievement Award, and NETL researchers won four prestigious R&D 100 Awards from *R&D Magazine* for its in-house innovations.

Building a Strong ESS&H Culture

FE maintained a strong ESS&H culture during FY 2009. All of the sites built on partnerships with other organizations, participated in community exercises and volunteering, and emphasized the importance of continuous training and development to provide employees with a comprehensive understanding of operations, work culture, and performance expectations. While all sites designed programs customized to the needs of their employees, each site hosted events that included employees and their families and focused on personal safety and environmental protection.

For example, SPR promotes employee wellness with community outreach programs. Volunteers at the annual Lake Pontchartrain Beach Sweep removed 31 bags of trash. SPR also continued its Pollution Prevention Program, which encourages employees to participate in Earth Day activities, promote recycling at area schools, and to conduct other forms of community service. SPR leaders also implemented a seven-point Safety Commitment, which employees



Charlotte McMahon, Jeanie Smith, and Sandy Riedel (from left), all of DynMcDermott, participated in the 2009 Beach Sweep along the shores of Lake Pontchartrain, Louisiana.



RMOTC volunteers took part in the Platte River Revival, which has removed over 1 million pounds of trash and debris from this scenic river in Casper.

signed, recognizing their responsibility for maintaining a safe work environment. Senior managers also held "round robin" discussions at each site, addressing safety concerns and SPR's focus on accident prevention.

RMOTC worked to involve personnel throughout the organization into a collective ESS&H culture by including management in safety training and resolution of safety issues. RMOTC leaders also regularly shared lessons learned from other DOE sites and outside sources during morning meetings and via e-mail. To promote employee wellness, RMOTC also facilitated a health-screening blood draw so that employees could assess potential health risks. A family safety picnic was hosted for RMOTC personnel and their families, providing safety tips for their home as well as the workplace.

NETL strengthened its ESS&H culture by hosting an Earth Week Celebration that included cleaning offices, promoting shutting down computers during lunch, reducing junk faxes, and recycling cellular phones. NETL also participated in the Federal Electronics Challenge, which emphasizes the need to purchase greener electronics, reduce the impact of using electronics, and dispose of aging equipment in a responsible manner. A collection of helpful tips was posted on NETL's intranet, including information on recycling, proper use of

household chemicals, and green holiday purchasing.

Integrating Safety Into All Activities as an Integral Practice

Integrated Safety Management (ISM) offers a systematic method for integrating ESS&H into all steps of the work planning and implementation processes. ISM's streamlined approach incorporates seven verification criteria into all organizational operations, helping maintain a standardized ESS&H process.

During FY 2009, each FE site participated in an FE-HQ Integrated Safety Management System (ISMS) Verification Review. FE-HQ's review validates whether ISM practices and principles are incorporated into work planning and execution processes to effectively protect the health and safety of workers, the public, the environment, and Government property.

SPR completed its Annual ISM and Update Report, a comprehensive document compiling findings from assessments conducted during FY 2009. SPR professionals from multiple management areas attended an ISM conference and workshop to build their knowledge of the systems and find new ways to add value to their processes.

As an example of integrating safety processes into management across the organization, safety professionals at SPR actively participated in the selection of two sites for new storage caverns at the Bayou Choctaw site, ensuring safety and health concerns were resolved early in the planning phase. In addition, two safety councils were held to give all SPR prime contractors the opportunity to communicate directly on safety issues with the SPR project manager.

At NETL's Morgantown, Albany, and Pittsburgh sites, FE-HQ also conducted an ISMS assessment, noting strengths and deficiencies. FE-HQ found several corrective actions for NETL to complete, including clarifying how contractors are regulated, providing increased

computer-based ESS&H training, and enhancing training on control of hazardous energy sources.

NETL also implemented a system to report urgent or serious corrective actions to management on a weekly basis, helping to eliminate late corrective actions implemented long after an accident occurs. NETL also continued its efforts to sustain conformance with ISO 14001 and OHSAS 18001 standards and integrate them into organizational processes.

FE-HQ's ISM verification assessment at RMOTC noted that the organization's senior management supports ISM principles and demonstrates a good understanding of ESS&H roles and responsibilities. In addition, it applauded RMOTC's "lessons learned" program, where ESS&H lessons are incorporated into meetings and e-mail communications with employees.

RMOTC conducts a Job Hazard Analysis (JHA) for each of its projects and a Job Safety Analysis (JSA) to address any safety concerns before potentially unsafe work is undertaken. FE-HQ personnel also conducted an on-site safety assistance visit to follow up on the implementation of RMOTC's ISM system.

Increasing Onsite Quality Assurance

Every FE task is subjected to a rigorous, systematic quality assurance (QA) process that continuously validates its alignment with the organization's mission and reflects the highest standards of excellence. The QA process ensures employee and customer confidence in each product and service offered by FE.

SPR conducted oversight activities as required by DOE procedures. A comprehensive Management Assessment was conducted for the program, as well as five On-Site Appraisals that reviewed ESS&H processes and procedures. SPR worked to validate several plans and self-assessments, including establishing a team of physical security specialists to verify the credibility of site security specialists' self-assessments and continuing corrections to a

system for tracking regulatory variations. It also began an assessment of the Project Management Office's (PMO's) Quality Assurance Manual and documented its contractors' emergency exercise performance. SPR also maintained its ISO 9001:2008 certification, which is effective through 2010.

SPR developed introductory training modules to orient Federal employees to the requirements of its quality and oversight programs. These modules will be delivered in a computer-based training format and are slated to begin in FY 2010.

In addition, the SPR Quality Council activated three Process Improvement Teams to recommend improvements in oversight, management assessment, and assessment tracking processes. These teams were convened to design protocols and metrics for better quality assurance and oversight of field sites. They also evaluated potential improvements to the Assessment Tracking System and undertook a full review of a broad range of oversight data, looking for trends showing recurring or systemic issues.

