



U.S. DEPARTMENT OF  
**ENERGY**

# Strategic Petroleum Reserve Annual Report for Calendar Year 2008



**Assistant Secretary for Fossil Energy  
Office of Petroleum Reserves  
U.S. Department of Energy  
Washington, DC 20585**

Strategic Petroleum Reserve: [www.spr.doe.gov](http://www.spr.doe.gov)





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## **EXECUTIVE SUMMARY**

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### ***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. As of December 31, 2008, the Reserve had a crude oil inventory of 701.8 million barrels, which was equal to 64 days of net U.S. petroleum imports in 2008, and a drawdown capability of 4.4 million barrels per day.

### ***Hurricane Response in 2008***

In September 2008, Hurricanes Gustav and Ike hit the U.S. Gulf Coast impacting oil production, refining and distribution operations causing shortages of both crude oil and refined products. The Secretary of Energy authorized the Strategic Petroleum Reserve to respond through emergency test exchanges with affected refiners. The Strategic Petroleum Reserve negotiated exchange agreements with five companies for a total release of 5.4 million barrels of crude oil stocks. The oil is to be returned, with interest in additional barrels, in 2009.

The Strategic Petroleum Reserve storage sites also experienced hurricane damages as a result of the winds and tidal surge. The sites were restored to operational status in a rapid manner and delivered oil. However, substantial restoration work has been necessary to remove debris, repair fences and security systems, and rebury uncovered pipelines.

### ***Oil Acquisitions and Receipts***

The Strategic Petroleum Reserve received 10.3 million barrels of crude oil during the first half of 2008 under the royalty-in-kind fill program with the Department of the Interior. In May 2008, the Congress passed the Strategic Petroleum Reserve Fill Suspension and Consumer Protection Act of 2008 (P.L. 110-232) in response to

escalating oil prices. As a result, Strategic Petroleum Reserve fill activities were suspended for the remainder of 2008 and the delivery of 2.2 million barrels was deferred until the spring of 2009.

### ***Expansion to One Billion Barrels***

The Energy Policy Act of 2005 (P.L. 109-58), enacted on August 8, 2005, directed the Secretary of Energy to expand and fill the Strategic Petroleum Reserve to its authorized one billion barrel capacity, as expeditiously as practical without incurring excessive costs or appreciably affecting the price of petroleum products to consumers. In response to this statutory requirement, the Department of Energy (DOE) completed an Environmental Impact Statement, selected three sites for the expansion and submitted a Plan to Congress in 2007 describing the DOE's plans for implementation of the expansion project.

In March 2008, DOE initiated the development of a Supplemental Environmental Impact Statement (EIS) to address three major issues with the Richton site development: the source of water to leach the storage caverns, the location for the oil terminal in Pascagoula, and the location of the brine discharge pipeline and diffusion in the Gulf of Mexico. During 2008, the Strategic Petroleum Reserve initiated a number of studies, biological assessments, hydrological modeling, brine plume analyses, and social-economic impact analysis in support of the Supplemental EIS.

The Strategic Petroleum Reserve received funding in the FY 2008 Budget for land acquisition activities associated with the new site in Mississippi. During 2008, the Strategic Petroleum Reserve completed a comprehensive assessment of seismic surveys of the salt dome to identify the proposed siting for the storage facility

on the salt dome. The Strategic Petroleum Reserve also performed an Archeological and Cultural Assessment and a Liability Assessment (CERCLA Phase I) of the proposed site location. The Strategic Petroleum Reserve tasked the U.S. Army Corps of Engineers (USACE), through an existing Interagency Agreement, to initiate action to acquire the property for the Richton storage site.

No expansion activities have occurred for the Bayou Choctaw and Big Hill sites and no Congressional appropriations have been received for the expansion of these sites.

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

The Strategic Petroleum Reserve program operates under an International Organization for Standardization (ISO) 14001 Environmental Management Certification. In 2008, the Strategic Petroleum Reserve successfully completed its annual third party audit for continued certification of all six of its management and operating locations against the ISO 14001 standard.

The Strategic Petroleum Reserve storage sites continue to operate under the Occupational Safety and Health Administration's (OSHA) Voluntary Protection Program (VPP) certification with all four sites having maintained their Star status throughout 2008. Additionally, all four sites won OSHA and Department of Energy VPP performance awards. Two of the sites won Legacy of Stars Award, initiated in 2008, for sustained excellence in safety performance.

### ***Other Notable Achievements***

The Strategic Petroleum Reserve storage sites were recipients of numerous awards for management quality, environmental stewardship, and safety management systems. In 2008, the Strategic Petroleum Reserve received the Office of Fossil Energy Excellence in ESS&H Award for Voluntary Process Change to Reduce Volatile

Organic Compounds (VOC) Emissions from Strategic Petroleum Reserve cavern maintenance (workover) operations. This annual award was presented to the Strategic Petroleum Reserve for

its initiative in the use of floating roof tanks to reduce VOCs from Strategic Petroleum Reserve workover operations.

The Strategic Petroleum Reserve's Chief Information Officer received a DOE Cyber Security Achievement Award for disaster recovery and for strengthening the security posture of the Strategic Petroleum Reserve.

The Strategic Petroleum Reserve was evaluated by the Gartner Group in a 2008 Performance Survey and the Project Management Office set the Gartner Group's performance benchmark for efficiency in their national survey of 297 peer organizations both private and governmental.

## **HURRICANE IMPACTS**

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### ***Hurricanes of 2008***

During September 2008, the Gulf Coast region was hit in quick succession by two strong hurricanes, Gustav on September 1<sup>st</sup> and Ike on September 13<sup>th</sup>. Hurricane Gustav struck the Louisiana coastline directly south of New Orleans, whereas Hurricane Ike struck the Texas coastline near Galveston, TX. These hurricanes resulted in major storm damage, flooding, and power outages that crippled the U.S. Gulf Coast refineries and pipeline distribution systems, and created shortages of refined products in many East Coast markets.

#### **Hurricane Gustav**

As a result of the predicted track of Hurricane Gustav, the Strategic Petroleum Reserve Program Management Office in New Orleans was evacuated and locked down on August 31, 2008. Utilizing Continuity of Operations (COOP) procedures, an alternate Emergency Operations Center (EOC) was established in Monroe, Louisiana. The Strategic Petroleum Reserve's Emergency Command Vehicle, Emergency Communications Trailer, and emergency management teams were dispatched to the alternate EOC for the duration of the storm.

Also evacuated in advance of the storm were the Bayou Choctaw, Louisiana; Big Hill, Texas; and West Hackberry, Louisiana sites.

Hurricane Gustav made landfall on September 1, 2008. After Gustav had passed, the Strategic Petroleum Reserve facilities were inspected by reentry teams. It was determined that the New Orleans office, Big Hill and West Hackberry had sustained only minor damage.

The facilities were cleared for reopening and Big Hill and West Hackberry reopened on

September 2<sup>nd</sup>. The EOC was reformed in New Orleans on September 5<sup>th</sup> and the Strategic Petroleum Reserve New Orleans work force returned to duty on September 8<sup>th</sup>.

Upon reentry to Bayou Choctaw, it was learned that the off-site commercial electrical distribution system feeding into the site was damaged. In order to prepare for emergency deliveries of crude oil from the site, recovery equipment was brought in and set up. Commercial power was restored to Bayou Choctaw on September 6<sup>th</sup>.

The Bryan Mound site was not impacted by Hurricane Gustav.

#### **Hurricane Ike**

Hurricane Ike entered the Gulf directly behind Hurricane Gustav and headed further south and west than Hurricane Gustav. The Bryan Mound, Big Hill and West Hackberry sites were all locked down and evacuated prior to September 12<sup>th</sup>. Hurricane Ike made landfall on September 13<sup>th</sup>.

All three evacuated sites were impacted by region-wide electrical outages following the storm, and the Big Hill and West Hackberry sites were also affected by the large storm surge that flooded the area. For several days, access to the sites was only available by boat or helicopter.

Both sites also sustained significant damage to the infrastructure and access roads. At Big Hill, a significant amount of debris had to be removed to ensure safe operation. Additionally, the electrical system supporting the operation of Big Hill's Raw Water Intake Structure was damaged by the storm and required extensive testing and repair work.

The Strategic Petroleum Reserve EOC in New Orleans remained operational continuously throughout the storm period.

Operations at Bayou Choctaw were not impacted by Hurricane Ike.

### ***Oil Deliveries***

After Hurricanes Gustav and Ike made landfall, the Strategic Petroleum Reserve responded through emergency test exchanges with several refiners, negotiating agreements with five companies for a total release of 5.4 million barrels of crude stocks. (See Tables 1 and 2.)

Even prior to striking the coast, Hurricane Gustav caused the shut-in of offshore oil and natural gas production, the closure of area oil ports and pipelines, power supply outages and disruption of supplies to U.S. refineries. When Hurricane Ike entered the Gulf of Mexico just days after Gustav, it compounded the closure or reduced operational capability of production, transportation and refining facilities.

On September 3, 2008, in response to requests for emergency crude oil supplies from several refiners who were able to continue to operate, the Strategic Petroleum Reserve was authorized to conduct an emergency test exchange of crude oil to avoid the refineries shutting down their operations. In particular, continued operations at the Gulf Coast area refineries that remained on-line were in the public interest due to developing gasoline and diesel shortages in the Southeast United States. The test exchange authority, found in Section 161(g) of the Energy Policy and Conservation Act (EPCA) (42 U.S.C. 6241(g)), legally limits a test exchange to 5 million barrels per occurrence. Use of the authority served two purposes - it accommodated requests for emergency exchanges from multiple refiners and allowed evaluation of DOE's emergency procedures and response capabilities

in a limited emergency logistical supply disruption. A second test exchange was authorized on September 29, 2008, for the continued evaluation of the storm-affected Strategic Petroleum Reserve sites' emergency response and exchange capabilities in addressing the ongoing adverse impacts on industry from the two hurricanes.

The emergency exchange agreements required the later return of like-kind oil to the Strategic Petroleum Reserve, plus additional premium barrels. Because the Strategic Petroleum Reserve Fill Suspension and Consumer Protection Act of 2008, required the suspension of acquisition of petroleum for the Strategic Petroleum Reserve by any method during the second half of 2008, the loaned oil and premium barrels, a total of 5.5 million barrels, were contracted to be returned in 2009.

In accordance with EPCA section 161(g)(8), a separate, detailed report on the test exchanges will be submitted to Congress when return of the exchange barrels has been completed in 2009.

**Table 1**  
**Inventories and Test Exchange Quantities**

<b>Storage Site</b>	<b>Pre-Exchange Inventory (MMB)</b>	<b>Releases (MMB)</b>
Bryan Mound, TX	240.4	0
Big Hill, TX	168.7	0
West Hackberry, LA	223.5	1
Bayou Choctaw, LA	73.1	4.4

MMB = Million Barrels

**Table 2**  
**Text Exchange Crudes by Company**

**Test Exchange 1**

<b>Company</b>	<b>Crude</b>	<b>Volume (MB)</b>
Alon USA LP	Bayou Choctaw Sweet	550
Citgo Petroleum Corp.	West Hackberry Sweet	83
Citgo Petroleum Corp.	West Hackberry Sour	917
ConocoPhillips Co.	Bayou Choctaw Sweet	666.7
ConocoPhillips Co.	Bayou Choctaw Sour	333.3
Marathon Petroleum Co. LLC	Bayou Choctaw Sweet	1500
Placid Refining Co.	Bayou Choctaw Sweet	739
<b>Total</b>		<b>4789</b>

**Test Exchange 2**

Alon USA LP	Bayou Choctaw Sweet	100
Placid Refining Co.	Bayou Choctaw Sweet	500
<b>Total</b>		<b>600</b>

MB = Thousand Barrels

All four sites and the Project Management Office in New Orleans were impacted by the hurricanes as a result of mandatory evacuations, as well as the result of wind, power outages, and flooding. Recovery and repair costs of approximately \$22 million were accumulated. The impact of the hurricanes is shown in Table 3.

**Table 3**  
**Operational Impacts of Hurricanes**

Site	Hurricane Gustav	Hurricane Ike	Recovery Costs* (\$000)
Project Management Office, New Orleans, LA	No Impact	No Impact	\$440 **
Bryan Mound, TX	No Impact	Recovery Time – 6 Days	\$4,800
Big Hill, TX	No Impact	Recovery Time – 17 Days	\$11,300
West Hackberry, LA	No Impact	Recovery Time – 5 Days	\$4,800
Bayou Choctaw, LA	Recovery Time – 5 Days	No Impact	\$300

\* Estimated

\*\* Continuity of operations, communications, and overtime costs

## **PROGRAM MISSION**

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### ***Introduction***

The Strategic Petroleum Reserve was authorized in 1975 by the EPCA (42 U.S.C. 6201 et seq.), as amended, and by the comprehensive energy plans of all Administrations since 1975 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. The report is to include information on the physical capacity, type and quantity of petroleum in the Strategic Petroleum Reserve as well as plans for upgrades or major maintenance. EPCA 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.

