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REPORT BY THE U.S.

General Accounting Office

Status Of Strategic Petroleum Reserve Activities As Of December 31, 1983

The Department of Energy reported that the Strategic Petroleum Reserve contained about 379.1 million barrels of oil on December 31, 1983 During the first quarter of fiscal year 1984, about 18.1 million barrels of oil were added for a fill rate of about 196,700 barrels per day

This report discusses a number of significant events which occurred during the first quarter of fiscal year 1984 that affect the Reserve It also discusses the progress being made in filling, developing, and operating the Reserve

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WASHINGTON, D.C. 20548

RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

B-208196

The Honorable James A. McClure
Chairman, Committee on Energy and
Natural Resources
United States Senate

The Honorable J. Bennett Johnston
Ranking Minority Member, Committee
on Energy and Natural Resources
United States Senate

On March 25, 1982, the Senate Committee on Energy and Natural Resources requested that we report on a quarterly basis, through fiscal year 1985, on the administration's progress in filling the Strategic Petroleum Reserve (SPR) and in complying with the requirements of applicable law. This is the seventh such report issued pursuant to that request. A listing of the prior GAO reports is contained in table 9 in appendix II.

This report covers SPR activities that occurred during the first quarter of fiscal year 1984. It discusses significant events related to the administration's progress in filling, developing, and operating the SPR. Specifically, it notes that:

--The Department of Energy's (DOE's) Oak Ridge Operations Office, which was assigned SPR project management responsibility on June 15, 1983, issued a report on October 24, 1983, assessing the status of the SPR. The report discusses problems in SPR project management and made 170 recommendations for improvements. A plan for implementing the recommendations has been prepared jointly by the New Orleans Project Management Office and Oak Ridge and is expected to be issued in the next quarter.

--DOE reported that about 18.1 million barrels of oil were added during the quarter, bringing the total oil in the SPR to about 379.1 million barrels. The average fill rate for the quarter was about 196,700 barrels per day, about 10,700 barrels per day higher than the 186,000 barrel per day minimum annual average rate required for fiscal year 1984 by the Department of the Interior and Related Agencies Appropriations Act for fiscal year 1984 (Public Law 98-146).

--DOE's permanent storage capacity development efforts proceeded during the quarter and continued to be about on schedule. DOE did not report any major problems in developing permanent capacity during the quarter.

--DOE estimated that payments during the quarter for oil delivery and transportation were about $539 million. After the addition of the $650 million in fiscal year 1984 appropriations and the funds carried over from prior years, about $2.3 billion is estimated to be available at DOE as of December 31, 1983, to pay for oil deliveries and additional oil purchases.

This report also presents information on some other SPR issues. It discusses (1) a recent SPR contractor report which identified potential corrosion problems in the Bayou Choctaw/St. James pipeline, (2) Seaway Pipeline, Inc.'s efforts to sell the Seaway Terminal which services the Bryan Mound site, and (3) the Defense Fuel Supply Center (DFSC)--DOE's purchasing agent for most of the SPR oil--efforts to collect overpayments for oil received at the St. James Terminal. Appendix I discusses these topics in more detail. Appendix II presents supporting figures and tables.

OBJECTIVE, SCOPE, AND METHODOLOGY

This report provides information on activities which occurred during the quarter ending December 31, 1983. The report is necessarily limited, because of the time allowed, to providing primarily statistical information and highlights of major activities which occur during the period covered. Separate reviews are underway and planned that will address in detail various aspects of the SPR program.

This report is based, in part, on our review of DOE program documents, publications, and studies. In addition, we interviewed managers and operating personnel responsible for planning and managing activities associated with developing and operating the SPR facilities. We also interviewed employees from the private contractors that carry out most project activities. Further, we discussed the SPR project management reorganization with Oak Ridge Operations Office personnel. We obtained information on the availability and use of SPR funds from both DOE and the DFSC.

Except as noted below, our review was performed in accordance with generally accepted government auditing standards. We did not within the scope of our work verify the volumes or quality of oil that DOE received nor the available capacity of SPR storage facilities because of the time available to conduct the audit work for this report.

We did not obtain official agency comments because of the required time frames for issuing this report. However, we provided

DOE and DFSC program officials with a draft of this report and discussed its factual accuracy with them. Based on their comments we made appropriate revisions.