As NETL works to maintain OHSAS and ISO certifications, it held three training sessions for new internal auditors who will verify quality and compliance. FE-HQ also conducted a QA verification assessment, which noted NETL Albany contractors are instructed on QA processes during their orientation as well as room for expansion of QA processes at NETL Morgantown and Pittsburgh.

RMOTC developed new quality assurance procedures and activated a team to facilitate their implementation. The QA procedure, Graded Approach Risk Assessments, analyzes risks while projects are still in the planning phase.

Fostering a Continuous Learning Environment

To continuously improve performance, FE fosters a learning environment that emphasizes

the importance of training, development, and the incorporation of best practices into operations.

Learning programs must also adapt to the changing composition of the FE workforce. For example, as a significant number of SPR employees approach retirement, sites plan to adapt their processes and provide additional resources to assimilate new employees into a safety-based culture. NETL's new enrollment and activation sites allow for easier initial safety training for new personnel. At RMOTC, its Technical Assurance Department conducted orientations and safety trainings for new employees.

SPR also expanded its Human Performance Improvement (HPI) initiative to provide training to all employees, both from DOE and DynMcDermott. HPI is the systematic process of discovering and analyzing important human performance gaps, planning for future improvements in performance, designing and developing cost effective and ethically justifiable solutions to close performance gaps, implementing the solutions, and evaluating the financial and non-financial results.

NETL has also leveraged its intranet as a tool for offering employees short lessons on environmental topics, including purchasing chemicals, recycling electronics, and reusing common materials. NETL also upgraded the technology used in training and exercises at its emergency operations centers to meet the latest standards and keep training up to date.

III. Summary of ESS&H Performance

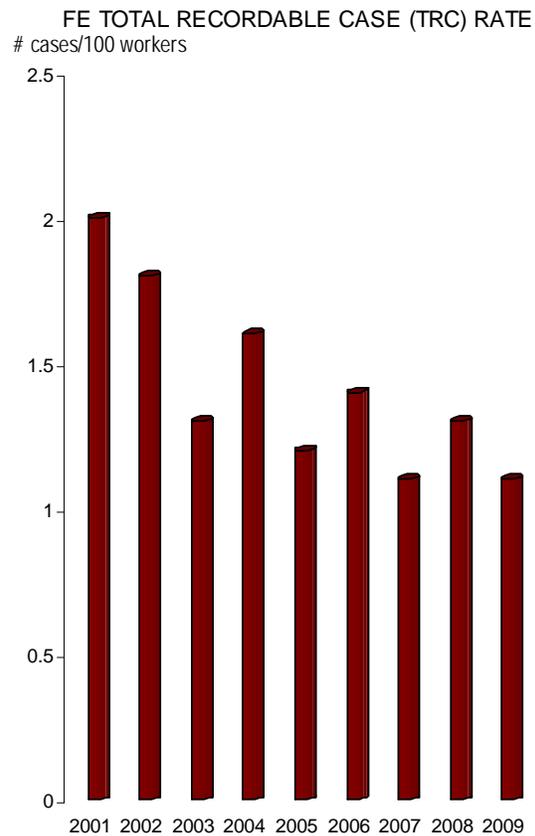
FE remains committed to the goal of reducing and ultimately eliminating injuries, illnesses, and environmental releases. This section highlights progress made during FY 2009 to improve FE-wide ESS&H performance measures. Data related to FE's and DOE's health and safety performance represent all workers, including Federal employees, contractors, and subcontractors, where available. Safety and health data and accident root cause information were obtained from DOE's Computerized Accident/Incident Reporting System (CAIRS). Data on operational occurrences, environmental releases, and regulatory violations were obtained from DOE's Occurrence Reporting and Processing System (ORPS). Data on environmentally preferable purchasing and hazardous and sanitary waste generation were obtained directly from FE sites. Appendix A summarizes site-specific ESS&H quantitative performance information, including comparisons of FE performance to DOE sites. Please note that all data included in this report are as of January 20, 2010.

Total Recordable Case Rate Tied With Lowest Level in 9 Years

The Total Recordable Case (TRC) rate is based on the number of injuries and illnesses incurred by Federal and contract employees in a given year that are 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 occur 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 by 100 workers in 1 year, which means that 11 of every 1,000 workers were injured at work or experienced some type of work-related illness.

In FY 2009, the TRC rate for FE was 1.1, which is 15% lower than the FY 2008 rate and the same as the FY 2007 rate, tied for the lowest rate in nine years. FE's TRC rate is lower than the DOE-wide TRC rate of 1.3. The actual number of recordable cases at FE was 26.

Figure 1



Number of injury and illness cases per 100 workers
Source: Computerized Accident/Incident Reporting System

TRC rates varied across the three sites, with the exception of FE-HQ, which maintained its TRC rate of zero for the 11th year in a row.

SPR's TRC rate increased 7% to 1.6. However, at both NETL and RMOTC the TRC rates decreased. During FY 2009, NETL's TRC rate decreased by 33% to 0.6. RMOTC's TRC rate decreased 51% to 2.4.

FE's 26 recordable cases are about 46% fewer than in 2001, when the FE ESS&H Annual

Report started reporting this data. The primary root causes of FY 2009's recordable cases were: (1) employee error; (2) design and materials failure; (3) weather; and (4) procedural error.

Employee error was responsible for more than half of recordable cases, and numerous accidents were the result of falls on icy or wet surfaces or lifting injuries. As a result, FE has taken steps to reinforce existing safety training and awareness by addressing best safety practices in all-hands meetings, providing continued education on heavy lifting, resurfacing some slippery areas, and posting signs to remind employees to exercise caution in high-risk conditions.

Following several incidents in which security officers were injured during training, the physical training program for security officers at SPR is being revised to improve personal responsibility for fitness and officer education. In one case, a Human Performance Improvement (HPI) study was commenced to determine whether risk could be mitigated. HPI principles were also utilized after one SPR security employee injured his knee from continually entering and exiting his vehicle. Procedures were modified so security officers are posted in places that will lower the risk of repetitive stress.

