



U.S. DEPARTMENT OF  
**ENERGY**

# Strategic Petroleum Reserve Annual Report for Calendar Year 2012

Report to Congress  
February 2014

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



# Message from the Principal Deputy Assistant Secretary of Fossil 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 2012*.

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 Barbara A. Mikulski**  
Chairwoman, Senate Committee on Appropriations
- **The Honorable Richard C. Shelby**  
Ranking Member, Senate Committee on Appropriations
- **The Honorable Patty Murray**  
Chairwoman, Senate Committee on Budget
- **The Honorable Jeff Sessions**  
Ranking Member, Senate Committee on Budget
- **The Honorable Dianne Feinstein**  
Chairman, Senate Subcommittee on Energy and Water Development  
Committee on Appropriations

- **The Honorable Lamar Alexander**  
Ranking Member, Senate Subcommittee on Energy and Water Development  
Committee on Appropriations
- **The Honorable Ron Wyden**  
Chairman, Senate Committee on Energy and Natural Resources
- **The Honorable Lisa Murkowski**  
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 Paul D. Ryan**  
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 Henry A. Waxman**  
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 blue ink, appearing to read "Chris Smith", with a horizontal line extending to the right.

Christopher A. Smith



# 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 2012 with 695.9 million barrels. As of December 31, 2012, the Reserve held 695.3 million barrels of crude oil, equal to about 94 days of net U.S. petroleum imports.

## Hurricane Isaac Exchange

In August 2012, Hurricane Isaac hit the U.S. Gulf Coast. While none of the four Strategic Petroleum Reserve sites suffered hurricane damage, there were impacts to the commercial oil production, refining and distribution operations in the region.

To address potential shortages of petroleum, the Secretary of Energy authorized the Strategic Petroleum Reserve to negotiate emergency exchanges of crude oil at the request of affected refiners. Ultimately, one company requested and was awarded an exchange contract for one million barrels of crude oil. The contract with Marathon Oil provided for deliveries during September 2012 and required repayment of the oil, plus additional premium barrels, within three months. To accommodate operational needs at the Strategic Petroleum Reserve, repayment deliveries began in December 2012 and were completed in January 2013. Marathon Oil returned 1,016,784 barrels (bbls) of oil, which included 505,033 bbls of Bakken, 274,907 bbls of Heavy Louisiana Sweet, and 236,844 bbls of Bonito Sour.

## 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, degassing activities have been deferred pending availability of resources (the plant

was not moved to West Hackberry and, instead, mothballed at Bryan Mound). The delay in the degasification program for West Hackberry's caverns has resulted in a decrease of the available inventory for drawdown by 10 million barrels.

### ***Reduction in Drawdown Rate***

The Bryan Mound site has three storage tanks that are necessary for use in order for the site to achieve its maximum drawdown rate and for refill operations. The tanks are used for temporary storage before the crude is pumped into three pipelines that deliver oil to the Seaway Jones Creek, Texas City, and Freeport, Texas docks. One of the tanks continued to be out of service during 2012 because of a damaged internal floating pan that must be replaced. Due to operational priority activities, replacement of the floating pan was deferred. This loss of the storage tank has temporarily reduced the maximum drawdown rate of the Strategic Petroleum Reserve by 150,000 barrels per day, from 4.415 million barrels per day (MMB/D) to 4.25 MMB/D.

### **Development of Replacement Cavern at Bayou Choctaw**

During 2012, the construction of a new storage cavern at the Bayou Choctaw, Louisiana site was completed. Cavern 102 was acquired in 2011 as a replacement cavern for Bayou Choctaw's Cavern 20, which is planned on being emptied and decommissioned because of structural issues that would present a major environmental risk with continued use.

### **Capacity Maintenance Program**

The Capacity Maintenance Program that began in 2011 continued through 2012 with continuous leaching of caverns at three 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 2012, remedial leaching of sweet caverns at Bryan Mound, West Hackberry and Big Hill created 4.6 million barrels of ullage. Leaching of sour caverns at Bryan Mound created an additional 194 thousand barrels of ullage.

### **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 2012, 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 2012, the Strategic Petroleum Reserve received three awards from the Occupational Safety and Health Administration's (OSHA) Voluntary Protection Program (VPP) Region VI, along with four awards from DOE VPP. The Strategic Petroleum Reserve also formulated a project-wide safety strike force with a multi-pronged plan to reduce injuries, conducted the first organization-wide Safety Academy, and initiated the "Beyond Zero" program to reinforce a strong safety culture that strives for zero injuries.





# Strategic Petroleum Reserve Annual Report for Calendar Year 2012

## Table of Contents

Executive Summary.....	iv
Program Highlights and Status .....	iv
Hurricane Isaac Exchange.....	iv
Changes to Performance Capabilities .....	iv
Suspension of Vapor Pressure Mitigation Program .....	iv
Reduction in Drawdown Rate .....	v
Development of Replacement Cavern at Bayou Choctaw .....	v
Capacity Maintenance Program .....	v
Environment, Safety, and Health .....	v
I.    Legislative Language .....	1
II.   Hurricane Isaac Recovery Activities.....	2
Hurricane Impacts .....	2
III.  Program Mission .....	3
Introduction.....	3
Legislative History.....	3
IV.   Program Management.....	11
Organization .....	11
Contractual Support .....	12
V.    Crude Oil Storage Program .....	13
Strategic Petroleum Reserve Storage Facilities.....	13
Cavern Maintenance .....	15
Bryan Mound Site Status.....	15
Big Hill Site Status.....	15
West Hackberry Site Status .....	15
Bayou Choctaw Site Status.....	16
St. James Marine Terminal Status .....	16
VI.   Capacity Maintenance Program .....	17
VII.  Petroleum Acquisition and Exchange .....	18
Crude Oil Inventory Status .....	18
Oil Acquisition Market Assessments .....	18
Fill of Reserve .....	18
VIII. Emergency Response Capabilities .....	23
Sale of Oil.....	23
Competitive Sales Procedures.....	23
Drawdown Capabilities.....	24
Drawdown Readiness Activities .....	25

	Distribution Plan and Capabilities .....	26
	Distribution Assessment.....	28
	Base Year Assessment .....	28
	Future Year Assessments .....	28
	Import Protection Levels .....	29
IX.	Commercial Activities .....	31
	Commercial Leases.....	31
	Bayou Choctaw Pipeline:.....	31
	Bryan Mound Pipelines: .....	31
	St. James Terminal:.....	31
	Commercial Revenues.....	31
X.	Budget and Finance .....	33
	Appropriations through Fiscal Year 2012.....	33
	Strategic Petroleum Reserve Account.....	33
	Strategic Petroleum Reserve Petroleum Account.....	35
XI.	Other Activities .....	38
	Quality and Performance Assurance.....	38
	Executive Orders 13423 and 13514 .....	38
	Vapor Pressure Mitigation .....	40
	International Organization for Standardization (ISO) 14001 .....	41
	Environment, Safety, and Health .....	41
	Pollution Prevention.....	42
	Hazardous Waste.....	42
	Recycling.....	42
	Environmental Improvement Measures .....	43
	Security and Emergency Operations .....	43
	Safety and Health Improvement Areas .....	44
	DOE Safety and Health Voluntary Protection Program.....	44
	Occupational Safety & Health Administration’s Voluntary Protection Program... 44	
	Accident Rates .....	44
	Integrated Safety Management .....	45
	Annual Safety Summit and Tripartite Safety Council .....	45
	The Safety Academy and Beyond Zero: A Culture of Caring.....	45
	Business Process Re-Engineering .....	45
	Data Security, Accessibility, and Resiliency.....	46
	Transition to New Technical Baseline (TBL) System.....	46
	Awards and Certifications .....	46
	International Organization for Standardization 9001 Quality Management System .. 47	
	Customer Service.....	47
	Real Estate Actions .....	47
XII.	Conclusion.....	49

Appendix: Strategic Petroleum Reserve Site Information .....	50
Bryan Mound .....	50
West Hackberry .....	51
Big Hill .....	52
Bayou Choctaw .....	53

## List of Tables

Table 1. Authorized Storage Capacity and Maximum Drawdown Capability .....	13
Table 2. Year-End Inventories and Oil Fill History .....	19
Table 3. Crude Oil Receipts .....	20
Table 4. Crude Oil Inventory .....	21
Table 5. Crude Oil Streams .....	24
Table 6. Base Year Distribution Assessment.....	28
Table 7. Base and Future Years Performance Measures.....	29
Table 8. Summary of Commercial Revenues .....	32
Table 9. Appropriations for Storage Facilities Operations and Management and Petroleum Account .....	34
Table 10. Value of Royalty-in-Kind Transferred by the Department of the Interior..	35
Table 11. Performance Measures .....	37