As of December 31, 2008, the inventory in the Strategic Petroleum Reserve was 701.8 million barrels of crude oil. The inventory amounted to 64 days of net imports. 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 was enacted on December 22, 1975. It 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 (P.L. 96-294), enacted on June 30, 1980. The Act established a minimum average daily fill rate of 100 thousand barrels and precluded sale of Naval Petroleum Reserve Numbered 1 (Elk Hills, California) crude oil except to fill 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 (P.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 (P.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 (P.L. 101-262), and August 10, 1990 (P.L. 101-360).

On September 15, 1990, the President signed the Energy Policy and Conservation Act Amendments of 1990 (P.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 (P.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, and (5) amend the eligibility criteria for a Regional Petroleum Reserve.

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

The Balanced Budget Downpayment Act (P.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 (P.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 (P.L. 104-208), enacted on September 30, 1996, appropriated \$220 million for the Strategic Petroleum Reserve in fiscal year 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 P.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 P.L. 105-177 was signed.

The Balanced Budget Act of 1997 (P.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 (P.L. 105-83), enacted on November 14, 1997, appropriated \$207.5 million for the Strategic Petroleum Reserve in fiscal year 1998 to be financed through the sale of Reserve oil.

The 1998 Supplemental Appropriations and Rescissions Act (P.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 P.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 (P.L. 105-277), enacted on October 21, 1998, included \$160.1 million for the Strategic Petroleum Reserve.

On November 13, 1998, the President signed P.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 P.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 (P.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 (P.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, \$4,000,000 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 (P.L. 106-469). Title I reauthorized titles I and II of EPCA through fiscal year 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 P.L. 107-63, the Department of the Interior and Related Agencies Appropriations Act for fiscal year 2002. The Act included \$171 million for Strategic Petroleum Reserve facilities and operations and \$8 million for the Northeast Home Heating Oil Reserve. Congress further specified

that if the full \$8 million is not needed for the Northeast Home Heating Oil Reserve, DOE was encouraged to apply any excess funds to the vapor pressure project to remove excess gas from the oil in the Strategic Petroleum Reserve.

On February 20, 2003, after a series of continuing resolutions, the President signed P.L. 108-7, the Consolidated Appropriations Act, 2003. P.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 (P.L. 108-108). The Act provided \$171 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 (P.L. 108-447). The Act provided \$172,100,000 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 \$169,710,000.

On August 8, 2005, the President signed into law the Energy Policy Act of 2005 (P.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 practical without incurring excessive costs or appreciably affecting the price of petroleum products to con-

sumers", 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 (P.L. 109-103). The Act provided \$166,000,000 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 \$164,340,000.

Congress passed a series of Continuing Resolutions to cover programs whose fiscal year 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 (P.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 (P.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 \$164,441,000.

Congress passed two Continuing Resolutions to cover fiscal year 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 (P.L. 110-161). The Act provided \$188,472,000 for the Strategic Petroleum Reserve, of which \$25,000,000 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 \$186,757,000, of which \$24,773,000 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 (P.L. 110-232). The Act suspended acquisition of petroleum for the Strategic Petroleum Reserve beginning on the date of enactment and ending on December 31, 2008. Resumption of fill could resume under strictly defined conditions, i.e., if the President determined that the weighted average price of petroleum in the United States for the most recent 90-day period was \$75 or less per barrel. However, the Strategic Petroleum Reserve could not resume fill earlier than 30 days after the President notified Congress that the condition had been met.

Funding for FY 2009 was completed in a series of three appropriations actions. On September 30, 2008, the President signed the Consolidated Security, Disaster Assistance, and Continuing Appropriations Act, 2009 (P.L. 110-329) that provided funding for Government agencies through March 6, 2009.

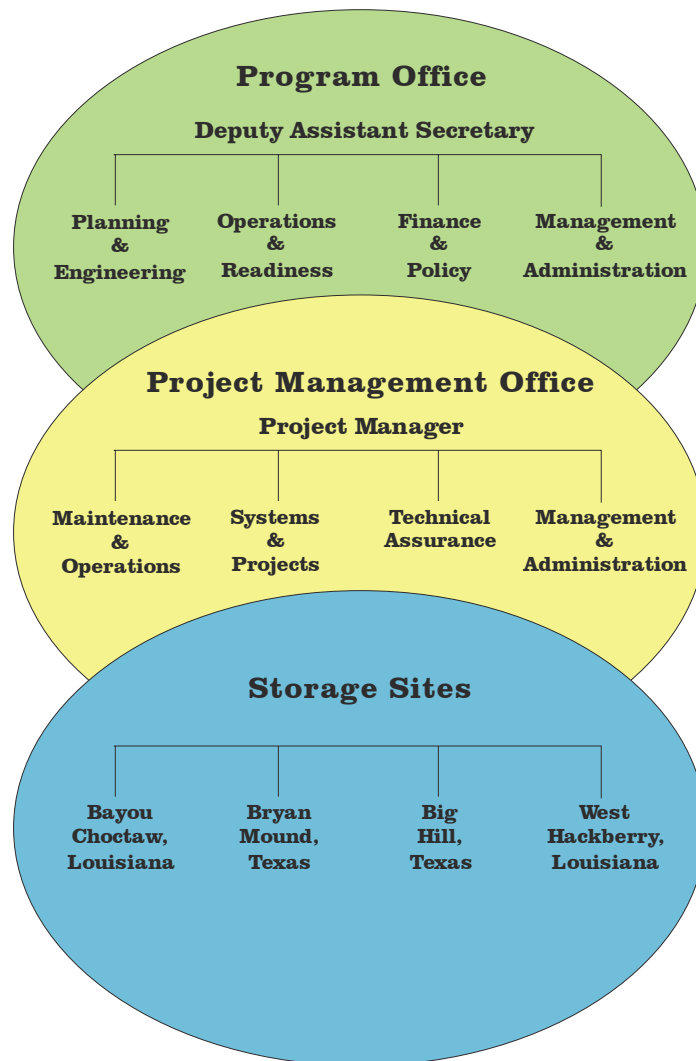
## PROGRAM MANAGEMENT

### 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 Strategic Petroleum Reserve

Program Office in Washington, D.C., and the Project Management Office in New Orleans, Louisiana. Total staffing is 108 Federal full-time equivalent employees and 831 contractor employees as of December 31, 2008. 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 employs a Management and Operating contractor, DynMcDermott Petroleum Operations Company, to provide management and personnel to operate and maintain the Strategic Petroleum Reserve facilities and related systems. DynMcDermott was awarded a five-year contract extension to operate the Strategic Petroleum Reserve through March 31, 2013.

URS Group Inc., an architect/engineering firm, provides design services for the four storage facilities, initially through March 8, 2007, with options for DOE to extend the contract for three additional years. The third option year was exercised in 2008. Sandia National Laboratory provides geotechnical support.

ASRC Construction, Inc., a Native Alaskan 8(a) small disadvantaged business, provides construction and construction management services for the four storage facilities under a two-year contract, awarded November 25, 2003, with three one-year renewal option periods. On August 19, 2008, a new contract for construction and construction management was awarded. The three year contract to AGSC, a Native Alaskan 8(a) small disadvantaged business, provides for two one-year renewal option periods.

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 is Deltha-Critique, an 8(a) small disadvantaged business, which provides management and technical support services to the Project Management Office under a contract that commenced November 1, 2006. 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, Constellation Energy 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 the Sunoco Partners Marketing & Terminals, L.P. is in its second five-year option period, which commenced May 1, 2008. Unocal Corporation is in its third five-year option period, which expires April 23, 2012, and the period of performance for Seaway Crude Pipeline, Inc. expires December 1, 2011.

## **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. The Strategic Petroleum Reserve has two sites in Texas, i.e., Bryan Mound and Big Hill, and two sites in Louisiana, i.e., West Hackberry and Bayou Choctaw. These four sites have a combined oil storage capacity of 727 million barrels and a drawdown capability of 4.4 million barrels per day. Table 1 shows the storage capacity and drawdown capability of each of the four storage sites as of December 31, 2008.

All oil stored in the Strategic Petroleum Reserve's oil storage facilities is stored in large underground storage caverns which have been developed in salt dome formations. Salt dome storage technology provides maximum security and safety for the Nation's stockpile of crude oil.

Salt dome storage is also by far the lowest cost technology for large-scale petroleum storage projects. The average operations cost for fiscal year 2008 was approximately \$0.187 per barrel. This includes the management, program staffing, operation & maintenance, and security. This cost is substantially less than commercial industry storage costs as well as most other foreign strategic oil reserves.

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 4.

**Table 4**  
**Storage Capacity and Drawdown Capability as of December 31, 2008**

Storage Facility	CURRENT SITE CAPABILITY		
	Storage Capacity (MMB)	Crude Mix Sweet/Sour (MMB)	Drawdown Capability (MB/D)*
<b>Bryan Mound</b>	<b>254</b>	<b>78/176</b>	<b>1,500</b>
<b>West Hackberry</b>	<b>228</b>	<b>120/108</b>	<b>1,300</b>
<b>Big Hill</b>	<b>171</b>	<b>73/98</b>	<b>1,100</b>
<b>Bayou Choctaw</b>	<b>74</b>	<b>22/52</b>	<b>515</b>
<b>Total Program</b>	<b>727</b>	<b>293/434 (40%/60%)</b>	<b>4,415</b>

Sweet = Low sulfur crude (S<0.5%)

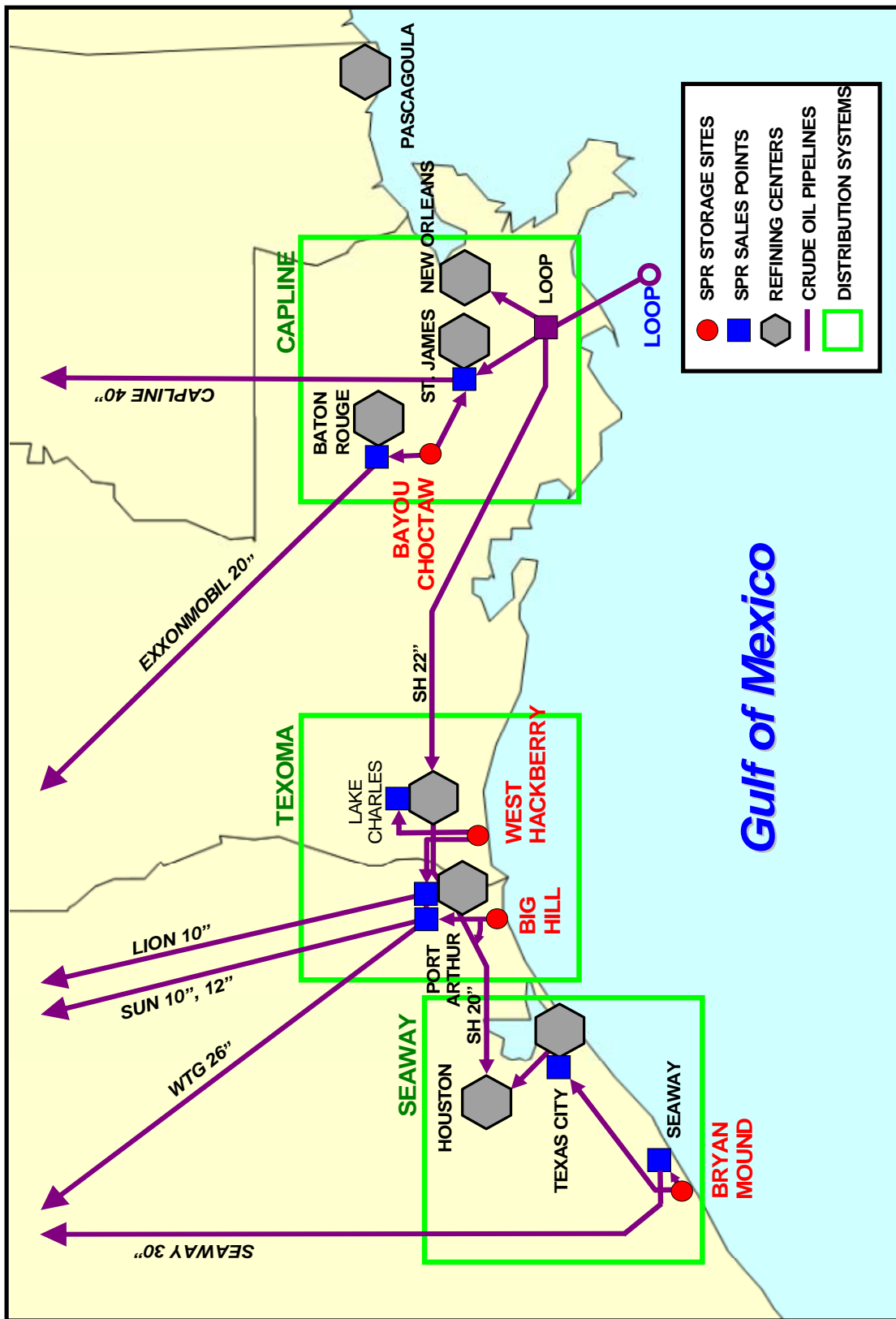
Sour = Medium sulfur crude (S<2.0%)

\* Initial 90-day capability

MMB = Million Barrels

MB/D = Thousand Barrels Per Day

Figure 2  
Storage Sites and Distribution System



### **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, a combined storage capacity of 254 million barrels, and a cavern inventory of 240.4 million barrels.

