



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

Annual Report Fiscal Year 2008



Office of Environment,
Security, Safety and
Health

A Letter from the Acting Assistant Secretary

March 2009



The Office of Fossil Energy's (FE) mission is to ensure that our Nation can rely on clean, affordable energy. During fiscal year (FY) 2008, FE focused on several high-priority initiatives, including a commitment to energy efficiency, the development of environmentally sound, clean coal technologies and carbon sequestration, and the prevention of domestic energy disruptions to Americans. FE will continue to expand its clean energy research and development during FY 2009 by fostering partnerships with universities, public, and private sector organizations. These partnerships will help us build a strong and independent energy future.

As we pursue these initiatives, safety and health remain FE's first priority. Therefore, FE devotes itself to strong environment, security, safety, and health (ESS&H) programs with an emphasis on integrating safety into all aspects of employee work processes and job functions. In addition, FE continues to work toward completing the cleanup of environmental legacies, while ensuring that current projects do not create new environmental liabilities. FE will also dedicate itself to developing new pollution prevention and energy efficiency activities that reinforce the importance of preserving our environment.

FE also continued to implement integrated safety management (ISM) principles at its sites. During FY 2008, FE-Headquarters (HQ) performed an ISM Verification of each site's program. The ISM Verifications documented many strengths, as well as several findings and opportunities for improvement.

Security and emergency management continue to be priorities. During FY 2008, FE substantially reinforced its security and emergency management programs to include additional exercises and activities, increased facility security, and made revisions to important site policies and procedures.

Lastly, I would like to commend the Strategic Petroleum Reserve (SPR) for its handling of Hurricanes Gustav and Ike during the summer of FY 2008. Following the storms, SPR quickly made necessary repairs, and completed the drawdown of 5.3 million barrels of crude oil with limited disruption to the U.S. oil supply.

FE's employees are dedicated to the importance of upholding ESS&H principles, and I look forward to maintaining strong ESS&H values in every task we undertake. I now invite you to review FE's annual achievements and welcome any suggestions for improving ESS&H programs.

A handwritten signature in black ink, appearing to read "Victor K. Der". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Victor K. Der
Acting Assistant Secretary
Office of Fossil Energy

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I. Introduction

To ensure that the Nation can continue to rely on clean, affordable, and secure energy, the Department of Energy's (DOE) Office of Fossil Energy (FE) must foster new technological advances and focus its efforts on priority projects such as pollution-free coal plants, more productive oil and gas fields, and the continued readiness of Federal emergency oil stockpiles. Fossil fuels are estimated to supply 85% of the Nation's energy, and as such, play a critical role in the Nation's energy supply.

FE is committed to fulfilling its organizational mission; achieving the greatest benefit for all stakeholders; and adhering to the highest standards for the environment, security, safety and health (ESS&H). FE has dedicated itself to the following core values: 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 2008 Annual Report summarizes FE-wide ESS&H performance for fiscal year (FY) 2008, 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 2008. 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 2009.

The FE Sites

FE is headquartered in Washington, DC and Germantown, MD, and has field sites in Morgantown, WV; Pittsburgh, PA; Tulsa, OK; New Orleans, LA; Casper, WY; Albany, OR; and Fairbanks, AK. 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-art research and development focused on fossil energy, carbon sequestration, and technology research.



SPR's pipelines supply Federally owned crude oil for use in case of an emergency.

SPR is a DOE-owned, contractor-operated complex of sites that store oil in 62 huge, underground salt dome caverns along the Gulf Coast. Each oil cavern holds between 6 and 35 million barrels. With a total of about 704 million barrels of crude on reserve as of February 9, 2009, the SPR is the largest stockpile of Government-owned crude oil in the world.

The SPR is headquartered in New Orleans, LA, and has four field 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.



A view of a SPR site taken during FE-HQ's site visit.

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 2008, Hurricanes Gustav and Ike pummeled the Gulf Coast, disrupting domestic oil production and damaging the U.S. petroleum industry's infrastructure. Following Hurricane Gustav, the former Secretary of Energy, Samuel Bodman, announced that DOE would hear requests for the release of crude oil from the reserve to refineries that were still operating. Requests began on September 2, 2008, and SPR approved and delivered crude oil beginning on September 9, 2008. All requests for the release of crude were approved and delivered, and are expected to be repaid beginning in 2009. Between September and October, more than 5.3 million barrels of crude oil were delivered to companies including Marathon, Placid, ConocoPhillips, Citgo, and Alon USA.

During FY 2008, SPR reached another milestone by surpassing 700 million barrels of crude on reserve in compliance with President Bush's 2001 directive. This milestone was reached once previously, two days before Hurricane Katrina made landfall in Louisiana, which required the drawdown and loan of more

than 20 million barrels of crude oil. On April 2, 2008, due to a combination of repayments and resumption of royalty-in-kind transfers, SPR again reached its milestone of 700 million barrels.

The Energy Policy Act of 2005 authorized the Secretary of Energy to expand SPR to a capacity of one billion barrels. The Big Hill, TX site is to be expanded by 80 million barrels; the Bayou Choctaw, LA site is to be expanded by 23 million barrels; and a new, fifth site location was identified in Richton, Mississippi for further expansion. During FY 2008, SPR began



A laboratory at NETL-Albany.

preparing a Supplemental Environmental Impact Statement (SEIS), which allowed the public the opportunity to comment on the environmental impacts of the additional reserve in Richton. The public was given until April 29, 2008 to comment. SPR then began to conduct a series of environmental assessments to be compiled into the draft SEIS.

FE also manages the Northeast Home Heating Oil Reserve, which has about two 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

energy research. By creating research partnerships with industry, universities, and other Government entities, NETL has built the strong relationships necessary to promote affordable energy solutions to America.



NETL works with fuel cell contaminants in the lab.

NETL's primary mission is to enhance America's energy independence by developing coal, natural gas, and other technologies to power U.S. homes, transportation, and industries. In addition, 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; the future role of hydrogen; clean power generation from coal; and critical infrastructure assurance.

During FY 2008, NETL launched four new research projects aimed at improving the efficiency, reliability, and environmental performance of coal-based power-generation systems by employing cutting-edge carbon capture and storage technology. Clean coal technology advances help to combat climate change while continuing to foster an independent energy future for the Nation. NETL will continue to actively pursue clean energy solutions with the help of the private sector, universities, and other Federal agencies. For example, one NETL partnership seeks to develop high-efficiency, near-zero emissions coal-based power systems with four

universities. Research partnerships blend the expertise of scientists and engineers to create a cooperative environment to enhance energy research and development.

NETL has more than 1,100 Federal and contractor employees at sites located in Morgantown, WV; Pittsburgh, PA; Albany, OR; Tulsa, OK; 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.

For NETL, FY 2008 marked the win of two prestigious Research and Development (R&D) 100 Awards from *R&D Magazine* for its in-house innovations. The two winning innovations were: the development of sorbents to reduce pollutants from coal-fired power plants, and a software tool created to design advanced power plants at reduced cost, time, and technical risk.



A work-over rig at RMOTC.

Currently, NETL has several key priorities in the topic areas of environment and energy security. NETL recently released its second carbon sequestration atlas, a document outlining more than 3,500 billion metric tons of CO₂ storage potential in oil and gas reservoirs, coal seams, and saline formations. NETL also continues to develop strategies to mitigate the emission of CO₂ including carbon capture and sequestration and monitoring and mitigation. In addition, NETL has a number of hydrogen and clean fuel initiatives through its Hydrogen and Clean Fuels Program. This program supports the research and development of technologies that can deliver affordable hydrogen produced from coal with near-zero emissions.

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 companies and private manufacturers to test, evaluate, and demonstrate new ideas and technologies in the oil and gas industry; with environmental companies to find ways to manage, mitigate, and prevent environmental risks; with National laboratories and Government organizations to test innovations in a real-world setting; and with universities for practical application of their work and to conduct research.

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 real-world setting.

Currently, RMOTC is focusing on the advancement of oil- and gas-related technology to meet the demand for drilling in more remote areas. During FY 2008, RMOTC completed updates and upgrades to oil-drilling equipment, and tested the use of oil-field waste water to power field production equipment. Generating

electrical power from waste water furnishes an economically accessible means to a clean, renewable source of power for the future.

During FY 2008, RMOTC also worked towards the implementation of a geographic information system (GIS). The GIS is capable of plotting down-hole well surveys, and then creating 3D maps that help engineers to see a cut surface of the test well location as well as path deviations caused by the drilling tool. RMOTC is currently developing a comprehensive geodatabase that incorporates well locations, production data, well history, open and case hole logs, core data, facility information, and images.

II. Highlights of FY 2008 ESS&H Accomplishments

FE identified a number of priorities for FY 2008 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 2008 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;
- Achieving self-assessment and external certification of ESS&H programs;
- Building a strong ESS&H culture;
- Integrating safety into all activities as an integral practice;
- Increasing on-site quality assurance; and
- Fostering a continuous learning environment.

