



U.S. DEPARTMENT OF
ENERGY

Strategic Petroleum Reserve Annual Report for Calendar Year 2013

Report to Congress
May 2015

United States Department of Energy
Washington, D.C. 20585

Message from the Secretary of Energy

Section 165 of the Energy Policy and Conservation Act (42 U.S.C. 6245), as amended, requires the Secretary of Energy to report annually to the President and the Congress on the activities of the Strategic Petroleum Reserve. Highlights of the Department's accomplishments are included in the Executive Summary of this report, the *Strategic Petroleum Reserve Annual Report for Calendar Year 2013*.

Also included in this report are details concerning the physical capacity, type, and quantity of petroleum in the Strategic Petroleum Reserve as well as plans for upgrades or major maintenance. The Energy Policy and Conservation Act also requires information on the current withdrawal and distribution rates and capabilities, the history and costs of petroleum acquisitions, and the costs associated with operations, maintenance, management, and planned projects for the Strategic Petroleum Reserve.

This report is being provided to the President and the following Members of Congress:

- **The Honorable Joseph R. Biden**
President of the Senate
- **The Honorable John Boehner**
Speaker of the U.S. House of Representatives
- **The Honorable Thad Cochran**
Chairman, Senate Committee on Appropriations
- **The Honorable Barbara A. Mikulski**
Ranking Member, Senate Committee on Appropriations
- **The Honorable Charles E. Grassley**
Chairman, Senate Committee on Budget
- **The Honorable Bernard Sanders**
Ranking Member, Senate Committee on Budget
- **The Honorable Lamar Alexander**
Chairman, Senate Subcommittee on Energy and Water Development
Committee on Appropriations

- **The Honorable Dianne Feinstein**
Ranking Member, Senate Subcommittee on Energy and Water Development
Committee on Appropriations
- **The Honorable Lisa Murkowski**
Chairwoman, Senate Committee on Energy and Natural Resources
- **The Honorable Maria Cantwell**
Ranking Member, Senate Committee on Energy and Natural Resources
- **The Honorable Harold Rogers**
Chairman, House Committee on Appropriations
- **The Honorable Nita M. Lowey**
Ranking Member, House Committee on Appropriations
- **The Honorable Mike Simpson**
Chairman, House Subcommittee on Energy and Water Development
Committee on Appropriations
- **The Honorable Marcy Kaptur**
Ranking Member, House Subcommittee on Energy and Water Development
Committee on Appropriations
- **The Honorable Tom Price**
Chairman, House Committee on the Budget
- **The Honorable Chris Van Hollen**
Ranking Member, House Committee on the Budget
- **The Honorable Fred Upton**
Chairman, House Committee on Energy and Commerce
- **The Honorable Frank Pallone**
Ranking Member, House Committee on Energy and Commerce
- **The Honorable Edward Whitfield**
Chairman, House Subcommittee on Energy and Power
Committee on Energy and Commerce
- **The Honorable Bobby L. Rush**
Ranking Member, Subcommittee on Energy and Power
House Committee on Energy and Commerce

If you have any questions or need additional information, please contact me or Mr. Brad Crowell, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

A handwritten signature in black ink, appearing to read 'C.A. Smith', with a horizontal line extending from the end of the signature.

Christopher A. Smith
Assistant Secretary
Office of Fossil Energy

Executive Summary

Program Highlights and Status

The Strategic Petroleum Reserve Program provides the United States with energy and economic security through its emergency stockpile of crude oil. The stocks are located at four facilities - Bryan Mound and Big Hill in Texas, and Bayou Choctaw and West Hackberry in Louisiana. The Strategic Petroleum Reserve entered 2013 with 695.3 million barrels. As of December 31, 2013, the Reserve held 696 million barrels of crude oil, equal to about 112 days of net U.S. petroleum imports.

Changes to Performance Capabilities

Suspension of Vapor Pressure Mitigation Program

The use of deep underground solution-mined salt caverns for long-term storage of crude oil subjects the oil to geothermal heating and gas intrusion from the surrounding salt, which tends to increase the crude oil vapor pressure. During a drawdown, oil that is delivered to storage tanks at terminals may release toxic and flammable gases at levels that can present environmental and health risks to terminal personnel and the public. The Strategic Petroleum Reserve mitigates the risks posed by toxic and flammable gases through the use of a customized, portable degasification unit that reduces the crude oil vapor pressure in the caverns so that the crude oil can be delivered safely. The unit is moved among the Strategic Petroleum Reserve sites every 2-4 years, as necessary, to degas caverns that show high levels of vapor pressure.

In February 2011, the degas unit completed a two-year program at the Bryan Mound, Texas site and was scheduled to be transported to the West Hackberry, Louisiana site later in the year. However, due to an FY 2011 continuing resolution rescission of funding, degassing activities were deferred pending availability of resources in FY 2013. In 2013, the plant began its move from Bryan Mound to West Hackberry; a transition that will be completed in 2014.

Development of Replacement Cavern at Bayou Choctaw

Cavern 20 is being emptied and decommissioned because of structural issues that would have presented a major environmental risk with continued use. Decommissioning is planned for completion during FY 2014. Bayou Choctaw began transferring crude oil from BC Cavern 20 into BC Cavern 102 in January of 2013.

A volume of approximately 3.2 million barrels of crude oil in Cavern 20 has been transferred into Cavern 102. Upon completion of the decommissioning effort in FY 2014, Cavern 20 will be transitioned from a storage cavern to a monitored brine filled cavern.

Capacity Maintenance Program

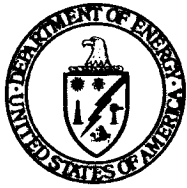
The Capacity Maintenance Program that began in 2011 continued through 2012 and 2013 with continuous leaching of caverns at two sites to counter the naturally occurring “creep closure” that caverns experience over time. The leaching program increases ullage in the caverns by injecting raw water, dissolving salt, and then removing the brine. During 2013, remedial leaching of sweet caverns at Big Hill created 1.2 million barrels of ullage and approximately 611,000 barrels of sour ullage at West Hackberry.

Environment, Safety, and Health

The Strategic Petroleum Reserve storage sites are recipients of several awards for management quality, environmental stewardship, and safety management systems. In 2013, the Strategic Petroleum Reserve received the DOE Silver Green Buy Award for reaching the Leadership Goal for eight products in five different categories, achieving excellence in Sustainable Acquisition. Also in 2013, the Strategic Petroleum Reserve received three awards from the Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP) Region VI, along with two awards from DOE VPP; one of these was a Legacy Award for Bayou Choctaw. The Legacy Award is the highest award given by the DOE VPP and is only earned by sustained excellence in safety and health performance. This is the second time that Bayou Choctaw has received this award. The Strategic Petroleum Reserve also continued its successful use of an annual Safety Academy to transmit safety and health information, programs, requirements, and initiatives.

West Hackberry Cavern 6 Transfer Plan

Access to the 6.4 million barrels sour crude oil inventory in West Hackberry Cavern 6 was considered at risk due to well issues. The decision was made to empty Cavern 6 while there is still ready access. During 2013, approximately 5.4 million barrels of the inventory has been transferred to another sour cavern.



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DOI	Department of Interior
E&P	Exploration and Production
EMS	Environmental Management System
EPEAT	Electronic Product Environmental Assessment Tool
EPCA	Energy Policy and Conservation Act
FEMP	Federal Energy Management Program
FY	Fiscal Year
GHG	Greenhouse Gases
HVAC	Heating, Ventilation & Air Conditioning
H.R. 658	House Joint Resolution

I. Legislative Language

The Strategic Petroleum Reserve was authorized by the Energy Policy and Conservation Act (EPCA), as amended (42 U.S.C. 6201 *et seq.*), which was enacted on December 22, 1975 (Pub L. 94-163). The Strategic Petroleum Reserve has operated since that time in recognition of the long-term dependence of the United States on imported crude oil and petroleum products.

Section 165 of EPCA requires the Secretary of Energy to submit an Annual Report to the President and the Congress on the activities of the Strategic Petroleum Reserve. As required by the Act, this *Strategic Petroleum Reserve Annual Report for Calendar Year 2013* includes information on:

- The status of the physical capacity of the Strategic Petroleum Reserve and the type and quantity of petroleum products stored;
- An estimate of the schedule and cost to complete planned equipment upgrades or capital investment in the Strategic Petroleum Reserve, including upgrades and investments carried out as part of operational maintenance or extension of life activities;
- Identification of any life-limiting conditions or operational problems at any Strategic Petroleum Reserve facility, and proposed remedial actions including an estimate of the schedule and cost of implementing those remedial actions;
- A description of current withdrawal and distribution rates and capabilities, and an identification of any operational or other limitations on those rates and capabilities;
- A listing of petroleum product acquisitions made in the preceding year and planned in the following year, including quantity, price, and type of petroleum;
- A summary of the actions taken to develop, operate, and maintain the Strategic Petroleum Reserve;
- A summary of the financial status and financial transactions of the Strategic Petroleum Reserve and the Strategic Petroleum Reserve Petroleum Accounts for the year;
- A summary of expenses for the year, and the number of Federal and contractor employees;
- The status of contracts for development, operation, maintenance, distribution, and other activities of the Strategic Petroleum Reserve;
- A summary of foreign oil storage agreements and their implementation status;
- Any recommendations for supplemental legislation or policy or operational changes the Secretary considers necessary to implement the requirements of the Act.

II. Program Mission

Introduction

The Strategic Petroleum Reserve operates pursuant to the authority of the Energy Policy and Conservation Act (EPCA) (42 U.S.C. 6201 et seq.), as amended. EPCA was enacted in recognition of the long-term dependence of the United States on imported crude oil and petroleum products.

As of December 31, 2013, the Strategic Petroleum Reserve contained 696 million barrels of crude oil. That inventory provides the equivalent of about 112 days of net petroleum imports based on average daily net petroleum imports of the U.S. of 6.2 million barrels per day (MMB/D) in 2013. The United States relies on a combination of oil in the Strategic Petroleum Reserve and private stocks to meet its oil storage obligations under and consistent with the agreement with the International Energy Program.

Legislative History

EPCA authorized the establishment of the Strategic Petroleum Reserve to reduce the impact of a severe energy supply interruption, and to carry out the obligations of the United States under the International Energy Program. The Public Laws that appropriate funding for the Strategic Petroleum Reserve are reflected below. The corresponding Table 9 includes rescissions, transfers and adjustments made upon enactment.

EPCA was amended by Title VIII of the Energy Security Act (Pub L. 96-294), enacted on June 30, 1980. The Energy Security Act established a minimum average daily fill rate of 100 thousand barrels and directed that “no portion of the United States share of crude oil in Naval Petroleum Reserve Numbered 1 (Elk Hills) may be sold or otherwise disposed of other than to the Strategic Petroleum Reserve” unless the Strategic Petroleum Reserve was being filled at the minimum rate or had an inventory of 500 million barrels.

The Energy Policy and Conservation Amendments Act of 1985 (Pub L. 99-58), enacted on July 2, 1985, extended the provisions of Title I, Part B, of EPCA relating to the Strategic Petroleum Reserve until June 30, 1989, and directed the Secretary of Energy to conduct a sale or exchange of 1.1 million barrels of crude oil to test the drawdown and distribution capabilities of the Strategic Petroleum Reserve.

The Omnibus Budget Reconciliation Act of 1986 (Pub L. 99-509), enacted on October 18, 1986, amended EPCA to require that the Strategic Petroleum Reserve be filled at a minimum rate of 75 thousand barrels a day until at least 750 million barrels were in storage.

Public Law 101-46, enacted on June 30, 1989, extended Strategic Petroleum Reserve authorities contained in EPCA until April 1, 1990. The Act also required the Secretary of Energy to submit a

report to Congress by February 1, 1990, on alternative means of financing oil acquisition for the Strategic Petroleum Reserve. Short-term extensions of the Strategic Petroleum Reserve authorities contained in EPCA were enacted on March 31, 1990 (Pub L. 101-262), and August 10, 1990 (Pub L. 101-360).

On September 15, 1990, the President signed the Energy Policy and Conservation Act Amendments of 1990 (Pub L. 101-383), extending authorization for the Strategic Petroleum Reserve until September 30, 1994. This legislation also contained provisions to amend drawdown authorities, required a Strategic Petroleum Reserve Plan Amendment for completion of storage capacity for one billion barrels, authorized the drawdown and distribution tests, and provided for a refined petroleum product reserve test program.

On October 24, 1992, the President signed the Energy Policy Act of 1992 (Pub L. 102-486). The Act included provisions to (1) add new conditions for drawdown in emergency situations involving a supply reduction of significant scope and duration, coupled with a severe price increase likely to cause a major adverse impact on the Nation's economy, (2) allow the enlargement of the Reserve to one billion barrels, (3) permit the Secretary of Energy to make payment in advance for delivery of petroleum product either owned or not owned by the United States for storage in the Strategic Petroleum Reserve or non-Strategic Petroleum Reserve facilities, and (4) give the President discretionary authority to acquire domestic stripper well oil at competitive prices to fill the Reserve.

On October 22, 1994, the President signed into law the Energy Policy and Conservation Act Amendments Act of 1994 (Pub L. 103-406), extending authorization for the Reserve to June 30, 1996.

The Balanced Budget Down Payment Act (Pub L. 104-99), enacted on January 26, 1996, required the sale of up to \$100 million of Weeks Island oil to fund decommissioning activities.

The Omnibus Consolidated Rescissions and Appropriations Act of 1996 (Pub L. 104-134), enacted on April 26, 1996, required the sale of \$227 million of Weeks Island oil for deficit reduction.

The Omnibus Consolidated Appropriations Act (Pub L. 104-208), enacted on September 30, 1996, appropriated \$220 million for the Strategic Petroleum Reserve in FY 1997 to be financed through the sale of Reserve oil. The Strategic Petroleum Reserve authorities expired on June 30, 1996. Authorization was renewed on October 14, 1996, with enactment of Pub L. 104-306, which extended the authorization for the Strategic Petroleum Reserve until September 30, 1997. After that date, the Reserve operated without authorizing legislation until June 1998 when Pub L. 105-177 was signed.

The Balanced Budget Act of 1997 (Pub L. 105-33), enacted on August 5, 1997, added a new section 168 to EPCA, authorizing the leasing of underutilized Strategic Petroleum Reserve facilities for the storage of oil owned by a foreign government or its representatives.

The Department of the Interior and Related Agencies Appropriations Act, 1998 (Pub L. 105-83), enacted on November 14, 1997, appropriated \$207.5 million for the Strategic Petroleum Reserve in FY 1998 to be financed through the sale of Reserve oil.

The 1998 Supplemental Appropriations and Rescissions Act (Pub L. 105-174), enacted on May 1, 1998, included a provision which prohibited the drawdown and sale of Strategic Petroleum Reserve oil if the President determined that a sale would be imprudent in light of market conditions and designated the \$207.5 million in foregone revenue as an emergency requirement under the Balanced Budget Act of 1985. The President made the requisite determination and designation on May 8, 1998.

On June 1, 1998, the President signed Pub L. 105-177 to extend certain EPCA programs. The Act extended the authorization for the Strategic Petroleum Reserve and participation in the International Energy Program through September 30, 1999, and expanded the antitrust protection for U.S. companies participating in International Energy Agency activities. The Act also authorized the drawdown and distribution of crude oil from the Strategic Petroleum Reserve only for the purposes described in the Act, and required that the Secretary of Energy request funds for acquisition, transportation and injection of petroleum products for storage in the Reserve or provide a written explanation if no request for funds was made. The Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999 (Pub L. 105-277), enacted on October 21, 1998, included \$160 million for the Strategic Petroleum Reserve.