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As arranged with your office, we plan no further distribution of this report until 7 days after the issue date, unless you publicly announce its contents earlier. At that time we will provide copies to the Secretary of Energy and other interested parties and make copies available to others upon request.

J. Dexter Peach
Director

Contents

ABBREVIATIONS

DFSC	Defense Fuel Supply Center
DOE	Department of Energy
GAO	General Accounting Office
PEMEX	Petroleos Mejicanos
SPR	Strategic Petroleum Reserve

STATUS OF STRATEGIC PETROLEUM RESERVE ACTIVITIES AS OF DECEMBER 31, 1983

The Energy Policy and Conservation Act (Public Law 94-163, Dec. 22, 1975) authorized up to a 1-billion-barrel Strategic Petroleum Reserve (SPR). To meet the act's goals, the Department of Energy (DOE) is implementing a three-phase plan to store 750 million barrels of oil. Phase I of this plan was for storing about 260 million barrels of oil. It consisted of acquiring and modifying for oil storage existing caverns in salt deposits at Bryan Mound, Texas; Bayou Choctaw, Sulphur Mines, and West Hackberry, Louisiana; and a salt mine at Weeks Island, Louisiana; as well as construction of an oil receiving terminal at St. James, Louisiana. Phase II involves creating new caverns at three of these sites through a leaching program to increase SPR capacity to about 550 million barrels. The leaching program entails pumping water into salt deposits and removing the salt-saturated water, or brine. DOE injects oil into the top of the cavern as the leaching process creates the storage capacity. Phase III involves creating additional capacity to reach the 750 million barrel goal by expanding two existing storage sites and developing a new site at Big Hill, Texas. Because of the time needed to develop capacity, activities associated with Phase II and Phase III overlap. As of December 31, 1983, DOE reported that the SPR contained about 379.1 million barrels of oil, or more than half of the 750 million barrel goal.

This report covers the SPR activities which occurred during the fiscal year quarter ending December 31, 1983. It discusses (1) DOE's Oak Ridge Operations Office activities, including its report on the status of the SPR; (2) the activities associated with adding 18.1 million barrels of oil to the SPR during the quarter; (3) the major activities at the SPR storage sites; and (4) the status of the SPR oil acquisition and transportation account. In addition, this report also provides information on other SPR issues. It discusses a recent DOE contractor report that identified potential corrosion problems in the Bayou Choctaw/St. James pipeline; Seaway Pipeline Inc.'s efforts to sell the Seaway Terminal which services the Bryan Mound site; and the Defense Fuel Supply Center (DFSC)--purchasing agent for most of the SPR oil--efforts to collect overpayments for oil received at the St. James Terminal.

OAK RIDGE OPERATIONS OFFICE INVOLVEMENT IN SPR CONTINUES TO INCREASE

As we have previously reported, DOE announced the reorganization of SPR project management on June 15, 1983, transferring responsibility for direction of project management by the SPR Project Management Office in New Orleans, Louisiana, to DOE's Oak Ridge Operations Office in Oak Ridge, Tennessee. During this

quarter, an Oak Ridge task force issued a report[1] that establishes a baseline of the SPR Project Management Office at the time of the reorganization and continued work on a report on allegations of misconduct and mismanagement in the SPR. In addition, the Assistant Manager position at Oak Ridge for the SPR project was filled and Oak Ridge initiated actions to use a single contractor for management, operations, and maintenance which would reduce the number of SPR contractors.

Oak Ridge task force issues baseline report and continues allegation review

Subsequent to being assigned management responsibility in June 1983, the Oak Ridge Operations Office established a 14-member task force to assess the current condition of the SPR Project Management Office in New Orleans, Louisiana, and to conduct a thorough review of all the allegations of mismanagement and misconduct in the SPR that have been made since the project began.

The Oak Ridge task force completed its baseline assessment report in October 1983. The report discusses the condition of the SPR project at the time of the project management reorganization. The task force briefed the Secretary of Energy, other DOE officials, congressional committees, and various audit groups, including GAO, on the report's findings. Hearings on the report were held during the quarter by the Subcommittee on Energy and Mineral Resources, Senate Committee on Energy and Natural Resources and by the Subcommittee on Environment, Energy, and Natural Resources, House Committee on Government Operations.

The baseline report concludes that significant progress has been made in the SPR project and that the New Orleans Project Management Office has played a significant role in the accomplishments to date. It recognized that the achievements have been made under difficult technical, logistical, and administrative circumstances. However, the report also identifies and discusses numerous problems in the SPR project and recommends 170 corrective actions to be taken.