Protecting Workers and Meeting DOE Security and Emergency Response Needs

To protect and secure the Nation's resources and to provide the United States with safe and secure energy, FE continues to increase protection of its employees and site infrastructure. During FY 2008, FE increased employee safety and security by:

- Ensuring compliance with DOE regulations and policies;
- Continuing to enhance facility security; and

- Hosting organization-wide emergency response training, drills, and exercises to prepare for any security threat or emergency situation that presents itself.

During FY 2008, SPR conducted a series of internal surveys to ensure compliance with DOE security protocols and requirements.



NETL-Pittsburgh updates its security control center with a new video surveillance arrangement.

These survey results showed that each SPR field site is maintaining a satisfactory security program and that each Site Security Specialist is aware of his or her responsibilities and has completed all necessary training. Based on these results, SPR developed a Site Security Plan to track security programs, training, counterintelligence, the budget, and access control.

SPR also upgraded its security by conducting an Operations Security (OPSEC) assessment that encouraged employees to shred all sensitive Government documents. In addition, SPR implemented a series of physical system upgrades by executing its full Human Reliability Program.

A strong emergency management program helps SPR to prepare for natural disasters, pandemics, and other emergencies. During FY 2008, SPR completed an annual review of the entire emergency management exercise

program, identifying key areas for improvement and emphasis during FY 2009. SPR also updated required Hazard Assessments and Hazard Surveys at all of its sites. Finally, SPR conducted three drills utilizing an all-hazard response format and one pandemic flu response exercise.

Emergency response procedures, training, and exercises were put to the test during FY 2008 as a result of two major hurricanes: Hurricane Gustav and Hurricane Ike. Following Hurricane Gustav, SPR activated its emergency



Members of the SPR emergency response team participated in a fire suppression drill at the B.E.S.T. Fire Academy in Beaumont, TX.

management team and continued operating 24/7 to ensure the drawdown readiness of all SPR sites. The hurricanes also validated the effectiveness of the SPR Project Management Office (PMO) Continuity of Operations Plan (COOP), which had been rewritten earlier during FY 2008.

During FY 2008, NETL enhanced its security training program by completing the training approval process for the DOE National Training Center. This approval verified that all NETL security officers were trained to perform the duties associated with their jobs and were compliant with DOE directives. Additional security enhancements included: issuing new advanced smart card technology with enhanced data encryption and biometric features;

providing around the clock security coverage by guards; initiating both individual and vehicle inspections upon entry to the site; and implementing a new facility security management system. NETL also identified about 844 employees that need background investigation, sponsorship, enrollment, and activation processes at all NETL locations. Because only 20% of these employees have been processed through the sponsorship phase, NETL will focus on increasing this security tactic during FY 2009.

To protect its employees, NETL conducted a series of annual safety inspections on 32 buildings and one trailer as well as weekly safety inspections on all ongoing construction projects.



Security guard at NETL-Albany stands guard at inspection and gate post 1.

NETL improved its emergency response exercises and training, while adhering to strong protocols and procedures already in place. During FY 2008, each NETL site conducted an exercise based on a current emergency priority: NETL-Albany's exercise was based on terrorism; Morgantown's exercise was based on extreme weather; and Pittsburgh's dealt with a chemical leak and confined space rescue. In addition, NETL conducted annual fire drills and shelter-in-place/accountability drills.

NETL also reinforced existing partnerships with surrounding communities by incorporating

external vendors and the county into emergency response preparedness exercises.

NETL-Albany held a full-scale exercise with support from the City of Albany Police and Fire Departments, Linn/Benton County Emergency Planning, and the Oregon State Police. The exercise topic was the terrorist bombing of propane tanks and natural gas lines. NETL-Morgantown and NETL-Pittsburgh also collaborated with South Park Emergency Management to hold joint training with county emergency responders and managers. The exercises, using the county COOP and pandemic planning, helped all parties to



A first responder enters a decontamination tent following a hazardous materials drill at NETL.

address emergencies through the unified command system.

During FY 2008, 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 developed and conducted a number of important emergency management training courses and annual exercises, complete with lessons-learned and a debrief session. Additional emergency management activities included: (1) Basic Emergency Care (BEC) certification training; (2) a fire drill at the

Casper, WY office; and (3) a Confined Space Drill.

Striving for “Zero” Injuries and Illnesses

FE continued to strive for zero accidents and injuries in the workplace during FY 2008 by implementing programs to combat and mitigate employee error and equipment malfunction. These targeted programs focus on improving sites by:

- Improving worker safety protocols and procedures to address both new and recurring safety issues;
- Conducting extensive safety training to refine employees’ skills; and



RMOTC conducts an emergency exercise with a certified EMT.

- Continuing to upgrade facilities and site infrastructure to ensure a safe work environment.

FE-HQ and sites sponsored several events that reinforce a strong safety culture, promote safety awareness, and increase the level of ESS&H contact with employees, such as FE-HQ’s safety picnic and RMOTC’s Safety Awareness Day.

At RMOTC, tactics were implemented 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.

During FY 2008, SPR's security subcontractor implemented its Behavioral Safety Program. This taught the officers how to recognize and correct hazards and use peer feedback to help prevent at risk behaviors that might lead to an accident or incident. The program blends knowledge sharing and lessons learned to aid members of the SPR protection force, and builds on the prime M&O contractor's behavioral program which was implemented in 1994. SPR also completed a 15-point corrective action plan which significantly reduced vehicular accidents. This included sending out regular Safety Bulletins.

SPR also began implementing Human Performance Improvement (HPI). HPI begins with the assumption that all people make errors. However, error precursors, those conditions that make it likely that a mistake will be made, are recognizable and preventable. The SPR is implementing HPI throughout all of its management systems to identify organizational errors, define deficiencies, identify gaps in their systems, and find causal factors. Identification and resolution of error-likely situations will reduce the number of errors made, which will in turn reduce the number of accidents. To this end, in 2008 the SPR M&O contractor hired an HPI Coordinator within the Human Resources department who developed an implementation plan for the entire organization. SPR will also use HPI interventions in coordination with accident investigations when appropriate. HPI also will focus on empowering management to recognize and deal with organizational problems proactively.

During FY 2008, SPR expanded the use of blood-borne pathogen kits for security responders and hydrogen sulfide alarm monitors. Blood-borne pathogen kits provide a quick response to employees who may require

immediate medical attention. Kits are utilized by DynMcDermott's security subcontractor's uniformed officers. Personal Hydrogen Sulfide monitors, or "crickets," provide field personnel and security officers with an early warning of H₂S exposure. Because of the high quantity of H₂S in the Degas Plant, SPR provided certified, H₂S training in-house to educate SPR employees working in or near the plant.

Hurricanes Gustav and Ike tested SPR's emergency management procedures, as well as the site's ability to avoid injuries and illnesses. Following the hurricanes, ESS&H provided coordinated support for the sites impacted, dealing with issues such as dead animals, live snakes and alligators, exposure to flood waters, and debris disposal. To achieve reentry to the sites with limited risk of injury, SPR ensured that fly-overs spraying pesticides dealt with pests, such as mosquitoes, that can cause disease, and that employees received tetanus shots.



Concrete protection barriers on a SPR brine pipeline are exposed at a beach crossing due to severe erosion following Hurricane Ike.

To further reinforce the importance of safety in the workplace, SPR has also created a number of instructor-led and computer-based safety training courses. Compliance-based training completion is above 99%.

During FY 2008, NETL made a number of site infrastructure improvements to enhance the

safety of its workers. NETL: (1) installed gas alarms at the chemical handling facility at NETL-Pittsburgh; (2) improved heat and smoke detector placement to reduce the number of false alarms; (3) upgraded equipment at the Pittsburgh Emergency Operations Center; and (4) replaced siding that contains harmful asbestos with brick siding. To further enhance employee safety, NETL-Albany will redesign its aging sewage outlet system during FY 2009.

NETL also updated the Computerized Accident/ Incident Reporting System (CAIRS) procedures to reflect DOE requirements for collecting and reporting injuries and illnesses. The updates help employees to report information even more accurately and precisely. The updates can also be used later to prevent injury recurrence. During FY 2009, NETL will provide training on revised CAIRS procedures.

NETL-Albany continued to integrate into NETL-wide policies by fully implementing the Safety Analysis and Review System (SARS) during FY 2008. SARS functions as the backbone of the Integrated Safety Management System (ISMS) and ensures compliance with applicable ESS&H standards and procedures.

Finally, NETL sites conducted a series of exercises to reinforce the importance of workplace safety. NETL-Albany provided its employees with annual training on Arc Flash awareness, and all of the NETL sites provided training on security procedures, basic CPR, and first aid.