On November 13, 1998, the President signed Pub L. 105-388, an Act to extend energy conservation programs under EPCA and the Energy Conservation and Production Act, and for other purposes. The Act provided that, during a drawdown of the Strategic Petroleum Reserve, the State of Hawaii may submit a binding offer for Strategic Petroleum Reserve oil and be entitled to purchase the oil at a price equal to the weighted average price of the successful competitive bids for oil in the applicable category. Deliveries under the binding offer would receive priority scheduling during a Strategic Petroleum Reserve drawdown.

The Strategic Petroleum Reserve authorization expired on September 30, 1999. On October 5, 1999, the President signed Pub L. 106-64, extending the authorization for the Reserve and for the EPCA authorities for United States participation in the International Energy Program until March 31, 2000.

Appendix C of the Consolidated Appropriations Act, 2000 (Pub L. 106-113), enacted on November 29, 1999, included \$159 million for the Strategic Petroleum Reserve. The Act also allowed the Secretary to use other DOE funds to finance a drawdown from the Strategic Petroleum Reserve.

The Department of the Interior and Related Agencies Appropriations Act, 2001 (Pub L. 106-291), signed on October 11, 2000, included \$165 million for the development, operation and management activities of the Strategic Petroleum Reserve under EPCA, of which \$4 million was to be derived from the transfer of unobligated funds in the "SPR Petroleum

Account” and \$8,000,000 of which was to be available for maintenance of a Northeast Home Heating Oil Reserve.

On November 9, 2000, the President signed the Energy Act of 2000 (Pub L. 106-469). Title I reauthorized titles I and II of EPCA through FY 2003, and updated or deleted the EPCA title I Strategic Petroleum Reserve authorities. Title II amended title I of EPCA to insert a new part D authorizing the Secretary “to establish, maintain, and operate a Northeast Home Heating Oil Reserve,” containing no more than two million barrels of petroleum distillate and located in the Northeast. The new part D Reserve is not a component of the Strategic Petroleum Reserve established under part B of title I of EPCA. Title II also sets forth conditions for release of products from the new part D Reserve, requires transmittal to the President and Congress of a plan describing the Reserve, and upon establishment of the Reserve, requires the Secretary of the Treasury to establish a “Northeast Home Heating Oil Reserve” account at Treasury.

On November 5, 2001, the President signed Pub L. 107-63, the Department of the Interior and Related Agencies Appropriations Act for FY 2002. The Act included \$179 million for Strategic Petroleum Reserve facilities.

On February 20, 2003, after a series of continuing resolutions, the President signed Pub L. 108-7, the Consolidated Appropriations Resolution, 2003. Pub L. 108-7 included \$172.9 million for Strategic Petroleum Reserve operations and program management activities and \$7.0 million for the SPR Petroleum Account.

On November 10, 2003, the President signed the Department of the Interior and Related Agencies Appropriations Act, 2004 (Pub L. 108-108). The Act provided \$173 million for the operations and program management activities of the Strategic Petroleum Reserve.

On December 8, 2004, the President signed the Consolidated Appropriations Act, 2005 (Pub L. 108-447). The Act provided \$172.1 million for the operations and program management activities of the Strategic Petroleum Reserve. After an across-the-board rescission of 0.594 percent and a second general reduction, the Strategic Petroleum Reserve budget authority was reduced to \$169.7 million.

On August 8, 2005, the President signed into law the Energy Policy Act of 2005 (Pub L. 109-58). The Act amended EPCA to provide permanent authorization for the Strategic Petroleum Reserve. The Act also required acquisition of petroleum to fill the Strategic Petroleum Reserve to its authorized one billion barrel capacity “as expeditiously as practicable without incurring excessive costs or appreciably affecting the price of petroleum products to consumers”, promulgation of procedures for the acquisition of petroleum for the Reserve, including procedures and criteria for the review of requests for the deferrals of scheduled deliveries, and selection of sites necessary to expand the storage capacity of the Strategic Petroleum Reserve to one billion barrels.

On November 19, 2005, the President signed the Energy and Water Development Appropriations Act, 2006 (Pub L. 109-103). The Act provided \$166 million for facility development and operations and program management activities of the Strategic Petroleum Reserve. After an across-the-board rescission of one percent, the Strategic Petroleum Reserve budget authority was reduced to \$164.3 million.

Congress passed a series of continuing resolutions to cover programs whose FY 2007 appropriations, beginning October 1, 2006, had not yet been completed. The last continuing resolution signed during 2006 was signed by the President on December 9, 2006 (Pub L. 109-383), and provided funding through February 15, 2007. A final year-long continuing resolution (H.J. Res 20) was passed by Congress on February 14, 2007, and signed by the President on February 15, 2007. The Revised Continuing Appropriations Resolution, 2007 (Pub L. 110-5) provided appropriations equal to the 2006 amount plus a small escalation adjustment for employee pay and benefits. The final appropriation for the Strategic Petroleum Reserve was \$164.4 million.

Congress passed two Continuing Resolutions to cover FY 2008 programs whose appropriations, beginning October 1, 2007, had not yet been enacted. On December 26, 2007, the President signed the Consolidated Appropriations Act, 2008 (Pub L. 110-161). The Act provided \$188.5 million for the Strategic Petroleum Reserve, of which \$24.8 million was to be used to carry out the new expansion site land acquisition activities consistent with the budget request. After an across-the-board general reduction, the Strategic Petroleum Reserve's budget authority totaled \$186.7 million, of which \$25 million was provided to carry out new site land activities.

On May 19, 2008, the President signed into law the Strategic Petroleum Reserve Fill Suspension and Consumer Protection Act of 2008 (Pub L. 110-232). The Act suspended acquisition of petroleum for the Strategic Petroleum Reserve beginning on the date of enactment and ending on December 31, 2008. Resumption of fill could resume under strictly defined conditions, i.e., if the President determined that the weighted average price of petroleum in the United States for the most recent 90-day period was \$75 or less per barrel. However, the Strategic Petroleum Reserve could not resume fill earlier than 30 days after the President notified Congress that the condition had been met.

Funding for FY 2009 was completed in a series of three appropriations actions.

On September 30, 2008, the President signed the Consolidated Security, Disaster Assistance, and Continuing Appropriations Act, 2009 (Pub L. 110-329) that provided funding for government agencies through March 6, 2009. On March 6, 2009, Congress passed, and the President signed, H.J. Res. 38, a stopgap spending measure to keep the government in operation through March 11, 2009 (Pub L. 111-6). On March 11, 2009, the President signed the Omnibus Appropriations Act, 2009 (Pub L. 111-8) that completed funding through the fiscal year. Appropriations for the Strategic Petroleum Reserve totaled \$205 million, with \$31.5 million directed to carry out new site land acquisition activities as part of the proposed expansion of the Strategic Petroleum Reserve to one billion barrels. However, the law included

a caveat that none of the funds provided for new site expansion activities may be obligated or expended until after the Secretary of Energy submitted a report to the Congress on the effects of expansion of the Strategic Petroleum Reserve on the domestic petroleum market. Additional FY 2009 funds were authorized in the Supplemental Appropriations Act, 2009 (Pub L. 111-32), enacted June 24, 2009, by transfer of \$21.6 million from the Strategic Petroleum Reserve's Petroleum Account to Facilities Development and Operations for site maintenance activities. The funds were used for the required hurricane repairs and site restoration following Hurricanes Gustav and Ike in 2008.

Funding for FY 2010 began with a short-term continuing resolution contained in the FY 2010 Appropriations Act for the Legislative Branch and Continuing Resolution (Pub L. 111-68). On October 28, 2009, the Energy and Water Development and Related Agencies Appropriations Act, 2010 (Pub L. 111-85) was enacted. The Act provided \$243.8 million for the Strategic Petroleum Reserve, including \$25 million for expansion activities at the proposed Richton, Mississippi site. Report language accompanying the Act (House Rept. 111-278 and Senate Rept. 111-45) included guidance for the purchase of a commercial storage cavern to replace an existing Strategic Petroleum Reserve cavern due to environmental risk at the Bayou Choctaw, Louisiana site. Section 313 of the Act prohibited allocation of the funds to any person engaged in the sale, import, or capacity expansion of refined petroleum products valued at \$1 million or more with the Islamic Republic of Iran. The prohibition exempted any contract entered into by the United States government before the date of the enactment of Pub L. 111-85.

Congress funded FY 2011 with a series of short-term continuing resolutions that continued until April 15, 2011, when the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (Full-Year Continuing Appropriations Act) (Pub L. 112-10) was signed by the President. The Full-Year Continuing Appropriations Act provided \$209.9 million for the Strategic Petroleum Reserve that was reduced to \$209.4 million after a 0.2 percent rescission. The first short-term Continuing Resolution (Pub L. 111-242) was passed September 30, 2010, and provided funding for all Federal agencies through December 3, 2010. A second Continuing Resolution (Pub L. 111-290) amended the first and extended funding through December 18, 2010. The third Continuing Resolution (Pub L. 111-317) provided funding through December 21, 2010, to provide time to complete a short-term Continuing Resolution through February 2011. Before adjourning sine die, the 111th Congress passed a final Continuing Resolution (Pub L. 111-322) that extended funding through March 4, 2011. The 112th Congress continued appropriations actions for FY 2011 and passed three additional short-term funding measures (Pub L. 112-4, Pub L. 112-6, and Pub L. 112-8) before completing work to fully fund FY 2011. The final appropriation of \$209.4 million for the Strategic Petroleum Reserve included cancellation of \$86.3 million of prior year balances. Of that total, \$75.2 million had been appropriated for expansion of the Strategic Petroleum Reserve to one billion barrels.

The Consolidated Appropriations Act 2012 (Pub L. 112-74), was signed by the President on December 23, 2011, following three short-term Continuing Resolutions. Pub L. 112-33 provided

funds through October 4, 2011; Pub L. 112-36 provided funding through November 18, 2011; and Pub L. 112-55 provided further continuing appropriations through December 16, 2011.

In the Consolidated Appropriations Act 2012 (Pub L. 112-74), Congress authorized appropriations of \$192.7 million for the Strategic Petroleum Reserve. In that Act, Congress also rescinded \$500 million of the receipts collected from the 2011 Strategic Petroleum Reserve drawdown and sale. Section 314 of the Act authorized the Secretary of Energy to award a contract to a third party, following an open competition, to operate and maintain an underutilized metering station and related equipment of the Strategic Petroleum Reserve. Not later than 30 days before the issuance of such award, the Secretary was required to first certify to the Committees on Appropriations of the House of Representatives and the Senate that the award would not reduce the reliability or accessibility of the Strategic Petroleum Reserve, raise costs of oil in the local market, or negatively impact the supply of oil to current users. Fees from the lease were required to be deposited to the general fund of the Treasury.

In 2011, Congress included a new mandate for the Strategic Petroleum Reserve through the appropriations process that will impact drawdown marine distribution protocols. Section 529 of the Consolidated Appropriations Act 2012 (Pub L. 112-74) restricts waiver authority related to the navigation and vessel-inspection laws pursuant to 46 U.S.C. 501(b), commonly known as the Jones Act. Section 529 provides that no funds provided under that Act or other acts shall be used to approve a waiver for the transportation of crude oil distributed from the Strategic Petroleum Reserve until the Secretary of Homeland Security, after consultation with the Secretaries of the Departments of Energy and Transportation and representatives from the United States flag maritime industry, takes adequate measures to ensure the use of United States flag vessels. The Secretary must first notify the Committees on Appropriations of the Senate and the House of Representatives; the Committee on Commerce, Science, and Transportation of the Senate; and the Committee on Transportation and Infrastructure of the House of Representatives within 48 hours of any request for waivers of navigation and vessel-inspection laws pursuant to 46 U.S.C. 501(b).

On September 28, 2012, the President signed the first of two Continuing Resolutions to fund FY 2013. The Continuing Appropriations Resolution, 2013 (Pub L. 112-175) funded government programs during the period October 1, 2012 through March 27, 2013, at approximately the same level as FY 2012. The Consolidated and Further Continuing Appropriations Act (Pub L. 113-6) was signed by the President on March 26, 2013, to fund the government through the remainder of the fiscal year. Funding levels for the Strategic Petroleum Reserve were held equivalent to FY 2012 levels but the law also required a reduction of five percent to meet mandatory across-the-board cuts (sequestration) under the Budget Control Act of 2011 (Pub L. 112-25). Sequestration applied to almost all government programs and was originally scheduled to take effect on January 2, 2013, but Congress delayed the effective date of sequestration until March 1, 2013 (Pub L. 112-240). FY 2013 funding levels for the Strategic Petroleum Reserve were finalized at \$182.6 million after sequestration and a small rescission.

Section 527 of the Department of Homeland Security Appropriations Act, 2013 (Pub L. 113-6) included language related to U.S. maritime laws. The language prohibited the use of appropriated funds under this Act or any other act to approve a waiver of the navigation and vessel-inspection laws (Jones Act) for the transportation of crude oil distributed from the Strategic Petroleum Reserve until the Secretary of Homeland Security, after consultation with the Secretaries of the Departments of Energy and Transportation and representatives from the U.S. flag maritime industry, takes adequate measures to ensure the use of U.S. flag vessels. Section 527 also requires that the Secretary of Homeland Security notify the Committees on Appropriations of the Senate and the House of Representatives; the Committee on Commerce, Science, and Transportation of the Senate; and the Committee on Transportation and Infrastructure of the House of Representatives within two business days of any request for waivers of navigation and vessel-inspection laws.

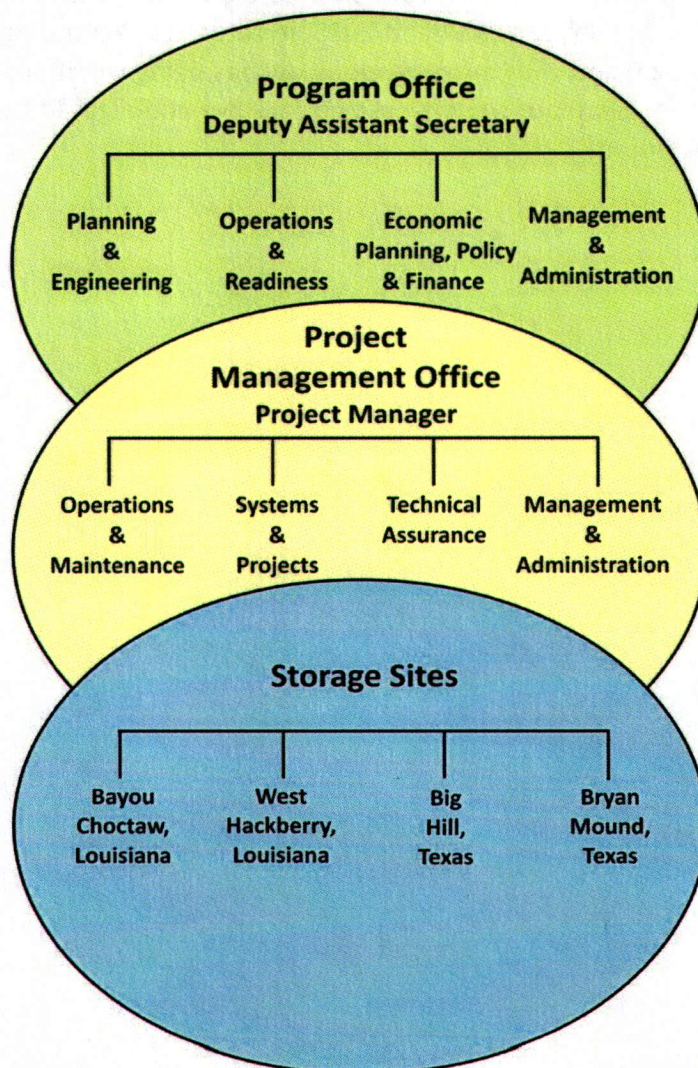
The Bipartisan Budget Act of 2013 (Pub L. 113-67) is a federal statute concerning spending and the budget in the United States, that was signed into law by President Barack Obama on December 26, 2013, pursuant to the provisions of the Continuing Appropriations Act, 2014 calling for a joint budget conference to work on possible compromises. The law raised the sequestration caps for fiscal years 2014 and 2015, in return for extending the imposition of the caps into 2022 and 2023, and with miscellaneous savings being rescinded elsewhere in the budget. One of the miscellaneous savings rescinded is the unobligated balance (\$2.7 billion) in the SPR Petroleum Account.