The report found that one of the primary causes of the problems identified was management's emphasis on the goals of "getting oil in the ground" and creating additional oil storage capacity as rapidly as possible. The report stated that meeting these goals had been at the expense of other aspects of the SPR project. The report concluded, for example, that maintenance has been inadequate because of neglect and lack of management attention and that there has been insufficient oversight and monitoring of contractor accounting systems, cost controls, contractor inventory systems and prime contract administration. The report calls for a broadening of management goals to include not only

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[1]Baseline Assessment of the Strategic Petroleum Reserve Project Management Office, October 24, 1983.

oil fill, but also assuring that the various systems are in place and ready for a sustained drawdown. Overall, the report concludes that while the oil now in storage can be withdrawn, the confidence levels vary for each site as to the ability to react to and sustain a drawdown.

Our past work on the SPR has identified similar problems in some of the areas covered by the Oak Ridge report. For example, in September 1982, we reported[2] on several areas where the SPR contracts could have been better administered. We stated that audit coverage of cost-type SPR contractors needed to be expanded, more closely monitored, and followed up in a more prompt and complete manner. We also discussed the need for better monitoring of procurements made by SPR contractors. In May 1983, we testified before the Subcommittee on Environment, Energy and Natural Resources, House Committee on Government Operations on DOE's management of the SPR. We again discussed problems in DOE's follow-up actions on audit reports and also discussed problems with the instrumentation and control systems. We expressed some concerns regarding DOE's ability to sustain a major drawdown because certain automatic safety features of the control systems were not operational and could increase the extent of equipment damage in the event of malfunction.

We are currently examining several SPR management issues. Our ongoing reviews of SPR management include (1) the ability to drawdown the SPR, (2) the financial controls over DOE contractors, (3) the effectiveness of the integrated logistics support system, (4) the use of cost type contracts rather than fixed priced contracts, and (5) the management controls over DOE contractors. In carrying out this work we will maintain an open dialogue with DOE, including the Oak Ridge Operations Office, to keep them informed of our findings as they are developed so they can be considered as management changes are implemented.

The Project Management Office and Oak Ridge have jointly developed a schedule for implementing the 170 task force recommendations and plan to track progress until each recommendation is considered closed. The implementation schedule has been prepared and, according to the task force Chairman, is expected to be issued next quarter.

The Oak Ridge task force is about finished with its effort to identify all the allegations of mismanagement and misconduct that have been made since the SPR project started. The Oak Ridge task force's Chairman said they expect to issue a report to the Secretary of Energy in the next quarter on the disposition of the allegations and any corrective actions that still need to be taken. According to this Oak Ridge official, about 700 allegations have been identified to date. We will continue to monitor the activities in this area and discuss the allegations report in our next report.

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[2]Major Financial Management Improvements Needed at the Department of Energy (GAO/OCG-82-1, Sept. 15, 1982).

Other Oak Ridge activities during the quarter

In addition to the task force work, during the quarter Oak Ridge appointed an Assistant Manager for the SPR project; and initiated efforts to reduce the number of SPR contractors by using a single integrated management, operations, and maintenance contractor.

As discussed in our last report, Oak Ridge created a new position within the Operations Office for an Assistant Manager for the SPR project. The Manager of Oak Ridge Operations Office announced the filling of this position effective December 11, 1983.

During the quarter, Oak Ridge also initiated efforts to use a single integrated management, operations, and maintenance contractor which would reduce the number of SPR contractors. One of the causes of the problems discussed in the baseline report is that there are too many contractors for the Project Management Office to manage effectively. Currently DOE has over 50 SPR contractors. An Oak Ridge business strategy group has been looking into the feasibility of combining certain functions of the current SPR contractors into an integrated management, operations, and maintenance contractor. The group determined that such an approach is feasible and Oak Ridge has requested approval from the Washington headquarters office to establish a source selection board with the Oak Ridge Manager as the source selection official. The Assistant Manager for the SPR project told us that it would take over a year to conduct the procurement processes necessary to select an integrated contractor. In this regard, the current operations and maintenance contractor has agreed to negotiate a 6-month extension to its contract so that its expiration would coincide with the start of the new integrated contract in mid-1985. We will monitor activities in this area and report on them in future reports as appropriate.