## List of Figures

Figure 1. Strategic Petroleum Reserve Organizational Structure .....	11
Figure 2. Storage Sites and Distribution System .....	14
Figure 3. Cumulative Oil Fill .....	22
Figure 4. Drawdown Capability .....	25
Figure 5. Pipeline and Marine Distribution Capabilities .....	27
Figure 6. International Energy Program U.S. Emergency Stocks .....	30
Figure 7. Strategic Petroleum Reserve Days of Net Import Protection .....	30
Figure 8. Annual Summary of Project Events .....	42

## List of Acronyms

AEO	Annual Energy Outlook
AFPM	American Fuel and Petrochemical Manufacturers
BBLs	Barrels
BIG	Buy It Green
CAS	Contractor Assurance System
COVATS	Crude Oil Valuation and Tracking System
CY	Calendar Year
DD6	Drainage District 6
DOE	Department of Energy

DOI	Department of Interior
E&P	Exploration and Production
EMS	Environmental Management System
EPCA	Energy Policy and Conservation Act
FY	Fiscal Year
GHG	Green House Gases
H.J. Res	House Joint Resolution
ISM	Integrated Safety Management System
ISO	International Organization for Standardization
LPBF	Lake Pontchartrain Basin Foundation
MB	Thousand Barrels
MB/D	Thousand Barrels per Day
MMB	Million Barrels
MMB/D	Million Barrels per Day
OSHA	Occupational Safety and Health Administration
PSM	Process Safety Management
Pub. L	Public Law
PUE	Power Utilization Effectiveness
RIK	Royalty-in-Kind
RPX	Modified Recovery Program
RWIS	Raw Water Intake Structure
SSP	Site Sustainability Plan
STE	Systems Test Exercise
TBL	Technical Baseline
VPP	Voluntary Protection Program

# 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 according to the policies and comprehensive energy plans of all Administrations 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 2012* 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 upgrade 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. Hurricane Isaac Recovery Activities**

### **Hurricane Impacts**

On August 28, 2012, Hurricane Isaac made landfall near the mouth of the Mississippi River on the Gulf Coast, dumping heavy rain across southern Louisiana, Mississippi and Alabama. The resulting storm surge led to widespread flooding in the region. Gulf of Mexico crude oil production was shut down and tankers carrying petroleum imports had no access to reach U.S. markets.

In advance of the storm, the Strategic Petroleum Reserve prepared for the possibility of making crude oil available to refiners who would request emergency supplies (in the form of a time exchange, similar to a loan) if their normally scheduled sources could not deliver. The Reserve has utilized exchange agreements in the past to provide supplies to refiners so that they could continue operating.

On August 30, 2012, the Secretary of Energy authorized the Strategic Petroleum Reserve to negotiate emergency exchange agreements for discrete quantities of crude oil. On August 31, 2012, a contract was executed with Marathon Petroleum Company for one million barrels of sweet crude oil from the Bayou Choctaw site. The first delivery of 236,844 barrels was delivered on September 2, 2012, and the second delivery of 779,940 barrels was delivered on September 7, 2012.

Repayment of the oil, along with additional premium barrels (1,016,784 bbls), was made in December 2012 and January 2013.

## **III. Program Mission**

### **Introduction**

The Strategic Petroleum Reserve operates within the authority of the Energy Policy and Conservation Act (EPCA) (42 U.S.C. 6201 et seq.), as amended, and the policies and comprehensive energy plans of all Administrations since EPCA's enactment in recognition of the long-term dependence of the United States on imported crude oil and petroleum products.

As of December 31, 2012, the Strategic Petroleum Reserve contained 695.3 million barrels of crude oil. That inventory provides the equivalent of about 94 days of net petroleum imports based on net U.S. imports of 7.4 MMB/D. 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.

EPCA was amended by Title VIII of the Energy Security Act (Pub L. 96-294), enacted on June 30, 1980. The 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, (4) give the President discretionary authority to acquire domestic stripper well oil at competitive prices to fill the Reserve; (5) amend the eligibility criteria for a Regional Petroleum Reserve; and (6) establish a Defense Department petroleum account of approximately six million barrels to be stored in the Strategic Petroleum 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 Downpayment 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 \$159.9 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,

\$4 million to be derived from the transfer of unobligated funds in the “SPR Petroleum Account.”

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, 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 \$170.9 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 Act, 2003. Pub L. 108-7 included \$171.7 million for Strategic Petroleum Reserve operations and program management activities and \$1.9 million for the SPR Petroleum Account. The law also extended EPCA authority for the Strategic Petroleum Reserve and United States’ participation in the International Energy Program through September 30, 2008.

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 \$170.9 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 \$24.8 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. Pub L. 110-232 expired on December 31, 2008.

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 submits a report to the Congress on the effects of expansion of the Strategic Petroleum Reserve on the domestic petroleum market. Research and preparation of the report continued through 2009.

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 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 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 111<sup>th</sup> Congress passed a final Continuing Resolution (Pub L. 111-322) that extended funding through March 4, 2011. The 112<sup>th</sup> 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 must first certify to the Committees on Appropriations of the House of Representatives and the Senate that the award will 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 must be deposited to the general fund of the Treasury.

In 2011, Congress included two new mandates 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 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).

The second requirement is found in Section 172 of Title I of the Consolidated and Further Continuing Appropriations Act, 2012 (Pub L. 112-55). Section 172 requires that no funds shall be provided to make a determination of the nonavailability of qualified United States flag capacity vessels for the transportation of crude oil distributed from the Strategic Petroleum Reserve unless, as part of that determination, the Secretary of Transportation, after consultation with representatives from the United States flag maritime industry, provides to the Secretary of Homeland Security a list of United States flag vessels with single or collective capacity that may be capable of providing the requested transportation services and a written justification for not using such United States flag vessels.

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.

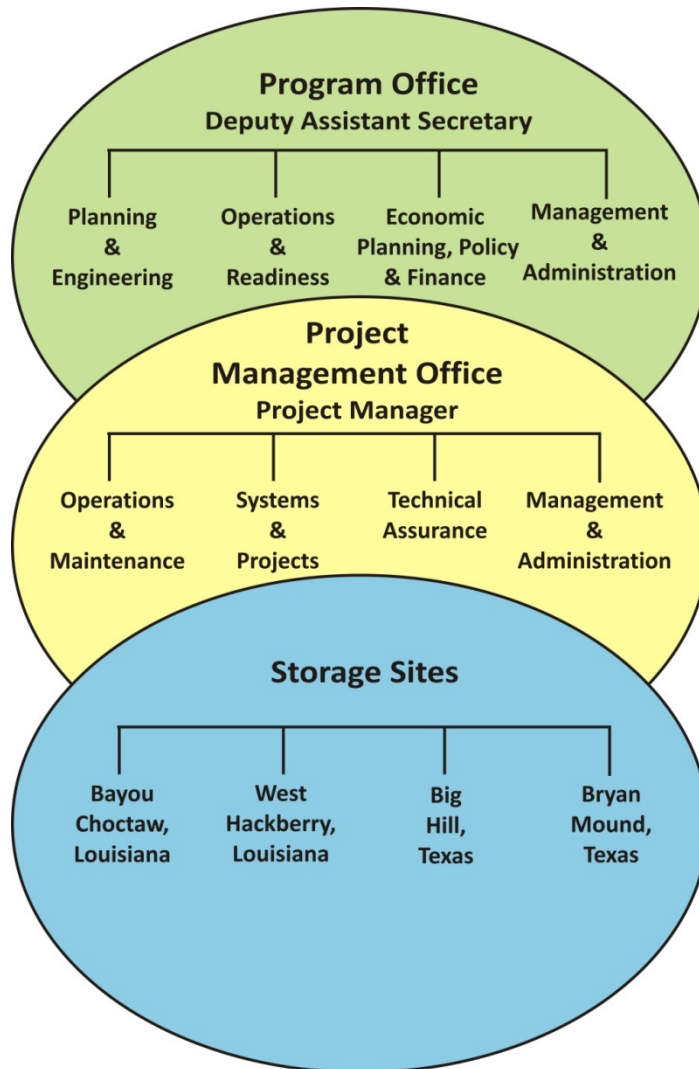
Section 527 of the Department of Homeland Security Appropriations Act, 2013 (Pub L. 113-6) included language related to U.S. maritime laws. The language prohibited the use of appropriated funds to approve a waiver of the navigation and vessel-inspection laws (Jones Act) for the transportation of crude 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.