The Bryan Mound site was completed in 1986 and has been fully operational since. The Strategic Petroleum Reserve annually performs a number of major maintenance projects to maintain the site's operational capabilities. During 2008, construction was initiated on retrofitting an internal floating roof 200,000 barrel crude oil storage tank with an external floating roof. This was in response to the internal floating pan of the tank sinking in 2006 and becoming deformed due to the weight of the oil above it.

Construction also started on a comprehensive upgrade of the sites security systems. Upgrades include replacement of the site Alarm Detection and Assessments System (ADAS), replacement of site security cameras and the addition of enhanced security systems around site drawdown critical systems.

Construction also began on upgrades to the site's fire protection system. These upgrades include replacement of obsolete fire alarm panels, fire pump controllers and fire detection systems.

Bryan Mound was adversely affected by Hurricane Ike. Recovery efforts included removal of debris and repairs to buildings, valves, electrical systems, lighting and fences. The site was operational after six days.

### **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, a combined storage capacity of 228

million barrels and a cavern inventory of 222.5 million barrels.

The West Hackberry site was completed in 1988 and has been fully operational since. The Strategic Petroleum Reserve annually performs a number of major maintenance projects to maintain the site's operational capabilities. During 2008, construction was completed on upgrades to some site buildings. These upgrades included retrofitting some built-up flat roofs with new pitched metal roofs which are better able to handle the large amount of rainfall experienced in the region.

During 2008, construction was started on replacement of approximately 1,200 feet of the site's raw water header. This project was to replace a section of the header which had extensive internal corrosion.

Construction also began on upgrades to the site's fire protection system. These upgrades include replacement of obsolete fire alarm panels, fire pump controllers and fire detection systems.

The site was adversely affected by Hurricane Ike. The site flooded due to the high storm surge causing the brine disposal well area to sustain significant damage. Recovery efforts included repairs to buildings, removal of debris and repairs to pumps, electrical systems, valves, and fences. The site was operational after five days.

### **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 storage capacity of 171 million barrels, and a cavern inventory of 168.7 million barrels.

The Big Hill site was completed in 1991 and has been fully operational since. The Strategic Petroleum Reserve annually performs a number of



major maintenance projects to maintain the site's operational capabilities. During 2008, construction was completed on replacement of the site's raw water pig launcher/receiver facilities. These units are required to introduce inline inspection tools (pigs) into the pipeline to monitor corrosion. The units that were replaced were originally installed during the site's construction in the 1980s and due to corrosion had reached the end of their design life.

Construction also began on upgrades to the site's fire protection system. These upgrades include replacement of obsolete fire alarm panels, fire pump controllers and fire detection systems.

The Big Hill site sustained major damage as a result of Hurricane Ike. The storm's surge caused major damage to electrical, and security systems at the site's Raw Water Intake Structure (RWIS), and perimeter fencing at the main site. In addition, over 100 farm animal carcasses and huge piles of snake infested marsh grass littered perimeter fencing and entrances at the main site. Live animals that sought shelter from flood waters were later rounded up rodeo style. Several days after the storm's passing, major rehabilitation efforts were employed to reestablish readiness at the Big Hill. The site was operational after 17 days; however rehabilitation efforts will continue in 2009.

### **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 six storage caverns, a combined storage capacity of 74 million barrels, and a cavern inventory of 68.7 million barrels.

The Bayou Choctaw site was completed in 1987 and has been fully operational since. The Strategic Petroleum Reserve annually performs a number of major maintenance projects to maintain

the site's operational capabilities. During 2008, construction was completed on upgrades to some site buildings. These upgrades included retrofitting built-up flat roofs with new pitched metal roofs which are better able to handle the large amount of rainfall experienced in the region. Also upgraded were some building flooring and restroom facilities.

Construction also began on upgrades to the site's fire protection system. These upgrades include replacement of obsolete fire alarm panels, fire pump controllers and fire detection systems.

The Bayou Choctaw site had minor damage as a result of Hurricane Gustav. Recovery efforts included site cleanup and removal of debris and repairs to buildings and electrical components. The site was without power for 5 days due to damage to the off-site commercial electrical distribution system feeding into the site.

### **St. James Marine Terminal Status**

The Strategic Petroleum 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 aboveground storage tanks with a total storage capacity of two million barrels. This terminal is leased to Shell Oil Products US under a long-term lease agreement. Under the lease agreement, Shell provides for all the 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.

Construction of a new connection between the St. James terminal and the adjacent LOCAP terminal to enhance the Strategic Petroleum Reserve's emergency distribution capabilities was completed and in operation in April 2008. This new connection will enable unencumbered crude

oil distribution to the LOCAP terminal, the ExxonMobil pipeline and the new Plains terminal. The agreement with LOCAP, Inc. was established in 2006.

### ***Expansion of the Strategic Petroleum Reserve to One Billion Barrels***

The Energy Policy Act of 2005, enacted August 8, 2005, directed the Secretary of Energy to expand and fill the Strategic Petroleum Reserve to its authorized one billion barrel capacity “as expeditiously as practical without incurring excessive costs or appreciably affecting the price of petroleum products to consumers.”

After completing a process to prepare an Environmental Impact Statement for site selection to expand the capacity of the Reserve, a Record of Decision was signed by the Secretary of Energy on February 14, 2007, that identified the salt dome at Richton, Mississippi as the new Strategic Petroleum Reserve site. The selection of Richton was based on its salt dome, which is large and undeveloped, its enhanced distribution capabilities to serve Capline and Pascagoula, and its inland location which reduces potential hurricane impacts. Two existing Strategic Petroleum Reserve sites, Bayou Choctaw in Louisiana and Big Hill in Texas, were also selected to be expanded for storage of additional crude oil. Together the three projects would create enough capacity to bring the Reserve from its current 727 million barrels to one billion barrels.

### **Supplemental Environmental Impact Statement Preparation**

The National Environmental Policy Act (NEPA) requires that a Supplemental EIS (SEIS) be prepared if there are significant changes to a project after completion of an EIS. DOE published a “Determination to Prepare an SEIS” in the Federal Register on January 23, 2008. DOE stated that the location of certain off-site facilities

supporting the Richton development project need to be relocated to minimize potential environmental impacts and accommodate local economic development goals, specifically, the location of the water intake structure on the Leaf River, the oil terminal in Pascagoula, and the brine disposal pipeline in the Gulf of Mexico.

DOE published a “Notice of Intent to Prepare a SEIS” in the Federal Register on March 5, 2008. Both NEPA and DOE’s Implementing Procedures also require public participation in the agency’s environmental review process for a proposed project. In 2008, the following actions were taken to engage the public:

- Conducted four SEIS scoping meetings from April 7-10, 2008 in Perry, Greene, George, and Jackson counties of southern Mississippi - the areas impacted by the Richton Strategic Petroleum Reserve project.
- Posted scoping comments to the Strategic Petroleum Reserve website.
- Received and responded to public comments regarding the project.
- Published a quarterly newsletter, the Richton Report, in Summer 2008 and Fall 2008, to provide status on the SEIS effort to members of the public as well as State and local officials.

Following the scoping period, DOE initiated a number of studies, biological assessments, hydrological modeling, brine plume analyses, and social-economic impact analysis, in support of the SEIS during 2008.

- DOE conducted endangered species habitat studies along the Pascagoula River with the assistance of the Mississippi Museum of Natural Science.
- DOE utilized the technique In Stream Flow Incremental Methodology (IFIM) in collaboration with the U.S. Fish and Wildlife Service

and biologists from the Mississippi Department of Fisheries, Wildlife and Parks to analyze the potential impact of water withdrawal from the Pascagoula River through the new proposed water intake structure location.

- Analysis of the Okatibbee Reservoir was initiated with the USACE to determine if an emergency water agreement could be entered for use of the Okatibbee Reservoir to support construction development and operations and oil movement operations in conjunction with raw water intake from the Pascagoula River.
- A DOE study was initiated to determine if the reduction in flow of the Pascagoula River over the estimated 5-year solution mining period would result in changes to salinity in river water at the mouth of the Pascagoula where it empties into the Mississippi Sound.
- DOE initiated comprehensive brine diffusion modeling studies to evaluate the impacts of discharge brine from cavern dissolution emptying into the Gulf of Mexico. DOE used a multi-stage modeling approach using the “near field” models CORMIX and the U.S. EPA model UM3.
- DOE initiated and completed a social-economic study that analyzed the impacts of new Strategic Petroleum Reserve activities on State, County and local Government revenues within the State of Mississippi. This analysis included, but was not limited to, labor, income, population, and taxes.

### **Land Acquisition Activities [For Richton Site]**

DOE received \$25 million in the FY 2008 Budget for land acquisition activities at Richton. During 2008, the Strategic Petroleum Reserve completed a comprehensive assessment of seismic surveys of the salt dome and identified the proposed siting for the storage facility on the salt dome.

The Strategic Petroleum Reserve also performed an Archeological and Cultural Assessment and a Liability Assessment (CERCLA Phase I) of the proposed site location. The initial reports were completed in December 2008.

During 2008, the Strategic Petroleum Reserve tasked the U.S. Army Corps of Engineers (USACE), through an existing Interagency Agreement, to initiate action to acquire the property for the Richton storage site. The USACE is responsible for preparing title descriptions, appraisals, purchase offers and the site acquisition.

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## **PETROLEUM ACQUISITION AND EXCHANGE**

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### ***Crude Oil Inventory Status***

On December 31, 2008, the Strategic Petroleum Reserve's crude oil inventory was 701,822,766 barrels, an increase of 4.9 million barrels from the prior year. The increase in 2008 is the net effect of the receipts from the royalty-in-kind (RIK) oil transfer program and the temporary release of stocks under the Hurricanes Gustav and Ike emergency test exchanges.

The current mix of crude oil is 60 percent high sulfur (sour) and 40 percent low sulfur (sweet).

Table 5 lists year-end inventories and average daily fill rates for the years 1977 through 2008 (by fiscal and calendar year).

Table 6 lists crude oil receipts by country of origin since 1977.

Table 7 identifies the location of the inventory by storage site, and Figure 3 illustrates the cumulative oil fill.

### ***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.

Consistent with the EPOA 2005 direction to expand and fill the Strategic Petroleum Reserve to its authorized one billion barrel capacity, DOE assessed the potential impact of acquiring oil in

2008 through a continuation of the RIK program with the Department of the Interior (DOI). Assessments in September 2007 and March 2008, prior to RIK resolicitation activities, concluded that it would not exacerbate market conditions to continue filling the Strategic Petroleum Reserve through the RIK program.

### ***Royalty-in-Kind Crude Oil Transfers***

The continuation of the RIK program resulted in the addition of approximately 10.3 million barrels to the Strategic Petroleum Reserve during the period January to July 2008.

The RIK program has been used to fill the Strategic Petroleum Reserve since 1999. Under this program, oil producers provide a portion of crude oil drilled on federal offshore leases as "in kind" royalty payments to the DOI's Minerals Management Service in lieu of cash payments. DOI issues solicitations every six months for the delivery of offshore oil to designated "market centers." DOE contracts with commercial entities to receive the royalty oil at the market centers and transfer it to the Strategic Petroleum Reserve, either directly or with other crude oil delivered in exchange. Initially, the RIK exchange program provided barrels to replace 28 million barrels that had been sold in the years 1996-1997.

The royalty-in-kind initiative to fill the Strategic Petroleum Reserve to 700 million barrels was directed by the President in November 2001. Royalty transfers began in April 2002 and continued through July 2005. Exchange oil deliveries to the Strategic Petroleum Reserve were completed in August 2005 after a total of 108.9 million barrels had been delivered. By the end of August 2005, the Strategic Petroleum Reserve inventory had reached 700.7 million barrels.

The next phase of the RIK program began in 2007 with a new agreement for oil transfers from the Department of the Interior to DOE. Following completion of a September 2007 market assessment, a competitive solicitation resulted in the award of contracts to three companies for the transfer of approximately 68,000 barrels per day for six months starting January 1, 2008.

Consistent with the March 2008 market assessment, a succeeding solicitation was issued in April 2008, increasing the royalty transfer rate to approximately 85,000 barrels per day for the six-month period beginning July 1, 2008. However, the rapid increase in crude oil prices in the late spring led Congress to pass P.L. 110-232, the Strategic Petroleum Reserve Fill Suspension and Consumer Protection Act of 2008. Enacted May 19, 2008, P.L. 110-232 suspended Strategic Petroleum Reserve oil fill activities, to the maximum extent practical, until after December 31, 2008. As a result, no new royalty-in-kind exchange contracts were signed for the remainder of the year.