Eliminating Environmental Legacies and Maintaining Strong Environmental and Pollution Prevention Programs

FE recognizes the importance of maintaining strong environmental and pollution prevention programs and cleaning up environmental legacies from past activities. All sites continue to conduct both self and external assessments on environmental impacts, waste generation, energy conservation, and pollution prevention. In addition, all of the sites have functional

Environmental Management Systems (EMS) to manage their current operations, and are recognized for their pollution prevention and energy efficiency activities.

During FY 2008, RMOTC ensured that all project management personnel were involved in EMS operations. In addition, RMOTC completed a list of corrective actions from its FY 2007 environmental self-assessment and conducted two additional environmental assessments. The site-wide Environmental Assessment evaluated current impacts from oil and gas field activities. RMOTC also conducted the Potable Water Environmental Assessment. In addition, RMOTC sampled surface water in order to monitor the amount of chlorides entering and leaving the site to avoid the potential for site and surrounding area contamination.



A geothermal electric power generator at RMOTC.

NETL continues to make progress on remediation activities at a number of its research sites. For example, NETL-Albany completed its site characterization with respect to legacy beryllium contamination, and established both beryllium remediation and cleanup survey contracts. Work on these contracts began in September 2008 and will continue throughout FY 2009. NETL-Albany is continuing to remove and inventory chemicals from beryllium-contaminated areas. This effort



RMOTC installs a wind turbine.

will reduce the chance of exposure and increase unrestricted laboratory space.

At the Hanna/DOE Underground Coal-Gasification Project and Rocky Mountain I Underground Coal-Gasification project, a series of surface inspections of the fence and seeded area were conducted as part of the site's environmental requirements for release.

NETL also continued its asbestos abatement efforts at NETL-Pittsburgh to eliminate the potential for health hazards by performing a series of sampling activities to inventory asbestos-filled areas. Asbestos, a substance used during construction as insulation and fireproofing, can be harmful to employees after prolonged exposure.

During FY 2008, NETL-Albany performed periodic monitoring to document groundwater activities and mitigate the risk of water contamination. NETL-Albany also continued site investigations, risk assessments, and feasibility studies associated with the groundwater program in accordance with the Oregon Department of Environmental Quality (DEQ) requirements under the Voluntary Cleanup Program.

SPR strengthened its position as an environmental leader in FY 2008. As a charter member of the Environmental Protection Agency's (EPA) National Environmental Performance Track (NEPT) program, SPR continues to meet program requirements. DynMcDermott also serves as the National Chairman of the EPA's NEPT participants association. In this role, SPR has access to best practices at 250 facilities with leading environmental programs.



At NETL, rainwater collection tanks reduce net potable water usage by supplying water for irrigation.

During FY 2008, SPR reduced volatile organic compound (VOC) emissions by 15%, reduced toxic constituents in cleaning products, revised 16 SPR specifications to include "green" language, and set aside 13 additional acres for wildlife and migrating birds, bringing the net total to 92 acres. SPR also continues to use bio-based products, and achieved its goal of purchasing only environmentally preferable products.

With the increased importance of energy efficiency measures, SPR implemented a

number of projects aimed at reducing energy consumption. Currently, SPR is committed to an annual 3% decrease in energy consumption per square foot as part of Executive Order 13423. To further reinforce the importance of energy efficiency, SPR increased its purchase of electricity from renewable energy resources during FY 2008. A total of 6% of SPR's total site



At NETL, part of the next stage of "green" design includes triple-pane, krypton-filled windows that drastically reduce solar heat gain.

electricity consumption was purchased as Renewable Energy Credits (RECs), far exceeding the mandated goal of 3%.

To combat pollution, SPR has a detailed Pollution Prevention Program designed to incorporate new products and ideas. A robust employee awards program provides employees with incentives to: (1) participate in environmentally related community outreach events; (2) recycle toner cartridges; (3) suggest environmentally friendly products; and (4) reduce waste. During FY 2008, about 100 awards were given to environmentally friendly DynMcDermott employees.

During FY 2008, NETL focused on purchasing greener electronic products by applying for the Federal Electronics Challenge (FEC), an initiative designed to reduce the environmental impact of electronic products. NETL also increased its alternative fuel usage, increased recycling by 55% over the 2002 baseline, and

decreased its hazardous and non-hazardous waste generation.

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

Both internal and external ESS&H assessments enable FE to identify weaknesses and target areas in need of improvement. Receiving recognition for its ESS&H programs through external certifications and awards also clearly demonstrates to customers, communities, and business partners, FE's commitment to strong ESS&H programs.

All of the FE sites continue to regularly conduct self- and third-party assessments of their ESS&H performance. During FY 2008, the Office of ESS&H (FE-7) conducted two FEOSH inspections of both HQ and Germantown facilities. Following the inspections, a list of corrective actions was developed and is currently being implemented.

In addition, all of the SPR sites conducted self-audits on groundwater, waste, and overall site orientation, complete with a list of risk findings. NETL also completed similar internal self-audits regarding quality assurance.

At NETL, external assessments were conducted on the environmental control of external storage, non-Resource Conservation and Recovery Act (RCRA) waste management, and environmental noise monitoring. All of the assessments resulted in recommendations for improvement. Additional third-party assessments were conducted on NETL-Albany's surveillance and NETL-Pittsburgh's Asbestos Program.

During FY 2008, FE-7 conducted an Integrated Safety Management Verification at SPR, NETL, and RMOTC. The verifications identified both specific strengths and opportunities for improvement at the sites.

FE also continues to seek out external certifications to identify program improvements



SPR's SPO Marcus Taylor with Canine Taylor were ranked 5th of 112 teams at the USPCA National Trials.

and integrate best practices into work processes. For example, during FY 2008, SPR demonstrated compliance with Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) standard 29 CFR 1910.119, a requirement designed to prevent and/or minimize the consequences of the release of highly hazardous chemicals (HHCs) following an accident or catastrophe. Both NETL and SPR also continue to be certified by ISO 14001, and are compliant with additional OSHA standards.

FE sites received a number of awards during FY 2008, including FE-HQ sponsored ESS&H awards, given to employees who have



NETL ESS&H award winner for 2008, Lilas Soukup.

demonstrated a commitment to strong ESS&H programs. At NETL, Lilas Soukup received an ESS&H award for her initiative on "Use of NETL's Small Purchasing System to Control Electronic Product Environmental Assessment Tool (EPEAT) Purchases." SPR also won an ESS&H award for its initiative on the "Voluntary Process Change to Reduce Volatile Organic Compounds (VOC) Emissions From SPR Workover Operations."

SPR was recognized by the Association of Environmental and Engineering Geologists for demonstrating strong environmental and engineering geologic projects. In addition, during FY 2008, the SPR canine team finished 5th of 112 teams at the U.S. Police Canine Association (USPCA) National Trials. This is the first year SPR has participated in this event.



SPR ESS&H award winners for 2008. Pictured: J. M. Drake, Ralph Crist, Kathy Batiste, Brian Keller, Robert Myers, Rick Shutt, Will Woods, Terry Baxter, Jimmy Salinas, Hushang Bakhtiari, Louann Holliday, Jim Perry, Bill Bozzo, David Folse, Mike Huff, Pat Mihalik, Charlie Deluca, Darryl Rickner, Gerald Osborne, James Harvey, Lorna Humphrey, Tom Hurstell, David Lord, and Terry Heaton.

SPR also received a number of awards for its Voluntary Protection Program (VPP). SPR sites received the DOE VPP Legacy of Stars, and all four sites received the DOE VPP Star of Excellence.

During FY 2008, NETL's emergency management program received an award for its

work on the development of joint information centers and emergency public information teams. This further reinforces FE's commitment to community partnership. NETL also won two prestigious R&D 100 awards from *R&D Magazine* for reducing pollutants from coal-fired power plants and its development of a software tool to design advanced power plants.

Building a Strong ESS&H Culture

FE maintained a strong ESS&H culture during FY 2008. All of the sites continued to actively form partnerships with other organizations, participate in community exercises, and emphasize the importance of continuous training and development to provide employees with a comprehensive understanding of operations, work culture, and performance expectations. For example, at RMOTC the Technical Assurance Department conducted new employee orientation to familiarize new employees with site safety and operational requirements as well as RMOTC's strong ESS&H culture. RMOTC also increased the level of contact between ESS&H and site personnel, offering more time to share lessons learned and best practices.

To promote employee wellness, RMOTC facilitated a health-screening blood draw so that employees could assess potential health risks.

Other sites, such as SPR, promote employee wellness with community outreach programs. At the annual Lake Pontchartrain Beach Sweep, volunteers removed 31 bags of trash and recovered two bags of recyclable cans. This activity brings together employees, relatives, and others to reduce pollution. Additional annual community outreach activities include corporate donation to the Lake Pontchartrain Basin Foundation and the Coalition to Restore Coastal Louisiana, active pursuit of pollution reduction activities in Lake Pontchartrain and its tributaries, and participation in the DOE-sponsored Science Bowl competition by providing necessary materials to host the event.