## IV. 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, DC, and the Strategic Petroleum Reserve Project Management Office in New Orleans, Louisiana. Total staffing is 111 Federal employees and 834 contractor employees as of December 31, 2012. 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 2012, 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.

S&B Infrastructure, an architectural and engineering firm, is under contract to provide design services for the four storage facilities through May 31, 2013, with one option year available.

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, is under contract to provide construction and construction management services for the four storage facilities through August 31, 2013.

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 2012 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 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.



## V. 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 2012 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/D<sup>1</sup>. Table 1 shows the storage capacity and drawdown capability of each site as of December 31, 2012.

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, 2012)**

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	228.5	109/119	1.3
Big Hill	171.0	73/98	1.1
Bayou Choctaw	73.5	22/52	.515
<b>Total Program</b>	<b>727.0</b>	<b>282/445</b> <b>(39%/61%)</b>	<b>4.415</b>

Sweet = Sulfur content not exceeding 0.5 percent

Sour = Sulfur content greater than 0.5 percent

MMB = Million Barrels

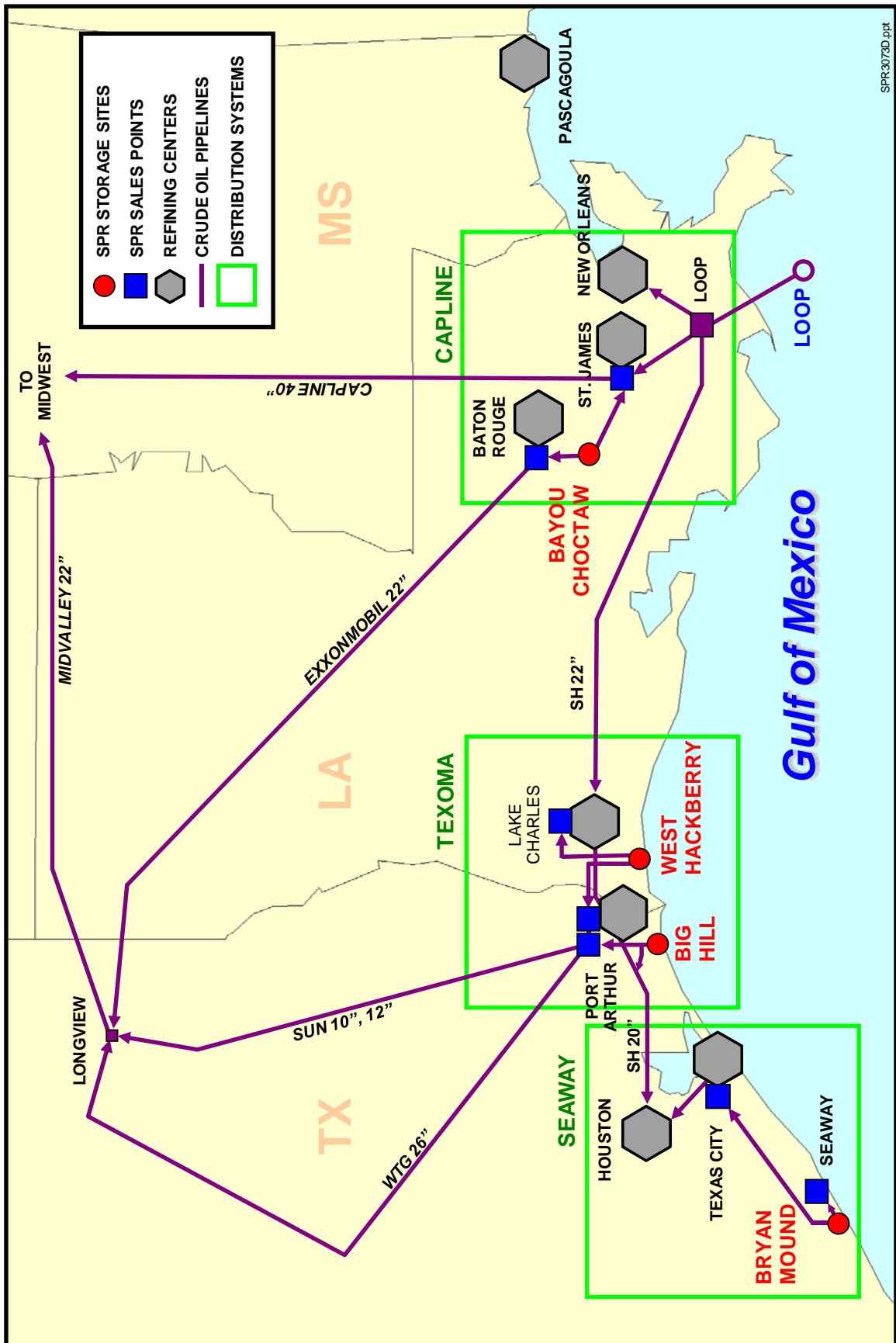
MB/D = Thousand Barrels Per Day

\* 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.

<sup>1</sup> 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



SPR-3073D.ppt

## **Cavern Maintenance**

During 2012, a total of 24 well workovers were performed at the four Strategic Petroleum Reserve sites. This included 17 diagnostic workovers; four remediation workovers to install cemented protective steel liners inside the existing well-bores; one brine string repair workover; one workover to isolate the well-bore from the cavern in preparation for a future remediation workover; and one workover to plug and abandon a well. Three workover rigs were used to perform this work, including two leased rigs and one DOE-owned rig. In addition, one new well, Bayou Choctaw Cavern Well 102B, was successfully drilled and completed during 2012.

## **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 2012, 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 171.0 million barrels, and a cavern inventory of 164.6 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 228.5 million barrels, and a cavern inventory of 215.9 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 73.5 million barrels, and a cavern inventory of 72.9 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.

In November 2011, the Strategic Petroleum Reserve acquired a replacement cavern so that Cavern 20 could be emptied and decommissioned. The newly acquired cavern, Cavern 102, was an existing privately-owned cavern that is located within the boundaries of the Bayou Choctaw site. Bayou Choctaw completed work to develop and integrate Cavern 102 into its existing facilities in December 2012. Based on analysis of currently available sonar information, the capacity of the cavern is estimated to be 9 million barrels.

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.

## VI. 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.

The Bryan Mound capacity maintenance program began with the remedial leaching of caverns storing sour crude oil. A total of 5.26 million barrels of raw water were injected into site sour caverns, thereby creating approximately 526,000 barrels of space. As of December 31, 2012, remedial leaching of the sweet caverns involved injection of 17.77 million barrels of raw water, thereby creating 1,886,000 barrels of ullage.

At West Hackberry, the leaching program included emptying a sweet crude cavern using raw water and then temporarily switching the cavern to sour service. The cavern would be used to provide sour ullage for both West Hackberry and Big Hill. As of December 31, 2012, 18.50 million barrels of raw water were injected into the sweet cavern, thereby creating approximately 1,850,000 barrels of ullage.

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, 2012, the site had injected 20.95 million barrels of raw water into the sweet caverns, thereby creating approximately 2,095,000 barrels of ullage.

## VII. Petroleum Acquisition and Exchange

### Crude Oil Inventory Status

On December 31, 2012, the Strategic Petroleum Reserve's crude oil inventory was 695,268,433 barrels, a decrease of 682,157 barrels from the prior year. The net decrease resulted primarily from the exchange of one million barrels from Bayou Choctaw in September 2012 due to supply disruptions caused by Hurricane Isaac. Most of the crude oil was repaid to the Strategic Petroleum Reserve during December 2012, but a small volume was deferred to January 2013 at the request of the Project Management Office for internal scheduling reasons.