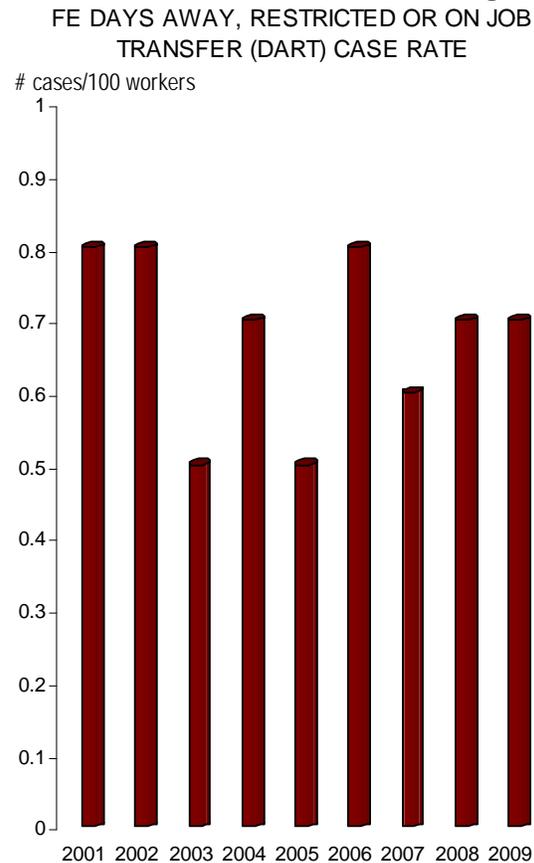
Days Away, Restricted, or On-Job Transfer Case Rate Unchanged

FE's Days Away, Restricted, or On-Job Transfer (DART) case rate represents the number of work-related injuries that resulted in employees missing days of work, returning to work on restricted duty, or working in a different function normalized to hours worked. In FY 2009, FE's DART case rate was 0.7, unchanged from FY 2008 but higher than in FY 2007.

FE's performance in this category has serious consequences and cost implications because the organization loses the productivity of injured employees while they recuperate.

During FY 2009, FE-HQ continued an 11-year trend of no accidents that resulted in lost

Figure 2



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

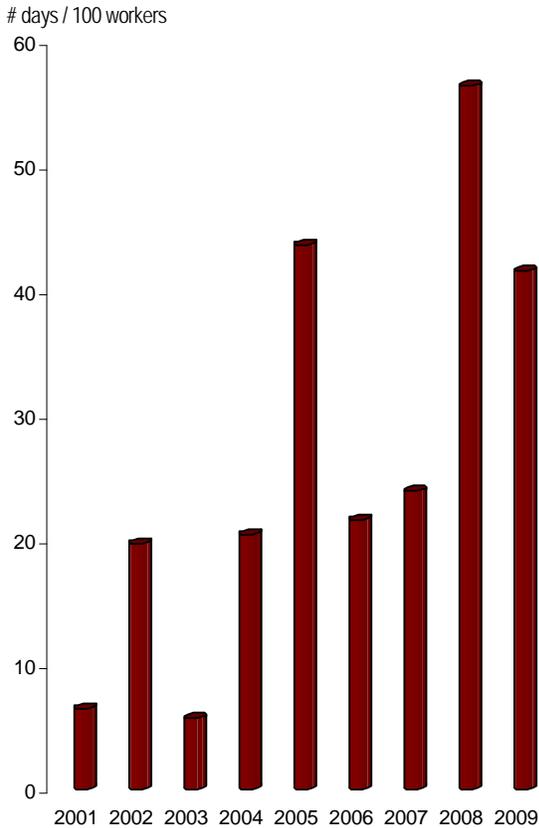
Source: Computerized Accident/Incident Reporting System

workdays, and RMOTC and NETL significantly reduced their DART case rates to 1.2 and 0.3, respectively. However, SPR's DART case rate increased 50% to 1.2 because of 12 accidents that resulted in lost workdays. At NETL, four accidents resulted in lost workdays.

Days Away, Restricted, or On-Job Transfer Rate Decreases Significantly

The DART rate is the actual number of lost workdays, days of restricted work activity, or job transfer resulting from these injuries normalized for the number of hours worked by 100 employees. This rate is used as an indicator of accident severity. FE's DART rate of 41.5 days lost per 100 workers is 25% lower than in FY

Figure 3
FE DAYS AWAY, RESTRICTED OR ON JOB TRANSFER (DART) RATE



Number of lost workdays or workdays with restricted duty or transfer per 100 workers

Source: Computerized Accident/Incident Reporting System

2008, suggesting that while the number of cases remained unchanged, the severity of cases decreased. However, the DART rate remains higher than the average over previous years.

During FY 2009, FE had a total of 1,016 lost workdays, days on restricted duty, or transfer, in large part because of 5 of the 26 TRCs that resulted in more than 50 lost workdays, days on restricted duty or transfer.

During FY 2009, the DART rates decreased significantly at NETL and RMOTC, while SPR's DART rate increased. NETL saw a 56% decrease to 15.5, and RMOTC's rate dropped to 6.0 from

297.4 in FY 2008, while SPR's DART rate increased 31% to 81.2.

At SPR, injuries among security personnel accounted for more than half of all lost workdays and days on restricted duty. Five cases involved security personnel who sustained ankle, knee, and back injuries during training or regular duty. As part of corrective actions for these injuries, the security subcontractor is revising its physical training program to place more emphasis on personal responsibility for fitness and on officer education. Instructors are also directing trainees on maintaining awareness of their surroundings and properly warming-up and stretching before physical activity. In addition, instructors will remove trainees from runs if they do not seem adequately prepared. Security procedures were also revised to prevent repetitive stress injuries for officers. In FY 2010, a new program will be implemented to ensure new employees meet physical requirements for their job, and behavioral safety processes for security officers will be enhanced.