P.L. 110-232 also directed the Secretary of Energy, to the maximum extent practicable, to negotiate a deferral of the delivery of oil already under contract. The Department negotiated the deferral of 2.2 million of the remaining barrels that had been scheduled for delivery through July 2008, and in accordance with acquisition procedures in 10 CFR 626, will receive premium barrels reflecting a fair share of the market value of the deferral. The deferred barrels will be delivered in the spring of 2009.

From 1999 through 2008, the Strategic Petroleum Reserve has received a total of 155.8 million barrels of crude oil through the RIK program.

### ***Hurricanes Gustav and Ike Test Exchanges***

In September 2008, Hurricanes Gustav and Ike hit the Gulf Coast causing petroleum supply shortages. The Strategic Petroleum Reserve implemented emergency test exchanges with several refiners, negotiating agreements with five companies for a total release of 5.4 million barrels of crude stocks.

A test exchange was approved on September 3, 2008, by the Secretary of Energy under the authority provided by EPCA section 161(g). The test exchange authority, legally limited to 5 million barrels per occurrence, accommodated requests for emergency exchanges from multiple refiners and allowed evaluation of the Department of Energy's emergency procedures and response capabilities in a limited emergency logistical supply disruption. A second test exchange was authorized on September 29, 2008, for the continued evaluation of the storm-affected Strategic Petroleum Reserve sites' emergency response and exchange capabilities in addressing the ongoing adverse impacts on industry from the two hurricanes.

The emergency exchange agreements required the later return of like oil to the Strategic Petroleum Reserve, plus additional premium barrels. Because P.L. 110-232 required the suspension of acquisition of petroleum for the Strategic Petroleum Reserve by any method during the second half of 2008, the loaned oil and premium barrels, a total of 5.5 million barrels, were contracted to be returned in 2009.

In accordance with EPCA section 161(g)(8), a separate, detailed report on the test exchanges will be submitted to Congress when return of the exchange barrels has been completed in 2009.

**Table 5**  
**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>4</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>

MMB = Million Barrels MB/D = Thousands of Barrels per Day

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

**Table 6**  
**Crude Oil Receipts through December 2008\***  
**(Million Barrels)**

<b>Source Country</b>	<b>2008</b>	<b>Cumulative</b>	<b>Percent of Total (%)</b>
<b>Mexico</b>	<b>0.6</b>	<b>266.3</b>	<b>32.2</b>
<b>United Kingdom</b>		<b>192.9</b>	<b>23.3</b>
<b>United States**</b>	<b>3.2</b>	<b>100.6</b>	<b>12.2</b>
<b>Saudi Arabia</b>		<b>28.3</b>	<b>3.4</b>
<b>Libya</b>		<b>27.5</b>	<b>3.3</b>
<b>Venezuela</b>		<b>25.3</b>	<b>3.1</b>
<b>Angola</b>	<b>1.0</b>	<b>25.1</b>	<b>3.0</b>
<b>Iran</b>		<b>20.0</b>	<b>2.4</b>
<b>United Arab Emirates</b>		<b>19.3</b>	<b>2.3</b>
<b>Nigeria</b>		<b>16.3</b>	<b>2.0</b>
<b>Russia</b>	<b>2.6</b>	<b>15.8</b>	<b>1.9</b>
<b>Equatorial Guinea</b>		<b>15.1</b>	<b>1.8</b>
<b>Cameroon</b>	<b>1.9</b>	<b>14.5</b>	<b>1.8</b>
<b>Norway</b>		<b>14.0</b>	<b>1.7</b>
<b>Oman</b>	<b>1.0</b>	<b>11.9</b>	<b>1.4</b>
<b>Algeria</b>		<b>9.3</b>	<b>1.1</b>
<b>Egypt</b>		<b>8.9</b>	<b>1.1</b>
<b>Ecuador</b>		<b>6.2</b>	<b>0.7</b>
<b>Iraq</b>		<b>3.4</b>	<b>0.4</b>
<b>Gabon</b>		<b>2.4</b>	<b>0.3</b>
<b>Qatar</b>		<b>2.3</b>	<b>0.3</b>
<b>Columbia</b>		<b>1.2</b>	<b>0.1</b>
<b>Peru</b>		<b>0.4</b>	<b>≤0.1</b>
<b>Argentina</b>		<b>0.4</b>	<b>≤0.1</b>
<b>Ivory Coast</b>		<b>0.4</b>	<b>≤0.1</b>
<b>Total***</b>	<b>10.3</b>	<b>827.9</b>	<b>100.0</b>

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

\*\* Included receipts from offshore Gulf of Mexico.

\*\*\* Totals do not add due to rounding.

**Table 7**  
**Crude Oil Inventory as of December 31, 2008**  
**(Million Barrels)**

Storage Site	Inventory			Cubic Meters (Millions)
	Sweet*	Sour**	Total***	
<b>Bryan Mound, Brazoria County, Texas</b>	<b>74.7</b>	<b>165.7</b>	<b>240.4</b>	<b>38.2</b>
<b>Big Hill, Jefferson County, Texas</b>	<b>71.3</b>	<b>97.4</b>	<b>168.7</b>	<b>26.8</b>
<b>West Hackberry, Cameron Parish, Louisiana</b>	<b>115.5</b>	<b>107.0</b>	<b>222.5</b>	<b>35.4</b>
<b>Bayou Choctaw, Iberville Parish, Louisiana</b>	<b>17.2</b>	<b>51.5</b>	<b>68.7</b>	<b>10.9</b>
<b>Subtotal Underground Inventory</b>	<b>278.7</b>	<b>421.6</b>	<b>700.3</b>	<b>111.3</b>
<b>Tanks and Pipelines</b>	<b>0.7</b>	<b>0.8</b>	<b>1.5</b>	<b>0.2</b>
<b>Total Inventory</b>	<b>279.4</b>	<b>422.4</b>	<b>701.8</b>	<b>111.6</b>
<b>Total Accounts Receivable</b>	<b>4.8</b>	<b>3.0</b>	<b>7.8</b>	<b>1.2</b>
<b>Total SPR Book Inventory</b>	<b>284.2</b>	<b>425.4</b>	<b>709.6</b>	<b>112.8</b>

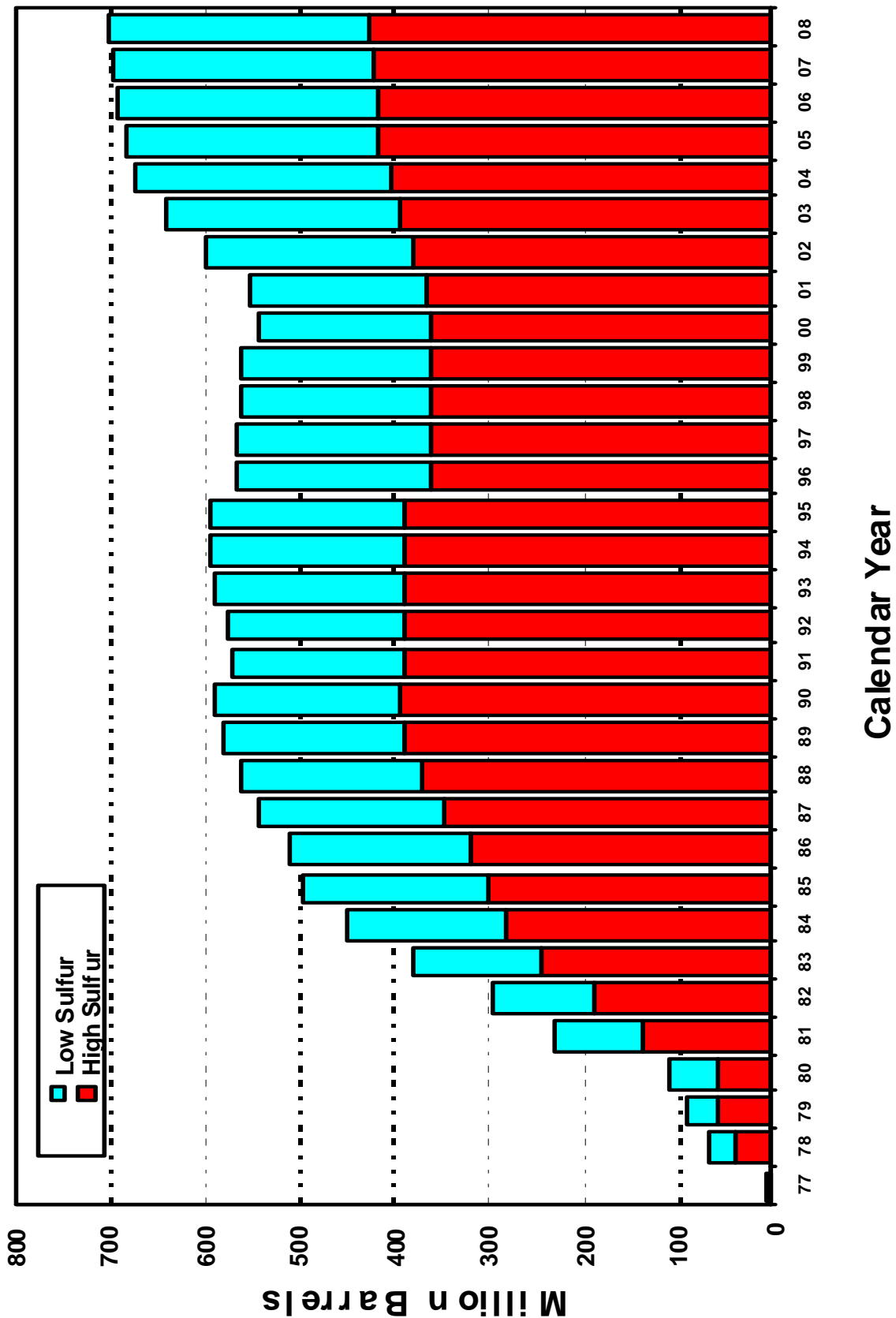
\* Sulfur content not exceeding 0.5 percent

\*\* Sulfur content greater than 0.5 percent

\*\*\* Totals do not add due to rounding



Figure 3  
Cumulative Oil Fill



## ***EMERGENCY RESPONSE CAPABILITIES***

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### ***Sale of Oil***

Under section 161 of EPCA, upon direction by the President, the Secretary of Energy is required to sell oil withdrawn from the Strategic Petroleum Reserve at public sale to the highest qualified offerors.

### ***Competitive Sales Procedures***

DOE regulations govern the process for the price competitive sales of petroleum from the Strategic Petroleum Reserve<sup>1</sup>, including the establishment of *Standard Sales Provisions* which contain provisions to be utilized in the contracts for the sale of the Strategic Petroleum Reserve petroleum<sup>2</sup>. 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, delivery dates, and procedures for submitting 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, each covering 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, with delivery of oil commencing as soon as thirteen days after the Presidential direction to draw down the Strategic Petroleum Reserve. Subsequent sales periods will coordinate Notice of Sale issuance 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 5 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 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 offerors responsible, Notices of Award are issued. Deliveries to the purchasers may then begin, consistent with their 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 or delivery mode or location changes. Payment is due in the month following the delivery.

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1. 10 CFR Part 625 (48 FR 56538, 12/21/83).

2. Standard Sales Provisions (70 FR 39364, 7/7/05).

### 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 8 identifies these crude oil streams, delivery modes and locations, as of December 31, 2008.