### 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 2012 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 2012 (by fiscal and calendar year).
- Table 3 lists crude oil receipts by country of origin since 1977.
- 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 <sup>1</sup> (MB/D)	Year-End Inventory (MMB)	Average Daily Fill Rate <sup>1</sup> (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	* <sup>2</sup>	591.6	* <sup>2</sup>
1996	573.6	(49)	565.8	(70)
1997	563.4	(28)	563.4	(7)
1998	563.4	* <sup>2</sup>	561.1	(6) <sup>3</sup>
1999	564.9	4	567.0	16
2000	570.3	15	540.7	(72) <sup>4</sup>
2001	544.8	(70) <sup>5</sup>	550.2	26
2002	587.2	116	599.1	134
2003	624.4	102	638.4	108
2004	670.3	126 <sup>5</sup>	675.6	102 <sup>5</sup>
2005	693.7	64 <sup>6</sup>	684.5	25 <sup>6</sup>
2006	687.8	(16) <sup>7</sup>	688.6	11 <sup>7</sup>
2007	692.8	14	696.9	23
2008	702.4	26 <sup>8</sup>	701.8	13 <sup>8</sup>
2009	725.1	62.2	726.6	67.9
2010	726.5	3.8	726.5	(0.2) <sup>9</sup>
2011	695.9	(84) <sup>10</sup>	695.9	(84) <sup>10</sup>
2012	694.9	(3) <sup>11</sup>	695.3	(2) <sup>11</sup>

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 &amp; Katrina deliveries and receipts

7. Net Hurricane Katrina exchange and drawdown sales

8. Net Hurricanes Gustav &amp; 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, 2012)**

Source Country	2012 (MMB)	Cumulative (MMB)	Percent of Total (%)
Mexico		266.3	31.2
United Kingdom		193.9	22.7
United States*		105.8	12.3
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
<b>Total**</b>		<b>853.4***</b>	<b>100.0</b>

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, 2012)**

Storage Site	Inventory (MMB)		
	Sweet*	Sour**	Total***
<b>Bryan Mound, Brazoria County, Texas</b>	<b>64.4</b>	<b>176.3</b>	<b>240.7</b>
<b>Big Hill, Jefferson County, Texas</b>	<b>67.8</b>	<b>96.8</b>	<b>164.6</b>
<b>West Hackberry, Cameron Parish, Louisiana</b>	<b>107.3</b>	<b>108.6</b>	<b>215.9</b>
<b>Bayou Choctaw, Iberville Parish, Louisiana</b>	<b>21.1</b>	<b>51.8</b>	<b>72.9</b>
<b>Subtotal Underground Inventory</b>	<b>260.6</b>	<b>433.5</b>	<b>694.1</b>
<b>Tanks and Pipelines</b>	<b>0.2</b>	<b>0.9</b>	<b>1.2</b>
<b>Total Inventory</b>	<b>260.8</b>	<b>434.4</b>	<b>695.3</b>
<b>Total Accounts Receivable</b>	<b>0.7</b>	<b>0.0</b>	<b>0.7</b>
<b>Total SPR Book Inventory</b>	<b>261.5</b>	<b>434.4</b>	<b>696.0</b>

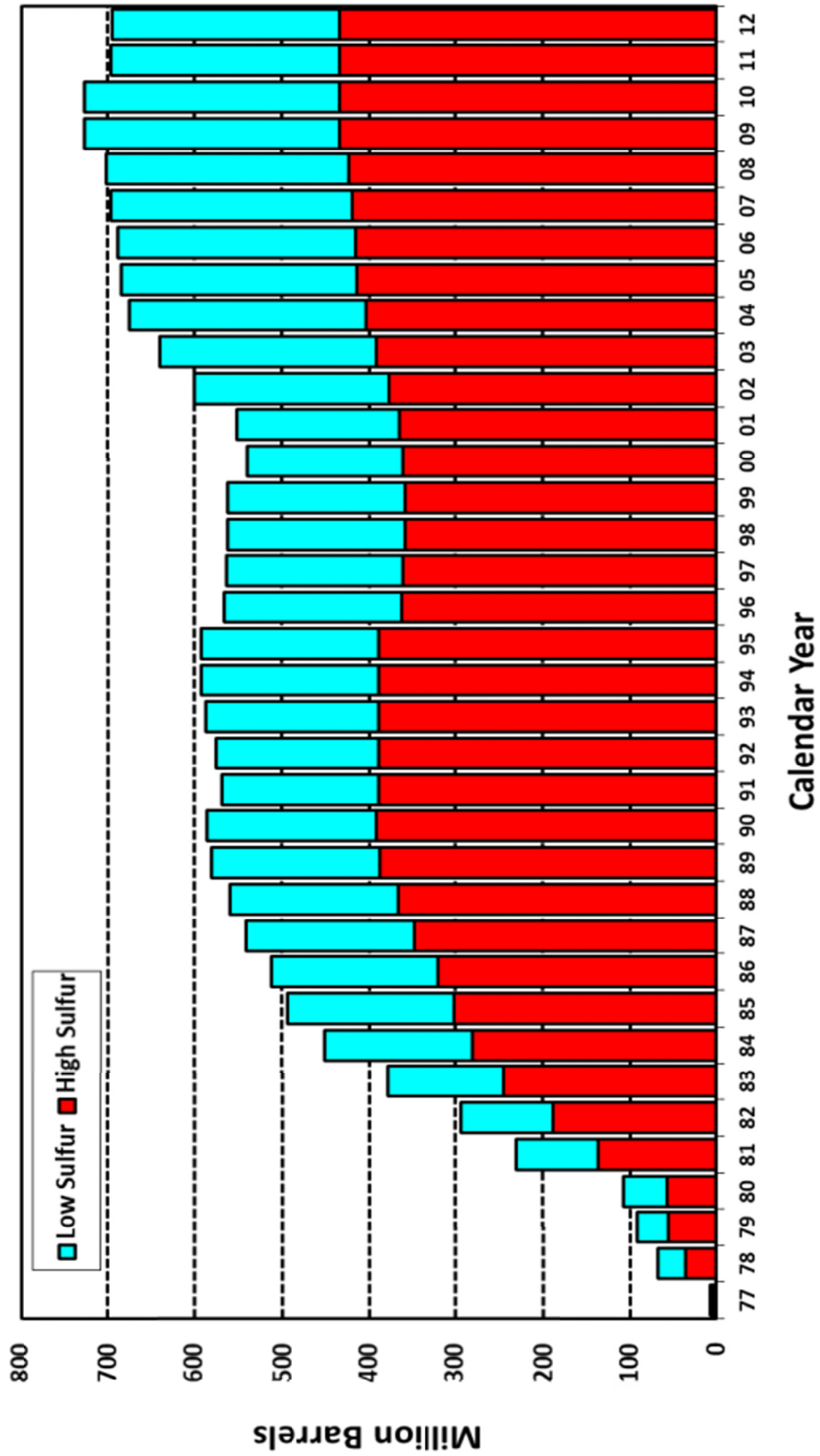
MMB = Million Barrels

\* 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 2012, the Strategic Petroleum Reserve maintains a persistent readiness posture to provide crude oil within thirteen days under a competitive sale.

### **Competitive Sales Procedures**

DOE 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.

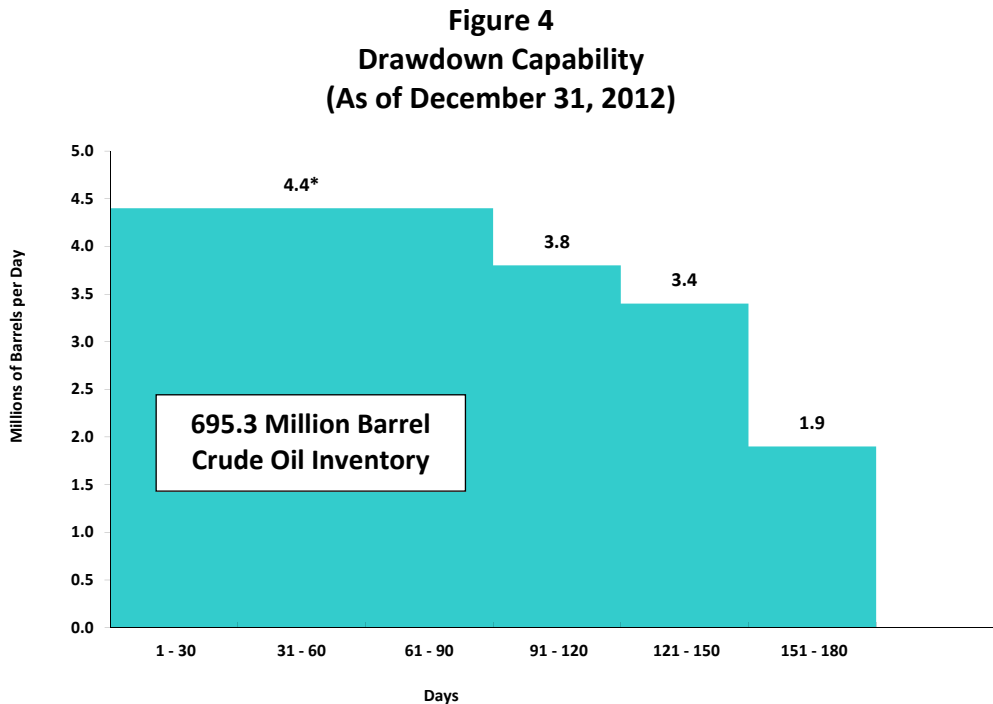
The Strategic Petroleum Reserve can draw down crude oil at a nominal maximum initial sustainable rate of 4.415 MMB/D<sup>2</sup> for a period of 90 days. After this period, the drawdown rate will gradually decrease as site inventories are depleted and the declining number of caverns containing crude oil becomes a constraint.