SPR employees also provide Christmas gifts for children in need every year and donate winter coats to the homeless.

NETL also expanded its employee wellness programs at NETL-Morgantown and NETL-Pittsburgh to include a variety of group classes as well as individual personal training. The expanded program activities result in healthier, happier employees, and will increase employee networking opportunities.

Integrating Safety Into All Activities as an Integral Practice

Integrated Safety Management (ISM) offers a systematic method to integrating ESS&H into all steps of the work planning and implementation processes. ISM also offers benefits due to its streamlined approach to safety that incorporates seven verification criteria into all organizational operations. To echo the former Secretary of Energy, ESS&H "must be an inseparable part of every activity of the Department." ISM makes this happen.

During FY 2008, each FE site developed or had already developed two documents, an ISM System Description and a Function, Responsibilities, and Authorities Manual



2008 Excellence in ESS&H Award Panel (l to r): Mark Matarrese, Director of FE-7 and judges: Guido DeHoratiis, Fred Glaser, Ed Kilroy, and Dave Johnson.

(FRAM). Following the development of these documents, each site then participated in an FE-HQ ISMS Verification Review. FE-HQ's review validated whether ISM is incorporated into work planning and execution processes to effectively protect the health and safety of workers, the public, the environment, and Government property.

FE-HQ's ISMS Verification assessment was conducted at SPR between April 13, 2008 and April 18, 2008. The verification assessment noted a number of strengths including a strong ESS&H culture, support from senior management on ISM topics, demonstrated ownership and incorporation of ESS&H at all levels of the organization, a clear management understanding of ESS&H roles and



The NETL-Pittsburgh emergency response team after a training drill during ISM verification.

responsibilities, and a strong commitment to safety. The assessment also reported that SPR has an effective EMS framework and a robust chemical management system.

At NETL's Morgantown, and Pittsburgh sites, FE-HQ also conducted the ISMS assessment, noting strengths and deficiencies. NETL also updated its ISM description this year and submitted it to DOE. Finally, FE-HQ also conducted the ISMS verification assessment at NETL-Albany between October 21, 2008 and October 23, 2008.

FE-7 also conducted an ISM Verification assessment at RMOTC between September 15, 2008 and September 18, 2008. It was

determined that RMOTC management and staff continued to exhibit a strong commitment to the requirements of ISM. Strengths, findings, and opportunities for improvement were identified.

During FY 2008, SPR incorporated safety and health into all of its Preparedness for Response Exercise Program (PREP) exercises, placing particular emphasis on employee safety. SPR also conducted HPI training and developed a plan to implement HPI throughout the organization.

NETL continues to demonstrate its ability to wed a number of systems by actively integrating ISO 14001 and OHSAS 18001 into the ISMS. NETL also aggressively implemented SARS into regular work operations at its sites.

FE sites continue to actively engage senior management by integrating them into site operations. NETL continues to conduct semi-annual management reviews to ensure that management is aware of and ready to address issues, and RMOTC involves the management team in any significant safety issues/processes. Finally, RMOTC promotes ISM by incorporating lessons learned into meetings and via e-mail to all personnel. RMOTC also reviews near hits with field personnel during morning meetings and via e-mail.

Increasing On-Site Quality Assurance

FE ensures that every task undergoes a rigorous and systematic quality assurance (QA) process to validate that it is aligned with the organizational mission and reflects the intended purpose. The QA process also ensures employee and customer confidence in each product and service offered by FE.

During FY 2008, each site improved its QA process. SPR developed methods to identify and document variations in the SPR-specific Assessment Tracking System (ATS) and the Security Subcontractor Security Assessment Tracking System. The system highlighted deviations from the standard and initiated



FE-HQ visits SPR site, Bayou Choctaw.

corrective actions in areas needing improvement.

FE sites also adopted industry-wide best practices and standards to verify their work. For example, NETL pursued external certification in accordance with ISO 9001. SPR recognized best practices by establishing a team of Physical Security Specialists to validate observations made by Site Security Specialists.

FE sites also updated QA orders, plans, procedures, and documentation. NETL issued two new QA procedures: Instrumentation and Control Checkout and Acceptance Training and Design of Process and Instrumentation Diagrams (P&ID). RMOTC continued to develop implementation procedures for its Quality Assurance Program (QAP), and SPR received recognition during its ISM verification for having a QAP covering management, performance, and assessment criteria.

Finally, ISM assessments conducted at each site included a QA review. Strengths and opportunities for improvement were noted.

Fostering a Continuous Learning Environment

To continuously improve performance, FE fosters a learning environment that emphasizes the importance of training, development, and the incorporating best practices into operations.

FE-HQ leads a number of initiatives to reinforce the importance of safety in every aspect of employees' jobs and lives. For example, FE-HQ distributes its weekly safety bulletin via FE Broadcaster to all FE and contractor employees. FE-HQ also develops an ESS&H *Best Practices Quarterly* newsletter to showcase sites' best practices, and further stress the importance of workplace safety.

SPR expanded its HPI initiative to provide HPI training to all employees. All officers were trained to the observer level and critical behaviors were expanded to include those related to ProForce officers, like firearms-related activities. During FY 2009, SPR hopes to further integrate HPI into its operations and work processes. Additional initiatives include certified hydrogen sulfide training, computer-



Mary Allemand takes defensive driving training at RMOTC.

based ISM training, and collaboration with communities to promote networking.

NETL's commitment to continuous learning is demonstrated by the FE ESS&H Award for work developing the use of NETL's Small Purchasing System to Control Electronic Product Environmental Assessment Tool (EPEAT) Purchases. NETL also launched two new computer-based training courses, revised seven computer-based training courses, and developed two new courses related to ESS&H.

III. Summary of ESS&H Performance

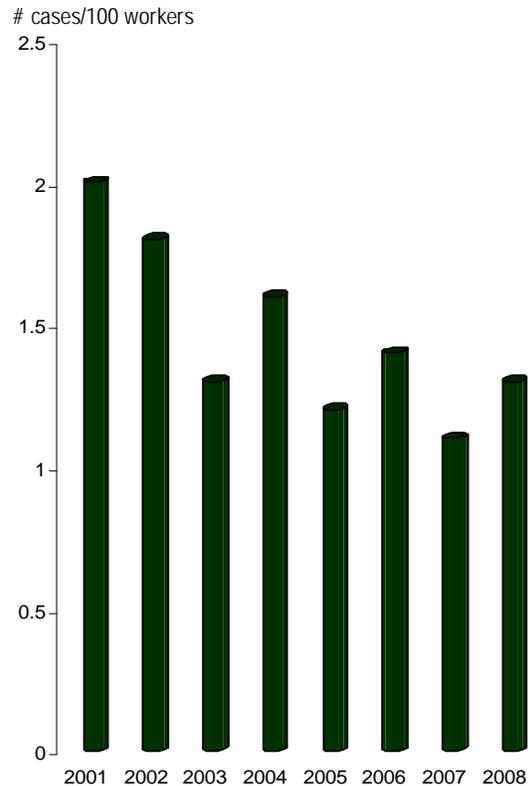
FE remains committed to the goal of reducing and ultimately eliminating injuries, illnesses, and environmental releases. This section highlights progress made during FY 2008 to improve FE-wide ESS&H performance measures. Data related to FE's and DOE's health and safety performance represent all workers, 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 and DOE VPP sites. Please note that all data included in this report is as of February 25, 2009.

Total Recordable Case Rate Increased but Remains Low

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. In FY 2008, the TRC rate for FE was 1.3, which is 18% higher than the FY 2007 rate, but 7% lower than FY 2006. While FE's TRC rate for FY 2008 did increase, it was still consistent with the DOE-wide TRC rate of 1.3. The actual number of recordable cases at FE was 29, the third lowest number of recordable cases at FE in the last 8 years.

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

Figure 1
FE TOTAL RECORDABLE CASE (TRC) RATE



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

number of hours worked by 100 workers in 1 year. This year's rate of 1.3 means that 13 of every 1,000 workers were injured at work or experienced some type of work-related illness.

TRC rates varied across the three sites, with the exception of FE-HQ, which maintained its TRC rate of zero for the 10th year in a row. RMOTC decreased its TRC rate by 40% to 4.9. However, at both NETL and SPR, the TRC rates increased. During FY 2008, NETL's TRC

rate increased by 29% to 0.9, and SPR's TRC rate increased by 67% to 1.5.

As previously mentioned, FE had 29 recordable cases, which is about 41% less than in 2001, when the FE ESS&H Annual Report started reporting this data. The primary root causes of FY 2008's recordable cases were: (1) employee error; (2) design and materials failure; (3) procedures; and (4) weather.