SPR FILL UPDATE

SPR fill-related efforts during the quarter included adding about 18.1 million barrels of oil and awarding a contract for an assessment of controls over SPR oil receipts and oil inventory.

DOE reported that about 18.1 million barrels of oil were added to the SPR during the quarter ending December 31, 1983, for an average fill rate of about 196,700 barrels per day or about 10,700 barrels per day higher than the 186,000 barrels minimum annual rate required for fiscal year 1984 by the Department of the Interior and Related Agencies Appropriations Act for fiscal year 1984 (Public Law 98-146). This brought the total SPR inventory to about 379.1 million barrels as of December 31, 1983.

About 4.3 million barrels, or 24 percent of the oil delivered in the quarter came from the 1981 contract with Petroleos Mejicanos (PEMEX)--the Mexican State oil company. About 11.0 million barrels, or 61 percent, came from contracts awarded

under the DFSC's open, continuous solicitation,[3] and about 2.8 million barrels, or 15 percent, came from deliveries under term contracts awarded by DFSC in fiscal year 1983. Of the oil delivered this quarter about 7.1 million barrels, or 39 percent, was sour[4] crude and about 11.0 million barrels or 61 percent was sweet crude. Figures 1 and 2 and tables 2 through 7 provide further information on the SPR fill activities.

During the quarter, DFSC awarded 13 contracts, totalling about 11.3 million barrels, through the open, continuous solicitation. DFSC has been requested by DOE to purchase an additional 6.2 million barrels of oil for delivery during the next quarter. In addition, DFSC took action on the two term contracts awarded last quarter for oil deliveries in the first half of fiscal year 1984. According to the DFSC Project Manager, the contract prices being paid were higher than current market prices. As allowed by the terms of the contracts, DFSC opened the contracts to renegotiate the price. DFSC reached an agreement with Shell International Trading Co. whereby Shell would deliver about 1 million barrels of oil at a reduced price. DFSC, however, could not reach an agreement with BP Oil International, Ltd. on a price reduction for the other contract. The contract was terminated, cancelling delivery of about 2 million barrels of the oil remaining under that contract. Tables 3 and 4 provide further information on the open, continuous solicitation awards and on the term contracts.

In addition to these fill-related activities, DOE's Project Management Office in New Orleans awarded a contract on November 21, 1983, to Peat, Marwick, Mitchell & Co. for an assessment of the SPR crude oil accounting system and verification of the crude oil inventory accounts. The contract calls for a review of all systems, activities, policies, procedures, and equipment used to receive, measure, sample, test, and transport SPR crude oil. No physical inventory will be performed under this contract. Peat, Marwick, Mitchell & Co. and their subcontractor, King-Wilkinson, an engineering firm, are scheduled to report on their findings in April 1984. The price of the contract is about $145,000.

DEVELOPING STORAGE CAPACITY

During the quarter, efforts proceeded in developing additional Phase II and Phase III storage capacity. The Phase II activities were about on schedule, while some delays were being experienced in work on Phase III activities.

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[3]The open, continuous solicitation is a mechanism DFSC--the purchasing agent for most of the SPR oil--uses to purchase SPR oil. It involves the use of a purchasing solicitation which is not reissued but rather remains open, allowing offers of oil to be made about every 2 weeks. The offers usually involve oil that is available on the "spot," or short-term market.

[4]Sour crude for the SPR has a sulfur content of over 0.5 percent; sweet crude has a maximum sulfur content of 0.5 percent.

The Phase II capacity development efforts at West Hackberry, Bryan Mound, and Bayou Choctaw were about on schedule during this quarter. Monthly brine disposal rates varied both above and below the baselines, while cavern capacity created was somewhat under its baseline. Table 7 provides further information on the Phase II leaching activities.

Phase III development activities proceeded during the quarter. At West Hackberry drilling was started on schedule on two wells for one Phase III cavern. Bryan Mound's Phase III work centered on surface construction associated with four caverns. This work is about 3 months behind schedule. According to the DOE Deputy Director for SPR, this presents no near-term problem, but if further delays are experienced the future leach/fill schedule for the site could be delayed. Big Hill's Phase III activities were directed at drilling wells and arranging for surface construction associated with its first five caverns. The contractor has experienced difficulty drilling these wells because greater than expected problems with subsurface formations have been encountered, slowing its efforts and putting it about 45 days behind schedule. According to the New Orleans Project Manager, the drilling delay is not expected to affect site development. A contract for surface construction at Big Hill was awarded on December 30, 1983, and construction is scheduled to begin next quarter. In addition to these site activities DOE has been considering the development of one Phase III cavern at Bayou Choctaw in lieu of developing one of West Hackberry's Phase III caverns. Such a change would need to be included in the fiscal year 1985 budget submission.