**Table 5**  
**Crude Oil Streams**  
**(As of December 31, 2012)**

Crude Oil Stream	Gravity (°API)	Sulfur Content (Mass%)	Delivery Mode and Location
<b>Seaway System</b>			
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	
<b>Texoma System</b>			
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	
<b>Capline System</b>			
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	

<sup>2</sup> 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 2012 of 382.5 million barrels in 90 days and 695.3 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 2012 included:

- A drawdown exercise was planned and conducted to test the finance and accounting team's procedures for invoicing during drawdown using the Crude Oil Valuation and Tracking System (COVATS) system.
- The Drawdown Readiness Review program requires and monitors quarterly drawdown readiness. Four reviews were conducted in 2012, 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 tabletop exercise at each site every year and a physical site test every four years.
  - An administrative tabletop exercise was successfully conducted at Big Hill on February 29, 2012. This exercise simulated a drawdown of 4 MMB sweet crude to Sun Terminal delivered at a rate of 600 MB/D for fifteen days beginning on

March 1, 2012, and delivering 4 MMB sour crude to the Chevron terminal at the same rate for fifteen days beginning on March 16, 2012.

- An administrative tabletop exercise was successfully conducted at Bryan Mound on April 24, 2012. The scenario included a drawdown of sweet crude to Texas City at the rate of 1.053 MMB/D.
- A Modified Recovery Program (RPX) tabletop exercise was successfully conducted at West Hackberry on two days in July 2012. The first day of the exercise was held at the Stennis Facility and the second day was conducted at West Hackberry. This exercise involved extensive discussions covering the activation, installation, operation and demobilization of the West Hackberry Recovery Program. All exercise objectives were met. The US Army Corps of Engineers and the DM Emergency Pipeline Contractor were among the exercise participants.

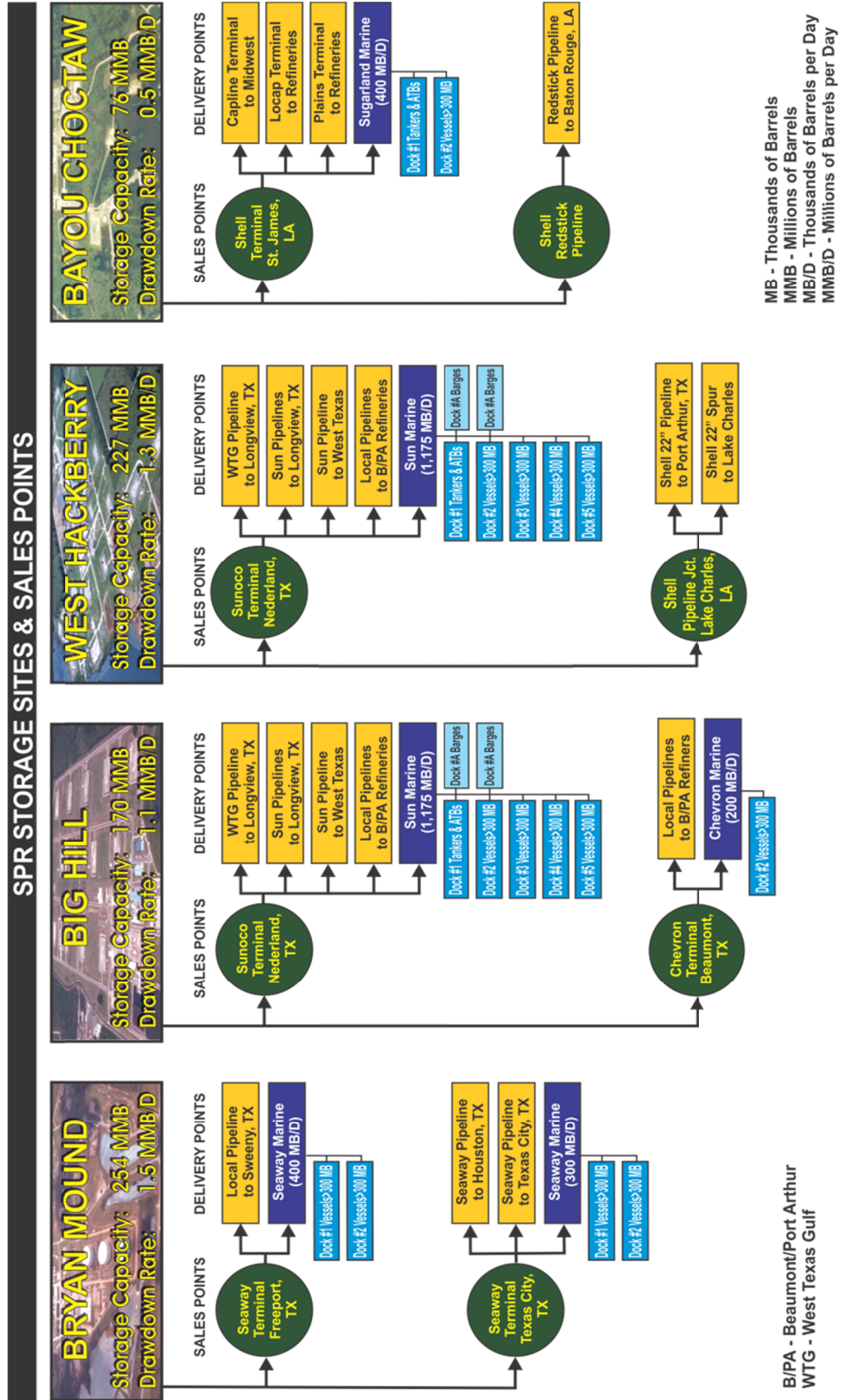
## **Distribution Plan and Capabilities**

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 24 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 total, the Strategic Petroleum Reserve is connected by commercial pipeline systems to almost half of the refining capacity in the United States. That connection covers 39 refineries, which processed approximately 60 percent of crude oil imports to the United States during 2012.

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 2012 Distribution Assessment evaluated the Strategic Petroleum Reserve's capability, at its maximum drawdown rate, to replace oil imported in the base year (2011) 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 confirms that the Strategic Petroleum Reserve storage sites have sufficient offsite pipeline and marine distribution capabilities exceeding 120 percent of their maximum drawdown rates in the event of a disruption in foreign crude imports. Table 6 provides the performance measures for the base year.

**Table 6**  
**Base Year Distribution Assessment**

<b>System</b>	<b>Nominal Max. Drawdown Rate (MB/D)</b>	<b>Distribution Capability (MB/D)</b>	<b>Performance Measure</b>
<b>Seaway</b>	<b>1,500*</b>	<b>2,365</b>	<b>175%</b>
<b>Texoma</b>	<b>2,400</b>	<b>2,903</b>	<b>121%</b>
<b>Capline</b>	<b>515</b>	<b>1,170</b>	<b>227%</b>
<b>Total</b>	<b>4,415*</b>	<b>6,438</b>	<b>151%</b>

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 2012 (AEO 2012)*. The future year assessment assumes the maximum drawdown rate does not change from base year levels.



Based on the *AEO 2012* projections for U.S. petroleum imports, the Distribution Assessment concluded that the distribution capability of the Strategic Petroleum Reserve exceeds its Level 1 Performance Criteria through 2030 and that there is no need for the Strategic Petroleum Reserve to develop a remedial plan to maintain sufficient connectivity to commercial distribution systems. Table 7 provides the performance measures by system for the base year and each forecast period. The Seaway system maintains performance measures above 155 percent throughout the forecast periods. The Texoma system maintains performance measures over 120 percent for all forecast periods. Finally, the Capline system maintains performance measures at or over 220 percent throughout forecast periods.