An additional 6 months of lost workdays is attributable to a single case in which an employee fractured his femur during drilling operations. The cause of this case and corrective actions are currently under investigation. SPR has instituted a managed care system, in which a contract nurse responds following an accident to evaluate an injury, provide first aid, and refer to a doctor if needed. For serious injuries, a physician liaises with the injured employee's hospital and the employee until he or she is prepared to return to work. This system is expected to reduce costs and days away from work, and provide injured employees with improved medical care. The security contractor will be included in the system in FY 2010.

Occupational Safety and Health Costs Decrease

The Occupational Safety and Health (OSH) Cost Index is a performance indicator that represents the normalized estimate of the costs of FE's injuries incurred by FE sites. In FY 2009, FE's cost index

fell 10% from FY 2008, following a climb the previous year. The number of days away from work stayed relatively flat, while the decrease in costs can be attributed to a decline in employees' number of days on restricted duty. The formula used to calculate the OSH Cost Index is heavily influenced by the number of lost days.

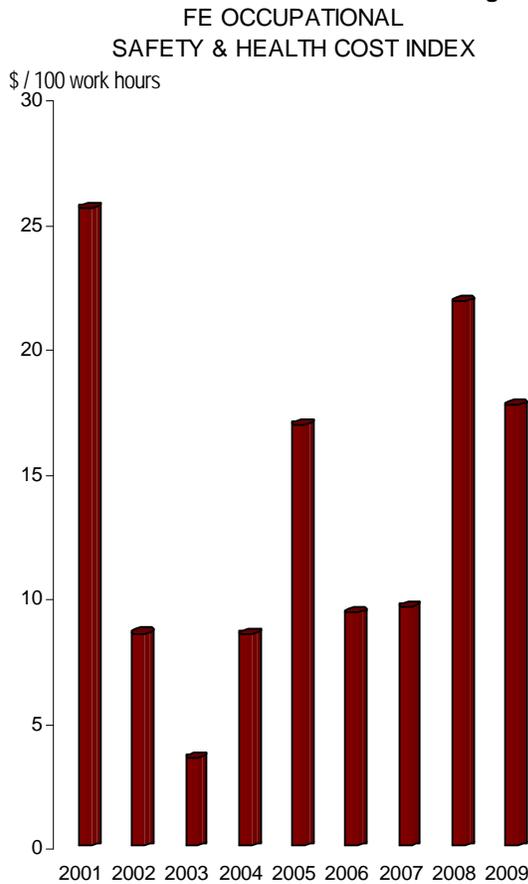
For example, RMOTC employees had zero days away from work in FY 2009, and only 5 days on restricted duty or job transfer. This lowered the site's injury-related costs by 98%, to only \$4,000. In addition, NETL's costs decreased by about 9% as a result of decreases in both the number of days away from work or on job transfer. Also during FY 2009, FE-HQ had no compensation costs for the seventh year in a row. Because of an increase in the number of days where employees

were away from work or on restricted duty, SPR's injury-related costs rose 20%. SPR's new managed care system, described in previous sections, is estimated to have saved over \$200,000 in its first 6 months over what costs would have been otherwise. Significant additional cost savings are expected over time.

Fewer Operational Occurrences

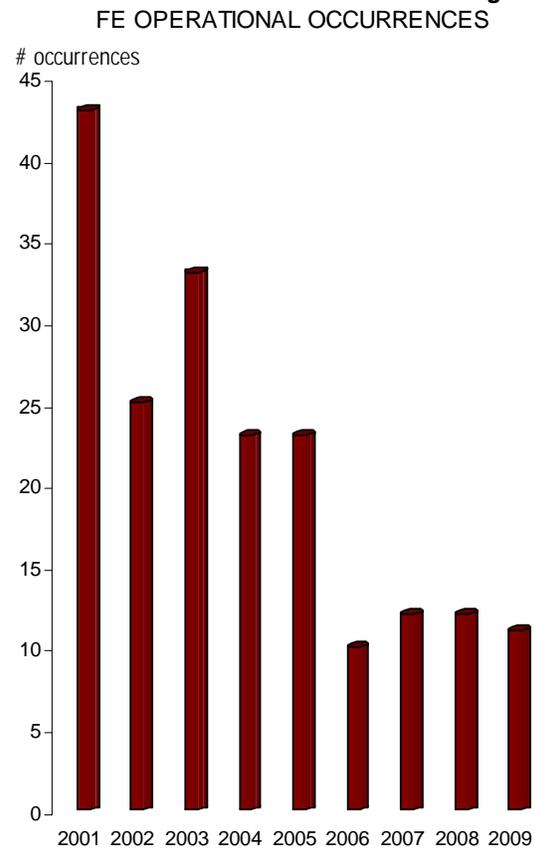
The operational occurrences performance metric represents the number of operational events or conditions that may adversely affect DOE or contractor personnel, the public, DOE property, the environment, or the DOE mission. In FY 2009, there were 11 operational occurrences at FE sites, slightly fewer than the 12 occurrences in

Figure 4



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

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 and Processing System

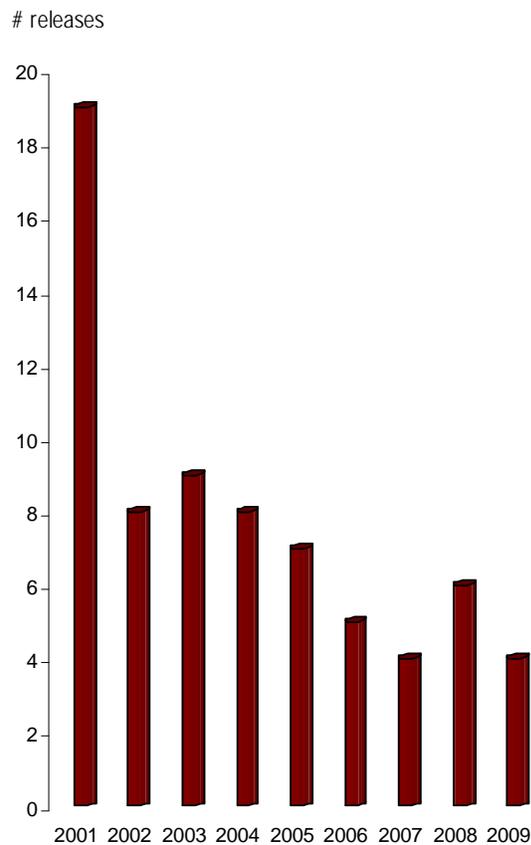
FY 2008.