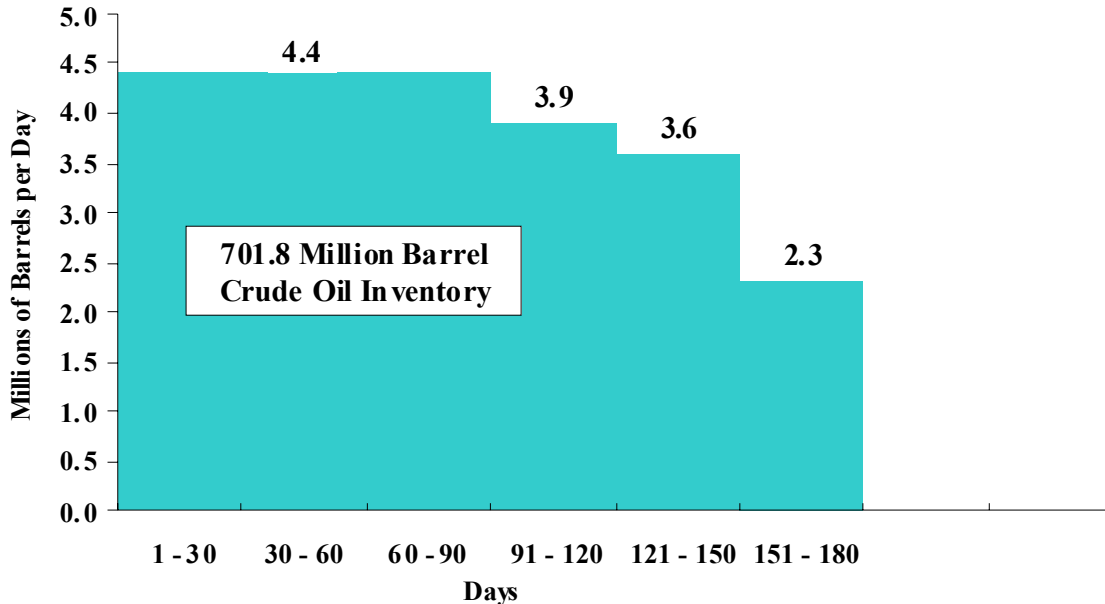
**Table 8  
Crude Oil Streams**

Crude Oil Stream	Gravity (°API)	Sulfur Content (Mass%)	Delivery Mode and Location
<b>Seaway System</b>			
Bryan Mound (Sweet)	36.4	0.37	Pipeline or tankship at Seaway (TEPPCO) Terminal, Freeport, Texas; or Seaway (TEPPCO) Terminal, Texas City, Texas
Bryan Mound (Sour)	33.3	1.43	
<b>Texoma System</b>			
West Hackberry(Sweet)	36.9	0.32	Pipeline, tankship or barge at Sun Partners Marketing & Terminals LP, Nederland, Texas; Pipeline at Shell-22"/DOE connection, Lake Charles, Louisiana
West Hackberry (Sour)	33.5	1.41	
Big Hill (Sweet)	35.4	0.41	Pipeline, tankship or barge at Sun Partners Marketing & Terminals LP, Nederland, Texas; Pipeline or tankship at Unocal Terminal Nederland, Texas; Pipeline at Shell-20"/DOE connection, Winnie, Texas
Big Hill (Sour)	30.7	1.46	
<b>Capline System</b>			
Bayou Choctaw(Sweet)	36.8	0.40	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	

The Strategic Petroleum Reserve can draw down crude oil at a maximum initial sustainable rate of 4.4 million barrels per day, 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.

Figure 4 illustrates the physical drawdown capability which provides for a maximum distribution of 396 million barrels in 90 days, and 690 million barrels in 180 days. The initial sustainable rate is at the system design maximum.

**Figure 4**  
**Projected Maximum Drawdown Capability**  
**(As of December 31, 2008)**



Note: Rates after 90 days are based on cavern-use assumptions. Actual rates are contingent on the specific caverns drawn down during a previous drawdown period.

### ***Drawdown Readiness Activities***

Drawdown Readiness Assurance activities during 2008 included:

- The Personal Readiness Is Drawdown Excellence (PRIDE) 7 drawdown readiness exercise was conducted on June 30 and July 15, 2008, to exercise and determine the benefit in taking back control of the DOE Bryan Mound to Texas City 40" pipeline and the Bryan Mound to Jones Creek 30" pipeline during a drawdown. These DOE pipelines are currently being leased by ExxonMobil, who actively participated in the exercise.
- The Drawdown Readiness Review (DDR) program requires and monitors quarterly drawdown readiness. The DDR conducted four reviews during 2008 which confirmed that all sites and systems were prepared for a crude oil exchange or drawdown 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, personnel, and collects data to further ensure a readiness status.
- A Bayou Choctaw STE was conducted on July 17, 2008, pumping sour crude oil from the site caverns to LOCAP tanks via the Bayou Choctaw (Redstick) Pipeline and a new connection between St. James (Sugarland) Terminal and LOCAP. The target rate of 22,583 barrels per hour (542 thousands of barrels per day (MBD)) for both water and oil was met.
- The West Hackberry STE was successfully conducted on January 9, 2008. Crude oil from four West Hackberry

sweet caverns was drawn down at an average rate of 660 MBD for 3.6 hours to Sun Terminal through the DOE/Sun pipeline and meter skid and into Sun Terminal tankage.

- As a result of power outages from Hurricane Gustav, the Strategic Petroleum Reserve Recovery Equipment was deployed to the Bayou Choctaw site. The equipment was moved and installed (except for the final tie-ins) within the required 15 day timeframe. Power was restored to the area before the equipment was needed for Gustav crude oil exchanges.

### ***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 22 refineries in the Gulf Coast region via local commercial pipelines. The Strategic Petroleum Reserve is capable of delivering crude oil to 26 refineries in the mid-continent (Kansas/Oklahoma) and Midwest (Illinois/Indiana/Ohio) regions via three major interstate pipeline systems – Seaway Pipeline System to Cushing, OK, MidValley Pipeline System to mid Ohio, and Capline Pipeline System to Patoka, IL. In total, the Strategic Petroleum Reserve is connected by commercial pipeline systems to more than half of the refining capacity in the United States. These 48 refineries processed approximately 56 percent of crude oil imports to the United States during 2008.

The Strategic Petroleum Reserve is connected to five marine terminals which have a

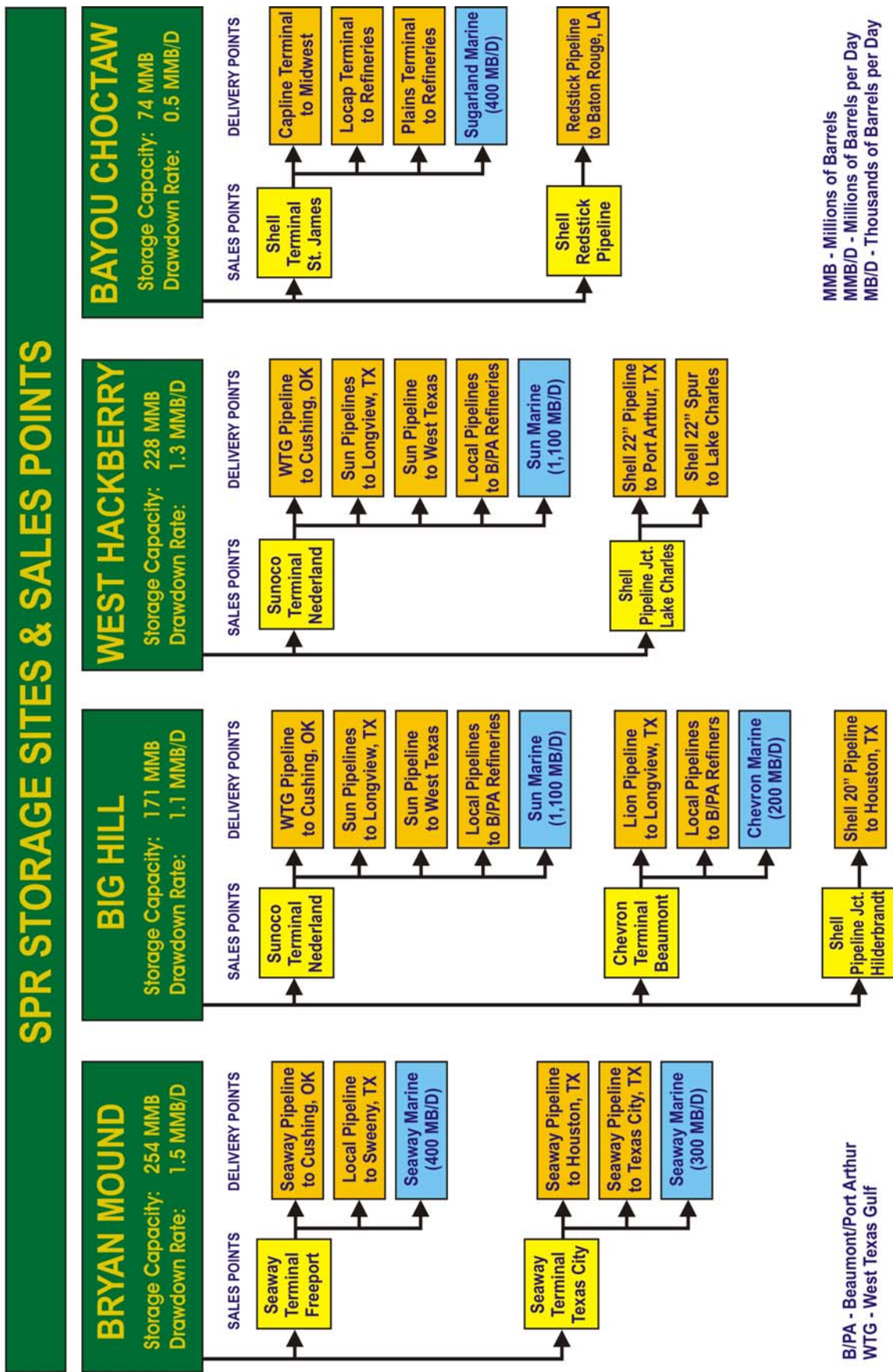
combined marine distribution capacity of approximately 2.5 million barrels per day. These are: Seaway Terminal (TEPPCO), Freeport, Texas; Seaway Terminal (TEPPCO), Texas City, Texas; Sunoco and Unocal Terminals, Nederland, Texas; and Sugarland St. James Terminal, St. James, Louisiana.

Table 9 summarizes drawdown and distribution capabilities, based on current crude oil stream inventories, existing site drawdown systems, and commercial distribution capabilities. Figure 5 illustrates the Strategic Petroleum Reserve's pipeline and marine distribution capabilities.

**Table 9**  
**Initial (Thirty-Day) Drawdown and Distribution Capabilities**  
**As of December 31, 2008**  
**(Thousands of Barrels Per Day)**

	Drawdown	Distribution
<b>Seaway System</b>	<b>1,500</b>	<b>2,357</b>
<b>Texoma System</b>	<b>2,400</b>	<b>3,077</b>
<b>Capline System</b>	<b>515</b>	<b>1,406</b>
<b>Total</b>	<b>4,415</b>	<b>6,840</b>

Figure 5  
Pipeline and Marine Distribution Capabilities



## Distribution Assessment

The Strategic Petroleum Reserve performs an annual assessment of its crude oil distribution capabilities to (a) ensure there are adequate connections to the commercial distribution systems and (b) identify the need for any remedial plans. The 2008 distribution assessment evaluated the Strategic Petroleum Reserve's capability, at its maximum drawdown rate, to replace oil imported in the base year (2007) and for future years of 2010, 2015, 2020 and 2030.

### Base Year Assessment

The 2008 assessment confirms that the Strategic Petroleum Reserve storage sites have sufficient offsite pipeline and marine distribution capabilities (defined as exceeding 120 percent of the maximum drawdown rate as required by the Strategic Petroleum Reserve's Level 1 Performance Criteria), to achieve their maximum drawdown rates in the event of a disruption in foreign crude imports. Table 10 provides the performance measures for the base year.

**Table 10**  
**Base Year Distribution Assessment**  
**(Thousands of Barrels Per Day)**

System	Distribution Capability	Performance Measure
Seaway	2,357	157%
Texoma	3,077	128%
Capline	1,406	273%
Total	6,840	155%

### Future Year Assessments

For the future years 2010, 2015, 2020 and 2030, the Strategic Petroleum Reserve performed assessments on two cases: a 'Reference Case'

using the U.S. petroleum refining supply and demand projections from the Energy Information Administration's *Annual Energy Outlook 2008* and a 'Low Imports Case' using the planning projections for Canadian crude imports into the U.S. from the Canadian Association of Petroleum Producers (CAPP) 2008. The *Annual Energy Outlook 2008* provided a very conservative projection of Canadian imports in comparison to the industry's CAPP 2008 projections (Figure 6). An assessment of both cases was necessary to establish the boundaries of performance projections.