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

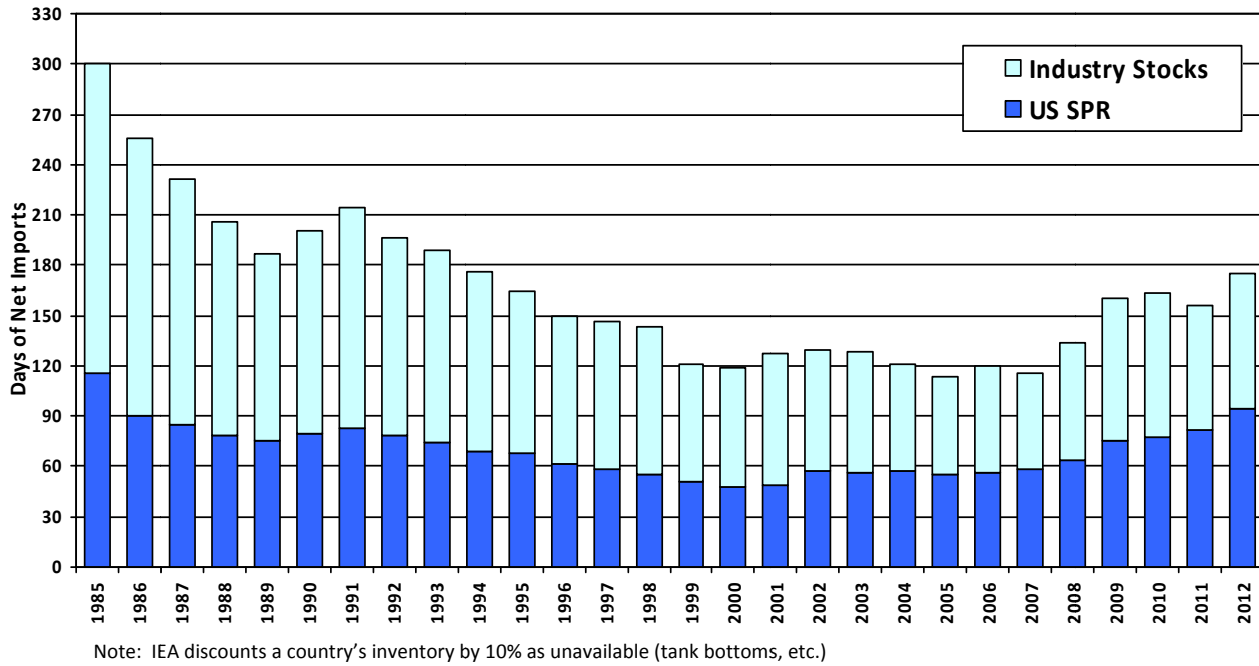
<b>System</b>	<b>2011</b>	<b>2015</b>	<b>2020</b>	<b>2030</b>
<b>Seaway</b>	<b>175%</b>	<b>162%</b>	<b>157%</b>	<b>157%</b>
<b>Texoma</b>	<b>121%</b>	<b>135%</b>	<b>132%</b>	<b>132%</b>
<b>Capline</b>	<b>227%</b>	<b>228%</b>	<b>223%</b>	<b>222%</b>

## **Import Protection Levels**

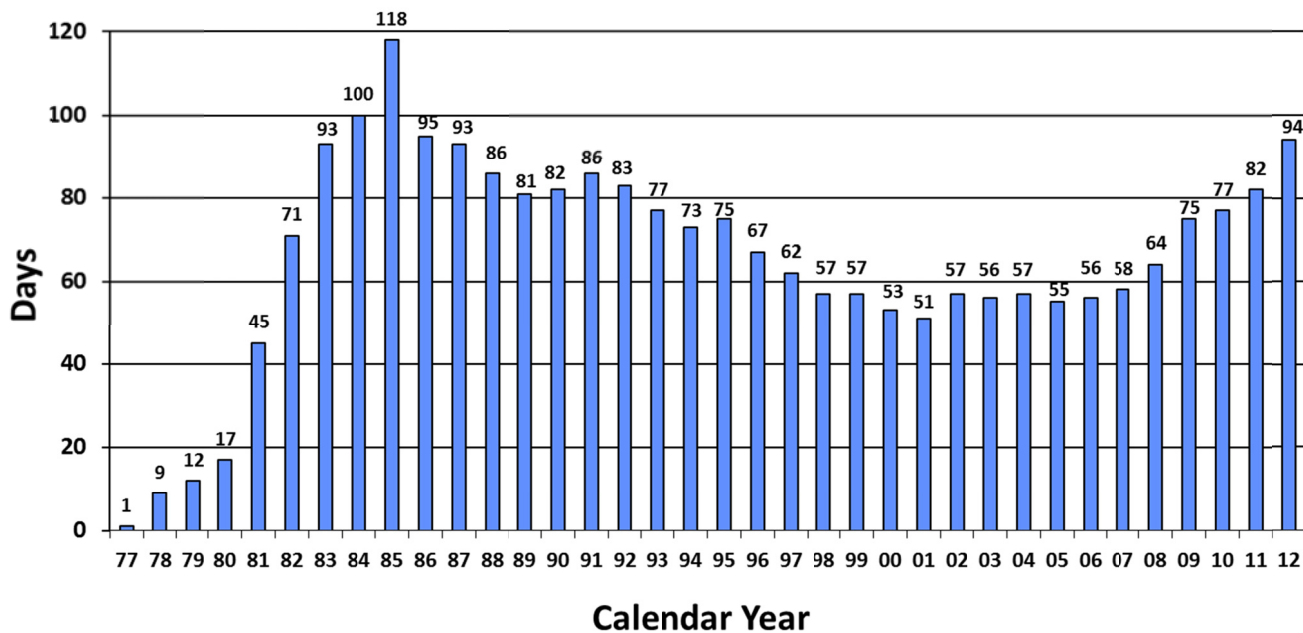
The United States, as a member of the International Energy Agency, is committed to maintaining stocks of crude oil and products in reserves that are equivalent to 90 days of net oil imports. Computations of member-nations' stockpile requirements are based on both publicly and privately held stocks, and net imports are defined as the average daily level in the previous year. The most recent International Energy Agency computation credits the United States with 175 days of emergency reserves, based on both the Strategic Petroleum Reserve and privately held stocks. Figure 6 provides end-of-year stocks for the United States through 2012.

Figure 7 shows the Strategic Petroleum Reserve inventory of 695.3 million barrels on December 31, 2012, which equates to about 94 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**  
**International Energy Program**  
**U.S. Emergency Stocks**



**Figure 7**  
**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 2012, lease revenues totaled \$312,481. 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 2012, lease revenues totaled \$5,838,356. 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 2012, St. James Terminal lease revenues were \$1,700,000. 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 2012, receipts to the U.S. Treasury were \$7,850,837 from the commercial leases of the Strategic Petroleum Reserve’s distribution facilities and pipelines. Table 8 summarizes commercial revenues from 1996 to 2012.

**Table 8**  
**Summary of Commercial Revenues**  
**(December 31, 2012)**

<b>Calendar Year</b>	<b>Bryan Mound Pipeline (Actual \$)</b>	<b>Big Hill Pipeline (Actual \$)</b>	<b>Bayou Choctaw Pipeline (Actual \$)</b>	<b>St. James Terminal Lease (Actual \$)</b>	<b>Total Revenue Generated (Actual \$)</b>
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

## **X. Budget and Finance**

With enactment of the Consolidated Appropriations Act, 2012 (Pub L. 112-74), budget authority for the Strategic Petroleum Reserve was \$192.7 million.

### **Appropriations through Fiscal Year 2012**

A total amount of \$23.6 billion, net of sales and transfers, has been appropriated for the Strategic Petroleum Reserve through FY 2012. 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 2012 totaled approximately \$186.2 million. From this amount, \$19.5 million was obligated for Federal program management, \$166.7 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, 2012)**

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	

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 and rescission 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 2012, 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
<b>Total</b>	<b>163,791,195</b>	<b>161,982,197</b>	<b>6,489,934</b>

\* 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 2012, the Strategic Petroleum Reserve tracked 20 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. Eight of the measures tracked met or exceeded the performance measure, while two measures ("Sustainable Drawdown Rate" and "Measure Progress Against the Department's 80-Day Time-to-Hire Model") did not meet the targets during this period.

- 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.
- Measure Progress Against the Department's 80-Day Time-to-Hire Model — In 2012, DOE changed its reporting guidance that created a difficulty for DOE offices in meeting recruitment goals. DOE later corrected the guidance to advise field offices to measure the recruitment phases that the field offices can control for the purpose of internal measurement.