SPR and RMOTC incurred two and three, respectively, unchanged from last year. NETL had six operational occurrences, down from seven, primarily caused by discoveries of unexpected asbestos, lead fumes, and an energized electrical circuit. Better communication among construction crews, additional employee training, and careful adherence to site safety plans should help to reduce the number of operational occurrences in FY 2010.

Number of Environmental Spills and Releases Remains Low

Environmental releases represent the total number of spills, leaks, and discharges of

Figure 6
FE ENVIRONMENTAL RELEASES



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

hazardous substances, oil, and regulated pollutants to the environment that must be reported. During FY 2009, FE sites reported four environmental spills and releases, tied for the lowest number in the past 8 years. Of note, SPR had no environmental releases and spills. RMOTC had three environmental releases and spills, while NETL had one.

A frozen valve and corroded flowlines at RMOTC caused three small oil releases. RMOTC plans to perform additional preventative maintenance to prevent future releases. At NETL Pittsburgh, a rusty fire hydrant discharged turbid water.

One Regulatory Violation in FY 2009

The regulatory violations performance metric refers to the total number of violations or citations received from external regulatory agencies, such as EPA, OSHA, or state regulatory agencies, during the fiscal year.

In FY 2009, FE sites had one regulatory violation, which was at NETL. The Pleasant Hills Authority (PHA) issued a notice of violation to NETL Pittsburgh for chloroform levels in excess of its industrial sewer use permit's discharge limits. PHA issued a revised permit soon after that eliminated chloroform. NETL will continue to monitor influent and effluent chloroform concentrations, as well as sampling and analysis of the drinking water during each wastewater sampling event.

Table 1

FE REGULATORY VIOLATIONS	
Fiscal Year	# of Violations
2001	2
2002	3
2003	3
2004	4
2005	3
2006	0
2007	1
2008	0
2009	1

Source: Occurrence Reporting and Processing System with Field Site verification

Number of Security Incidents Remains Low

The security incidents performance metric refers to the total number of security incidents that are reportable under DOE Manual 470.4-1 Impact Measurement Index (IMI) criteria. The IMI severity level is based on a scale of 1-4 with 1 being the most severe and 4 being the least severe.

Table 2

FE SECURITY INCIDENTS	
Fiscal Year	# of Incidents
2008	3
2009	3

Source: Field sites and FE-HQ

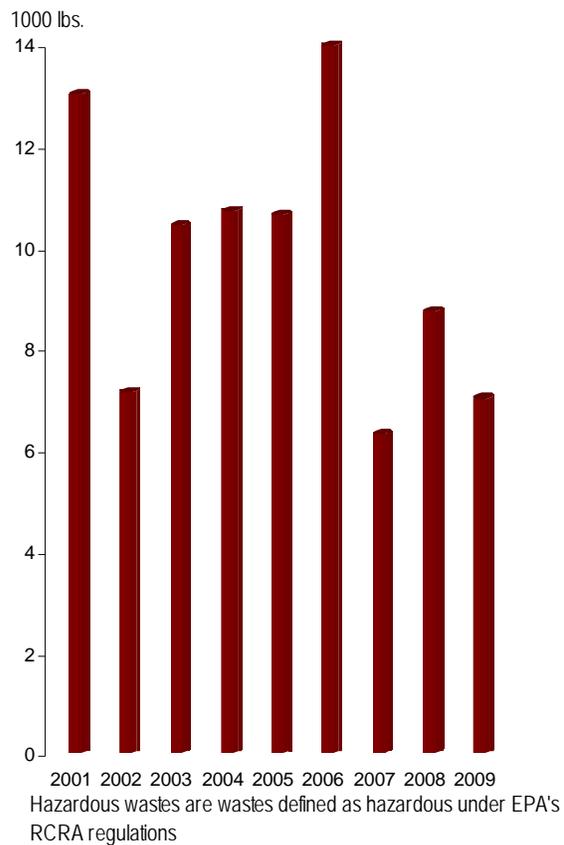
During FY 2009, there were three reportable security incidents, unchanged from the previous year. There was a severity level 3 security incident, at NETL, and it involved finding a prohibited article in the property protection area. FE-HQ had two security incidents, one of which involved a prohibited article in the property protection area. The other incident involved a meeting with a foreign national.

Hazardous Waste Generation Decreases

During FY 2009, RMOTC and FE-HQ generated no hazardous waste. SPR generated 228 pounds of hazardous waste, a 25% decrease over the previous year. SPR's hazardous waste was generated primarily during assorted crude oil analyses, replacement of hazardous fluorescent bulbs, and the removal of expired laboratory reagents. Currently, SPR is generating less than half its target level of hazardous waste, demonstrating awareness and innovation among SPR personnel.

NETL also decreased its hazardous waste generation by 25%, to 6,670 pounds. The decreases from routine hazardous waste generation were a more modest 3%, but hazardous waste generated by cleanup activities decreased by 45%.