III. Program Management

Organization

The Assistant Secretary for Fossil Energy at DOE in Washington, D.C. has overall program responsibility for achieving the goals and objectives of the Strategic Petroleum Reserve. This responsibility is delegated to the Deputy Assistant Secretary for Petroleum Reserves, and is exercised through the Program Office in Washington, D.C., and the Strategic Petroleum Reserve Project Management Office (SPRPMO) in New Orleans, Louisiana. Program Office staffing is 20 federal employees and 12 contractor employees, while SPRPMO staffing is 90 federal employees and 730 contractor employees as of December 31, 2013. Figure 1 depicts the Strategic Petroleum Reserve organizational structure.

Figure 1
Strategic Petroleum Reserve Organizational Structure



Contractual Support

The Project Management Office is responsible for the design, development, operation and maintenance of the Strategic Petroleum Reserve and, during 2013, employed a Management and Operating contractor, DM Petroleum Operations Company, to provide management and personnel to operate and maintain the Strategic Petroleum Reserve facilities and related systems. The contract with DM Petroleum Operations Company expired in 2013 but was renewed until March 31, 2014.

S&B Infrastructure, an architectural and engineering (A&E) firm, is under contract to provide design services for the four storage facilities through May 31, 2014. Procurement of a follow on A&E contract was initiated in August 2013 and will be a small business set aside.

Sandia National Laboratory provides geotechnical support that includes analysis of the salt dome, cavern integrity, vapor pressure, crude oil quality, and new cavern development.

Arctic Slope Regional Corporation Gulf States Constructors, a Native Alaskan 8(a) small disadvantaged business, was under contract to provide construction and construction management services for the four storage facilities through October 31, 2013. Upon expiration of this contract, responsibility for construction management services was transferred back to the M&O contractor.

Contractors in specific disciplines perform miscellaneous site modifications for major maintenance program activities. Most of these contracts are fixed-price and have terms of less than one year.

Several support services contracts exist for management, technical, and computer support. The largest support service contractor in 2013 was Performance Excellence Partners, an 8(a) small and disadvantaged business that provided management and technical support. The contract is a three year base, through October 31, 2014, with two one-year options.

Other support services contractors that support the Program Office in Washington, D.C. include PB Energy Storage Services, Inc., AOC Petroleum Support Services, LLC, and Cyborg, Inc.

Electrical power is provided to the four storage facilities by local utilities Reliant and Entergy.

The Strategic Petroleum Reserve holds contracts with three commercial facilities that provide terminal services for fill, drawdown, and storage of crude oil. The contract with Sunoco Partners Marketing & Terminals, L.P. is in its second five-year option period that ran through 2013. One additional five-year option period remains. Unocal Corporation holds a five-year contract that runs through September 2017. Seaway Crude Pipeline Company has a five-year contract that runs through December 12, 2016.

IV. Crude Oil Storage Program

Strategic Petroleum Reserve Storage Facilities

The Strategic Petroleum Reserve currently operates and maintains four major oil storage facilities in the Gulf Coast region of the United States. All oil stored in the Strategic Petroleum Reserve's facilities is in large underground caverns that have been created in salt dome formations. Salt dome storage technology provides maximum security and safety for the Nation's stockpile of crude oil and is also the lowest cost technology for large-scale petroleum storage projects. The average operations cost for FY 2013 was \$0.221 per barrel for the management, staffing, operations and maintenance, and security. This cost is substantially less than industry storage costs and most foreign petroleum oil reserves.

The Strategic Petroleum Reserve has two sites in Texas (Bryan Mound and Big Hill), and two sites in Louisiana (West Hackberry and Bayou Choctaw). These four sites have a combined authorized storage capacity of 727 million barrels and a maximum nominal drawdown capability of 4.415 MMB/D¹. Table 1 shows the storage capacity and drawdown capability of each site as of December 31, 2013.

The Strategic Petroleum Reserve's oil storage facilities are grouped into three geographical distribution systems in the Gulf Coast: Seaway, Texoma and Capline. Each system has access to one or more major refining centers, interstate crude oil pipelines, and marine terminals for crude oil distribution. The locations of the Strategic Petroleum Reserve storage sites, and their respective distribution systems, are shown in Figure 2.

Table 1
Authorized Storage Capacity and Maximum Drawdown Capability
(As of December 31, 2013)

CURRENT SITE CAPABILITY			
Storage Facility	Authorized Storage Capacity* (MMB)	Authorized Crude Mix Sweet/Sour (MMB)	Max Nominal Drawdown Capability (MMB/D)
Bryan Mound	254.0	78/176	1.5**
West Hackberry	227.0	108/119	1.3
Big Hill	170.0	72/98	1.1
Bayou Choctaw	76.0	24/52	.515
Total Program	727.0	282/445 (39%/61%)	4.415

Sweet = Sulfur content not exceeding 0.5 percent
MMB = Million Barrels

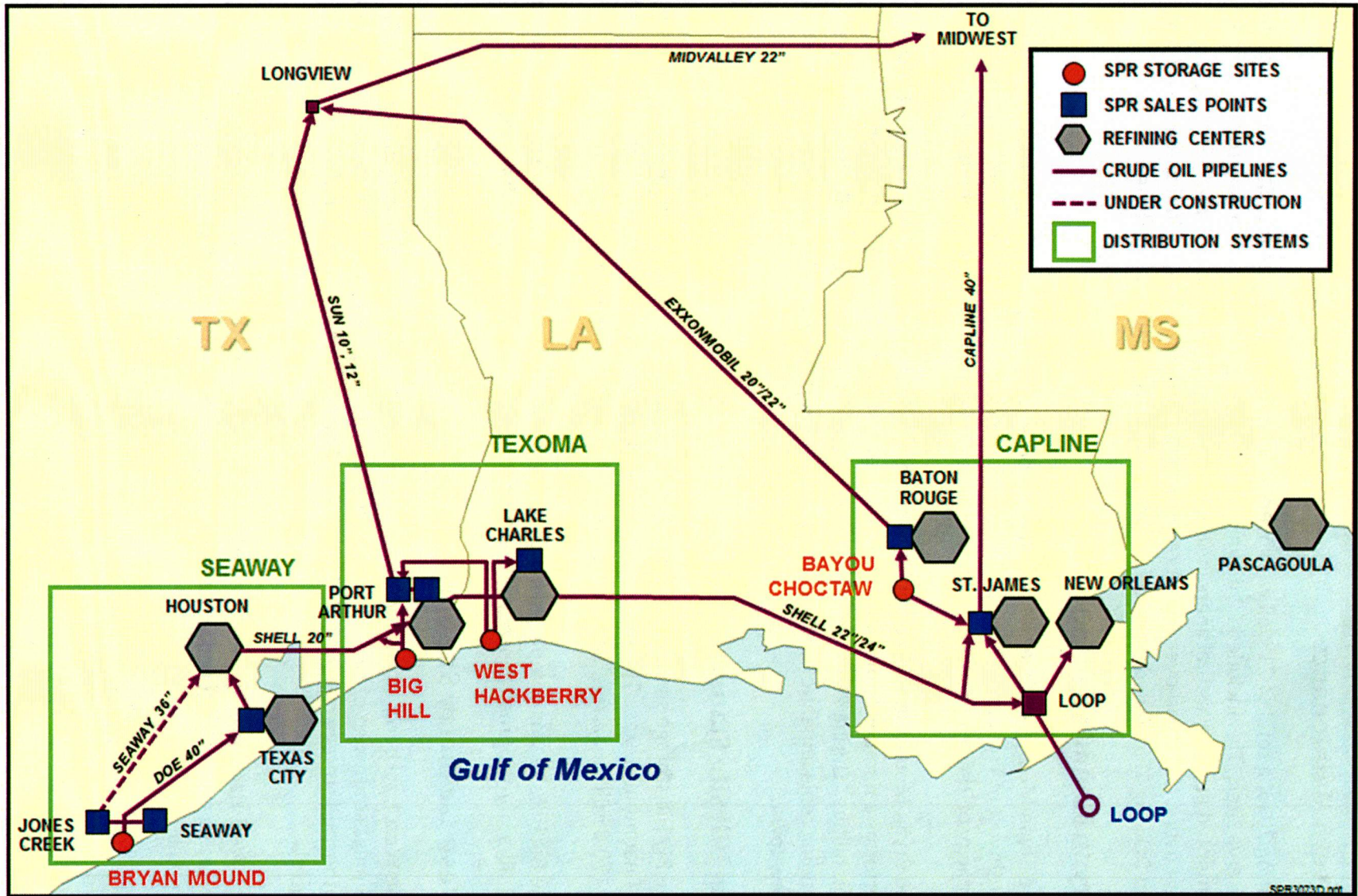
Sour = Sulfur content greater than 0.5 percent
MB/D = Thousand Barrels Per Day

* Storage Capacities reflect Temporary Deviation (VA-D9-054) to minimize oil storage risks in BC Cavern 20. (i.e. West Hackberry +1.5 MMB, Big Hill +1.0 MMB, Bayou Choctaw -2.5MMB).

** Current Bryan Mound maximum drawdown capability is reduced to 1.350 MMB/D due to needed repair.

¹ Current drawdown capability is reduced to 4.25 due to damaged floating pan in Tank 2 at Bryan Mound.

Figure 2
Storage Sites and Distribution System



Cavern Maintenance

During 2013, a total of 21 well workovers were performed at the four Strategic Petroleum Reserve sites. This included 12 diagnostic workovers; 5 remediation workovers to install cemented protective steel liners inside the existing well-bores; and 4 brine string repair workovers. Two workover rigs were used to perform this work, including leased Pioneer Rig 8 and DOE Rig 155. A dedicated safety professional is assigned to each rig.

Bryan Mound Site Status

The Bryan Mound storage site is located in Brazoria County, Texas, approximately three miles southwest of Freeport, Texas. The site has 20 storage caverns with a total authorized storage capacity of 254.0 million barrels, and a cavern inventory of 240.7 million barrels.

The Bryan Mound site was completed in 1986. The Strategic Petroleum Reserve annually performs a number of major maintenance projects to maintain the site's operational capabilities. During 2013, the site drawdown rate was reduced by 150,000 barrels per day pending replacement of a damaged internal floating pan on a storage tank that is used during drawdown.

Big Hill Site Status

The Big Hill storage site is located in Jefferson County, Texas, approximately 26 miles southwest of Beaumont, Texas. The site has 14 storage caverns, a combined authorized storage capacity of 170.0 million barrels, and a cavern inventory of 163.8 million barrels.

The Big Hill site was completed in 1991. The Strategic Petroleum Reserve annually performs a number of major maintenance projects to maintain the site's operational capabilities.

West Hackberry Site Status

The West Hackberry storage site is located in Cameron Parish, Louisiana, approximately 25 miles southwest of Lake Charles, Louisiana. The site has 22 storage caverns with a combined authorized storage capacity of 227.0 million barrels, and a cavern inventory of 216.7 million barrels.

The West Hackberry site was completed in 1988. The Strategic Petroleum Reserve annually performs a number of major maintenance projects to maintain the site's operational capabilities.

Bayou Choctaw Site Status

The Bayou Choctaw storage site is located in Iberville Parish, Louisiana, approximately 12 miles southwest of Baton Rouge, Louisiana. The site has seven storage caverns, an authorized storage capacity of 76.0 million barrels, and a cavern inventory of 73.6 million barrels. In October 2007, the authorized cavern capacity of Bayou Choctaw was temporarily decreased from 76 million barrels to 73.5 million barrels due to a net reduction of 2.5 million barrels of authorized capacity in Bayou Choctaw Cavern 20. The reduction was required because the lower half of Cavern 20 was determined to pose a high environmental risk after it was discovered that the cavern had begun to leach towards the edge of the salt dome. Cavern 20 will be decommissioned in 2014.

The Bayou Choctaw site became operational in 1987. The Strategic Petroleum Reserve annually performs a number of major maintenance projects to maintain the site's operational capabilities.

St. James Marine Terminal Status

The Strategic Petroleum Reserve constructed a marine terminal on the Mississippi River at St. James, Louisiana in the 1970s to support fill and drawdown of the Strategic Petroleum Reserve sites. The terminal has six above ground storage tanks with a total storage capacity of two million barrels. The St. James terminal is leased to Shell Oil Products US under a long-term lease agreement. Under the lease agreement, Shell provides for all normal operations and maintenance of the terminal and is required to support the Strategic Petroleum Reserve as a sales and distribution point in the event of a drawdown.

A connection between the St. James terminal and the adjacent LOCAP terminal enhances the Strategic Petroleum Reserve's emergency distribution capabilities by enabling unencumbered crude oil distribution to the LOCAP terminal, the ExxonMobil pipeline, and the Plains terminal.

V. Capacity Maintenance Program

Strategic Petroleum Reserve storage caverns are subject to continuous progressive “creep closure” due to naturally occurring geological forces. This closure continuously reduces the unfilled capacity (ullage) of the caverns required to maintain their long-term storage capacity. During 2010 and 2011, projections were made based on current ullage, creep rates, and workover program impacts that indicated that cavern ullage would be depleted sometime between 2012 and 2013. As a consequence, studies were made to determine the best strategy to mitigate the problem that resulted in the implementation of a leaching program at three sites which began in 2011 and continued through 2012 and 2013.

There were no leaching activities at Bryan Mound in 2013 due to the impact of budget sequestration.

At West Hackberry, the leaching program included injecting raw water into a sour cavern and transferring the crude oil into another sour cavern. During the year, simultaneous operations of leaching this sour cavern and transferring crude oil out of another sour cavern occurred, thereby achieving two Strategic Petroleum Reserve program objectives. As of December 31, 2013, 6.1 million barrels of raw water were injected, thereby creating approximately 611,000 barrels of ullage. West Hackberry will provide sour ullage for both West Hackberry and Big Hill.

At the Big Hill site, the leaching plan involved transferring sweet crude between caverns using raw water to create ullage. The space created will be used for both West Hackberry and Big Hill sweet. As of December 31, 2013, the site had injected 12.42 million barrels of raw water into the sweet caverns, thereby creating approximately 1,242million barrels of ullage.

VI. West Hackberry Cavern 6 Transfer Plan

In 2013, access to the sour crude oil inventory in West Hackberry Cavern 6 was considered at risk. Cavern 6 is a three well cavern with the following history:

- Well 6B Borehole failed and a liner was installed in 2002.
- Well 6 Borehole failed and the well was plugged and abandoned in 2011.
- Well 6C Borehole failed a Mechanical Integrity Test, a liner was cemented in, the borehole failed, and the well was plugged in 2012.