The financial measure of "Operating Cost per Barrel of Storage Capacity" was \$0.221 versus a target of \$0.225. 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 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 2012, 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 2011 Actual Performance	FY 2012 Target Output	FY 2012 Actual Performance
<b>Public Confidence: Oil Inventory, Drawdown Readiness and Distribution</b>			
Number of Barrels of Crude Oil Inventory in Storage	695.9 MMB	N/A	N/A
90-Day Sustainable Drawdown Rate	4.40 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%	139%
Calculated Site Availability	97.6%	≥ 95%	97.6%
Calculated MPAR Rating	98.21% Cum. Avg	≥ 95% of Possible Points	95.98% Cum. Avg
Percent of Site Security Ratings that are Satisfactory	100%	100%	100%
Number of Barrels of Crude Oil Processed	18.4 MMB	N/A	N/A
<b>Excellent Customer Service: Customer Knowledge and Focus</b>			
Percentage of Key Customers Visited	42%	33%	50%
<b>Responsible Stewardship: Operational Effectiveness, Efficiency and Knowledge Management/Fiscal Responsibility and Budgetary Control</b>			
Information System Availability	>99.9%	≥ 98%	99.9%
Operating Cost per Barrel of Storage Capacity	\$0.227	≤ \$0.225	\$0.221
<b>Dynamic Teamwork: Continuous Improvement</b>			
Complete Annual ISO 9001-2008 Surveillance Audit	11/03/10	03/31/12	11/03/11
<b>Partnership Arrangements with Federal, State and Local Agencies</b>			
Number of Partnership Arrangements	11	11	11
<b>Social Responsibility and Citizenship: Local Community Support/Environment, Safety and Health</b>			
Complete Annual Self-Evaluation of OSHA VPP Star Status at Four Sites	03/15/11	2/15/12	2/15/12
Number of Cited Environmental Violations Received	0	0	0
Number of Reportable Releases to the Environment Annually	0	≤ 4	2
Complete 2 ISO 14001 Surveillance Audits	05/12/11	09/30/12	04/27/12
<b>Employee Development and Diversity: Employee Development and Quality of Life</b>			
Measure Progress Against the Departments 45-Day Hiring Model	100%	N/A	N/A
Measure Progress Against the Departments 80-Day Time-to-Hire Model	N/A	≥ 80%	33%
Percent of DOE Approved FY 2009 Executive Order 13423 Initiatives completed in FY	100%	N/A	N/A
Site Sustainability Plan Submittal	12/06/10	02/10/12	01/30/12
Complete All Corrective Actions for the BMT-2 and BM Cavern 5 Mowing Accidents	N/A	09/30/12	08/13/12

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 assessment of the construction management services contractor, as well as a quarterly review of the management and operating contractor's Contractor Assurance System (CAS).

The CAS covers the 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 cover: Finance, Human Resources, Property, Procurement, Cavern Integrity, Data Systems, Engineering, O&M, and Internal Audit.

The Quality and Performance Assurance Division participated in technical design reviews in accordance with SPRPMO Order 431.1A and DOE Order 414.1D. The reviews consisted of Architectural and Engineering design packages, feasibility studies, contractor consents, and engineering change proposals. Supplier source inspections were also performed to ensure vendors and/or suppliers were contract compliant and to confirm verification of procedures.

Oversight of the Critical Few performance measures included 33 processes that assessed compliance with SPRPMO 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 six process improvement teams. Those teams worked to restructure the Strategic Petroleum Reserve's Lessons Learned program, created a priority-based matrix and budget module for the site security program, developed a core required and supplemental reading matrix for all Strategic Petroleum Reserve positions, benchmarked other DOE organizations for improved Environmental, Safety & Health and Quality Assurance processes or methods, and developed and addressed 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 use and Green House Gas (GHG) reduction. The goal of the Executive Order was for Federal agencies to take the lead in creating a clean energy economy by developing percentage driven reduction targets in absolute terms.

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 through 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 towards 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, industrial and other water intensity through implementation of reduction awareness programs;
- Reduce waste disposal by supporting on-going recycling and reduction programs; 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 included 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/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 2012, several sustainability projects were initiated and others were continued. These projects:

- Achieved a 32% reduction in non-mission critical SPR fleet vehicles;
- Awarded a contract to install electric meters at selected buildings;
- Developed a building upgrade budget and schedule that addresses energy optimization, equipment life extension, GHG reduction and aging HVAC and environmental control and air quality replacements;
- Installation of variable speed drive systems at the Big Hill, Bryan Mound, and West Hackberry raw water intake structures to operate raw water pumps more efficiently;
- Continued use of the “Buy It Green” (BIG) program for selecting environmentally preferable chemicals, products, and materials;
- Conducted a third party evaluation study of the Strategic Petroleum Reserve data center air conditioning system and determined its Power Utilization Effectiveness (PUE) could be reduced from the current 1.7 toward 1.4 ratio;
- Continued effort to minimize energy consumption by electronics through employing virtual desk top function, thin clients, and power saving and sleep modes;
- Continued sustainable disposition of all excessed computer ware through reuse or recycling.

## **Vapor Pressure Mitigation**

No vapor pressure mitigation activities occurred during 2012. The portable degasification plant has been stored at the Bryan Mound facility since 2011. The vapor pressure mitigation program has been deferred.

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 H<sub>2</sub>S. The plant reduces the amount of VOCs in the vapors from the treated oil by 97%. 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. This certification was renewed for its fifth three-year cycle in May 2012, and is valid through May 2015.

The ISO 14001 Registrar (the certifying body) conducted a recertification and one subsequent surveillance audit during 2012. All facilities were evaluated through the two audits. The successful outcome resulted in the recommendation to recertify against the ISO 14001 standard for the four storage sites, the New Orleans office, and the warehouse building.

## **Environment, Safety, and Health**

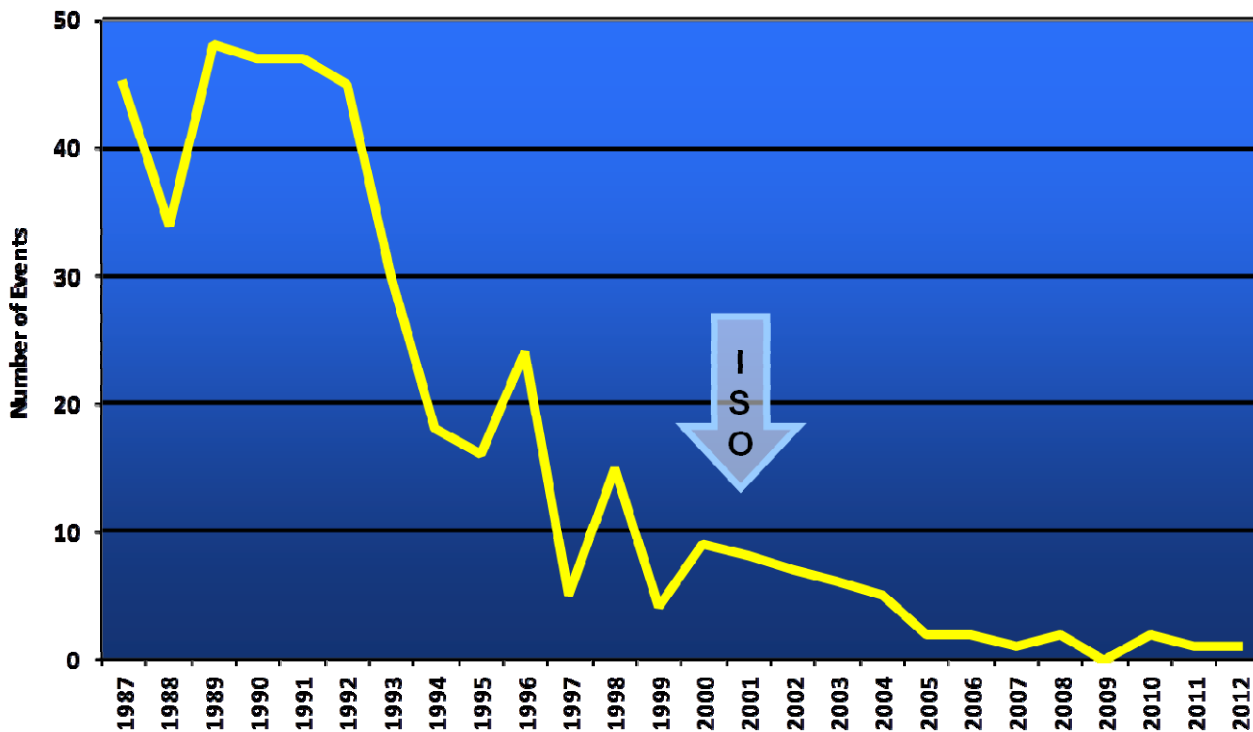
DOE is involved in the Environmental Management System (EMS) through the Strategic Petroleum Reserve Integrated Safety Management System (ISM), of which the EMS serves as the environmental leg.

The scope of the EMS includes both the management and operating contractor, DM Petroleum Operations Company, and applicable aspects of the construction management contractor, Arctic Slope Regional Corporation Gulf States Constructors, even though they do not have an independent ISO 14001 certification.

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. During 2012, all Strategic Petroleum Reserve storage sites recertified their participation in occupational safety and health programs, including OSHA's Voluntary Protection Program (VPP) as well as DOE's VPP. 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.