Since employee error was responsible for slightly less than 50% of the recordable cases, FE will continue to reinforce existing safety training and awareness programs, and design new programs to reduce employee error. New programs will focus on the dangers of lifting heavy objects and devising ways to prevent harm to both the back and shoulders, as a number of FY 2008's injuries resulted in back and shoulder sprains or strains. Other topics that will be reinforced include surrounding awareness, as multiple accidents were the result of falls from ladders or other elevated surfaces. In addition, FE will continue to share best practices to ensure that the entire community has access to the best methods for reducing and eliminating accidents and injuries.

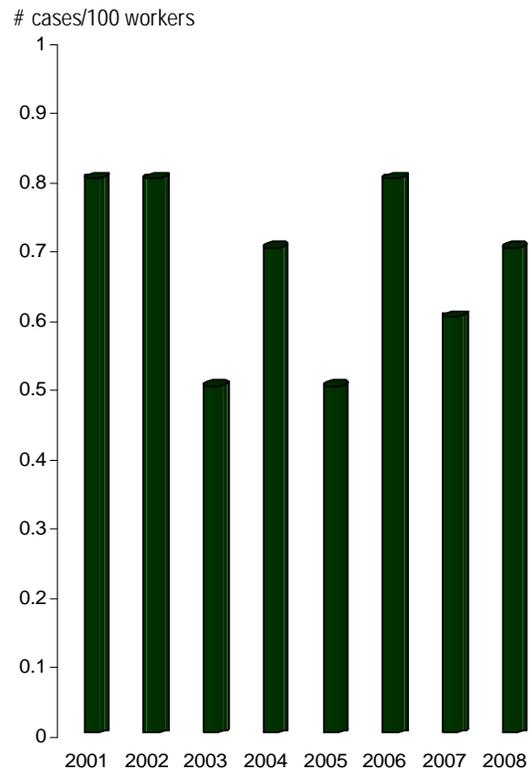
During FY 2008, design and materials failure or malfunction caused 8 of the 29 recordable cases. FE will continue to perform inspections and audits to ensure that equipment is functioning properly. In addition, FE will reduce the number of procedural errors by implementing strong safety processes.

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

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 2008, FE's DART case rate was 0.7, an increase of 17% from FY 2007.

A rate of 0.7 indicates that 7 of every 1,000 workers suffered a work-related injury or illness

Figure 2
FE DAYS AWAY, RESTRICTED OR ON JOB TRANSFER (DART) CASE RATE



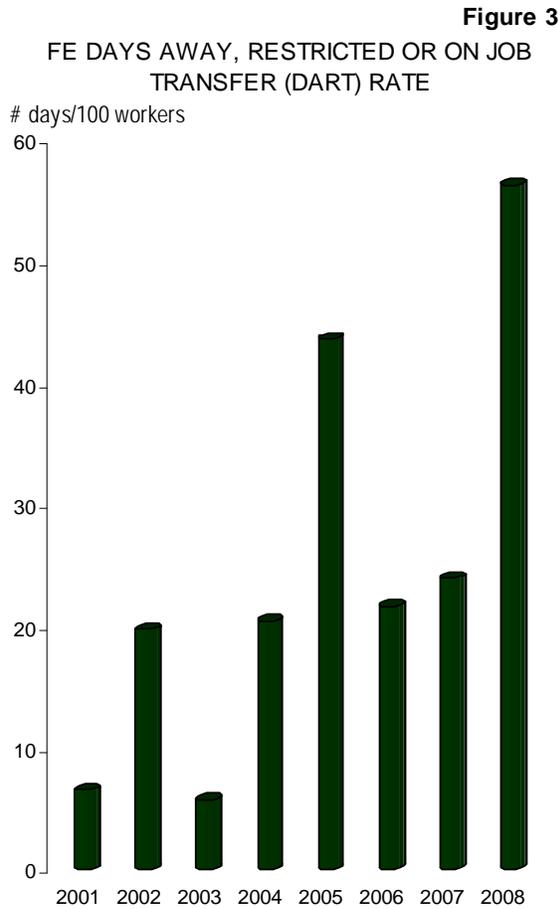
Number of cases resulting in lost workdays or workdays with restricted duty or transfer, per 100 workers

Source: Computerized Accident/Incident Reporting System

that resulted in lost workday(s), day(s) of restricted duty, or job transfer. 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 2008, FE-HQ continued a 10-year trend of having no accidents that resulted in lost workdays, and RMOTC significantly decreased its DART case rate to 2.4. However, both SPR and NETL increased their DART case rates. At SPR, a total of seven accidents resulted in lost workdays, while at NETL, six accidents resulted in lost workdays.

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



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

Source: Computerized Accident/Incident Reporting System

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 56.3 days lost per 100 workers is more than twice as high as it was in FY 2007.

During FY 2008, FE had a total of 1,240 lost workdays, days on restricted duty, or transfer in large part due to 6 of the 29 TRCs which resulted in more than 50 lost workdays, days on

restricted duty or transfer. These accidents resulted from a combination of unique circumstances, and cannot be defined as systemic. However, FE will still reinforce safe-lifting training and proper lifting techniques (a number of accidents resulted in back/shoulder strains and sprains), emphasize the importance of knowing personal thresholds for exercise/work activity, and perform additional audits and equipment inspections.

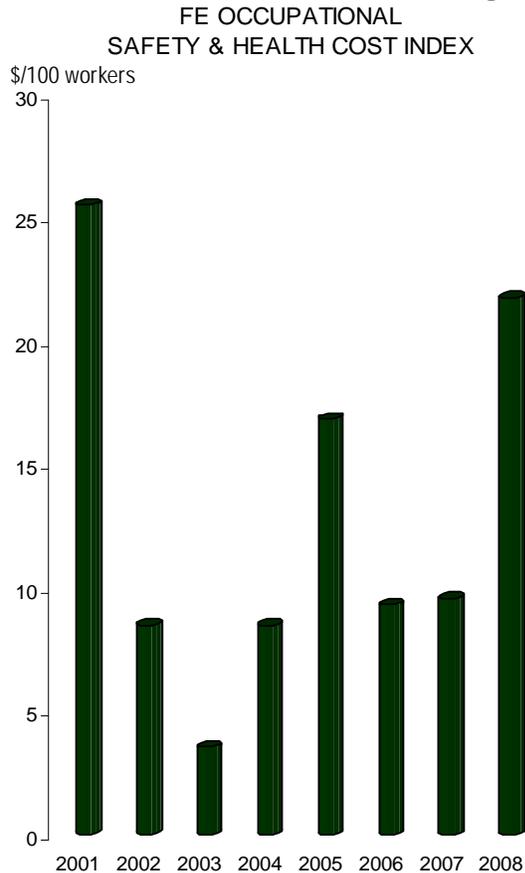
During FY 2008, the DART rates across all FE sites increased. Although FE-HQ continued to have a DART rate of zero, several injuries caused a majority of the days away from work with 6 of a total of 29 recordable cases resulting in more than 50 days away from work or on restricted duty. Both SPR and RMOTC experienced sharp increases in their DART rates. SPR’s rate increased from 23.6 to 62.2 and RMOTC’s increased from 19.8 to 297.4.

Occupational Safety and Health Cost Index Increases Significantly

The Occupational Safety and Health Cost Index is a performance indicator that represents the normalized estimate of the costs of FE’s injuries incurred by FE sites. In FY 2008, FE’s cost index more than doubled from FY 2007. This increase is primarily the result of additional costs incurred with an increase in the number of days away from work, on restricted duty, or job transfer. The formula used to calculate the OSH Cost Index is heavily influenced by the number of lost days.

Results at the three sites varied: NETL’s cost index decreased while RMOTC and SPR’s increased. During FY 2008, NETL’s cost index decreased slightly in large part due to the fact that accidents were less severe, meaning fewer days were spent away from work. SPR’s cost index almost doubled due to a few injuries with very long periods of lost time and RMOTC’s increased to 114.07, again due in large part to a few accidents that resulted in more than 50 days away from work. Also during FY 2008,

Figure 4



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

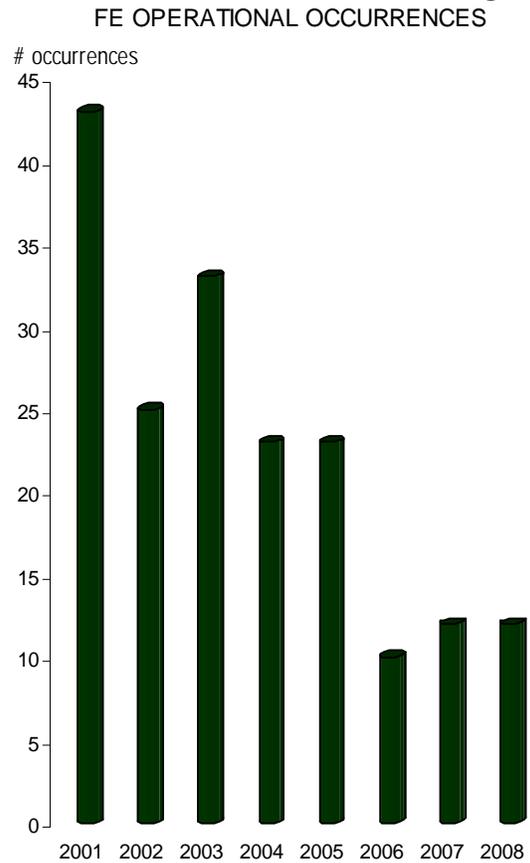
FE-HQ had no compensation costs for a sixth year in a row.