Because of this well history and the associated risk, the decision was made to empty Cavern 6 while there is still ready access. After the cavern is empty, geotechnical analysis and remediation will occur. Crude oil removal out of Cavern 6 began February 1, 2013 as a single closed loop cavern to cavern movement using brine injection into the cavern coming from the destination cavern for the oil being transferred. During the year, simultaneous operations of transferring crude oil out of Cavern 6 and leaching another sour cavern occurred, thereby achieving two Strategic Petroleum Reserve program objectives. As of December 31, 2013, approximately 5.4 million barrels of the 6.4 million barrels inventory in Cavern 6 had been transferred.

VII. Petroleum Acquisition and Exchange

Crude Oil Inventory Status

On December 31, 2013, the Strategic Petroleum Reserve's crude oil inventory was 695,969,065 barrels, an increase of 700,632 barrels from the prior year. The net increase resulted primarily from the receipt of barrels returned to the Strategic Petroleum Reserve from the exchange agreements made in response to the supply disruptions caused by Hurricane Isaac.

Oil Acquisition Market Assessments

The *Procedures for the Acquisition of Petroleum for the Strategic Petroleum Reserve* (10 CFR Part 626) establish the rules and procedures for acquiring Strategic Petroleum Reserve crude oil. These procedures require that a comprehensive market assessment be performed prior to initiation or continuation of any oil fill activities to ensure the Strategic Petroleum Reserve acquisition activities will not unduly affect the current market conditions. There were no market assessments completed in 2013 as no new oil acquisition activities were initiated.

Fill of Reserve

Detailed information about the Strategic Petroleum Reserve's fill program since 1977 can be found in the following:

- Table 2 lists year-end inventories and average daily fill rates for the years 1977 through 2013 (by fiscal and calendar year).
- Table 3 lists crude oil receipts by country of origin since 1977; there were no receipts in 2013.
- Table 4 identifies the location of the inventory by storage site, and Figure 3 illustrates the cumulative oil fill by year.

Table 2
Year-End Inventories and Oil Fill History

	FISCAL YEAR		CALENDAR YEAR	
	Year-End Inventory (MMB)	Average Daily Fill Rate ¹ (MB/D)	Year-End Inventory (MMB)	Average Daily Fill Rate ¹ (MB/D)
1977	1.1	3	7.2	20
1978	49.1	131	68.5	168
1979	91.2	115	91.7	64
1980	92.8	4	107.8	44
1981	199.2	292	230.3	336
1982	277.9	215	293.8	174
1983	361.0	228	379.1	234
1984	431.1	191	450.5	195
1985	489.3	159	493.3	119
1986	506.4	47	511.6	51
1987	533.9	75	540.6	80
1988	554.7	57	559.5	52
1989	577.1	62	579.9	56
1990	589.6	34	585.7	27
1991	568.5	(58)	568.5	(47)
1992	571.4	8	574.7	17
1993	585.7	39	587.1	34
1994	591.7	16	591.7	13
1995	591.7	* ²	591.6	* ²
1996	573.6	(49)	565.8	(70)
1997	563.4	(28)	563.4	(7)
1998	563.4	* ²	561.1	(6) ³
1999	564.9	4	567.0	16
2000	570.3	15	540.7	(72) ⁴
2001	544.8	(70) ⁴	550.2	26
2002	587.2	116	599.1	134
2003	624.4	102	638.4	108
2004	670.3	126 ⁵	675.6	102 ⁵
2005	693.7	64 ⁶	684.5	25 ⁶
2006	687.8	(16) ⁷	688.6	11 ⁷
2007	692.8	14	696.9	23
2008	702.4	26 ⁸	701.8	13 ⁸
2009	725.1	62.2	726.6	67.9
2010	726.5	3.8	726.5	(0.2) ⁹
2011	695.9	(84) ¹⁰	695.9	(84) ¹⁰
2012	694.9	(3) ¹¹	695.3	(2) ¹¹
2013	696.0	3	696.0	2

MMB = Million Barrels

MB/D = Thousands of Barrels per Day

() = Denotes a Reduction

1. Fill rates adjusted for oil sales

2. Fill suspended during this period

3. Decrease due to Maya exchange

4. Net decrease due to Exchange 2000

5. Net Hurricane Ivan deliveries and receipts

6. Net Hurricane Ivan receipts & Katrina deliveries and receipts

7. Net Hurricane Katrina exchange and drawdown sales

8. Net Hurricanes Gustav & Ike deliveries

9. WH/BC Exchange oil costs and degas loss

10. Drawdown 2011

11. Hurricane Isaac Exchange

Table 3
Crude Oil Receipts
(As of December 31, 2013)

Source Country	2013 (MMB)	Cumulative (MMB)	Percent of Total (%)
Mexico		266.3	31.2
United Kingdom		193.9	22.7
United States*		106.5	12.5
Saudi Arabia		28.3	3.3
Libya		27.5	3.2
Venezuela		25.3	3.0
Angola		25.1	2.9
Russia		25.1	2.9
Iran****		20.0	2.3
United Arab Emirates		19.3	2.3
Nigeria		16.3	1.9
Algeria		15.7	1.8
Cameroon		15.1	1.8
Equatorial Guinea		15.1	1.8
Norway		14.0	1.6
Oman		12.9	1.5
Egypt		8.9	1.0
Ecuador		6.2	0.7
Iraq		3.4	0.4
Gabon		2.4	0.3
Qatar		2.3	0.3
Azerbaijan		2.1	0.2
Columbia		1.2	0.1
Argentina		0.4	≤0.1
Ivory Coast		0.4	≤0.1
Peru		0.4	≤0.1
Total**		854.1***	100.0

MMB = Million Barrels

* Included receipts from offshore Gulf of Mexico.

** Totals do not add due to rounding.

*** Cumulative total receipts unadjusted for sales and operational gains and losses.

**** Prior to 1995

Table 4
Crude Oil Inventory
(As of December 31, 2013)

Storage Site	Inventory (MMB)		
	Sweet*	Sour**	Total***
Bryan Mound, Brazoria County, Texas	64.4	176.3	240.7
Big Hill, Jefferson County, Texas	67.8	96.0	163.8
West Hackberry, Cameron Parish, Louisiana	107.8	108.9	216.7
Bayou Choctaw, Iberville Parish, Louisiana	21.8	51.8	73.6
Subtotal Underground Inventory	261.7	433.1	694.8
Tanks and Pipelines	0.2	0.9	1.2
Total Inventory	262.0	434.0	696.0
Total Accounts Receivable	0.0	0.0	0.0
Total SPR Book Inventory	262.0	434.0	696.0

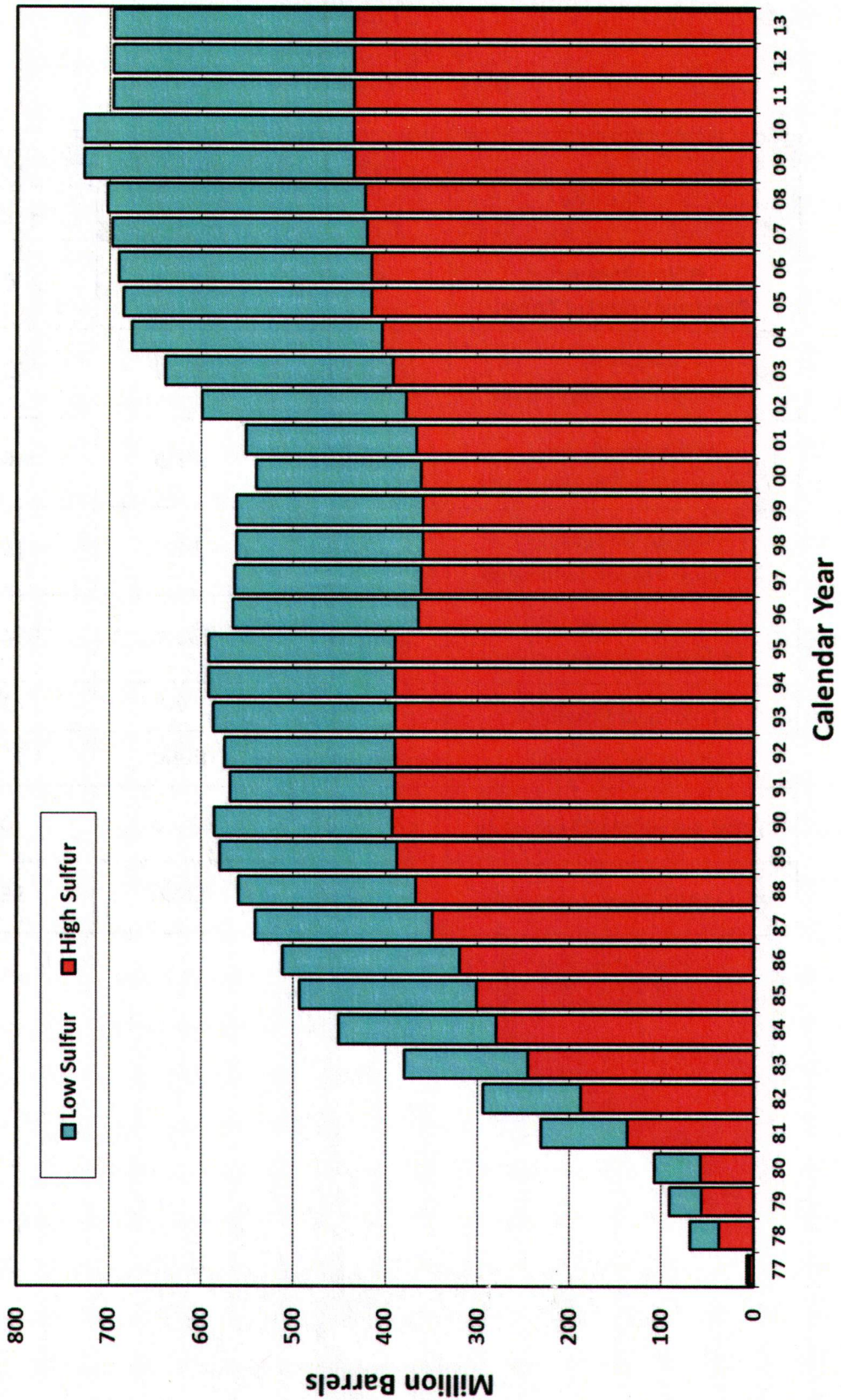
MMB = Million Barrels

* Sulfur content not exceeding 0.5 percent

** Sulfur content greater than 0.5 percent

*** Totals do not add due to rounding

Figure 3
Cumulative Oil Fill



VIII. Emergency Response Capabilities

Sale of Oil

Section 161 of the Energy Policy and Conservation Act (EPCA) gives authority to the President under specified conditions to direct the Secretary of Energy to conduct a public sale of oil from the Strategic Petroleum Reserve. Contracts are awarded to the highest qualified offerors. Although no sale from the Strategic Petroleum Reserve was conducted in 2013, the Strategic Petroleum Reserve maintains a high level readiness posture to provide crude oil within thirteen days under a competitive sale to selected offerors.

Competitive Sales Procedures

Federal regulations in 10 CFR Part 625 govern the process for price competitive sales from the Strategic Petroleum Reserve, including the establishment of Standard Sales Provisions that contain provisions to be utilized in the contracts for the sale of the Strategic Petroleum Reserve crude oil. The first step in the process is the issuance of a Notice of Sale identifying the volume, characteristics, and location of the petroleum for sale. The Notice of Sale also provides delivery dates and the requirements to successfully submit offers. Measures required for assuring performance and financial responsibilities are also described in the Notice of Sale.

During a drawdown, multiple Notices of Sale may be issued through the use of a web-based automated oil sales and evaluation system, which provides a triple redundant backup system. Each Notice of Sale covers a sales period of one to two months. Offerors may have five days or less from the date a Notice of Sale is issued until offers are due. Delivery of oil could commence as soon as thirteen days after the President calls for a drawdown of the Strategic Petroleum Reserve. Subsequent sales periods, if necessary, will coordinate with standard industry delivery periods. Because of the possible short initial lead-time, DOE maintains a registry of prospective offerors who will receive electronic notification of all Notices of Sale.

The second step in the sales process is for prospective purchasers to submit offers, as specified in the Notice of Sale. Offerors must unconditionally accept all terms and conditions in the Notice of Sale and submit an offer guarantee of five percent of the maximum potential contract amount, or \$10 million, whichever is less. The offer evaluation process is structured so that the offerors bidding the highest prices will determine the transportation methods, up to the limits of the distribution system. Specific delivery arrangements are negotiated later in the process.

Within five business days of being notified, all "apparently successful offerors" are required to provide a Letter of Credit equal to 100 percent of the contract amount as a guarantee of performance and payment of amounts due under the contract. Upon timely receipt of the financial guarantees, and a final determination by the Contracting Officer that offers are responsive and selected offerors are responsible, Notices of Award are issued. Deliveries to the

purchasers may then begin, consistent with the purchasers' arrangements for commercial pipeline or marine vessel transportation.

Following delivery, the purchaser is invoiced for actual barrels received at a price that reflects the indexed contract award price, plus any adjustments for quality differentials, delivery mode, or location changes. Payment is due in the month following the delivery.

Drawdown Capabilities

The crude oil acquired for the Strategic Petroleum Reserve is commingled in caverns at the storage sites, creating various distinct crude oil streams available for release. Table 5 identifies these crude oil streams, delivery modes, and locations.

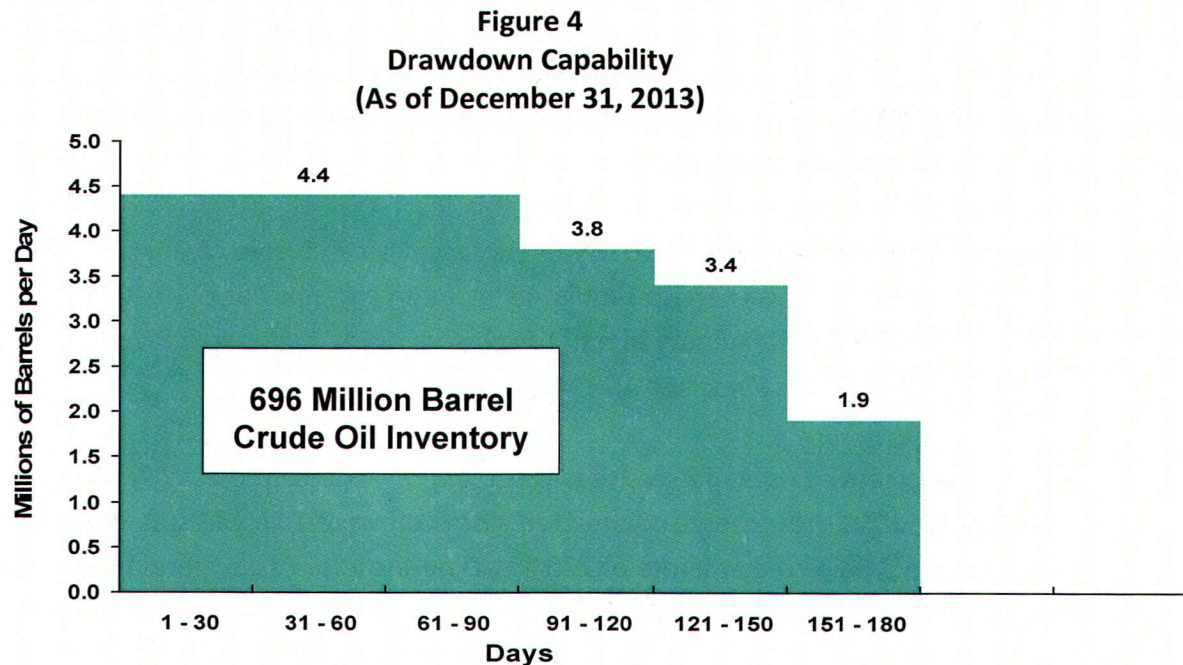
The Strategic Petroleum Reserve can draw down crude oil at a nominal maximum initial sustainable rate of 4.415 MMB/D² for a period of 90 days. After this period, the drawdown rate will gradually decrease as site inventories are depleted and the declining number of caverns containing crude oil becomes a constraint.