### Reference Case Assessment

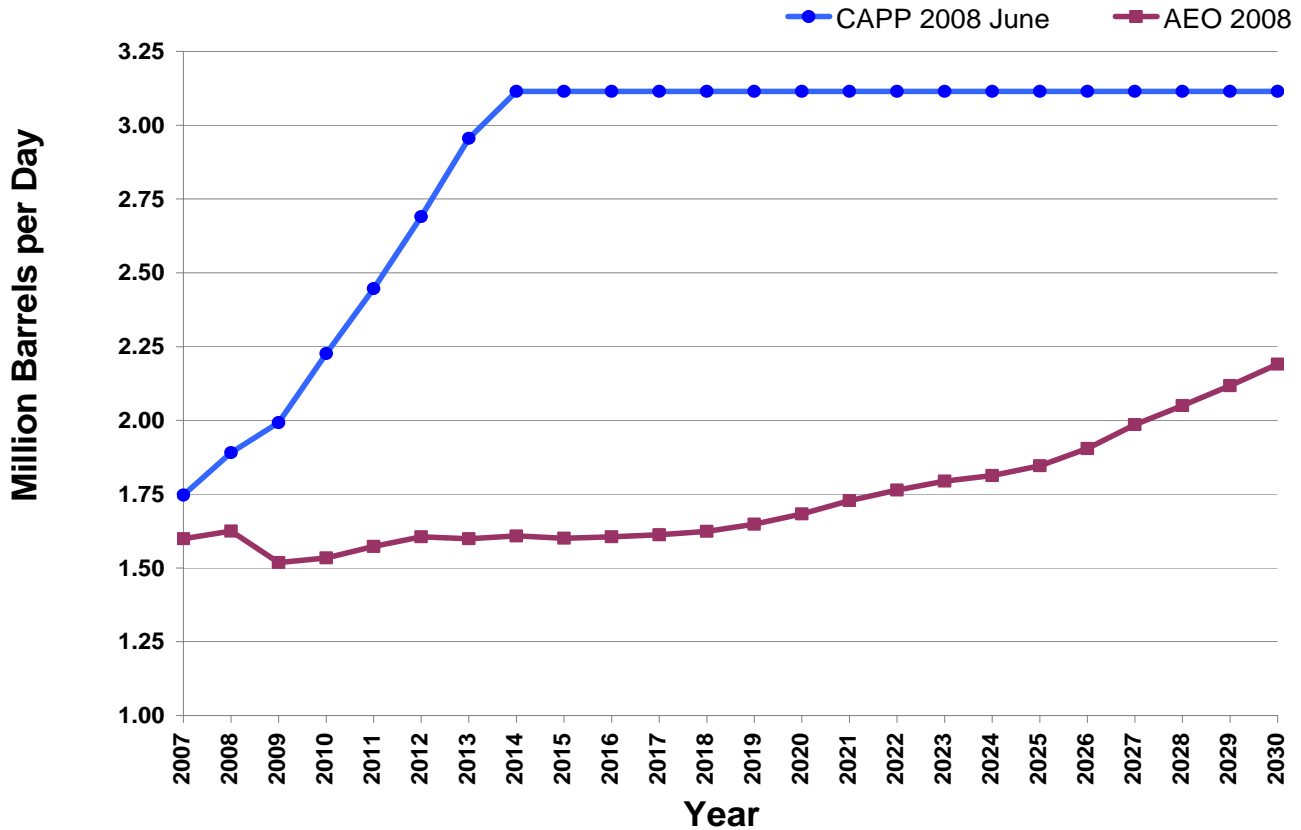
Based on the EIA *Annual Energy Outlook 2008* projections for U.S. petroleum imports, the Distribution Assessment concluded that the distribution capability of the Strategic Petroleum Reserve exceeds its Level 1 Performance Criteria through 2030 and that there is no need for the Strategic Petroleum Reserve to develop a remedial plan to maintain sufficient connectivity to commercial distribution systems. Table 11 provides the performance measures by system for each forecast period. The Seaway system maintains performance measures above 150% throughout the forecast period. The Texoma system maintains performance measures over 130% for all forecast periods. Finally, the Capline system maintains performance measures over 290% throughout the forecast periods.

**Table 11**  
**Summary of Reference Case**  
**Performance Measures**

System	2010	2015	2020	2030
Seaway	164%	164%	164%	152%
Texoma	144%	144%	143%	136%
Capline	317%	307%	295%	295%



**Figure 6**  
**Canadian Import Projection Comparison**  
 (Source: EIA AEO 2008 & CAPP 2008)



**Low Imports Case Assessment**

The Low Imports Case assumes continuing increases in Canadian crude imports from existing and new tar sands production as forecast by the Canadian Association of Petroleum Producers in 2008. The increase in Canadian crude imports results in lower Gulf Coast crude imports which in turn impact the Strategic Petroleum Reserve’s oil distribution capabilities.

Under the Low Imports Case, the Distribution Assessment concluded that the distribution capability of the Strategic Petroleum Reserve will meet Level 1 Performance Criteria through 2015 for all Strategic Petroleum Reserve systems, and through 2030 for the Seaway and

Capline systems (Table 12). Though the Texoma system falls marginally below acceptable criteria of 120% drawdown capability for 2020 and 2030, there is no immediate need for the Strategic Petroleum Reserve to develop a remedial plan to maintain sufficient connectivity to commercial distribution systems.

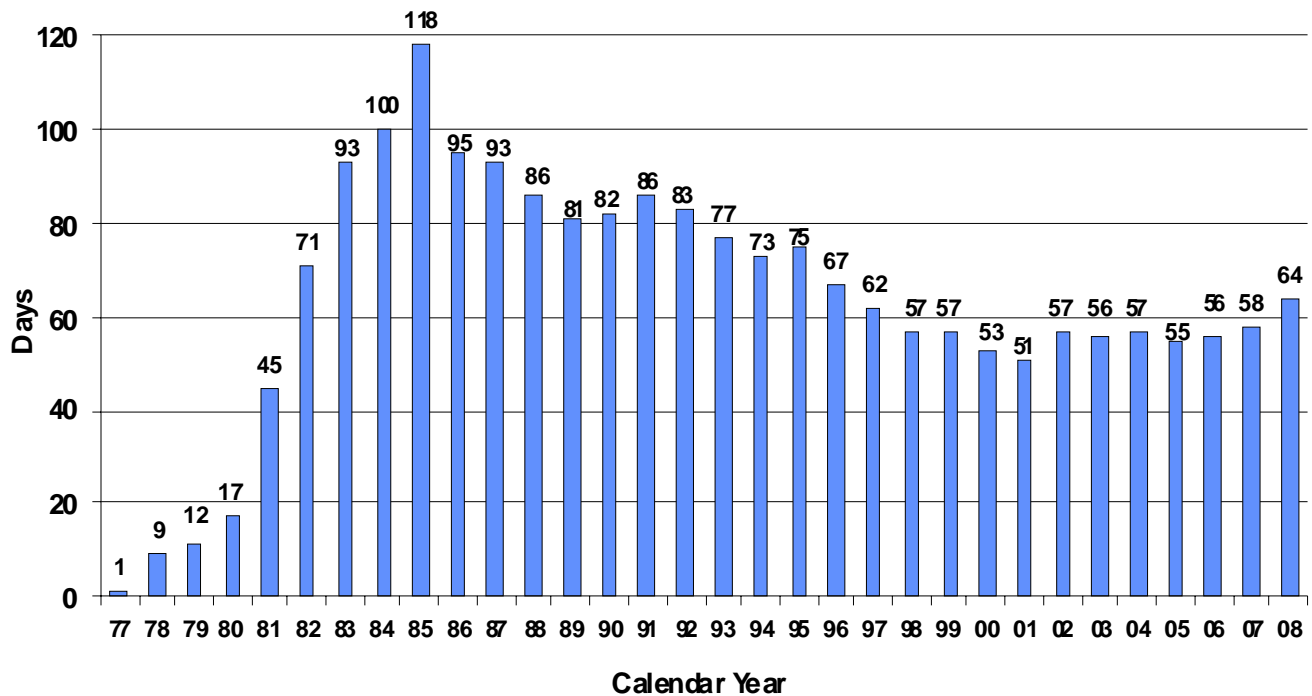
**Table 12**  
**Summary of Low Imports Case Performance Measures**

System	2010	2015	2020	2030
Seaway	156%	128%	125%	124%
Texoma	139%	122%	119%	118%
Capline	295%	307%	220%	220%

### Import Protection Levels

EPCA, as it originally was enacted in 1975, called for the Strategic Petroleum Reserve to store the amount of oil equivalent to about three months (or about 90 days) of oil imports – which at that time equated to about 500 million barrels. This statutory requirement was repealed by the Energy Act of 2000 (P.L. 106-469, November 9, 2000). Figure 7 shows the Strategic Petroleum Reserve inventory of 701.8 million barrels on December 31, 2008, which amounted to 64 days of net import protection (crude oil and refined products).

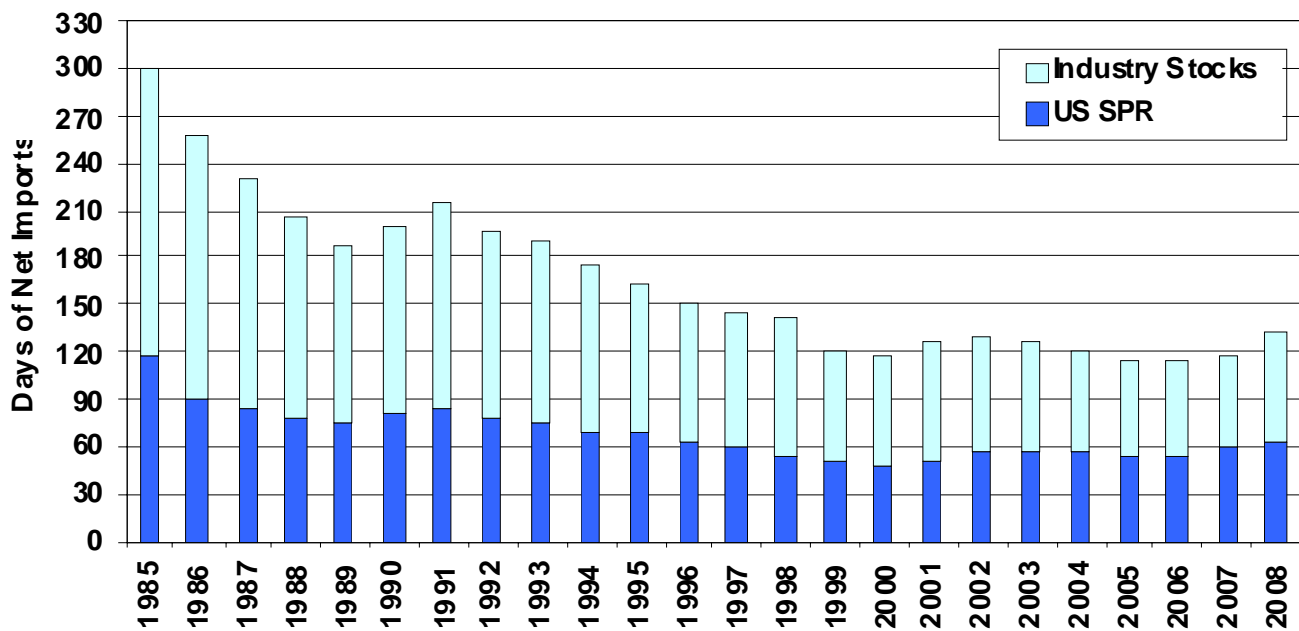
**Figure 7**  
**Strategic Petroleum Reserve Days of Net Import Protection (1977-2008)\***



\* Days of Protection = Year End Inventory ÷ USNet Petroleum Imports/Day

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 ninety days of net oil imports. Computations of member-nations' stockpile requirements are based on both public 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 134 days of emergency reserves, based on both the Strategic Petroleum Reserve and privately held stocks. Figure 8 provides end-of-year computations for the United States through 2008.

**Figure 8**  
**International Energy Program**  
**U.S. Emergency Stocks**



## COMMERCIALIZATION ACTIVITIES

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### **Commercial Leases**

Since 1995, 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 an emergency drawdown of oil, the leased facilities can be returned on 15 days notice.

**Bayou Choctaw Pipeline:** In 2008, lease revenues totaled \$321,799.48 primarily due to the increased movements on this pipeline for Hurricanes Gustav and Ike deliveries. 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. The Strategic Petroleum Reserve and Shell mutually agreed to extend the current lease until December 31, 2008, a period of nine months beyond the original expiration date. All future extensions will be on a calendar year basis. Absent a notification of termination by the Lessee, the lease was automatically renewed for another year, through December 31, 2009, in accordance with the lease agreement.

**Bryan Mound Pipelines:** In 2008, lease revenues totaled \$1,211,170.82. 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. ExxonMobil has notified the Strategic Petroleum Reserve of its intention to exercise its first 5-year option on this lease. Discussions have commenced concerning the lease extension and other issues.

**St. James Terminal:** In 2008, St. James Terminal lease revenues amounted to \$1,700,000.04. 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 re-negotiated 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.

### **Foreign Oil Storage**

The Strategic Petroleum Reserve promotes the concept of storing foreign oil in its unused storage space as a strategy to increase world oil stockpiling, generate revenues for the United States Treasury, and/or add oil to the Strategic Petroleum Reserve (in lieu of a fee). The Balanced Budget Act of 1997 provides specific authority to store petroleum products of another country, or its representatives, in the facilities of the Strategic Petroleum Reserve, provided that the United States is fully compensated for all related costs, and that the ability to draw down Strategic Petroleum Reserve oil is not impaired.

To enhance the Strategic Petroleum Reserve's offer to store oil for foreign governments or their representatives, the Big Hill storage site was activated as a special purpose Foreign Trade Zone subzone on September 28, 1998. This designation permits customers to store oil without paying customs fees and certain taxes. The Big Hill storage site is the only storage site to receive this designation.

There were no new commercial or foreign storage initiatives during 2008.

### Commercialization Revenues

During calendar year 2008, receipts to the U.S. Treasury were \$3,232,970 from the commercial leases of the Strategic Petroleum Reserve's distribution facilities and pipelines. Table 13 summarizes commercialization revenues from 1996 to 2008.

**Table 13**  
**Summary of Commercialization Revenues as of December 31, 2008**  
**(Actual Dollars)**

Calendar Year	Bryan Mound Pipeline	Big Hill Pipeline	Bayou Choctaw Pipeline	St. James Terminal Lease	Total Revenue Generated
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

## **BUDGET AND FINANCE**

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With enactment on December 26, 2007, the Consolidated Appropriations Act, 2008 (P.L. 110-161) provided final budget authority for the Strategic Petroleum Reserve of \$188,472,000. After an across-the-board general reduction, the Strategic Petroleum Reserve budget authority totaled \$186,757,000, of which \$24,773,000 was provided to carry out new site land acquisition activities as part of the proposed expansion of the Strategic Petroleum Reserve.