Number of Operational Occurrences Same as FY 2008

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 2008, there were 12 operational occurrences at FE sites, which was consistent with FY 2007.

Both SPR and RMOTC reduced the number of operational occurrences. SPR's number of operational occurrences went from three to two

Figure 5



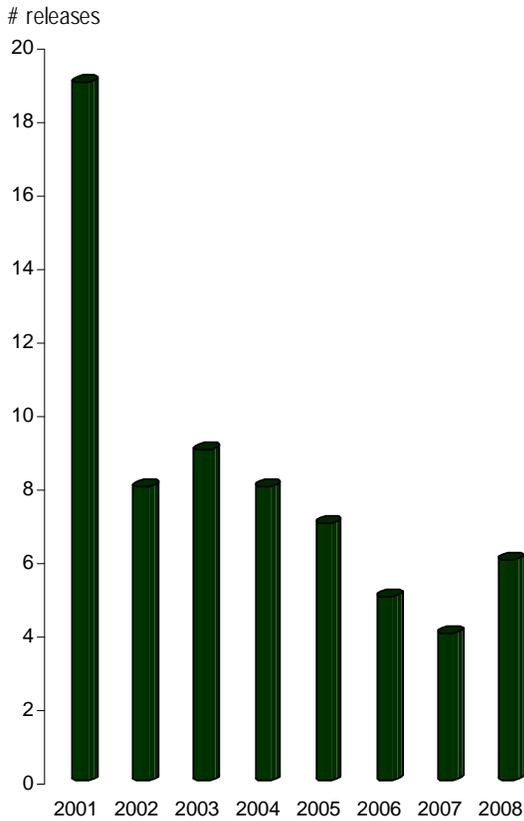
Number of operational events or conditions that adversely affect or may affect DOE or contractor personnel, the public, property, the environment, or the FE mission
Source: Occurrence Reporting and Processing System

in FY 2008, and RMOTC's reduced from seven to three. NETL, however, had seven operational occurrences primarily due to malfunctioning equipment, employee error, potable water line leaks, and other leaks caused by ruptured or fractured pipes. Regular maintenance, equipment inspections, and additional employee training should help to reduce the number of operational occurrences in FY 2009.

Number of Environmental Spills and Releases Remained Low

Environmental releases represent the total number of spills, leaks, and discharges of hazardous substances, oil, and regulated

Figure 6
FE ENVIRONMENTAL RELEASES



Number of spills, leaks, and discharges

Source: Occurrence Reporting and Processing System

pollutants to the environment that must be reported. During FY 2008, FE sites reported six environmental spills and releases, the third lowest amount in the past 8 years. Of note, SPR had no environmental releases and spills, even with Hurricanes Gustav and Ike. RMOTC had two environmental releases and spills, and NETL had an increase in the number of spills, leaks and discharges to a total of four.

The two releases at RMOTC were caused by a frozen check valve that broke and internal corrosion of flow lines. Both releases resulted in oil leaching into normally dry draws. At NETL, a potable water line and a fire hydrant line broke releasing turbid water into surrounding catch basins. When crews tried to repair the

malfunctioning lines, both leached additional turbid water.

No Regulatory Violations in FY 2008

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.

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

Source: Occurrence Reporting and Processing System with Field Site verification

In FY 2008, FE sites had no regulatory violations. FY 2008 marked only the second year since reporting began in FY 2001 where FE received no regulatory violations.

During FY 2008, NETL continued its excellent record of no regulatory violations. SPR also received no regulatory violations. Finally, RMOTC decreased the number of regulatory violations by 100% to 0.

Number of Security Incidents Is 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

Table 2

FE SECURITY INCIDENTS	
Fiscal Year	# of Incidents
2008	3

Source: Field sites

one being the least severe and 4 being the most severe.

During FY 2008, there were three reportable security incidents. Of the three, two had an IMI severity level of 4 and one had an IMI severity level of 2. Each one of these security incidents resulted in corrective actions taken. After a break-in, fences were fixed and patrols were increased for the area; matter that was suspected to be disclosed or lost was reclaimed; and a perpetrator calling in bomb threats was arrested by local law enforcement.

Hazardous Waste Generation Increases, but Remains Low

In FY 2008, FE generated 8,708 pounds of hazardous wastes (wastes defined as

hazardous under EPA’s RCRA regulations). While hazardous waste generation did increase, it remains the third lowest amount in the past 8 years. The hazardous waste generation increase during FY 2008 is primarily due to application of the SARS process—a process designed to reduce toxic material inventories as well as facility renovations and a fuel-oil spill event. During FY 2008, RMOTC and FE-HQ generated no hazardous waste.

FE’s overall increase in hazardous waste generation was primarily the result of a 36% increase at NETL. At NETL-Albany, application of the SARS process to reduce the inventory of toxic materials caused an 87% increase at that location. At NETL-Morgantown the increase was caused by a fuel-oil spill combined with waste produced by research and maintenance activities.

SPR’s hazardous waste generation also experienced an increase from 182 pounds to 306 pounds of hazardous waste. The primary causes were routine, SPR-wide laboratory procedures and the removal of non-green light bulbs at the SPR facilities in Texas.

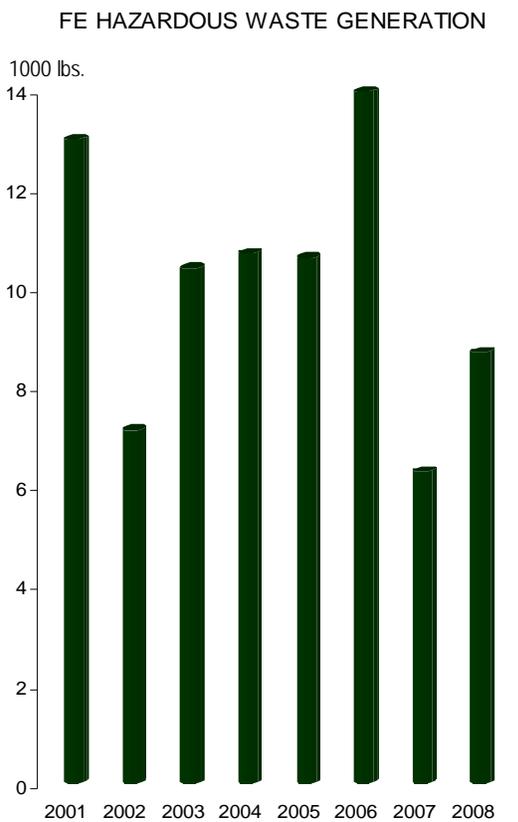
Sanitary Waste Generation Decreases Slightly

Sanitary waste is defined as all waste generated, excluding RCRA hazardous wastes and wastes that are recycled. In FY 2008, FE generated 964,266 pounds of sanitary waste, a 0.2% decrease from FY 2007.

At both SPR and NETL, sanitary waste generation decreased. This was particularly notable for NETL as FY 2008 was the first year that NETL-Albany’s waste generation metrics were included in reporting. SPR and NETL decreased their sanitary waste generation by 4% and 7%, respectively. However, RMOTC increased its sanitary generation by 138%.