Table 5
Crude Oil Streams
(As of December 31, 2013)

Crude Oil Stream	Gravity (°API)	Sulfur Content (Mass%)	Delivery Mode and Location
Seaway System			
Bryan Mound (Sweet)	36.3	0.39	Pipeline at Jones Creek Tank Farm, Jones Creek, Texas; Tankship at Seaway (Enterprise Products) Terminals in Freeport and Texas City, Texas
Bryan Mound (Sour)	33.3	1.41	
Texoma System			
West Hackberry (Sweet)	37.0	0.33	Pipeline, tankship or barge at Sun Partners Marketing & Terminals LP, Nederland, Texas; Pipeline at Shell-22"/DOE connection, Lake Charles, Louisiana
West Hackberry (Sour)	33.1	1.55	
Big Hill (Sweet)	35.4	0.42	Pipeline, tankship or barge at Sun Partners Marketing & Terminals LP, Nederland, Texas; Pipeline or tankship at Chevron Terminal Nederland, Texas; Pipeline at Shell-20"/DOE connection, Winnie, Texas
Big Hill (Sour)	30.8	1.44	
Capline System			
Bayou Choctaw (Sweet)	35.2	0.42	Pipeline at Capline, Plains Marketing or LOCAP Terminals, St. James, Louisiana; Tankship at Sugarland St. James Terminal, St. James, Louisiana; 24-inch site connection to Red Stick Pipeline, Iberville Parish, Louisiana
Bayou Choctaw (Sour)	32.4	1.46	

² Current drawdown capability is reduced to 4.25 due to unavailability of Bryan Mound Tank 2 pending repairs.

Figure 4 illustrates the physical drawdown capabilities during 2013 of 382.5 million barrels in 90 days and 696.0 million barrels in 180 days.



* Drawdown capability is temporarily reduced to 4.25 due to unavailability of a storage tank at Bryan Mound that is used during drawdown.

Drawdown Readiness Activities

Drawdown Readiness Assurance activities during 2013 included:

- A drawdown exercise was planned and conducted to test the entire drawdown process. The exercise was completed successfully demonstrating the Strategic Petroleum Reserve's drawdown readiness. The exercise identified opportunities for updates to the Drawdown Implementation Manual to reflect new business practices and system updates.
- The Drawdown Readiness Review program requires and monitors quarterly drawdown readiness. Four reviews were conducted in 2013, confirming that all sites and systems were prepared for a crude oil drawdown or exchange of the Strategic Petroleum Reserve.
- The Systems Test Exercise (STE) program determines the drawdown readiness of a Strategic Petroleum Reserve site's equipment, procedures, systems, and personnel, and collects data to further ensure a readiness status. The STE program involves a tablet top exercise at each site every year and a dynamic site test every four years.

- A Modified Recovery Program (RPX) tabletop exercise was successfully conducted at Bryan Mound on two days in May 2013. The first day of the exercise was held at the Stennis Facility and the second day was conducted at Bryan Mound. This exercise involved extensive discussions covering the activation, installation, operation and demobilization of the Bryan Mound Recovery Program. All exercise objectives were met. The DM Petroleum Operations Company Emergency Pipeline Contractor was among the exercise participants.
- An administrative tabletop exercise was successfully conducted at Bayou Choctaw on June 11, 2013. This exercise simulated an emergency exchange of 400 MB sweet crude oil to the Placid Refinery due to the closure of the Mississippi River. The simulated delivery was at a 100 MB/D rate.
- An administrative tabletop exercise was successfully conducted at West Hackberry on July 10, 2013. This exercise simulated a drawdown of 10 MMB sour crude to Sun Terminal delivered at a rate of 720 MB/D during a thirty day period beginning on July 10, 2013 through August 8, 2013.
- An administrative tabletop exercise was successfully conducted at Big Hill on September 18, 2013 in lieu of the planned dynamic test due to a cavern pressure monitoring plan that was in progress. This exercise simulated a drawdown of 10 MMB sour crude to Sun Terminal delivered at a rate of 720 MB/D during a thirty day period beginning on September 18, 2013 through October 17, 2013.

Distribution Plan and Capabilities

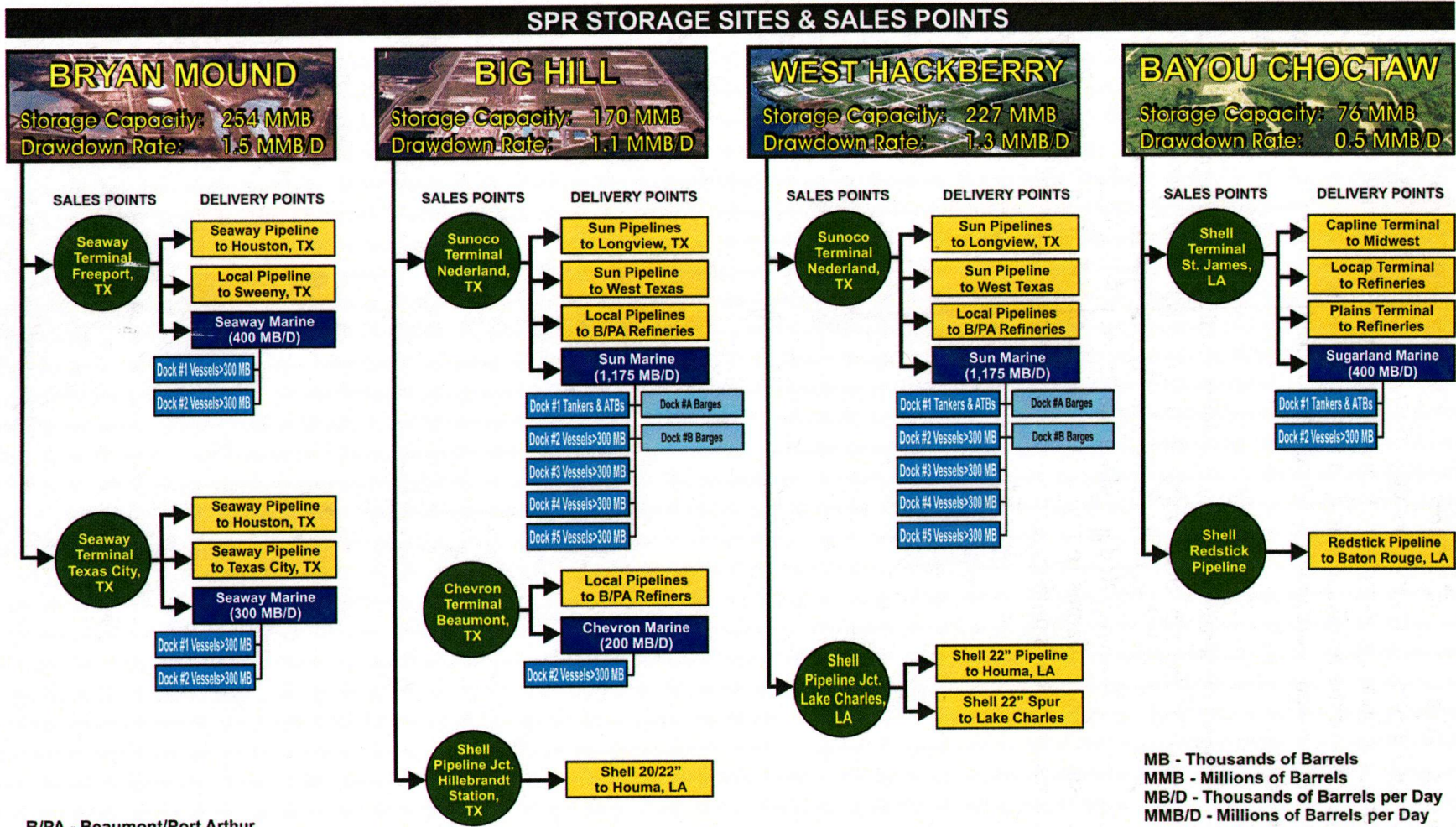
In the event of an emergency, the Strategic Petroleum Reserve has the capability to distribute its crude oil to refineries in the United States by local pipelines, interstate pipelines, and marine distribution facilities.

The Strategic Petroleum Reserve is capable of delivering crude oil to 31 refineries in the Gulf Coast region via local commercial pipelines. The Strategic Petroleum Reserve is also capable of delivering crude oil to 15 refineries in the Midwest U.S. via two major interstate pipeline systems – Mid-Valley Pipeline System to mid Ohio; and Capline Pipeline System to Patoka, Illinois. In 2012, the Strategic Petroleum Reserve lost connectivity to 10 refineries in the Central U.S. when the Seaway Pipeline’s flow direction was reversed. The Seaway Pipeline, after reversal, now flows from Cushing, Oklahoma to Freeport, Texas. In December 2013, Shell completed the second phase of its Ho-Ho pipeline reversal. The reversed section of the pipeline system, now referred to as the Houston-to-Houma system, flows eastbound from

Houston to the Louisiana Offshore Oil Port's terminal in Clovelly, Louisiana. Consequently, the Strategic Petroleum Reserve gained connectivity to 7 refineries along the Mississippi River. In total, the Strategic Petroleum Reserve is connected by commercial pipeline systems to about 56 percent of the refining capacity in the United States. That connection covers 46 refineries, which processed approximately 63 percent of crude oil imports to the United States during 2013.

The Strategic Petroleum Reserve is connected to five marine terminals that have a combined marine distribution capacity of approximately 2.5 MMB/D. These are: Seaway Terminal (Enterprise Products), Freeport, Texas; Seaway Terminal (Enterprise Products), Texas City, Texas; Sunoco Terminal, Nederland, Texas; Chevron Beaumont Terminal, Nederland, Texas; and Shell Sugarland, St. James Terminal, St. James, Louisiana. Figure 5 illustrates the Strategic Petroleum Reserve's pipeline and marine distribution capabilities.

Figure 5
Pipeline and Marine Distribution Capabilities



Distribution Assessment

The Strategic Petroleum Reserve performs an annual assessment based on its established technical and performance criteria that evaluates the Strategic Petroleum Reserve's crude oil distribution system capabilities to (a) ensure that there are adequate connections to the commercial distribution systems and (b) identify the need for any remedial plans.

The 2013 Distribution Assessment evaluated the Strategic Petroleum Reserve's capability, at its maximum drawdown rate, to replace oil imported in the base year (2012) and for future years 2015, 2020 and 2030.

Established Level I Technical and Performance Criteria for the Strategic Petroleum Reserve's distribution capabilities require that the physical distribution system infrastructure, both DOE-owned and commercial, shall be capable of meeting distribution rates exceeding 120 percent of the combined site drawdown rates in order to provide sufficient allowances for terminal operational delays and commercial demand variances.

Base Year Assessment

The base-year assessment indicates that the Strategic Petroleum Reserve was compliant with Level I Performance Criteria (offsite pipeline and marine distribution capabilities exceed 120 percent of the combined maximum drawdown rates) as a whole and above 120 percent for two systems when the three systems were analyzed individually. Table 6 provides the performance measures for the base year.

Table 6
Base Year Distribution Assessment

System	Nominal Max. Drawdown Rate (MB/D)	Distribution Capability (MB/D)	Performance Measure
Seaway	1,350*	2,189	162%
Texoma	2,400	2,782	116%
Capline	515	1,101	214%
Total	4,265*	6,072	142%

MB/D = Thousands of Barrels per Day

*The unavailability of a storage tank at Bryan Mound has temporarily reduced the Seaway System maximum drawdown rate for the base year from 1,500 MB/D to 1,350 MB/D. For all out-year assessments (2015, 2020, and 2030) the assumption is that the tank will be back in service

Future Year Assessments

For the future years 2015, 2020, and 2030, the Strategic Petroleum Reserve performed an assessment using the U.S. petroleum refining supply and demand projections from the Energy Information Administration's *Annual Energy Outlook 2013 (AEO 2013)*. The future year assessment assumes the maximum drawdown rate does not change from base year levels. Based on the *AEO 2013* projections for U.S. petroleum imports, the Distribution Assessment concluded that the distribution capability of the Strategic Petroleum Reserve falls below Level 1 Performance Criteria during the out years with the current infrastructure in place, for two of the three systems. In light of these results, remedial planning has commenced to address the insufficient connectivity to commercial distribution systems. Table 7 provides the performance measures by system for the base year and each forecast period.

**Table 7
Base and Future Years
Performance Measures**

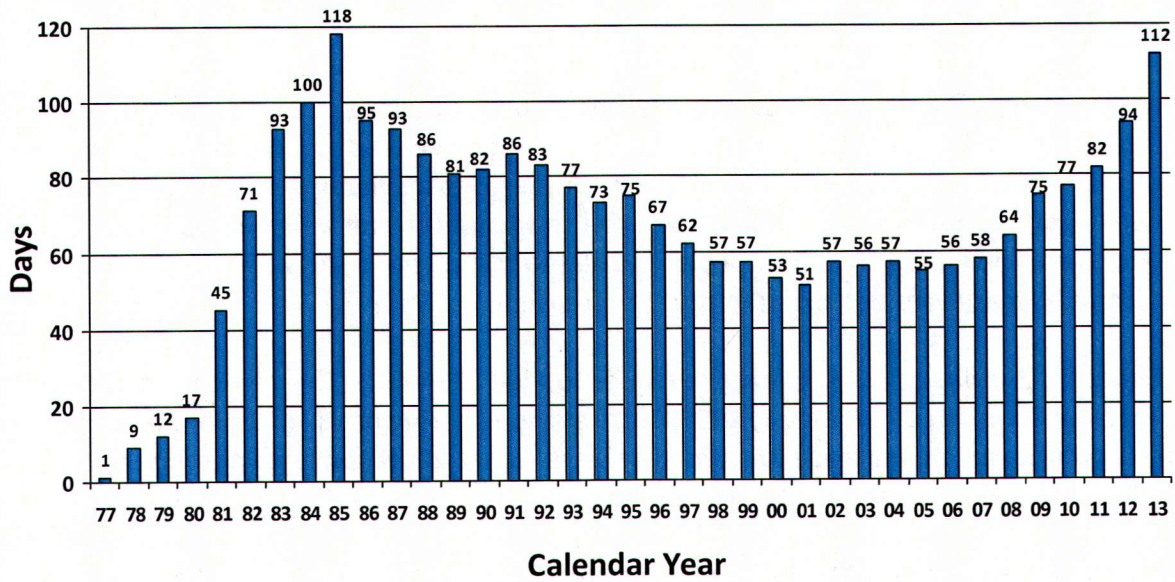
System	2012	2015	2020	2030
Seaway	162%	75%	61%	73%
Texoma	116%	93%	89%	96%
Capline	214%	167%	148%	174%

Import Protection Levels

The United States, as a member of the International Energy Agency, is committed to maintaining stocks of crude oil and products in reserves that are equivalent to 90 days of net oil imports. Computations of member-nations' stockpile requirements are based on both publicly and privately held stocks, and net imports are defined as the average daily level in the previous year.