Figure 8 shows the Strategic Petroleum Reserve's performance for recordable environmental incidents from 1993 through 2012. The Strategic Petroleum Reserve continued its excellent record with one reportable event in 2012. On September 12, 2012, less than half a gallon of hydraulic oil leaked from Raw Water Intake Structure (RWIS) at the Big Hill site. The pump was shut down and the oil cleanup has been completed. No injuries were reported and all required notifications were made. This incident was considered a reportable spill because the RWIS sump is considered to part of the intracoastal waterway.

**Figure 8  
Annual Summary of Project Events\***



## Pollution Prevention

### *Hazardous Waste*

The Strategic Petroleum Reserve sets a fiscal year goal for hazardous waste generated. The FY 2012 goal not to exceed 400 pounds of hazardous waste generated was successfully achieved with only 168 pounds of hazardous waste generated. If calculating hazardous waste generated by calendar year, the amount generated was 206 pounds. The majority of the hazardous waste consisted of laboratory waste and the remaining amount was spent lamps and other chemicals or products.

### *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 2012, 97 percent of E&P waste was recycled (7,004,595 pounds recycled vs. 7,217,367 pounds generated). The type of E&P waste generated 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 87 percent during 2012, which represents 2,191,714 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 328,444 pounds of sanitary waste during 2012. The goal is to generate less than 600,000 pounds.

## **Environmental Improvement Measures**

Strategic Petroleum Reserve personnel participated for the 14th year in the annual Lake Pontchartrain Basin Foundation (LPBF) Beach Sweep. The local New Orleans activity is part of a worldwide event promoted by the Oceans Conservancy. Twenty-two employees, their families, and concerned citizens contributed time and effort by cleaning debris at an assigned location on the south shore of Lake Pontchartrain covering an estimated two lineal miles of shoreline and city street/storm-drains, collecting an estimated 120 pounds of trash and documenting nearly 70 man-hours of volunteered time.

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 42nd anniversary of Earth Day in 2012 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 and awareness of “Plants and Our Environment.” To further support the 2012 Earth Day theme, employees were provided with small, recyclable “grow cups” (including flower seeds). The cups were made in the USA from recycled material.

## **Security and Emergency Operations**

The Strategic Petroleum Reserve has the capability to effectively respond to any emergency during day-to-day operations and severe 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**

### ***DOE Safety and Health Voluntary Protection Program***

The Strategic Petroleum Reserve continued to improve the safety and health systems throughout the complex during 2012. The New Orleans safety and health staff provided augmented safety oversight of cavern workover operations, drilling and development of Cavern 102 at Bayou Choctaw, spill response and emergency management training, fire protection training, and security field exercises. The Accident Prevention manual that provides safety direction for the Strategic Petroleum Reserve was revised in its entirety; reformatted for easier use, and updated for interim changes made as a result of accident investigations.

### ***Occupational Safety & Health Administration's Voluntary Protection Program***

The Strategic Petroleum Reserve participates in the OSHA VPP and Process Safety Management (PSM) programs. 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 2012 as did the West Hackberry security contractor, Wackenhut Services, Inc. Maintaining Star Status requires ongoing improvement, an annual self-evaluation which is submitted to OSHA, and answering 10-20 detailed PSM compliance-related questions.

In 2012 OSHA Region VI awarded West Hackberry the designation of Star among Stars and Bayou Choctaw and Big Hill each 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 2012, presenting Big Hill, West Hackberry and Bayou Choctaw with a Star of Excellence and Bryan Mound with a Superior Star. The DOE awards consider outreach activities as well as accident rates.

### ***Accident Rates***

During 2012, the Strategic Petroleum Reserve's Total Recordable Case Rate was 1.2 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 0.8 per 200 thousand 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 2012, which summarizes 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 2012, the Strategic Petroleum Reserve operated with a compliant ISM system.

### ***Annual Safety Summit and Tripartite Safety Council***

For the past eight years the Strategic Petroleum Reserve has held an annual Management Safety Summit to promote safety goals and focus senior management attention on safety related issues. In 2011, the Summit was expanded to incorporate not only safety and health issues, but environmental issues as well. The 2012 Summit included briefings by the safety, health and environmental departments of the management and operations contractor, the security contractor, and the construction management contractors. 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 Strategic Petroleum Reserve contractors 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.

### **The Safety Academy and Beyond Zero: A Culture of Caring**

A Safety Academy enhancing awareness and reiterating requirements was held at all sites and attended by DOE personnel, prime contractors, and subcontractors. The Safety Academy introduced the concept of fatality elimination by employees' recognition of "sentinel events" which could lead to a fatality. A Safety Strikeforce was formed to implement multiple safety initiatives and benchmarking led to the deployment of a "Beyond Zero" program, the purpose of which is to eliminate incidents and injuries.

The safety requirements for operating the sites – storage, warehouse, and office – were reviewed, new requirements and initiatives were explained, and the "Beyond Zero" initiative was introduced. Beyond Zero is based upon the cultural belief that it is possible to operate without injuries and incidents. It is risk-based rather than compliance based and, using Integral Analysis, looks at the subjective and the objective side of safety beliefs as well as both group and individual performance and beliefs.

### **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 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 is ongoing.

## **Awards and Certifications**

The Strategic Petroleum Reserve received the following awards and certifications in 2012 for performance during 2011:

- DOE VPP Star Among Stars Superior Star –Bryan Mound.
- DOE VPP Star of Excellence – Bayou Choctaw, Big Hill and West Hackberry.
- OSHA Region VI Star of Excellence – Bayou Choctaw and Big Hill.
- OSHA Region VI Star among Stars – 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 2012, the Strategic Petroleum Reserve received recertification in International Organization for Standardization (ISO) 9001:2008 after on-site assessments in 2012 of the New Orleans/Stennis, Big Hill, and West Hackberry facilities.

## **Customer Service**

The Strategic Petroleum Reserve's Customer Service Team met with several refiners, traders, pipeline companies, and other customers during the 2012 American Fuel and Petrochemical Manufacturers (AFPM) annual meeting in San Diego, California during the second week of March. Additional meetings were held at the Strategic Petroleum Reserve offices in Washington, DC, 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. In January 2012, successful bidders from the 2011 Libya drawdown and sale were visited and asked for input on their experiences on the bidding process, delivery, crude oil quality, and their overall satisfaction with the process. 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 2012:

- The DOE and the Jefferson County Drainage District No. 6 (DD6) executed a Cost Reimbursement Agreement on January 10 and 17, 2012, respectively. This agreement sets forth the design, engineering, purchase of long-lead items, and construction efforts required to relocate and lower the DOE Big Hill 36-inch crude oil pipeline to accommodate the Needmore Diversion Channel which will cross the pipeline at its existing location. Two subsequent amendments to this agreement have been executed by the parties to obtain additional funding. DOE has received a total of \$2,332,059 from DD6 for this reimbursable work. Additionally, DD6 has granted a total of six easements

to the United States of America in connection with this work, including easements for pipeline, road, valve station, and temporary work area rights-of-way.

- Modification M018 to Lease No. DE-RL96-99PO90001 was executed on May 3, 2012 to allow ExxonMobil temporary approval to operate the 30-inch Jones Creek leased pipeline in a bi-directional flow path, moving crude oil from Jones Creek toward Bryan Mound. This temporary approval expires in March 2014 when the Enterprise Echo Pipeline is scheduled to be completed.
- Modification M019 to Lease No. DE-RL96-97PO70010 was executed on May 9, 2012 to allow Shell Oil Products US to design and install a Vapor Combustion Unit on Dock 1 at the St. James Terminal.
- Modification 087 to Interagency Agreement No. DE-AI96-78PO02816 was executed on September 20, 2012 to extend the agreement's period of performance for one year, through September 30, 2013.
- A Utility Easement was executed on June 6, 2012, granting Entergy the right to install and maintain power poles and power lines on the Bayou Choctaw Site in connection with the Cavern 20 Deficiency Project. This easement also relinquished previously granted easement rights to another area on the site that is no longer used for to supply power.

## **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 2012.

The Strategic Petroleum Reserve continues to prepare for the future through the acquisition of a replacement cavern (Cavern 102) at the Bayou Choctaw site that will allow the site to decommission Cavern 20, which has experienced preferential leaching towards the edge of the salt dome. Integrating Cavern 102 into the Bayou Choctaw system is critical if the site is to maintain its drawdown rate for light, sweet crude—which has been 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 any energy crisis.

# 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 condemnation, 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

228.5 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 condemnation, 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

171 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 condemnation, 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

73.5 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 condemnation, 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.