### ***Appropriations through Fiscal Year 2008***

A total amount of \$22.8 billion, net of sales and transfers, has been appropriated for the Strategic Petroleum Reserve through fiscal year 2008. Included in this total is the distribution of annual appropriations described in Table 14.

### ***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, Louisiana; and the activities pertinent to major issues concerning the development and use of the Strategic Petroleum Reserve. Beginning in FY 2008, the Strategic Petroleum Reserve Account included designated funding for new site land activities related to the expansion of the Strategic Petroleum Reserve to 1.0 billion barrels.

Obligations for the Strategic Petroleum Reserve in fiscal year 2008 totaled approximately \$175.4 million. From this amount, \$16.8 million was obligated for Federal program management, \$141 million was obligated for contractual goods and services to operate and maintain the Strategic Petroleum Reserve and \$17.6 million was obligated for expansion activities.

### ***SPR Petroleum Account***

The SPR Petroleum Account funds the acquisition of oil for the Strategic Petroleum Reserve, the associated costs for transportation and terminalling, United States 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. An amount equal to receipts realized as a result of the oil sale is deposited with the Department of Treasury in the SPR Petroleum Account to create additional budget authority for filling the Strategic Petroleum Reserve.

For fiscal year 2008, the capitalized cost of the crude oil in the Strategic Petroleum Reserve was \$20.4 billion, for an average cost per barrel of approximately \$29.05 (excluding storage costs). Since April 1999, the cumulative dollar value of the barrels received from contracts awarded in exchange for royalty oil from DOI total \$5.7 billion. The value of crude oil received from the RIK program in fiscal year 2008, was \$1.2 billion.

The value of the RIK transferred from DOI to DOE by fiscal year is shown in Table 15.

**Table 14**  
**Annual Appropriations (\$000) for Storage Facilities Operations and Management and Petroleum Acquisition and Transportation as of December 31, 2008**

Fiscal Year	Oil Account	Facilities	Management	Expansion	Total	Defense SPR
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		(2,000,000)	
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 Petroleum Account	(187,000)	170,173	16,827		0	
1996 Weeks Island Oil Sale	(97,114)	97,114	0			
1996 deficit reduction oil sale	(227,000)	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	

\* Includes reprogramming and rescission actions.

Note: Fiscal year 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 fiscal year 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 the return of \$43,000,000 from the SPR Petroleum Account

**Table 15**  
**Value of Royalty-in-Kind Transferred by the Department of the Interior**

<b>Fiscal Year</b>	<b>Royalty-in-Kind Transfer Total Barrels (Source: Department of Energy)</b>	<b>Department of the Interior* Forgone Receipts - (\$000) (Source: Department of Interior)</b>
<b>1999</b>	<b>11,928,981</b>	<b>**</b>
<b>2000</b>	<b>15,105,558</b>	<b>560,521</b>
<b>2001</b>	<b>1,568,220</b>	<b>61,654</b>
<b>2002</b>	<b>10,575,379</b>	<b>262,752</b>
<b>2003</b>	<b>34,742,046</b>	<b>1,044,350</b>
<b>2004</b>	<b>35,506,135</b>	<b>1,191,284</b>
<b>2005</b>	<b>25,185,527</b>	<b>1,194,618</b>
<b>2006</b>	<b>0</b>	<b>0</b>
<b>2007</b>	<b>8,742,829</b>	<b>306,191</b>
<b>2008</b>	<b>15,943,421</b>	<b>1,600,027</b>
<b>Total</b>	<b>159,298,096</b>	<b>6,221,397</b>

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

\*\* Department of Interior data not available

### ***Performance Measurement***

In FY 2008, the Strategic Petroleum Reserve tracked 21 measures in Program Reviews that are considered 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. Twenty of the 21 measured targets were either exceeded or met during this period.

The financial measure of "Operating Cost per Barrel of Storage Capacity" was \$0.187 versus a target of \$0.204. This is a measure of operational cost-effectiveness and indicates an efficient use of financial resources. This measure is used to promote the efficient use of taxpayer resources provided to operate the Reserve.

One measure not met was the "Number of Barrels of Crude Oil Inventory in Storage" with a status of 702.4 million barrels vs. a target of 711.3 million barrels for FY 2008. This result was due to the DOE response in delivering emergency exchange oil from the Strategic Petroleum Reserve to several refiners along the Gulf Coast to alleviate oil supply disruptions caused by Hurricanes Gustav and Ike and to comply with P.L. 110-232, with the deferral into 2009 of 2.2 million barrels, originally scheduled for FY 2008 delivery.

A complete accounting of the program's measures is reflected in Table 16. Details of these program goals, objectives and the progress are contained in the Strategic Petroleum Reserve's *Annual Performance Report*.

In FY 2008, the critical few performance measures were again incorporated into the *Strategic Petroleum Reserve Annual Operating Plan* as required by DOE.



**Table 16  
Performance Measures**

Performance Measures	FY 2007 Actual Performance	FY 2008 Target Output	FY 2008 Actual Performance
<b>Public Confidence: Oil Inventory, Drawdown Readiness and Distribution</b>			
Number of Barrels of Crude Oil Inventory in Storage	692.8 MMB	711.3 MMB	702.4 MMB
90-Day Sustainable Drawdown Rate	4.40 MMB/Day	4.40 MMB/Day	4.40 MMB/Day
Number of Days to Commence Crude Oil Drawdown	13 Days	13 Days	13 Days
Distribution Capability as a Percentage of Drawdown Rate	156%	≥ 120% of Drawdown Rate	156%
Calculated Site Availability	97.75%	≥ 95%	97.8%
Calculated Maintenance Performance Appraisal Report Rating	98.2%	≥ 95% of Possible Points	98.3%
Percent of Site Security Ratings that are Satisfactory	N/A	100%	100%
Number of Barrels of Heating Oil Inventory in Storage	1.965 MMB	2.0 MMB	1.984 MMB
Number of Days to Complete Heating Oil Drawdown	12 Days	12 Days	12 Days
Number of Barrels of Crude Oil Processed	N/A	37 MMB	4.2 MMB
<b>Excellent Customer Service: Customer Knowledge and Focus</b>			
Percentage of Key Customers Visited	54%	33%	59%
<b>Responsible Stewardship: Operational Effectiveness, Efficiency and Knowledge Management/Fiscal Responsibility and Budgetary Control</b>			
Network and Business Application Availability	>.99.9%	≥ 98%	99.9%
Operating Cost per Barrel of Storage Capacity	\$.188 per barrel	≤ \$.204	\$.187 per barrel
<b>Dynamic Teamwork: Continuous Improvement</b>			
ISO 9001-2000 Certification	11/06/06	03/31/08	10/30/07
<b>Effective Partnerships</b>			
Number of Partnership Arrangements with Federal, State, and Local Agencies	35	25	26
<b>Social Responsibility and Citizenship: Local Community Support/Environment, Safety and Health</b>			
Annual -Evaluation of OSHA VPP Star Status at Four Sites	2/14/07	2/15/08	2/15/08
Number of Cited Environmental Violations Received	0	0	0
Number of Days with No Reportable/Recordable Spills	365 Days	361 Days	365 Days
Number of Reportable Releases to the Environment Annually	N/A	≥ 8	1
Annual ISO 14001 Certification	4/26/07	06/02/08	04/03/08
<b>Employee Development and Diversity: Employee Development and Quality of Worklife</b>			
Measure Progress Against the Departments 45-Day Hiring Model	92%	≥ 80%	100%
Develop and Begin Implementing a Plan to Achieve DOE Goals Related to Executive Order 13423	N/A	9/30/08	9/30/08

MMB = Million Barrels

N/A = Not Applicable

## ***OTHER ACTIVITIES***

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### ***Security and Emergency Operations***

The Strategic Petroleum Reserve has the capability to effectively respond to any emergency during severe conditions. Hurricanes Ike and Gustav are two examples where Continuity of Operation Planning (COOP), coordination, and execution ensured the safety of Strategic Petroleum Reserve personnel, the protection of drawdown critical resources, and the implementation of a test exchange while working from an alternate location.

The Strategic Petroleum Reserve processed over 800 Personal Identity Verification background checks and is installing a HSPD-12 compliant physical access control system. Over 500 Strategic Petroleum Reserve personnel have been issued the new HSPD-12 Security Badge.

DOE's Health, Safety, and Security, Office of Independent Oversight (OIO) conducted an inspection of the Strategic Petroleum Reserve's cyber and security programs in 2007. This inspection provided valuable criteria that enhanced the strategy for securing personnel, drawdown, resources, and classified. The Strategic Petroleum Reserve was successful in completing, validating, and closing all of the Findings identified by the OIO team.

The Strategic Petroleum Reserve is working with Senior Management from the Fossil Energy Program Office and the DOE Health, Safety, and Security Office as well as Independent Subject Matter Experts in developing a protection strategy that executes the new DOE Graded Security Protection policy. The Strategic Petroleum Reserve's approved schedule is on target to be completed in FY 2010.

### ***Emergency Command Vehicle***

The Strategic Petroleum Reserve's Emergency Command Vehicle (ECV) serves as a mobile command post for the Emergency Management Team during real-world and exercise emergencies or incidents. The ECV is integrated with the DOE Emergency Communications Network that ensures connectivity with each site, the Headquarters Program Office, and DOE Emergency Management. The ECV was successfully deployed to Monroe, LA in support of emergency operations due to Hurricane Gustav, and during the Emergency Communications Network (ECN) Users Conference in New Orleans.

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

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 2008, the Strategic Petroleum Reserve completed the two following major National Environmental Policy Act compliance activities:

- A total of 62 Categorical Exclusions were prepared for projects on the Strategic Petroleum Reserve.
- Concerns on the volumes in the Leaf River for leach and using Singing River Island as a tank farm area led the Department of Energy to prepare a Supplemental Environmental Impact Statement (SEIS) for the Richton Expansion site. The SEIS is scheduled for completion in mid 2009.

### ***Vapor Pressure Mitigation***

Long-term storage of crude oil in underground solution-mined salt caverns results in elevated oil temperatures and increased crude vapor pressure due to gradual geothermal heating and possible methane gas intrusion from the salt formation. Consequently, under certain draw-down conditions, increased vapor pressure results in gas being released in amounts that may be unacceptable, posing environmental, safety, and health risks.

To assure the environmental and public safety concerns of drawdown operations are properly addressed, the Reserve has established a crude oil degasification program to lower vapor pressure and minimize downstream hydrocarbon and toxic emissions from customer facilities.

During 2008, the degasification program continued its operation using a modular degasification plant that can be disassembled and moved from site to site.

The plant treated approximately 33 million barrels of crude oil at Bryan Mound during 2008. The plant's operation was interrupted for almost two weeks as a result of the effects of Hurricane Ike. Eleven caverns are now scheduled to be treated at Bryan Mound thru May 2011.

The degasification plant innovation produces tremendous lifecycle benefits to the environment. For each pound of emissions this innovation generates over its lifecycle, 1,900 pounds of emissions could be avoided in a single future drawdown, with 97 percent of that benefit extending directly to the customer.

### ***Executive Order 13423***

The Strategic Petroleum Reserve has assigned a Designated Energy Official to oversee compliance with Presidential Executive Order 13423 (E.O. 13423), Strengthening Federal Environmental, Transportation, and Energy Management.

The Designated Energy Official has created a Transformational Energy Action Management Implementation Committee of Federal and contractor subject matter experts to identify gaps and recommend projects to attain compliance with Executive Order 13423.

Milestones were compiled for various aspects of the Order to include Transportation, Data Services, Energy Management, and Environmental to assess benefits of implementing the Order and to come into compliance with the Executive Order.

### ***Environmental Improvement Measures***

Through its leadership role in the National Environmental Performance Track Program, the Strategic Petroleum Reserve continues to provide leadership to participating companies/industries and to chair the Performance Track Partner's Association Board of Directors.

Some 13 volunteers gave of their time to participate in the 2008 Strategic Petroleum Reserve-sponsored Beach Sweep activity in the New Orleans area. Employees, their families, and concerned citizens contributed time and effort by cleaning debris at various locations around Lake Pontchartrain.

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.

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

The Strategic Petroleum Reserve participates in OSHA's and DOE's VPP. OSHA and DOE perform an on-site reappraisal of their VPP sites every three years. All four sites maintained their Star status throughout 2008, and Bayou Choctaw was recertified for the second time in the fall of 2008.

In 2008, OSHA Region VI awarded Bryan Mound "Star of Excellence," Big Hill a "Star of Excellence," and Bayou Choctaw a "Star among Stars." These awards recognize accident rates that range from 50 percent to 90 percent below the average accident rates of their industry. DOE VPP awarded West Hackberry and Bayou Choctaw "Legacy of Stars" awards for sustained safety excellence. 2008 was the first year that the Legacy of Stars award was given.