Figure 6 shows the Strategic Petroleum Reserve inventory of 696 million barrels on December 31, 2013, which equates to about 112 days of net import protection (crude oil and refined products). Note that for drawdown purposes, the volume of crude oil available for drawdown is reduced at West Hackberry during the months of July and August until after crude oil degassing can be performed for several of the site's caverns. Until degassing can be completed on the caverns, the reduction of available inventory also temporarily reduces the days of import protection.

Figure 6
Strategic Petroleum Reserve Days of Net Import Protection*



* Days of Protection = Year End Inventory Divided by U.S. Net Petroleum Imports/Day

IX. Commercial Activities

Commercial Leases

The Strategic Petroleum Reserve has commercialized its under-utilized crude oil distribution facilities to be more cost-effective, and currently has leased three crude oil pipelines and a marine terminal to private industry. The contracts for these leases require that the facilities be maintained in good condition and, in the event of a Presidential call for an emergency drawdown, use of the leased facilities will be returned to the government on five days' notice. Receipts from the leases are deposited to the U.S. Treasury.

Bayou Choctaw Pipeline: In 2013, lease revenues totaled \$274,481. This pipeline was leased to Shell Pipeline Company LP on May 1, 1997, on a revenue-sharing basis. In 1998, the lease was converted from an annual lease to a ten-year lease. Since 2008, the lease agreement has continued using annual extensions. The current lease expired on December 31, 2013.

Bryan Mound Pipelines: In 2013, lease revenues totaled \$17,270,421. Two of the three Bryan Mound pipelines were leased to ExxonMobil Pipeline Company on January 14, 1999. ExxonMobil began using the pipelines in June 2000 as part of its onshore distribution system for the Diana-Hoover production in the Gulf of Mexico. The first five-year option of the lease agreement was executed and began in June 2010.

St. James Terminal: In 2013, St. James Terminal lease revenues were \$1,975,000. The terminal was leased to Shell Pipeline Corporation (now Equilon Enterprises LLC, "doing business as" Shell Oil Products US) on January 31, 1997, on a revenue-sharing basis. On April 2, 2003, the contract was renegotiated for a period of ten years in the amount of \$1.7 million per year, with a five-year option in the amount of \$2 million per year. Payments were retroactive to January 1, 2003.

Commercial Revenues

During calendar year 2013, receipts to the U.S. Treasury were \$19,519,902 from the commercial leases of the Strategic Petroleum Reserve's distribution facilities and pipelines. Table 8 summarizes commercial revenues from 1996 to 2013.

Table 8
Summary of Commercial Revenues
(December 31, 2013)

Calendar Year	Bryan Mound Pipeline (Actual \$)	Big Hill Pipeline (Actual \$)	Bayou Choctaw Pipeline (Actual \$)	St. James Terminal Lease (Actual \$)	Total Revenue Generated (Actual \$)
1996	102,606	472,809	0	0	575,415
1997	0	429,824	0	133,300	563,124
1998	12,500	402,525	0	481,010	896,035
1999	679,393	400,000	163,030	546,125	1,788,548
2000	652,146	493,359	217,573	748,986	2,112,064
2001	1,054,297	33,104	212,738	1,227,021	2,527,160
2002	1,468,613	0	249,708	1,285,183	3,003,504
2003	1,647,828	0	168,718	1,863,060	3,679,606
2004	1,546,121	0	174,338	1,700,000	3,420,459
2005	1,132,668	0	730,542	1,700,000	3,563,210
2006	1,091,799	0	337,949	1,700,000	3,129,748
2007	1,128,340	0	218,912	1,700,000	3,047,252
2008	1,211,171	0	321,799	1,700,000	3,232,970
2009	1,141,228	0	232,374	1,700,000	3,073,602
2010	1,091,494	0	169,541	1,700,000	2,961,035
2011	2,124,218	0	318,183	1,700,000	4,142,401
2012	5,838,356	0	312,481	1,700,000	7,850,837
2013	17,270,421	0	274,481	1,975,000	19,519,902

X. Budget and Finance

With enactment of the Consolidated Appropriations Act, 2013 (Pub L. 112-74), FY 2013 budget authority for the Strategic Petroleum Reserve was \$182.6 million.

Appropriations through Fiscal Year 2013

A total amount of \$23.8 billion, net of sales and transfers, has been appropriated for the Strategic Petroleum Reserve through FY 2013. The distribution of this annual appropriation is described in Table 9.

Strategic Petroleum Reserve Account

The Strategic Petroleum Reserve Account funds the development, operation, and maintenance of facilities; the salaries and expenses necessary to plan and manage the program, including the operation of the Project Management Office in New Orleans, LA; and the activities pertinent to major issues concerning the development and use of the Strategic Petroleum Reserve.

Obligations for the Strategic Petroleum Reserve in FY 2013 totaled approximately \$206.8 million. From this amount, \$19.4 million was obligated for Federal program management, \$187.4 million was obligated for contractual goods and services to operate and maintain the Strategic Petroleum Reserve and to conduct an emergency drawdown and sale, if required.

Table 9
Appropriations for Storage Facilities Operations and Management and Petroleum Account*
(As of December 31, 2013)

Fiscal Year	Oil Account (\$000)	Facilities (\$000)	Management (\$000)	Expansion (\$000)	Total (\$000)	Defense SPR (\$000)
1976	0	300,000	13,975		313,975	
1977	440,000	0	7,824		447,824	
1978	2,703,469	463,933	14,704		3,182,106	
Total 1979 Appropriations	2,356,456	632,504	18,111		3,007,071	
Total 1980 Appropriations	(2,022,272)	0	22,272			
Total 1981 Appropriations	3,205,094	108,168	19,391		3,332,653	
Total 1982 Appropriations	3,679,700	175,656	20,076		3,875,432	
1983	2,074,060	222,528	19,590		2,316,178	
1984	650,000	142,357	16,413		808,770	
1985	2,049,550	441,300	17,890		2,508,740	
Total 1986	(12,964)	106,979	13,518		107,533	
1987	0	134,021	13,412		147,433	
1988	438,744	151,886	12,276		602,906	
1989	242,000	160,021	13,400		415,421	
1990	371,916	179,530	12,953		564,399	
1991	566,318	187,728	12,846		766,892	
1992	88,413	171,678	13,384		273,475	
1993	(125,625)	161,940	14,227		50,542	
DOD Transfer (non add)	124,925	700	0		125,625	125,625
1994	0	191,035	15,775		206,810	
1995	(107,764)	226,938	16,780		135,954	
1996 transfer from SPR Petro Acct	(187,000)	170,173	16,827		0	
1996 Weeks Island Oil Sale	(97,114)	97,114	0		0	
1996 deficit reduction oil sale	(227,000)	0	0		(227,000)	
1996 Total	(511,114)	267,287	16,827		(227,000)	
1997 Total	(220,000)	193,000	16,000		(11,000)	
1998	0	191,500	16,000		207,500	
1999	0	145,120	14,805		159,925	
2000	0	144,000	15,000		159,000	
2001	0	140,672	15,965		156,637	
2002	0	154,009	16,871		170,880	
2003	1,955	157,823	13,909		173,687	
2004	0	155,044	15,904		170,948	
2005	43,000	109,946	16,764		169,710	
2006	(43,000)	190,510**	16,830		207,340	
2007	0	146,950	17,491		164,441	
2008		143,980	18,004	24,773	186,757	
2009	(21,586)	176,255***	18,824	31,507	226,586	
2010	0	199,732	19,091	25,000	243,823	
2011	0	186,873	22,568	0	209,441	
2012	0	172,914	19,790	0	192,704	
2013	0	162,975	19,650	0	182,625	

Note: FY 1991 SPR Petroleum Account of \$566,318 includes proceeds of \$122,681 from the Test Sale recorded as additional budget authority, rather than reductions to obligations, costs, and outlays. It also includes \$315,424,985 in Desert Storm Drawdown proceeds from January 1991, and \$19,755,064 from FY 1991 Naval Petroleum Reserve excess receipts. Thus, the cumulative budget authority is "gross" and not related directly to the inventory of oil on hand.

* Includes reprogramming, rescission and transfer actions.

** Includes the return of \$43,000,000 from the SPR Petroleum Account.

*** Includes \$21,585,723 from the SPR Petroleum Account for site maintenance activities.

Strategic Petroleum Reserve Petroleum Account

The SPR Petroleum Account funds the acquisition of oil for the Strategic Petroleum Reserve, the associated costs for transportation and terminal expenses, U.S. customs duties, Superfund and Oil Spill Liabilities Trust Fund taxes, and other miscellaneous costs.

During an emergency drawdown and sale, the SPR Petroleum Account is the source of funding for the incremental costs of withdrawing oil from the storage caverns and transporting it to the point where purchasers take title. Receipts from the sale of oil are deposited to the Department of Treasury and an equal amount of mandatory budget authority is created in the SPR Petroleum Account to be used for sale expenses and to repurchase oil for the Strategic Petroleum Reserve.

For FY 2013, the capitalized cost of the crude oil in the Strategic Petroleum Reserve was \$20.6 billion, for an average cost per barrel of approximately \$29.70 (excluding storage costs).

Through use of a Royalty-in-Kind (RIK) program established by the Department of the Interior from April 1999 through December 2009, the cumulative dollar value of the exchange barrels received from contractors who took royalty oil from the Department of the Interior totaled \$6.1 billion. The value of the RIK oil transferred from the Department of the Interior (DOI) to DOE through 2009, the last year of the program, is shown by fiscal year in Table 10.

Table 10
Value of Royalty-in-Kind Transferred by the Department of the Interior

Fiscal Year	Royalty-in-Kind Transfer * Total Barrels (Source: DOE)	Reconciled Royalty-in-Kind Transfer Total Barrels* (Source: DOE)	Department of the Interior** Forgone Receipts - (\$000) (Source: DOI)
1999	11,928,981	8,135,603	***
2000	15,105,558	18,898,937	560,521
2001	1,568,220	1,568,220	61,654
2002	10,575,379	10,575,378	262,752
2003	34,742,046	34,852,185	1,044,350
2004	35,506,135	35,599,310	1,191,284
2005	25,185,527	25,184,519	1,194,618
2006	0	0	0
2007	8,742,829	4,425,911	306,191
2008	15,943,421	15,943,421	1,600,027
2009	4,493,099	6,798,713	268,537
Total	163,791,195	161,982,197	6,489,934

* In coordination with Minerals Management Service, the DOE completed a total DOE-RIK program reconciliation (1999 – 2009) in CY2009, requiring net figure adjustments to prior years.

** Net figures that include Department of Interior preliminary volumes and adjustments to prior years.

*** Department of Interior data not available.

Performance Measurement

In FY 2013, the Strategic Petroleum Reserve tracked 18 measures that are indicative of how the strategic goals and objectives of the Strategic Petroleum Reserve will be pursued. They are consistent with the Strategic Petroleum Reserve Strategic Plan, which provides a framework for implementing the program's mission by setting a course for the program and guiding decisions about the effective use of resources. Fifteen of the measures tracked met or exceeded the performance measure, while three measures ("Number of Barrels of Crude Oil Inventory in Storage," "Sustainable Drawdown Rate," and "Measure Progress Against the Department's 80-Day Time-to-Hire Model") did not meet the targets during this period.

- Number of Barrels of Crude Oil Inventory in Storage – The FY 2013 target was miscalculated due to a complex linefill oil transaction that was associated with Hurricane Isaac Exchange. 0.2MMB should have been omitted from the calculation because this represents receivable barrels back in the pipeline for an oil company from which DOE obtained the oil linefill barrels.
- Sustainable Drawdown Rate — The drawdown rate was reduced because one of the storage tanks used for drawdown at Bryan Mound is out of service. The unavailability of the storage tank reduces the rate of drawdown at Bryan Mound by 150 MB/D.
- Field Office Recruitment Phases in the Department's Time-To-Hire Model – The SPR measured the recruitment phases that the field offices were responsible for rather than the entire 80-day process that had previously been measured. However, none of the recruitment actions met the 80-day process time.

The financial measure of "Operating Cost per Barrel of Storage Capacity" was \$0.239 versus a target of \$0.25. This is a measure of operational cost-effectiveness and indicates the responsible use of financial resources. This measure is used to promote the efficient use of taxpayer resources provided to operate the Strategic Petroleum Reserve.

A complete accounting of the program's measures is reflected in Table 11. Details of these program goals and objectives and the progress made toward achieving them are contained in the Strategic Petroleum Reserve's Annual Performance Report.

In FY 2013, the critical few performance measures were again incorporated into the Strategic Petroleum Reserve Annual Operating Plan, in accordance with the Under Secretary for Science's direction. This ensures integration of these critical few measures into the planning process and enables tracking of their performance.

Table 11
Performance Measures

Performance Measures	FY 2012 Actual Performance	FY 2013 Target Output	FY 2013 Actual Performance
Public Confidence: Oil Inventory, Drawdown Readiness and Distribution			
Number of Barrels of Crude Oil Inventory in Storage	N/A	696.2	696.0
90-Day Sustainable Drawdown Rate	4.25 MMB/Day	4.40 MMB/Day	4.25 MMB/Day
Number of Days to Commence Crude Oil Drawdown	13 Days	13 Days	13 Days
Distribution Capability as a Percentage of Drawdown Rate	151%	≥ 120%	142%
Calculated Site Availability	97.56%	≥ 95%	97.75%
Calculated MPAR Rating	98.98% Cum. Avg	≥ 95% of Possible Points	96.45% Cum. Avg
Percent of Site Security Ratings that are Satisfactory	100%	100%	100%
Number of Barrels of Crude Oil Processed	N/A	N/A	N/A
Excellent Customer Service: Customer Knowledge and Focus			
Percentage of Key Customers Visited	50%	33%	47%
Responsible Stewardship: Operational Effectiveness, Efficiency and Knowledge Management/Fiscal Responsibility and Budgetary Control			
Information System Availability	99.9%	≥ 98%	99.9%
Operating Cost per Barrel of Storage Capacity	\$0.221	≤ \$0.25	\$0.239
Dynamic Teamwork: Continuous Improvement			
Complete Annual ISO 9001-2008 Surveillance Audit	11/03/11	03/31/13	11/14/12
Partnership Arrangements with Federal, State and Local Agencies			
Number of Partnership Arrangements	11	11	12
Social Responsibility and Citizenship: Local Community Support/Environment, Safety and Health incident rates met?			
Complete Annual Self-Evaluation of OSHA VPP Star Status at Four Sites	02/15/12	2/15/13	2/15/13
Number of Cited Environmental Violations Received	0	0	0
Number of Reportable Releases to the Environment Annually	2	≤ 6	0
Complete 2 ISO 14001 Surveillance Audits	04/27/12	09/30/13	05/23/13
Employee Development and Diversity: Employee Development and Quality of Life			
Measure Progress Against the Departments 80-Day Time-to-Hire Model	33%	N/A	N/A
Field Office Recruitment Phases in the Department's Time-To-Hire Model	N/A	≥ 80%	0%
Site Sustainability Plan Submittal	1/30/12	02/10/12	01/30/12
Complete All Corrective Actions for the BMT-2 and BM Cavern 5 Moving Accidents	8/13/12	N/A	N/A

MMB = Million Barrels N/A = Not Applicable

XI. Other Activities

Quality and Performance Assurance

The Strategic Petroleum Reserve conducted oversight activities as required by DOE procedures. Some of these activities included on-site management appraisals, security surveys, technical assessments, and quarterly review of the management and operating contractor's Contractor Assurance System (CAS).