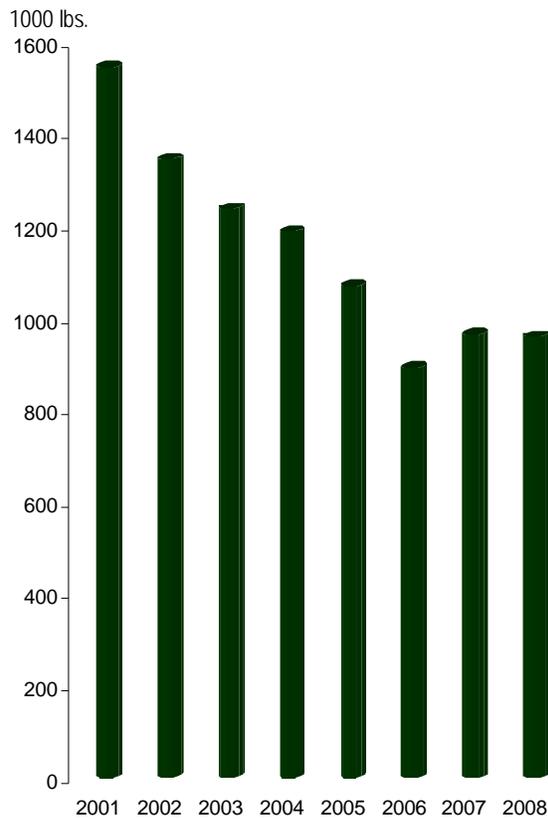
To combat sanitary waste generation, the sites pursued recycling and reuse activities for office materials and scrap metal. At both SPR and

Figure 7



Hazardous wastes are wastes defined as hazardous under EPA’s RCRA regulations
 Source: Field sites

Figure 8
FE SANITARY WASTE GENERATION



Sanitary wastes is defined as all wastes generated, excluding RCRA hazardous wastes and recycled wastes

Source: Field Sites

NETL, the Green Cupboard Program promotes the return of gently used office supplies to facility storerooms for redistribution. Additional recycling and reuse programs include: diverting reusable building materials from renovation/demolition activities to reuse or donation; recycling asphalt and concrete; and recycling scrap metal, waste computer recording media, and neutralized solutions of non-hazardous corrosive liquids.

SPR recycled blast media, scrap metal, paper, and computer equipment, toner cartridges, batteries, and aluminum cans. RMOTC continues to recycle and reuse toner cartridges, computer equipment, cardboard, paper,

aluminum cans, cell phones, tires, batteries, anti-freeze, used oil, and fluorescent light bulbs.

FE Continues to Have Strong Environmentally Preferable Purchasing Programs

Federal agencies are required to purchase products with recycled content per EPA regulations. When a product with recycled content is not available at a reasonable cost within a reasonable timeframe or does not meet performance standards from their total purchases, EPA allows Federal agencies to exclude those purchases.



Landscaping outside a NETL-Pittsburgh building utilizes recycled cobblestone from a street.

During FY 2008, FE sites instituted additional programs and reinforced existing measures. RMOTC continued to participate in the Blue Sky program by purchasing “green” electricity. RMOTC also purchases recycled paper products, re-refined oil products, energy-star compliant equipment, and recycled antifreeze. NETL purchases renewable energy, uses ethanol in its vehicles, and stocks its warehouse with recycled and bio-based products. Finally, SPR achieved its target of 100% environmentally preferable purchases.

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

During FY 2008, FE made continued progress in its ESS&H performance. However, FE faces new and recurring challenges such as employee retirement, increased security and emergency preparedness, and reduction of environmental impacts. In addition, FE had an increase in several of its key performance metrics during FY 2008. To continuously improve performance, FE will firmly implement ISM principles and undertake corrective actions identified during site ISM verifications. This section provides an overview of FE's ESS&H challenges and the initiatives to be addressed during FY 2009, followed by a summary of site-specific initiatives.

Key Challenges and Initiatives

Eliminating Environmental Legacies and Protecting the Environment

During FY 2009, FE will continue to clean up current environmental legacies while also ensuring that current activities do not create additional legacies. FE also will focus on implementing additional cost-effective and technological approaches to reduce the number of releases to the environment. To combat negative environmental impacts, FE will focus on the following environmental initiatives:

- (1) implementation of requirements related to sites' environmental management systems;
- (2) the reduction of hazardous and sanitary waste generation;
- (3) completion of onsite chemical cleanup and reduction of area groundwater contamination;
- (4) control of the amount of hazardous waste entering the environment by identification of Satellite Accumulation Areas;
- (5) continued restoration, monitoring, and closure of sites where FE previously conducted research, development, and demonstration projects; and
- (6) reduction of greenhouse gas emissions and progress towards the 2010 goal of "zero inventory" in addition to other green

and pollution prevention activities. In addition, FE-7 will conduct a series of field site EMS assistance visits.

Protecting Workers and Meeting DOE Security and Emergency Response Needs

To provide reliable and secure energy to the Nation, FE must continue to emphasize and augment already strong security capabilities and emergency response programs. To ensure the highest level of protection for its employees, FE will continue to: (1) reinforce facility security and safety by updating surveillance gaps, installing additional gates, and removing asbestos; (2) evaluate existing security programs to ensure that practices are up-to-date, consistent with Homeland Security's directives, and as effective as possible; (3) conduct both basic and refresher security and emergency management training using realistic scenarios and exercises; (4) encourage the integration of HPI training into ESS&H activities; and (5) create new processes that reinforce security and emergency response procedures and practices. To ensure seamless communication and coordination of these activities, FE will continue to maintain its already strong relationships with local, State, and Federal law enforcement officials. During FY 2009, FE-HQ will conduct an annual security self-assessment of operations at HQ.

Striving for "Zero"

FE continues to strive towards the goal of zero accidents, work-related injuries and illnesses, regulatory enforcement actions, and reportable environmental releases. During FY 2009, FE will: (1) improve existing safety processes to protect employees against illness and injury; (2) enhance employee safety training and exercises to ensure that employees are aware of, understand, and follow applicable safety standards; (3) empower employees to recognize and act when they observe a potential safety hazard; and (4) foster a work environment encouraging knowledge-sharing and open communication with employees about

their ESS&H concerns. Two particular areas of focus for safety training in FY 2009 will include the enhancement of safety training on slips, trips, falls, and heavy lifting and the reinforcement of the importance of lock-out/tag-out operations.

Effectively Implementing Integrated Safety Management

During FY 2009, FE will continue to weave its ISM processes throughout its work planning and practices. The completion of ISM Verifications complements additional FY 2009 initiatives including the facilitation of events that combine senior staff, HQ employees, and site representatives and the continued implementation of HPI at SPR. In addition, FE-HQ will conduct field site ISM assistance visits. All of the sites will continue to foster an open culture that emphasizes knowledge-sharing and lessons learned.

Promoting an Organization of Continual Learning

FE continues to demonstrate its commitment to learning with training programs that combine instructor-led training, web-based training, workshops, and other activities. By encouraging an atmosphere based on the mutual exchange of ideas, FE will elevate the knowledge of its workforce in a cost-effective manner. During FY 2009, FE will continue to foster integration across teams located at different sites, such as NETL-Albany, Pittsburgh, and Morgantown. In addition, FE will increase cross-organizational knowledge sharing to combat the wave of retirements occurring during the next few years. For example, SPR began formal succession planning in FY 2008 for the purposes of knowledge retention. Finally, FE will continue to enhance its emergency management, security drills, and exercises to teach employees how to use equipment and systems and take part in local agency exercises.

The QA Process

During FY 2009, FE will emphasize the importance of implementing QA plans to ensure that programs and activities are strategically aligned with FE's overall mission and goals. To ensure the implementation of strong QA processes, NETL is seeking ISO certification at its sites, and SPR is continuing to develop its team of Physical Security Specialists who validate the credibility of observations made by Site Security Specialists in self-assessments. Finally, RMOTC will create and implement a series of procedures that are part of its Quality Assurance Program.

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 2009, 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)

- ✓ Upgrade NETL Physical Access Control System at NETL Albany.
- ✓ Procure new radios for NETL Protective Force at NETL Morgantown, and correct radio issues at Albany.
- ✓ Pursue HSPD-12 background investigations and credentialing for all applicable employees.
- ✓ Fully integrate the Albany site into NETL via procedures and processes.

- ✓ Mitigate deficiencies identified during the Safety Analysis and Review System (SARS) process.
- ✓ Recompete and consolidate site support contracts to match program requirements.
- ✓ Prioritize and develop schedule and funding needs to resolve life safety code compliance issues at NETL-Albany.
- ✓ Clarify medical monitoring, return-to-work health evaluation requirements with Human Resources, and modify the site procedures accordingly.
- ✓ Replace the existing safety gates in the new Technology Support Facility (B-29) at NETL-Morgantown.
- ✓ Complete emergency communication system at NETL-Albany.
- ✓ Continue asbestos removal at NETL-Pittsburgh.
- ✓ Complete chemical cleanup from all labs.
- ✓ Continue to identify Satellite Accumulation Areas to reduce the possibility of hazardous wastes entering the environment.
- ✓ Host HSPD-12 enrollment and activation stations at each site to avoid travel and labor charges for employees to travel to remote locations.
- ✓ Perform independent, third-party ESS&H assessments: Work Permits and Special Programs, Emergency Eyewash and Shower Equipment Program, and Spill Prevention and Control Management Program.
- ✓ Perform independent assessments of NETL directives including the Waste Management Program; RCRA Hazardous Waste Management; Waste Minimization, Pollution Prevention, and Recycling

Program; and Packaging and Transporting Hazardous Materials.