Figure 7
FE HAZARDOUS WASTE GENERATION

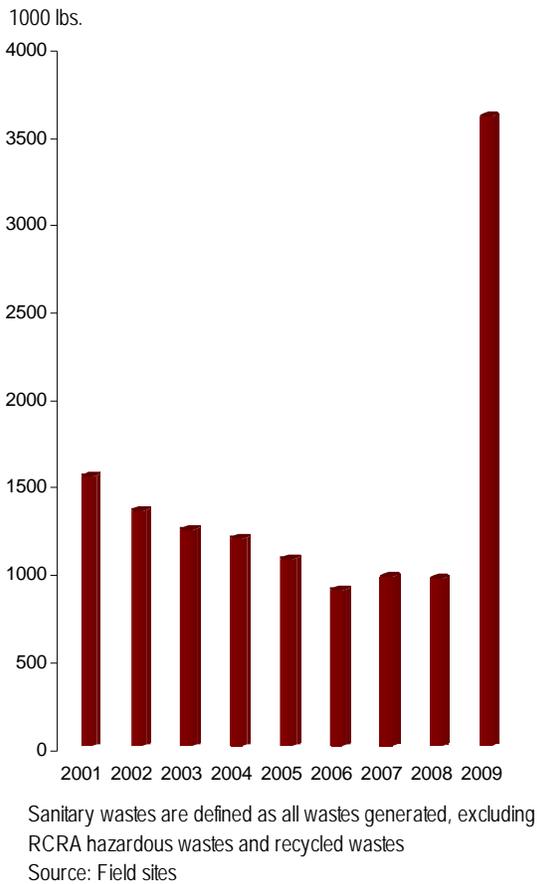


Sanitary Waste Generation Increases Due to Cleanup and Recovery Activities

Sanitary waste is defined as all waste generated, excluding EPA-regulated hazardous wastes and wastes that are recycled. In FY 2009, FE generated 3.5 million pounds of sanitary waste, a 267% increase from FY 2008. This increase is primarily attributed to continued Hurricane Ike cleanup activities at SPR in addition to beryllium remediation and facility renovations at NETL. Excluding these activities, routine sanitary waste generation at FE sites actually fell by 18%.

SPR generated 2.3 million pounds of sanitary waste, almost 1.5 million of which was storm debris from the cleanup and recovery after Hurricane Ike. However, excluding construction and storm debris waste, SPR generated only about 390,000 pounds during routine activities—

Figure 8
FE SANITARY WASTE GENERATION



less than half its target level.

RMOTC generated approximately 81,000 pounds of sanitary waste in FY 2009, a 7% decrease over the previous year. NETL generated nearly 1.2 million pounds of sanitary waste in FY 2009, a 159% increase over the previous year. This increase was caused by efforts to remediate beryllium contamination and renovate facilities at NETL Albany. Not including construction waste, NETL actually decreased its routine sanitary waste production by 10% over FY 2008, continuing a recent trend.

To reduce sanitary waste generation, the sites pursued recycling and reuse activities for office materials and scrap metal. At NETL, recycling of sanitary waste increased by 36%, with a 156%

increase at NETL Albany. This increase is attributable to the recycling of concrete and asphalt associated with facility renovations. This offsets the decline of more than 30% at NETL Morgantown and Pittsburgh.

RMOTC recycled 93,500 pounds of material, a 545% increase over FY 2008. SPR recycled 1.4 million pounds of material, including concrete, electronics, crude-contaminated solids, and nearly 150,000 pounds of paper.

FE Continues to Have Strong Environmentally Preferable Purchasing

EPA requires Federal agencies to purchase products made with recycled materials unless those products cannot be procured in a reasonable timeframe or if recycled products do not meet performance targets. FE's procurement of recycled materials ensures regulatory compliance and reflects its emphasis on environmental leadership.

During FY 2009, SPR and NETL successfully purchased 100% Environmentally Preferable Purchasing products that either met requirements for recycled content or were otherwise justified. SPR also completed implementation of recommendations surrounding its janitorial cleaning products. In addition, the recent renovation of the New Orleans project office used green building materials to increase energy efficiency. Nearly one-third of NETL's purchasing involved non-paper office products.

SPR has worked to align its processes with a new Executive order on green procurement. This has involved implementing a tracking system for all SPR-wide purchases, including electronics, in accordance with green purchasing guidelines.

RMOTC has worked to purchase green materials, including paper products, re-refined oil products, and Energy Star-compliant equipment. In addition, it continues participation in the Blue Sky Program, which allows the site to purchase "green" electricity.

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

During FY 2009, FE made continued progress in its ESS&H performance. However, FE must continue improvements on a number of fronts, including the need for increased security and emergency preparedness, on-going efforts to reduce environmental impact from FE operations, and a continued focus on reducing injuries and illness. In addition, FE must confront emerging and long-term challenges such as planning for employee retirements, adapting to new technologies, and integrating proactive management processes to support high performance. This section provides an overview of FE's ESS&H challenges and the initiatives to be addressed during FY 2010, followed by a summary of site-specific initiatives.

Key Challenges and Initiatives

Eliminating Environmental Legacies and Protecting the Environment

During FY 2010, FE will continue to focus on mitigating existing legacies and ensuring its activities do not create environmental impacts for future generations. To combat negative environmental effects, FE will focus on the following initiatives: (1) monitoring and reducing area groundwater contamination; (2) reducing hazardous and sanitary waste generation; (3) installing and upgrading pollution controls and implementing environmental management systems; (4) planning for ongoing cleanup of environmental legacies; (5) integrating environmental concerns into construction activities in order to reduce pollution and waste; and (6) increasing green facilities operations. FE's efforts to improve the sustainability of its facilities follow an executive order that establishes an integrated agency strategy for reducing greenhouse gas emissions and promoting a clean energy economy.

Protecting Workers and Meeting DOE Security and Emergency Response Needs

To serve the Nation by providing secure, reliable energy and research, FE must continue to strengthen its security efforts and emergency response programs. In pursuit of total protection for its employees and facilities, FE will continue to: (1) modernize security infrastructure; (2) ensure current programs comply with the latest directives and standards, including the Graded Security Protection policy; (3) offer basic and comprehensive security and emergency management exercises and training; (4) integrate Human Performance Improvement (HPI) practices into security activities; and (5) implement processes designed to strengthen security and emergency response.

FE sites work in partnership with their communities. To that end, they will work to strengthen relationships with local municipalities and institutions as well as state and Federal law enforcement. This collaboration helps to ensure seamless coordination on emergency response and security issues. During FY 2010, FE-HQ will conduct an annual security self-assessment of operations.