The CAS covers six oversight areas mandated by DOE O226.1B – Environmental; Safety & Health; Quality Assurance; Security; Emergency Management; and Cyber Security. In addition, CAS has been expanded to also cover Finance, Human Resources, Property, Procurement, Cavern Integrity, Data Systems, Engineering, Operations & Maintenance, and Internal Audit.

The Quality and Performance Assurance Division (QPAD) conducted a technical assessment on the Management and Operating (M&O) and the Architect-Engineer (A-E) contractors to ensure they have produced design packages that adhere to contract requirements and approved plans. The assessment was conducted to evaluate contractor compliance with oversight requirements in DOE O 414.1D, *Quality Assurance*; DOE O 226.1B, Implementation of DOE Oversight Policy; and Strategic Petroleum Reserve Project Management Office O 431.1A, Strategic Petroleum Reserve Design Criteria.

QPAD personnel performed seven inspections or site surveillances in 2013 that were recorded onto the Technical Assurance Surveillance Reports (TASR). This included inspections at the Strategic Petroleum Reserve sites and supplier/vendor facilities to help ensure construction activities and procedures are followed according to the contract requirements.

Oversight of the Critical Few performance measures included 26 processes that assessed compliance with Strategic Petroleum Reserve Project Management Office Order 210.2A. The assessment of each measure was conducted with each subject-matter expert to ensure the contractor's performance was measured against the objectives, which was appropriately monitored, documented, and verified. Both positive and negative results were submitted to the Performance Fee Board via the board secretary. Once assessment results were complete and documented, a summary report was submitted to the Project Manager and Performance Fee Board Chairperson to determine the amount of fee to be distributed.

In addition, the Strategic Petroleum Reserve's Quality Council monitored the activities of five process improvement teams. Those teams worked to identify resources for trench/high angle rescue; develop a process for tracking and reporting contract actions associated with sustainable acquisition; redesign the subcontracting process; benchmark other DOE organizations for improved Environmental, Safety & Health and Quality Assurance processes or methods; and develop and address other opportunities for improvement.

Executive Orders 13423 and 13514

The Office of the President issued two significant Executive Orders directing Federal agencies to integrate a strategy for advanced technology and environmentally preferable materials, products and services and to strengthen and improve clean energy initiatives, performance metrics, and departmental effectiveness and efficiency.

Executive Order 13423 (January 24, 2007), *Strengthening Federal Environmental, Energy, and Transportation Management*, emphasizes instituting wholesale cultural change for energy and water use and Greenhouse Gas (GHG) reduction. The goals of the Executive Order are for Federal agencies to take the lead in creating a clean energy economy by promoting energy consumption from renewable energy sources and reducing the use of petroleum fuels. Additionally, federal agencies are to reduce potable water consumption, support sustainable construction, practices, and products, and reduce toxic and hazardous chemical use.

Executive Order 13514 (October 5, 2009), *Federal Leadership in Environmental, Energy, and Economic Performance*, was written to build on the body of work and success of Executive Order 13423 by integrating and updating previous practices and requirements into a cohesive, strategic approach to further ensure enhanced performance and compliance with statutory and other legal requirements. This order provided detail and direction to all Federal agencies and established the parameters for achieving them.

The intent of both Executive Orders is to create a clean energy economy by use of performance measurements, reporting, direct and indirect activities, and conservation and protection of natural resources. The Strategic Petroleum Reserve's compliance with these orders is achieved through ongoing measurable actions that have been integrated into a Site Sustainability Plan (SSP) that is reviewed and updated annually. The SSP includes specific goals, objectives, and responsibilities to:

- Strive toward reducing the consumption of fossil fuels, through cost-effective projects and operational improvements;
- Continue reviewing on-peak energy demands and aligning operating schedules to coincide with off-peak hours;
- Reduce fleet vehicle greenhouse gas emissions through employing alternative fuel (hybrid) vehicles, optimizing the number of vehicles in the agency fleet, supporting carpooling, and promoting telephone and video conferencing;
- Reduce potable and industrial, landscaping, and agricultural water (ILA) consumption through implementation of reduction awareness programs;
- Reduce waste disposal by supporting on-going recycling and reduction programs and sustainable acquisition;
- Promote electronics stewardship through purchasing Electronic Product Environmental Assessment Tool (EPEAT) registered, Energy Star and Federal Energy Management Program

(FEMP) designated equipment, enabling power management, duplex printing, and other energy efficient and environmentally preferable features, and using environmentally sound disposal practices; and

- Implement environmental protection and damage prevention measures that address economic and social benefits and activities based on lifecycle return on investment.

Implementation of the SSP is supported by the organization of the Sustainability Planning and Implementation Committee, a team of Federal and contractor personnel who review and propose projects to reduce energy, water and fuel consumption. Data collected during these reviews are used to assess and identify practicable projects, actions, or plans that will allow the Strategic Petroleum Reserve to meet its energy, water, and petroleum use goals, while moving to a more healthy and sustainable workplace.

During 2013, several sustainability projects were initiated and others were continued. These projects:

- Achieved a 35 percent reduction in non-mission critical fleet vehicles;
- Provided electric meters at 13 selected buildings and the ability to monitor energy usage on 83 large pumps;
- Conducted an internal energy and water survey at the Bayou Choctaw storage site;
- Continued effort to install more energy efficient Light Emitting Diode (LED) and induction lighting in buildings and a well pad;
- Updated a building upgrade budget and schedule that addresses energy optimization, equipment life extension, GHG reduction and aging Heating, Ventilation & Air Conditioning (HVAC) and environmental control and air quality replacements;
- Continued use of the “Buy It Green” (BIG) program for selecting environmentally preferable chemicals, products, and materials;
- Continued effort to minimize energy consumption by electronics through employing virtual desk top function, thin clients, and power saving and sleep modes; and
- Continued sustainable disposition of all excessed computer ware through reuse or recycling.

Vapor Pressure Mitigation

No vapor pressure mitigation activities occurred during 2013. Disassembly of the portable degasification plant (that has been stored at the Bryan Mound facility since 2011) began in 2013 and major components were shipped to the West Hackberry site for reassembly. Construction of the degas plant at West Hackberry was scheduled to be completed and the plant to become operational in 2014.

The need for a continuous vapor pressure mitigation program was recognized in 1992 through routine oil sampling of the caverns. Long-term storage of crude oil in salt caverns results in gradual geothermal heating that raises the temperature of the oil in some caverns from approximately 80°F at the time of injection into the cavern, to a range between 110°F and 130°F over time. In addition, because of operational activities that include occasional injection of raw water into the cavern, gasses encapsulated in the salt are released and absorbed into the oil while stored. Naturally occurring methane gas may also migrate into the cavern through the salt matrix or through discontinuities. Under certain drawdown conditions, increased vapor pressure results in gas being released into the atmosphere in amounts that may pose environmental, safety, and health risks.

The project degasifies the crude oil so that it can be sold and distributed to customers with a greatly reduced potential for emission of volatile organic compound (VOCs) ozone precursors, benzene, and H₂S. The plant reduces the amount of VOCs in the vapors from the treated oil by 97 percent. Specifically, given lifecycle VOC emissions from the plant averaging about two tons per year, emissions from a single full scale end-of-lifecycle drawdown are reduced by 77,000 tons, or 1,900 times the pollutants generated from operation of the plant over its entire 25 year lifecycle.

International Organization for Standardization (ISO) 14001

In May 2000, the Strategic Petroleum Reserve became the first bulk petroleum storage organization, public or private, to receive an ISO 14001, Environmental Management Systems certification. During 2013 this certification was successfully transferred from one ISO 14001 registrar (Certifying Body) to another and is valid through April 2015. The certification is granted to all four Strategic Petroleum Reserve storage sites, the New Orleans Headquarters, including the warehouse building and the warehouse facility at the Stennis Space Center.

Environment, Safety, and Health

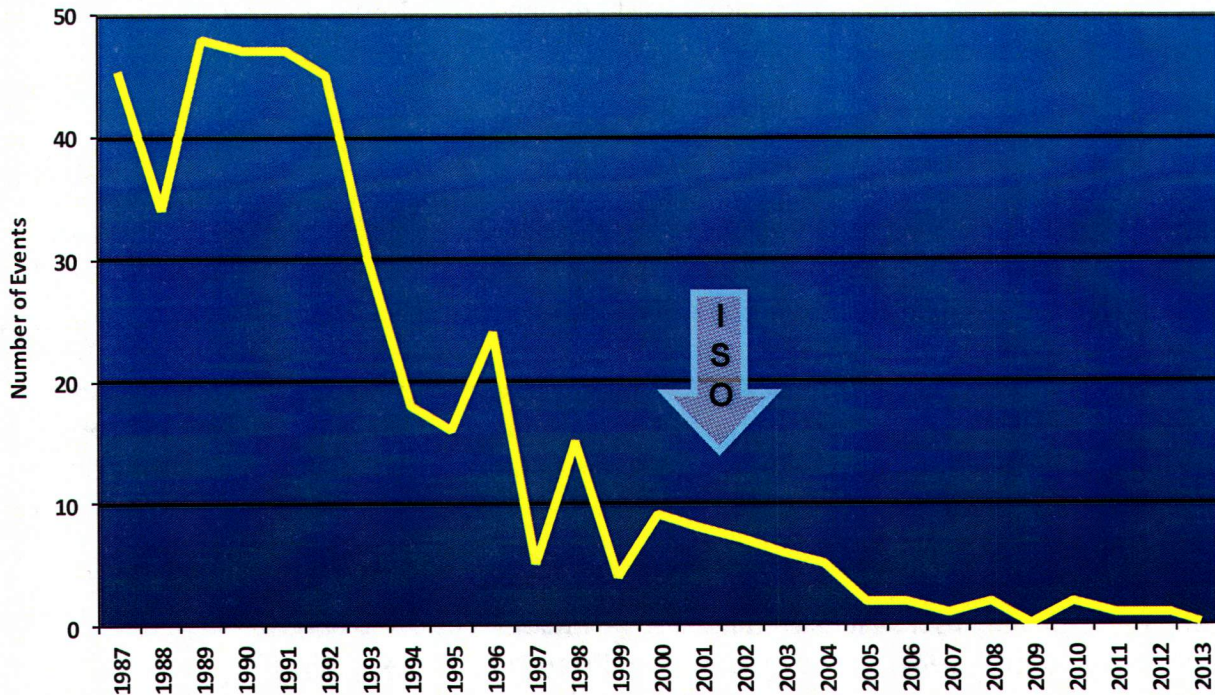
DOE is involved in the Environmental Management System (EMS) through the Strategic Petroleum Reserve Integrated Safety Management System (ISM), of which the EMS serves as the environmental leg.

The Strategic Petroleum Reserve is accountable to the public for the safe delivery of crude oil during a national energy emergency and is a good steward of the environment. The safety management process is also a leg of Strategic Petroleum Reserve ISM. During 2013, all Strategic Petroleum Reserve storage sites continued their participation in occupational safety and health programs, including OSHA's Voluntary Protection Program (VPP) as well as DOE's VPP. The Bayou Choctaw storage site was recertified after a five day assessment by OSHA VPP auditors, who included a PSM Compliance Officer. The Bayou Choctaw site also received the Legacy of Stars award from the DOE VPP for sustained excellence in safety performance.

The enterprise risk assessment conducted last year was revised to evaluate the current risk to the total Strategic Petroleum Reserve operation, taking into consideration the existing hazard controls and incorporating quarterly reviews.

Figure 7 shows the Strategic Petroleum Reserve’s performance for recordable environmental incidents from 1993 through 2013. During CY 2013 there were zero recordable environmental incidents. This value decreased from the previous CY 2012 value of one incident and can be attributed to the Strategic Petroleum Reserve’s commitment to maintaining performance excellence.

Figure 7
Annual Summary of Project Events*



Pollution Prevention

Hazardous Waste

The Strategic Petroleum Reserve sets a fiscal year goal for hazardous waste generated. The FY 2013 goal not to exceed 398 pounds of hazardous waste generated was successfully achieved with only 173 pounds of hazardous waste generated. If calculating hazardous waste generated by calendar year, the amount generated was 156 pounds which consisted of laboratory solvent waste.

Recycling

Although there are no specific goals established for the category of Exploration and Production (E&P) waste generation or recycling, the Strategic Petroleum Reserve continued with its effort to recycle whenever possible. During FY 2013, 33 percent of E&P waste was recycled (1,219,854 pounds recycled vs. 3,717,439 pounds generated). The generated E&P waste included crude oil contaminated plastic and absorbents, crude oil contaminated solids, workover wastes, off specification crude oil mixtures, and drill cutting wastes.

For non-E&P waste, the Strategic Petroleum Reserve achieved a recycling rate of 88 percent during FY 2013, which represents 2,496,028 pounds of non-E&P recycled waste. The majority of recycled waste consisted of spent blast media abrasives, scrap metal, excavated soil, concrete, and paper.

The Strategic Petroleum Reserve continued its successful efforts to reduce sanitary waste by generating only 335,664 pounds of sanitary waste during FY 2013. The goal was to generate less than 500,000 pounds.

Environmental Improvement Measures

Strategic Petroleum Reserve personnel were prevented from participating in the annual Lake Pontchartrain Basin Foundation (LPBF) Beach Sweep in 2013 due to inclement weather. The local New Orleans activity is part of a worldwide event promoted by the Oceans Conservancy. Twenty-six employees, their families, and concerned citizens had volunteered to contribute their time and effort to clean debris at an assigned location on the south shore of Lake Pontchartrain; however, the original day in September and the make-up day in October were both rained out and called off by the LPBF due to unsafe conditions at the starting times. The LPBF coordinator promised to contact the Strategic Petroleum Reserve to participate in the 2014 event.

Strategic Petroleum Reserve sites continued to maintain set aside acreage for habitat enhancement for the benefit of both native wildlife and resident and migratory birds.

Throughout the year, educational papers and informative posters that highlight specific wildlife topics are developed and sent to the sites to be posted on the bulletin board. The sites perform avian inventories which are uploaded into the Cornell Laboratory of Ornithology database.

The Strategic Petroleum Reserve recognized the 43rd anniversary of Earth Day in 2013 as an opportunity for employees to join together and make commitments to environmental sustainability and a global green economy. Employees were e-mailed an "Earth Day" presentation to promote understanding of "Household Food Wastes." To further support the

2013 Earth Day theme, employees contributed food from their home pantries for donation to local Food Banks.

Security and Emergency Operations

The Strategic Petroleum Reserve has the capability to effectively respond to any emergency during day-to-day operations and severe weather conditions. The Continuity of Operations Plan, Emergency Command Vehicle, communication vehicles, and the Emergency Communications Network are the cornerstones for continuing essential work functions under catastrophic conditions. Emergency response team members are assisted by protection force personnel as “support responders” for emergency conditions.

The Strategic Petroleum Reserve completed building the infrastructure for applying and maintaining a robust HSPD-12 credentialing program that includes training and maintenance. In 2012, the Strategic Petroleum Reserve completed its Vulnerability Assessment and Site Security Plan.

During 2012, the Strategic Petroleum Reserve completed four announced and four unannounced oil spill response exercises in support of the Oil Pollution Act of 1990. Each storage site completed two oil boom containment deployments and exercised command and control, response and recovery activities.