Rocky Mountain Oilfield Testing Center (RMOTC)

- ✓ Monitor methane in Industrial Solid Waste Disposal Facility.
- ✓ Conduct a Use Attainability Analysis of NPR-3 surface water for Wyoming Department of Environmental Quality (WYDEQ).
- ✓ Conduct National Environmental Policy Act (NEPA) compliance surveys for significant projects.
- ✓ Develop QA implementation procedures.
- ✓ Update Site Security Plan.

Strategic Petroleum Reserve (SPR)

- ✓ Maintain ISO 14001 certification and ensure that nonconformances are identified and corrected in a timely manner.
- ✓ Merge the DOE and DynMcDermott Environmental Management Systems into a single SPR EMS plan which meets both EMS and ISO 14001 requirements.
- ✓ Continue sanitary and hazardous waste reduction incorporating both proactive training and innovative processes.
- ✓ Work closely with SPR directorates to review the scope of work prior to the commencement of maintenance tasks in order to maximize the amount of waste recycled and minimize the amount of waste generated.
- ✓ Provide the monthly generation and recycling status to the SPR sites in order to improve awareness and participation.
- ✓ Conduct a water and energy efficiency audit to identify small onsite projects that

may be cost effective and feasible based on technological advances.

- ✓ Implement all DOE approved and funded EO 13423 FY 2009 projects as listed in the SPR EO Implementation Matrix.
- ✓ Complete necessary Big Hill site security updates resulting from Hurricane Ike.
- ✓ Implement security training and exercise program to address the Graded Security Protection (GSP) policy.
- ✓ Improve the security contractor's behavioral safety process for enhanced officer participation and accident reduction.
- ✓ Conduct refresher training at a fire academy.
- ✓ Continue to strive for DOE-recognized Emergency Management Accreditation in accordance with DOE Guide 151.1-XY.
- ✓ 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 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.

Appendix A. SUMMARY OF FE 2008 PERFORMANCE MEASURES: PERCENTAGE CHANGE FROM FY 2007 PERFORMANCE

Metric	FE Total	FE HQ	SPR	NETL	RMOTC	DOE Total	DOE VPP Sites*
Total Recordable Cases	29 (16%)	0 (NC)	14 (40%)	11 (38%)	4 (-43%)	1,621 (-2%)	181 (5%)
Total Recordable Case Rate	1.3 (18%)	0 (NC)	1.5 (67%)	0.9 (29%)	4.9 (-40%)	1.3 (-7%)	0.8 (-20%)
# Days Away, Restricted or on Job Transfer Cases	15 (7%)	0 (NC)	7 (NC)	6 (100%)	2 (-100%)	714 (NC)	81 (-8%)
Days Away, Restricted or on Job Transfer Case Rate	0.7 (17%)	0 (NC)	0.8 (14%)	0.5 (150%)	2.4 (-48%)	0.6 (NC)	0.4 (-33%)
# Days Away, Restricted or on Job Transfer	1,240 (120%)	0 (NC)	569 (126%)	427 (45%)	244 (1335%)	33,894 (14%)	3,528 (2%)
Days Away, Restricted or on Job Transfer Rate	56.3 (136%)	0 (NC)	62.2 (164%)	35.4 (45%)	297.4 (1402%)	27.7 (13%)	27.4 (31%)
Occupational Safety and Health Cost Index	21.81 (130%)	0 (NC)	28.98 (245%)	10.12 (-2%)	114.07 (704%)	13.81 (28%)	6.41 (10%)
Estimated Injury & Illness Costs	\$961,400 (115%)	\$0 (NC)	\$529,800 (195%)	\$244,400 (-2%)	\$187,200 (667%)	\$33,760,200 (30%)	\$2,947,400 (8%)
# Operational Occurrences	12 (NC)	0 (NC)	2 (-33%)	7 (250%)	3 (-57%)	1256 (-5%)	Not Available
# Environmental Releases	6 (50%)	0 (NC)	0 (NC)	4 ***	2 (-50%)	33 (-21%)	Not Available
# Regulatory Violations	0 (-100%)	0 (NC)	0 (NC)	0 (NC)	0 (-100%)	33 (-25%)	Not Available
Lbs. Hazardous Waste Generated	8,708 (37%)	0 (NC)	306 (68%)	8,402 (36%)	0 (NC)	Not Available	Not Available
Lbs. Sanitary Waste Generated	964,266 (NC)	0 (NC)	389,537 (-4%)	487,669 (-7%)	87,060 (138%)	Not Available	Not Available
Hours Worked	4,407,267 (-7%)	Not Available	1,828,280 (-14%)	2,414,883 (NC)	164,104 (-5%)	244,488,673 (1%)	46,012,681 (-1%)
Near Misses	0 (-100%)	0 (NC)	0 (-100%)	0 (-100%)	0 (NC)	113 (-6%)	Not Available

*Data as of February 25, 2009

***FY 2007 equaled zero

NC = No Change from FY 2007

* DOE VPP Sites include sites associated with Kansas City Plant, INL, Idaho Operations Office, Pacific Northwest National Laboratory, Strategic Petroleum Reserve, Hanford Site, Ohio Field Office, Nevada Test Site, West Valley Demonstration Project, Savannah River Operations Office, Waste Isolation Pilot Project, Yucca Mountain Project, Oak Ridge Associated Universities, and Office of River Protection, and includes participants such as Facility Engineering Services, Battelle Energy Alliance, CH2M WG Idaho, Battelle Memorial Institute, Fluor Hanford, DymcDermott Petroleum Operations, Honeywell Federal Manufacturing and Technologies, Wackenhut Services, Washington Group International, Bechtel SAIC Company, Oak Ridge Institute for Science and Education, Washington Cleanup, and CH2M Hill Hanford Group.

Office of Environment, Security, Safety and Health

For more information about the U.S. Department of Energy's Office of Fossil Energy programs, please visit www.fossil.energy.gov, call 202-586-6503, or write:

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**Rocky Mountain Oilfield
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www.rmotc.doe.gov

or

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

or

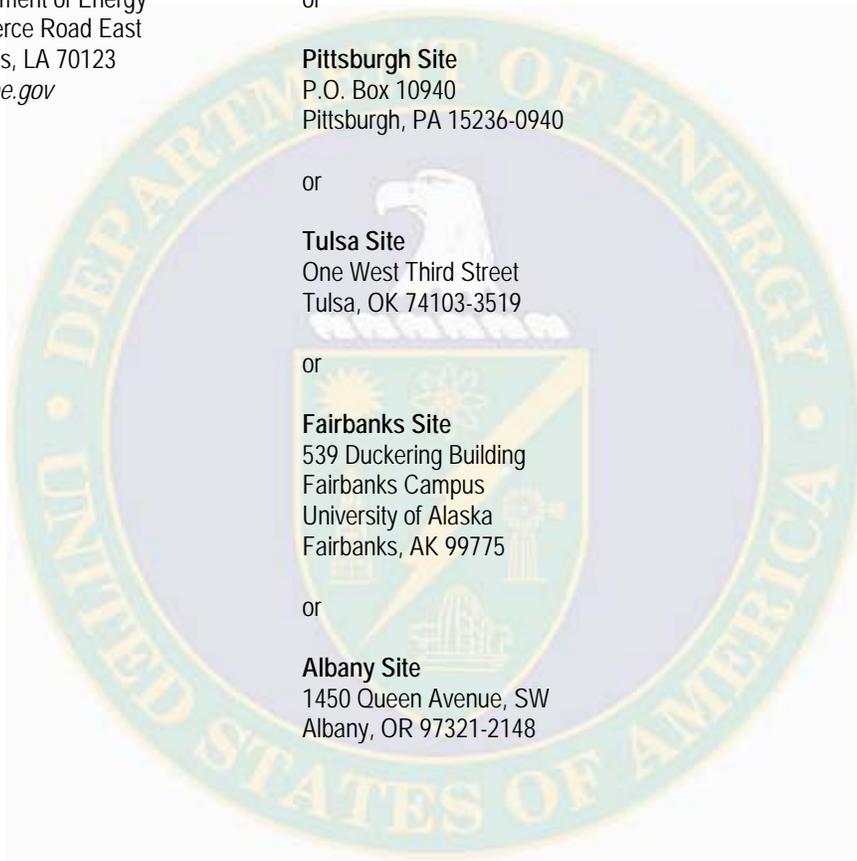
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Office of Environment,
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FE FY 2008 Site Awards

- FE ESS&H Award for the Use of NETL's Small Purchasing System to Control Electronic Product Environmental Assessment Tool (EPEAT) Purchases – NETL
- FE ESS&H Award for the Voluntary Process Change to Reduce Volatile Organic Compounds (VOC) Emissions from SPR Workover Operations – SPR
- R & D Magazine's *R & D 100 Awards* – NETL
- U.S. Police Canine Association National Trials, 5th of 112 teams – SPR
- SPR Association of Environmental Engineering Geologists Award - SPR
- DOE VPP Awards, Stars of Excellence – All SPR sites