Striving for "Zero"

FE continues to strive for zero accidents, work-related injuries and illnesses, regulatory enforcement actions, and reportable environmental releases.

During FY 2010, FE will continue to: (1) promote employee awareness and understanding of safety standards and practices; (2) enhance employee safety training and exercises, particularly around helping employees recognize health and safety hazards; (3) encourage employees to respond and communicate with supervisors when they identify a potential hazard; and (4) foster a work environment that encourages knowledge-sharing and open communication with employees about their ESS&H concerns.

In FY 2010, FE will focus on expanding and improving its behavioral safety processes, increasing the use of HPI and implementing industrial hygiene programs. FE will also reinforce existing safety training and awareness by addressing best safety practices in all-hands meetings, providing continued education on heavy lifting, resurfacing some slippery areas, and posting signs to remind employees to exercise caution in high-risk conditions.

Effectively Implementing Integrated Safety Management

During FY 2010, FE will continue to prioritize its ISM processes during work planning and operations. The completion of ISM Verifications complements additional FE initiatives, including the facilitation of events that encourage communication between senior staff, HQ employees, and site representatives. In addition, FE-HQ will conduct field site ISM assistance visits. The continued implementation of HPI and forums for open communication of lessons learned is designed to create a safer work environment.

Promoting an Organization of Continual Learning

The foundation of FE's ESS&H efforts is the conviction that a well-informed workforce with a culture of continual learning is best equipped to achieve its goals. An atmosphere based on the mutual exchange of ideas, with promotion of instructor-led and computer-based training, workshops, exercises, and other activities, can cost-effectively elevate the knowledge of its workforce.

In FY 2010, FE will continue fostering integration among the teams located at different sites. In addition, FE will continue to enhance its emergency management, security drills, and exercises to teach employees how to use updated equipment and systems. FE will also build upon previous efforts to promote health and wellness for employees and their families.

In addition, as its workforce ages and employees near retirement, FE is focused on succession planning as well as orientation and other learning programs that will educate new personnel on ESS&H principles.

The QA Process

During FY 2010, FE will focus on aligning its programs and activities with FE's overall strategies, missions, and goals. Quality assurance efforts help verify and track FE's improvements and emerging challenges.

Efforts to validate plans and self-assessments, including the establishment of teams devoted to process improvement and QA implementation, are designed to improve assessment tracking systems and QA procedures. The use of teams ensures personnel across the organization have a stake in implementing QA processes. Newly trained auditors will provide additional verification of quality and compliance, and new hires will also receive instruction on QA processes during their orientation.

Obtaining External Certification of ESS&H Programs

To ensure that employees and the public both have the highest confidence level in the reliability of FE's systems and processes, FE will retain external certifications and employ external, nationally recognized experts to carry out assessments. During FY 2010, FE will continue to maintain external certifications from OSHA, EPA, and ISO. In addition, FE will continue to voluntarily participate in third-party programs.

Site-Specific Initiatives

National Energy Technology Laboratory (NETL)

- Continue modernization of NETL's security infrastructure through installation of surveillance and access control systems.
- Complete issuance of Homeland Security Presidential Directive (HSPD-12) credentials to initial target audience.
- Award a new security services contract.
- Conduct a major exercise at each site as well as smaller training drills to ensure correct program operation.
- Complete a batch pH control system at NETL Morgantown.
- Upgrade fueling stations and sumps (sanitary, wastewater, and groundwater) at NETL Pittsburgh.
- Continue cleaning up chemicals from all labs, reducing waste generated long-term.
- Identify a baseline of priority chemicals in order to set future goals for reducing their use.
- Continue integrating ESS&H practices and principles into construction activities to reduce waste.
- Implement a learning management system (LMS).

Rocky Mountain Oilfield Testing Center (RMOTC)

- Fill a currently vacant Health, Safety, Security, and Emergency Management position.

- Conduct an analysis of surface water for Wyoming Department of Environmental Quality (WYDEQ) permit renewal.
- Develop QA implementation procedures.
- Update Site Security Plan.

Strategic Petroleum Reserve (SPR)

- Undertake strategic planning in response to expected retirement of aging workforce.
- Implement security training and exercise program to address the Graded Security Protection (GSP) policy.
- Complete necessary Big Hill site security updates resulting from Hurricane Ike.
- Conduct refresher training at a fire academy.
- Continue pollution and waste prevention efforts, incorporating both proactive training and innovative processes.
- Procure environmentally preferable products and EPA-designated, recycled-content products.
- Implement projects to reduce energy intensity and increase renewable energy use, as mandated by Executive order and approved by DOE.
- Ensure DynMcDermott develops and implements a comprehensive Contractor Assurance Program.
- Maintain ISO 14001 and ISO 9001 certifications and ensure that nonconformities are identified and corrected in a timely manner.
- Expand the population of HPI-trained employees to better perform analysis of error-caused situations, and provide HPI training for staff and employees company-wide.

- Contract third-party assessor to critique DynMcDermott's training and exercise program.
- Contract third party evaluators for PREP exercises for all four SPR sites.
- Continue United States Police Canine Association (USPCA) certification and program improvements to seek further national recognition.
- Maintain external certification by OSHA and DOE VPPs by continuing Star status at each storage site.
- Implement oversight improvements and Assessment Tracking System enhancements identified by the Quality Council Process Improvement Teams.
- Implement quality and oversight computer-based training for Federal SPR employees.