Safety and Health Improvement Areas

Safety and Health Maintains Best Practice Performance

The Strategic Petroleum Reserve continued to improve the safety and health (S&H) systems throughout the complex during 2013. The New Orleans safety and health staff provided augmented safety oversight of cavern workover operations and the Degassification Plant move from Bryan Mound to West Hackberry, spill response and emergency management training, fire protection training, and security field exercises. The Employee Safety Handbook, a Companion Publication to the Accident Prevention Manual, was developed and published for the first time. The handbook provides a concise, pocket sized compilation of the most important safety and health procedures and requirements. Copies were given to Strategic Petroleum Reserve employees and subcontractors working on Strategic Petroleum Reserve sites. The second annual Safety Academy was held and reached close to 100 percent of the Strategic Petroleum Reserve population. The Academy stresses the most important aspects of the S&H system and introduces employees to innovations and changes within the system. The subcontract management process was also reexamined and reinvented; improving training for subcontract field representatives and formalizing the process. In 2013, the Bayou Choctaw and Big Hill sites sustained zero recordable accidents for the year. The Bryan Mound site sustained zero from February 1 through December 31 2013.

DOE and Occupational Safety & Health Administration's Voluntary Protection Program

The Strategic Petroleum Reserve participates in the OSHA VPP and Process Safety Management (PSM) programs and the DOE VPP. Each site must submit a candid self-evaluation to OSHA and DOE each year, including 20 or more very specific questions about their PSM System, and maintain ongoing improvements to their safety management system. OSHA and DOE perform an on-site reappraisal of their VPP sites every three to five years. All four sites maintained their Star status throughout 2013 as did the West Hackberry security contractor, Wackenhut Services, Inc. OSHA VPP representatives and a PSM compliance subject-matter expert conducted a five-day assessment of the Bayou Choctaw site in July of 2013. The site was recertified for Star status in September of 2013. Recertification assessments are scheduled for the remaining three sites in the summer of 2014.

In 2013, OSHA Region VI awarded West Hackberry and Bryan Mound the designation of Star among Stars and Bayou Choctaw received a Star of Excellence. These awards recognize accident rates that range from 50 percent to 90 percent below the average accident rates of their industry. DOE VPP also recognized the sites in 2013, presenting the Bayou Choctaw site a Legacy of Stars award for the second time. This is the highest DOE VPP award and is only earned with demonstrated sustained safety and health performance. They also presented Bryan Mound with a Star award.

Accident Rates

During CY2013, the Strategic Petroleum Reserve's Total Recordable Case Rate was 0.8 cases per 200 thousand worker hours, which met the Strategic Petroleum Reserve's goal of less than 1.40. The Days Away/Restricted/Transferred Case rate was 0.6 per 200,000 worker hours, which met the Strategic Petroleum Reserve's goal of less than 0.90.

Integrated Safety Management

The Strategic Petroleum Reserve completed its annual Integrated Safety Management (ISM) validation and documented its performance in the ISM Annual Review and Update Report of 2013, which summarized the results of all audits and assessments conducted during the fiscal year. The report provides senior management with qualitative and quantitative data verifying that ISM is performing effectively and is used to judge annual ISM performance. During 2013, the Strategic Petroleum Reserve operated with a compliant ISM system.

Annual Safety Summit and Tripartite Safety Council

For the past nine years the Strategic Petroleum Reserve has held an annual Management Safety Summit, which in 2011, was expanded to incorporate not only safety and health, but environmental issues as well. The 2013 Summit included briefings by the safety, health and environmental departments of the management and operations contractor and the security contractor. Current issues were briefed and discussed in the open forum.

The Strategic Petroleum Reserve also conducted two Tripartite Safety Councils. The purpose of the Council is to give all Strategic Petroleum Reserve contractors' representatives an

opportunity to address safety issues directly with the Project Manager that have not been resolved through normal channels. Actions from the Council are tracked to closure.

Business Process Re-Engineering

The Strategic Petroleum Reserve information technology function is a national leader in the execution and implementation of re-engineering business process utilizing a combination of Microsoft SharePoint 2010, InfoPath Forms, and K2 workflow engine. System changes include consolidation of several systems into one large data management SharePoint farm.

Data Security, Accessibility, and Resiliency

The Strategic Petroleum Reserve expanded the functionality of its Alternate Data Center, the program's emergency backup information technology system. The enhanced recovery capabilities allows for remotely accessible infrastructure with secure two factor identification, a significant number of portable computers and Blackberries, and robust backup communications to provide reliable performance in an emergency so that essential work can be performed remotely. The Strategic Petroleum Reserve has maintained cyber security success.

Transition to New Technical Baseline (TBL) System

The Strategic Petroleum Reserve has been using the Konfig® Configuration Management system for technical drawing baselines since 1995, but the company is no longer in active production as a marketed system. In 2011, the Strategic Petroleum Reserve conducted extensive market surveys and analyzed the options available for a replacement TBL system, and determined that the Plant Lifecycle Module (PLM) of the SAP® enterprise resource system is the best choice for the Strategic Petroleum Reserve. A TBL migration plan was developed in 2011 and implementation executed in 2013. Go-live for SAP PLM was in December 2013 with the Strategic Petroleum Reserve technical baseline now being managed in this new TBL system.

Awards and Certifications

The Strategic Petroleum Reserve received the following awards and certifications in 2013 for performance during 2012:

- DOE VPP Star Among Stars Superior Star –Bryan Mound.
- DOE VPP Legacy of Stars – Bayou Choctaw.
- OSHA Region VI Star of Excellence – Bayou Choctaw.
- OSHA Region VI Star among Stars – Bryan Mound and West Hackberry.
- National Safety Council, South Louisiana Chapter Occupational Safety Awards, Award of Honor – Bayou Choctaw and New Orleans. These awards were presented to Bayou

Choctaw and New Orleans for the amount of time worked without a recordable accident.

- National Safety Council, South Louisiana Chapter Occupational Safety Awards, Participation Award – West Hackberry.
- DOE “EStar Award” for Buy It Green (BIG) List – This award was presented to the Strategic Petroleum Reserve for the development of the BIG List for the procurement of green products.

International Organization for Standardization 9001 Quality Management System

During 2013, DM Petroleum Operations Company maintained their ISO 9001 and 14001 certification.

Customer Service

The Strategic Petroleum Reserve’s Customer Service Team met with several refiners, traders, pipeline companies, and other customers during the 2013 American Fuel and Petrochemical Manufacturers (AFPM) annual meeting in San Antonio, Texas, during the third week of March. Additional meetings were held at the Strategic Petroleum Reserve offices in Washington, D.C., and at some of the customers’ corporate offices. Meetings with customers always have two primary functions: to gather customer information to improve the Strategic Petroleum Reserve’s response capabilities, and to update those customers on Strategic Petroleum Reserve activities. The customers provided valuable feedback and reported that the overall experience was excellent.

In order to maintain an accurate and current list of customer contacts, each customer was asked to review their contact information and to provide updates on refinery activities such as expansion plans and any planned or actual changes to their crude oil inputs. Customers were also encouraged to discuss any operational or administrative issues they have encountered when dealing with the Strategic Petroleum Reserve so that the issues may be addressed.

The Customer Service Team provided updates to the customers regarding the status of the Reserve and welcomed questions from the customers. Customers provided the team with updates on refinery closings, shutdowns, and hurricane upgrades.

Real Estate Actions

During 2013:

- A Right of Entry was executed on January 11, 2013, between the Department of Energy (DOE) and the Corps of Engineers (Corps)-Galveston District, allowing DOE to perform rip rap repairs and bank stabilization near the Big Hill Raw Water Intake Structure on their easement land.
- Modification 007 to Interagency Agreement No. DE-AI96-08PO92982 was executed between DOE and the Corps-New Orleans District on May 7, 2013, to extend the period of performance of this agreement through June 17, 2018. This agreement is for real estate and related services.
- The Abandonment of Servitude and Quitclaim Deed was fully executed between DOE and the Louisiana Department of Public Safety on August 5, 2013, transferring ownership of the State Police 400-foot radio tower, guy wires, and building to DOE. The tower and guy wires were subsequently demolished due to safety concerns, after proper screening through DOE HQ and concurrence coordination with GSA.
- Modification 088 to Interagency Agreement No. DE-AI96-78PO02816 was executed on September 13, 2013, to extend the agreement's period of performance for one year, through September 30, 2014.
- Modification A002 to NASA's Fully Reimbursable Space Act Agreement No. DE-FE-93037 was fully executed on August 28, 2013, to provide annual funding for the Stennis Warehouse through FY 2014.
- Entergy's Overhead Right-of-Way Agreement was executed on October 11, 2013, allowing Entergy access to the West Hackberry Site for required construction activities.
- Modification M022 to the ExxonMobil Lease No. DE-RL96-99PO90001 was fully executed on October 22, 2013, incorporating into the lease agreement, the "Safety and Health Requirements for Lessee's Performance of Physical Work on Strategic Petroleum Reserve Sites."
- Modification M032 to the Shell Pipeline Lease No. DE-RL96-97PO70011 was fully executed on December 17, 2013, incorporating into the lease agreement, the "Safety and Health Requirements for Lessee's Performance of Physical Work on Strategic Petroleum Reserve Sites."

XII. Conclusion

The Strategic Petroleum Reserve successfully performed its mission to provide the United States with energy and economic security through responsible management of the Nation's stockpile of emergency crude oil throughout 2013.

The Strategic Petroleum Reserve continues to prepare for the future, transferring oil from Cavern 20 into Cavern 102 at the Bayou Choctaw site. When complete, this will allow the site to decommission Cavern 20, which has experienced preferential leaching towards the edge of the salt dome. Fill of Cavern 102 allows the site to maintain its drawdown rate for light, sweet crude—which was the most frequently requested type of oil from the Strategic Petroleum Reserve following hurricane damage to Gulf Coast refineries. The transfer of crude oil from Cavern 20 to Cavern 102 began in January 2013.

An operational challenge that will impact the Strategic Petroleum Reserve's drawdown capability is the unavailability of one storage tank at Bryan Mound due to a damaged internal floating pan. The tank is used during a drawdown and its loss decreases the drawdown rate at Bryan Mound by 150,000 barrels per day.

Despite these temporary challenges, the Strategic Petroleum Reserve remains ready to respond rapidly to an energy crisis.

In 2013, DOE had no recommendations for supplemental legislation or policy or operational changes necessary to implement the requirements of the Act.

Appendix: Strategic Petroleum Reserve Site Information

Bryan Mound

Location

Brazoria County, Texas (3 miles southwest of Freeport, Texas).

Site Description

254 million barrel storage facility consisting of 20 caverns.

24-inch diameter, 6 mile brine disposal pipeline extending 4 miles offshore in the Gulf of Mexico.

Oil, brine and raw water piping distribution system connecting caverns with central plant and water intake structure located on Brazos River. Twenty-one (21) pumps totaling approximately 45,000 horsepower.

System Parameters

Drawdown Rate:	(Sour)	1,500,000 BBL/D*
	(Sweet)	1,000,000 BBL/D
Raw Water Pumping Rate:		1,626,000 BBL/D
Oil Fill Rate:		225,000 BBL/D
Brine Disposal Rate:		260,000 BBL/D

*Bryan Mound has 3 storage tanks that are required for site drawdown and refill operations. One tank is currently unusable due to a damaged internal floating pan. The unavailability of the storage tank has reduced the site's actual drawdown capability from 1.5 MMB/D to 1.35 MMB/D.

Distribution Facilities

DOE 3.9 mile, 30-inch pipeline to Seaway Freeport Marine Terminal, DOE 4.0 mile, 30-inch pipeline to Seaway Jones Creek Tank Farm and Pipeline and DOE 46.3 mile, 40-inch pipeline to Seaway Texas City Terminal and Docks.

Acquisition

Acquired 499.47 acres fee simple, by eminent domain, April 1977, from Freeport Mineral Company and other owners. Dow Chemical Company was the previous operator.

West Hackberry

Location

Cameron Parish, Louisiana (25 miles southwest of Lake Charles, Louisiana).

Site Description

227 million barrel storage facility consisting of 22 caverns.

Oil, brine, and raw water piping distribution system connecting caverns with central plant, water intake structure located on Intra-coastal waterway and nine brine disposal wells. Thirty-three (33) pumps totaling over 41,680 horsepower.

System Parameters

Drawdown Rate:	(Sour)	1,300,000 BBL/D*
	(Sweet)	1,300,000 BBL/D
Raw Water Pumping Rate:		1,400,000 BBL/D
Oil Fill Rate:		225,000 BBL/D
Brine Disposal Rate:		225,000 BBL/D

*The drawdown rate is affected due to increased vapor pressure in several of the site's caverns.

Distribution Facilities

DOE 42.8 mile, 42-inch pipeline to Sunoco Nederland Terminal.

DOE 13.6 mile, 36-inch pipeline to Shell Pipeline common carrier pipeline system at Carlyss.

Acquisition

Acquired 405.36 acres fee simple by eminent domain, April 1977, from numerous private landowners. Olin Corporation was the previous site operator. Acquired 160.0 additional acres fee simple by condemnation in two actions, July 1979 and March 1980.

Big Hill

Location

Jefferson County, Texas (26 miles southwest of Beaumont, Texas).

Site Description

170 million barrel storage facility consisting of 14 caverns.

Oil, brine, and raw water systems connecting caverns with central plant, water intake structure located on the Intracoastal Waterway, and a 48-inch diameter, 14-mile brine disposal pipeline extending four miles offshore in the Gulf of Mexico. Forty-eight (48) pumps totaling 46,000 horsepower.

System Parameters

Drawdown Rate:	(Sour)	1,100,000 BBL/D
	(Sweet)	1,000,000 BBL/D
Raw Water Pumping Rate:		1,192,000 BBL/D
Oil Fill Rate:		225,000 BBL/D
Brine Disposal Rate:		232,000 BBL/D

Distribution Facilities

DOE 24.5 mile, 36-inch pipeline to Sunoco Nederland Terminal; Chevron 2 mile, 24 inch pipeline to Chevron Docks; Shell 20-inch pipeline system to East Houston.

Acquisition

Acquired 271 acres fee simple, by eminent domain, November 1982 and July 1983, from three landowners, i.e., 238.48 acres from Amoco, 27.06 acres from the Pipkin estate, and 5.46 acres from the Patrick Henry Phelan estate.

Bayou Choctaw

Location

Iberville Parish, Louisiana (12 miles southwest of Baton Rouge, Louisiana).

Site Description

76 million barrel storage facility consisting of seven caverns.

Oil, brine, and raw water piping distribution system connecting caverns with central plant, a water intake structure, 12 brine disposal wells, and a pipeline for disposing of brine to PetroLogistics Olefins, LLC. Eighteen (18) pumps totaling over 18,000 horsepower.

System Parameters

Drawdown Rate:	(Sour)	515,000 BBL/D
	(Sweet)	300,000 BBL/D
Raw Water Pumping Rate:		558,000 BBL/D
Oil Fill Rate:		110,000 BBL/D
Brine Disposal Rate:		110,000 BBL/D

Distribution Facilities

DOE-owned 37.2 mile, 36-inch pipeline to Shell's Sugarland Terminal and Capline Pipeline.
Shell-owned 16 mile, 24-inch pipeline to Baton Rouge.

Acquisition

Acquired 355.95 acres fee simple, by eminent domain, April 1977, from numerous private owners. Union Texas Petroleum (a subsidiary of Allied Corporation) was the previous operator.

In 1985, DOE acquired an additional existing cavern through a cavern exchange agreement with Union Texas Petroleum. The transaction involved a 3.5-acre exchange with no net change in government owned acreage.

In November 2011, DOE acquired an existing cavern through eminent domain from Petrologistics Olefins, LLC to replace Cavern 20, which has experienced preferential leaching and is within 60 feet of the edge of the dome, posing an environmental risk with continued use.