The Strategic Petroleum Reserve VPP sites were featured in a film released by the Department of Labor entitled "Pathway to Excellence," which focused on the Strategic Petroleum Reserve's VPP participation. The film premiered at the national Voluntary Protection Programs Participants' Association conference and is used to share best practices nation-wide.

### ***Accident Rates***

In 2008, the Strategic Petroleum Reserve's Total Case Incident Case Rate was 1.85 cases per 200,000 worker hours. The Days Away/Restricted/Transferred Incident Case Rate was 1.20 cases per 200,000 worker hours, which exceeded the Reserve's target goal of 0.50. The vehicle accident rate was 2.5 cases per 1,000,000 miles driven which met the Strategic Petroleum Reserve's target vehicle accident rate of less than 3.00.

### ***Integrated Safety Management***

The Strategic Petroleum Reserve completed its annual Integrated Safety Management (ISM) validation and documented performance in the ISM Annual Review and Update Report 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. The Project Management Office issued their first ISM system description and annual validation letter in 2007.

To date, the Strategic Petroleum Reserve is operating a successful ISM system with no significant systemic weaknesses and has generated and implemented several recommendations for continuous improvement, which are tracked to closure. This was confirmed in 2008 when the Office of Fossil Energy conducted an ISM verification appraisal. There were no findings and the Strategic Petroleum Reserve is in the process of implementing some of the Opportunities for Improvement identified.

### ***Annual Safety Summit***

In December 2008, the Strategic Petroleum Reserve held its fifth annual Management Safety Summit to promote safety goals and focus senior management attention on safety-related issues. These included current safety statistics and how they are derived, a reimplementation program for the security contractor, a presentation on the characteristics of highly reliable organizations, an accident investigation report, how job hazard assessments are developed, and other safety topics.

## ***Human Performance Improvement***

A Human Performance Improvement (HPI) implementation plan was developed for the Strategic Petroleum Reserve Project Management Office. This plan covers three areas: HPI education, review of policies and procedures to reflect HPI principles, and the conducting of HPI interventions, as applicable. The HPI education is further divided into three modules; Understanding HPI, Implementing HPI, and Leading HPI. The first two modules have been delivered to all Project Management Office sites. HPI interventions have been used in two accident investigations, and is being incorporated in the behavioral safety process.

## ***Awards and Certifications***

In addition to the previously mentioned awards, the Strategic Petroleum Reserve received the following awards and certifications for 2008:

- “Office of Fossil Energy Excellence in ESS&H Award” for Voluntary Process Change to Reduce Volatile Organic Compounds (VOC) Emissions from Strategic Petroleum Reserve Workover Operations. The annual award was presented by DOE’s Environmental, Security, Safety and Health (ESS&H) Office for the use of floating roof tanks to reduce VOCs from Strategic Petroleum Reserve workover operations.
- Association of Environmental and Engineering Geologists (AEG)’s “Outstanding Environmental & Engineering Geologic Project Award” was presented to the Strategic Petroleum Reserve for greatly demonstrating the application of environmental and engineering geology principles to the solution of a problem that directly affects the public welfare. DOE, and their contractors - DynMcDermott, URS, ACI, and Sandia - are the award recipients.
- As a charter member of the Environmental Protection Agency’s (EPA) performance-track program, the Strategic Petroleum Reserve continued its commitment for its ninth continuous year for the Bayou Choctaw, Big Hill, Bryan Mound, New Orleans, and West Hackberry sites, beginning a third three-year cycle.
- The following were awarded in 2008:
  - OSHA VPP “Star of Excellence” for the Big Hill and Bryan Mound sites and the DOE VPP “Star of Excellence” for the Bayou Choctaw and West Hackberry sites.
  - Voluntary Protection Program Participant's Association (VPPA) - recipient of the 2008 William “Sully” Sullivan Scholarship.
  - “Cyber Security Achievement Award”, presented to the New Orleans Central Information Office in 2008 for disaster recovery and strengthening the security posture of the Strategic Petroleum Reserve.
  - “Gartner Group ‘Best in Class’ Performance Survey” in 2008. The Project Management Office set the Gartner Group’s performance benchmark for efficiency in a national survey of 297 peer organizations, both private and governmental.

### ***International Organization for Standardization 9001 Quality Management System***

In 2008, the Strategic Petroleum Reserve earned recertification to ISO 9001:2000 after on-site assessments of the New Orleans/Stennis, Bayou Choctaw, and Bryan Mound facilities.

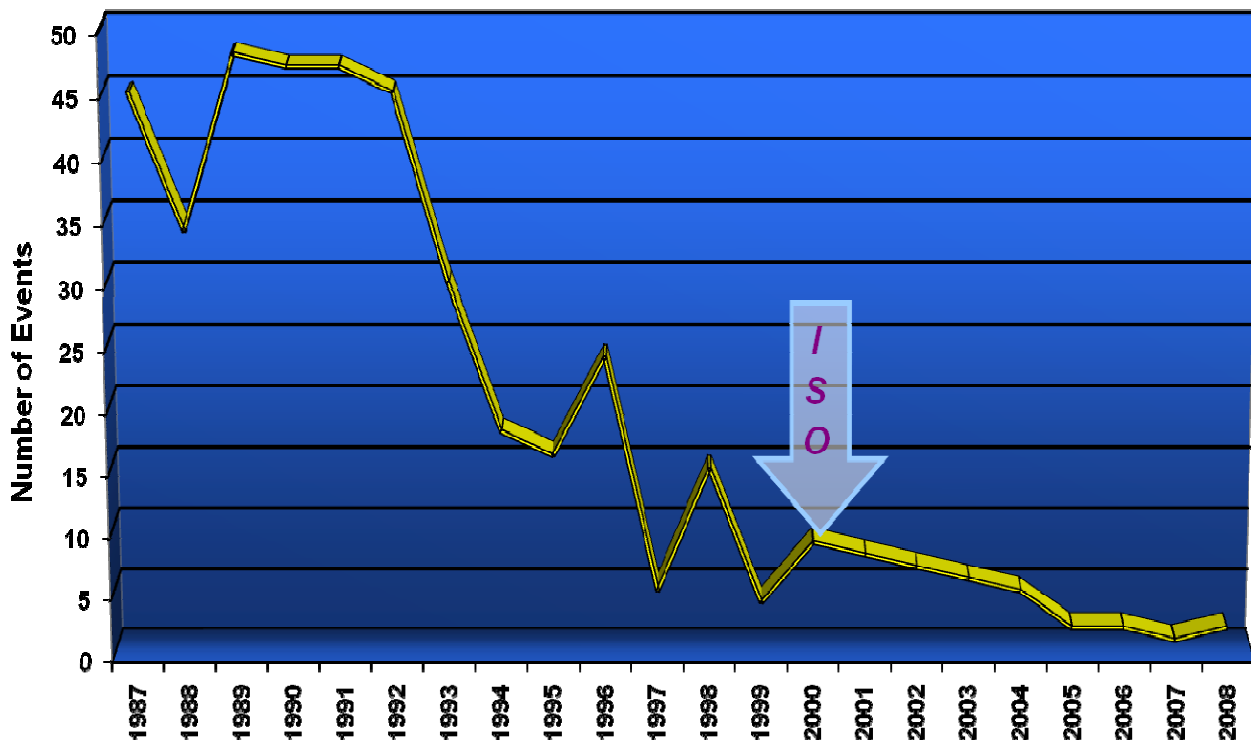
### ***Integration of the International Organization for Standardization 14001 into the Environmental Management System***

In May 2000, the Strategic Petroleum Reserve became the first bulk petroleum storage organization, public or private, to receive an ISO 14001 certification for its environmental management system. This certification, now on its third cycle, is viable through May 2009.

The ISO 14001 Registrar (the certifying agency) performed a separate surveillance audit and a recertification audit of all of the facilities against the new ISO 14001-2004 standard. The successful outcome resulted in triennial recertification against the ISO 14001 standard for the four storage sites, the New Orleans headquarters, and the warehouse building. In addition, the Strategic Petroleum Reserve received environmental management awards from the EPA and the National Pollution Prevention Roundtable.

Figure 9 shows the Strategic Petroleum Reserve's performance for recordable environmental incidents for the years 1987-2008. The level of events remains low with two reportable events during 2008.

**Figure 9**  
**Reportable Environmental Events**



## ***Pollution Prevention***

### **Hazardous Waste**

The Strategic Petroleum Reserve's goal for 2008 was to generate no more than 500 pounds of hazardous waste. Actual hazardous waste generated at all five sites amounted to 253 pounds; the majority was laboratory waste and the remaining was spent fluorescent lamps.

### **Recycling**

The Strategic Petroleum Reserve recycled 32,280 pounds of exploration and production (E&P) waste, which is 9 percent of the total generated in 2008. The type of E&P waste generated included off-specification oil, brine silt wash water, oily wash water, anhydrites, soil, and slop oil.

The 2008 overall recycling rate was 67 percent, a rate that exceeded the goal of 48 percent. The rate represents 497,500 pounds of non-E&P recycled waste (including paper and cardboard). The majority of recyclables were copper slag and scrap metal. There was only 328,735 pounds of sanitary waste, which was significantly below the target ceiling of 900,000 pounds.

For a fifth year, the Strategic Petroleum Reserve achieved 100 percent in the procurement of products that met the EPA's guidelines for recycled material content (Affirmative Procurement).

## ***Customer Service***

The customer service team met with over 22 refiners, traders, pipeline companies and other customers primarily during the 2008 National Petrochemical and Refiners Association annual meeting in San Diego, California during the third week of March. Meetings were also held at the Strategic Petroleum Reserve offices in Washington, DC and at some of the customers' home

offices. The meetings had two primary functions for the customer service team: to gather information on our customers and to update our customers on Strategic Petroleum Reserve activities. The team provided updates on expansion activities, acquisition of crude oil and drawdown enhancements.

Each customer was asked to update their information on the point of contact list and to provide an update on their refinery expansion plans and any planned or actual changes to their crude oil inputs to their refineries. Customers were also encouraged to discuss any operational or administrative problems they have encountered when dealing with the Strategic Petroleum Reserve, in order to gain prompt resolution.

## ***Real Estate Actions***

During 2008, the Strategic Petroleum Reserve:

- Executed a new Interagency Agreement with the U. S. Army Corps of Engineers, New Orleans District on June 18, 2008, which provided for the coordination and management of real estate and related activities in connection with the Richton Main Site Acquisition and the related Reservoir and Brine Modeling Studies for the Billion Barrel Expansion. Acquisition activities for the main site and its access were initiated.
  
- The decommissioned Weeks Island site was successfully sold during 2008. In response to an Invitation For Bids issued by the General Services Administration (GSA) on December 21, 2007, four bids were received for the purchase of the Weeks Island property. The four sealed bids were opened on February 26, 2008. All of the bids were substantially less than the Government Appraisal. The Success-

ful High Bidder was given the opportunity to increase its offer, which it did on March 19, 2008, from \$179,000 to \$228,000. The new bid was evaluated by GSA and accepted by their Central Office on March 27, 2008, and DOE concurred shortly thereafter. A Quitclaim Deed was executed by GSA on April 29, 2008, transferring the Weeks Island Site to a San Antonio-based company called Weeks Island Facilities, Inc. Keys were hand-carried to the new owners on May 12, 2008. The Louisiana Department of Natural Resources authorized discontinuance of the monitoring program at Weeks Island. Additionally, work was completed on the plugging and abandoning of the groundwater monitoring wells M5, M6, M7, and M8, the east fill hole and the fire water well. The required paperwork was submitted to the State of Louisiana in November 2008.

permission to lock in the current rate for five years, in lieu of annual renewals and rental escalations.

- A new lease agreement was executed on May 29, 2008, retroactive to May 1, 2008, for continued use of the Strategic Petroleum Reserve's current office space. The lease is for a 5-year term, with options.
- DynMcDermott, on behalf of the Strategic Petroleum Reserve, obtained an extension of the local warehouse lease from GSA, for an additional 5-year term, expiring on February 2, 2014, at a fixed rental of \$200,075.45 annually, with an optional additional 5-year term at a price to be negotiated. DynMcDermott was granted



## **APPENDIX A**

### **Strategic Petroleum Reserve Site Information**

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#### ***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:	1,500,000 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

##### **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 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-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:	1,300,000 bbl/d
Raw Water Pumping Rate:	1,632,000 bbl/d
Oil Fill Rate:	225,000 bbl/d
Brine Disposal Rate:	225,000 bbl/d

##### **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.

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bbl/d = barrels per day

## **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:		1,400,000 bbl/d
Oil Fill Rate:		225,000 bbl/d
Brine Disposal Rate:		432,000 bbl/d

### **Distribution Facilities**

DOE 24.5 mile, 36-inch pipeline to Sunoco Nederland Terminal, Unocal 2 mile, 24-inch pipeline to Unocal 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**

74-million-barrel storage facility consisting of six 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:		515,000 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.



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