Appendix A. SUMMARY OF FY 2009 PERFORMANCE MEASURES: PERCENTAGE CHANGE FROM FY 2008 PERFORMANCE

Metric	FE Total	FE HQ	SPR	NETL	RMOTC	DOE Total
Total Recordable Cases	26 -(10%)	0 (NC)	16 (14%)	8 -(27%)	2 -(50%)	1,602 -(1%)
Total Recordable Case Rate	1.1 -(15%)	0 (NC)	1.6 (7%)	0.6 -(33%)	2.4 -(51%)	1.3 (NC)
# Days Away, Restricted or on Job Transfer Cases	17 (13%)	0 (NC)	12 (71%)	4 -(33%)	1 -(50%)	688 -(4%)
Days Away, Restricted or on Job Transfer Case Rate	0.7 (NC)	0 (NC)	1.2 (50%)	0.3 -(40%)	1.2 -(50%)	0.6 (NC)
# Days Away, Restricted or on Job Transfer	1,016 -(18%)	0 (NC)	797 (40%)	214 -(50%)	5 -(98%)	30,268 -(11%)
Days Away, Restricted or on Job Transfer Rate	41.5 -(26%)	0 (NC)	81.2 (31%)	15.5 -(56%)	6 -(98%)	24.7 -(11%)
Occupational Safety and Health Cost Index	17.66 -(19%)	0 (NC)	32.44 (12%)	8.06 -(20%)	2.40 -(98%)	11.72 -(15%)
Estimated Injury & Illness Costs	\$863,800 -(10%)	\$0 (NC)	\$637,200 (20%)	\$222,600 -(9%)	\$4,000 -(98%)	\$28,734,400 -(15%)
# Operational Occurrences	11 -(8%)	0 (NC)	2 (0%)	6 -(14%)	3 (0%)	1256 (0%)
# Environmental Releases	6 (NC)	0 (NC)	0 (NC)	4 (0%)	3 (50%)	33 (0%)
# Regulatory Violations	1 (NC)	0 (NC)	0 (NC)	1 (NC)	0 (NC)	33 (0%)
Lbs. Hazardous Waste Generated	8,708 (0%)	0 (NC)	228 -(25%)	6,670 -(21%)	0 (NC)	Not Available
Lbs. Sanitary Waste Generated	3,537,887 (26.7%)	0 (NC)	2,265,928 (482%)	1,190,199 (144%)	81,760 -(6%)	Not Available
Hours Worked	4,890,838 (11%)	Not Available	1,964,056 (7%)	2,760,455 (14%)	166,327 (1%)	245,222,321 (0%)
Near Misses	0 (NC)	0 (NC)	0 (NC)	0 (NC)	0 (NC)	0 -(100%)

NC = No Change from FY 2008

Office of Environment, Security, Safety and Health

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Office of Fossil Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

**Strategic Petroleum Reserve
Project Management Office**
U.S. Department of Energy
900 Commerce Road East
New Orleans, LA 70123
www.spr.doe.gov

**National Energy
Technology Laboratory**
U.S. Department of Energy
Morgantown Site
P.O. Box 880
Morgantown, WV 226507-0880
www.neftl.doe.gov

**Rocky Mountain Oilfield
Testing Center**
U.S. Department of Energy
907 N. Poplar, Suite 150
Casper, WY 82601
www.rmotc.doe.gov

or

Pittsburgh Site
P.O. Box 10940
Pittsburgh, PA 15236-0940

or

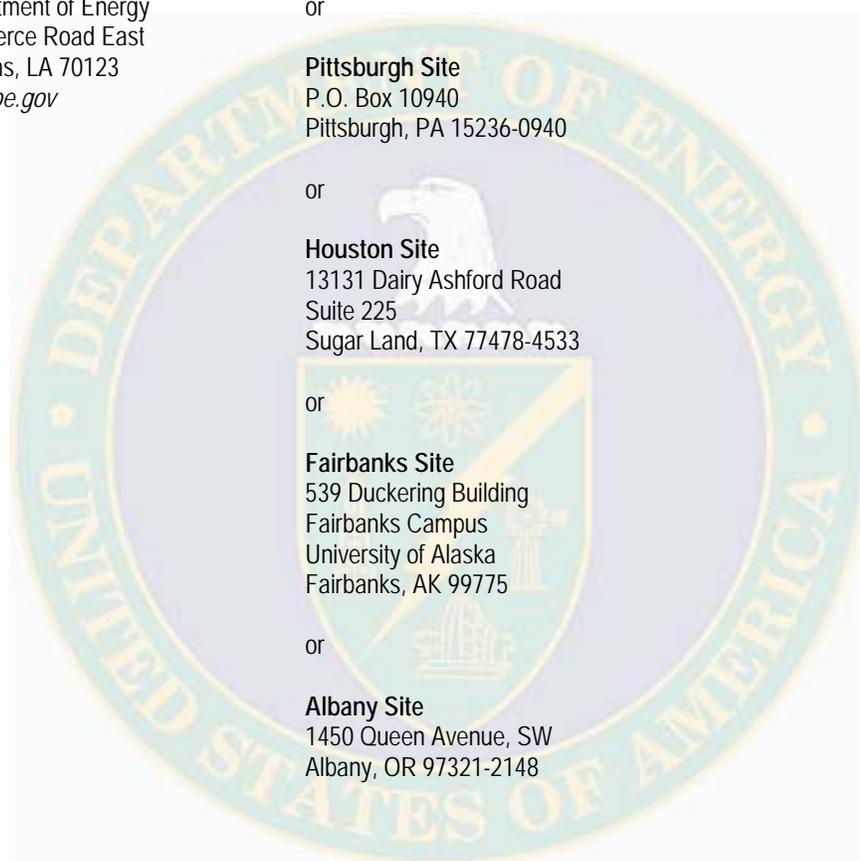
Houston Site
13131 Dairy Ashford Road
Suite 225
Sugar Land, TX 77478-4533

or

Fairbanks Site
539 Duckering Building
Fairbanks Campus
University of Alaska
Fairbanks, AK 99775

or

Albany Site
1450 Queen Avenue, SW
Albany, OR 97321-2148



For additional copies of this report, please contact:

Mark J. Matarrese
Director
Office of Environment, Security,
Safety and Health
Office of Fossil Energy (FE-7)
U.S. Department of Energy
Washington, DC 20585
202-586-0491
Mark.Matarrese@hq.doe.gov