STATUS OF SPR FUNDING

During the quarter, DOE made payments of about $539 million for oil acquisition and transportation. DOE estimated the unpaid obligations as of December 31, 1983, to be about $1.6 billion. With the fiscal year 1984 appropriation of $650 million and the funds carried over from prior years, DOE has about $710 million available as unobligated funds as of December 31, 1983. Table 8 provides further information on the status of the SPR Petroleum Account.

OTHER ISSUES

During our review, we obtained information on some additional aspects of the SPR program including:

--A contractor report which identifies potential problems with the Bayou Choctaw/St. James pipeline;

--The Seaway Pipeline, Inc. effort to sell the Seaway Terminal which services the Bryan Mound site; and

--DFSC's efforts to recover overpayments for oil received at the St. James Terminal.

Potential problems with Bayou Choctaw/St. James pipeline

During the quarter a SPR contractor, PLT Corporation, completed an analysis which identified potentially significant corrosion problems in the 37-mile crude oil pipeline between the Bayou Choctaw site and the St. James Terminal. The November 1983, report on this analysis stated that about 20 percent of the 5,000 joints in the pipeline had some degree of corrosion. The most extensive corrosion was found in 18 joints where there were pits in the joints where over 50 percent of the original pipe thickness had corroded. The report concluded that the corrosion in these joints may have reduced the pipe wall thickness to an unsafe point. The report stated that most of the corrosion probably occurred between December 1978 and November 1980 when the pipeline, which was filled with oil, was left dormant because no oil deliveries were made in that period. The New Orleans SPR Project Manager told us that the earlier corrosion was stopped and no corrosion is now taking place. The report recommends that DOE test the safety of the pipeline by filling it with water and raising the pipeline pressure. If joints fail in the test, they would be replaced.

The SPR Project Manager told us that they are working on plans for performing the recommended test. As an interim measure DOE has decided to restrict the pressure allowed in the pipeline. In addition to the analysis of this pipeline, DOE plans to have its other pipelines checked. We will monitor DOE's actions in response to the Bayou Choctaw/St. James pipeline analysis as well as the results of the other pipeline studies.

Seaway Terminal apparently will not be sold

We reported last quarter that Seaway Pipeline, Inc., owner of the Seaway Terminal which services the Bryan Mound site, intended to sell the Seaway facility. The Seaway facility includes the terminal and docks that DOE uses to unload crude oil and planned to use for drawdowns; a pipeline to Cushing, Oklahoma, that DOE planned to use for distributing some of the site's oil during drawdown; and the Jones Creek Tank Farm that DOE uses for surge storage. During this quarter, Seaway Pipeline, Inc. requested bids on all or parts of the facility. The President of Seaway Pipeline, Inc. told us, however, that acceptable bids were not received on the terminal, docks, nor the Jones Creek Tank Farm portions of the facility. A Vice-President of Seaway Pipeline, Inc. told us they plan to continue operating the terminal, docks and the Jones Creek Tank Farm to fullfill the contract with DOE. He also said, however, that they will continue efforts to sell these facilities. DOE's contract with Seaway extends through 1986. According to the President of Seaway acceptable offers were received on the pipeline to Cushing, Oklahoma. The President of Seaway told us that it is likely the sale will be completed next quarter and that the new owner will convert the pipeline to carry natural gas.

APPENDIX I

When Seaway announced its intentions to sell the facilities, DOE formed a task force with members from the Washington, D.C., Oak Ridge, and New Orleans offices to examine the potential impacts of the sale and the alternatives to using the Seaway facilities. Since it now appears that only the Cushing, Oklahoma, pipeline portion of the facility will be affected in the near term, the task force is currently examining the implications of its loss on the site's drawdown capability. As part of this effort, the task force is examining ways to enhance the drawdown capability from the Bryan Mound site. For example, the task force is reviewing the merits of constructing an additional pipeline to service the site. According to the Deputy Director for SPR, such a decision would not be made until the fiscal year 1986 budget is prepared.

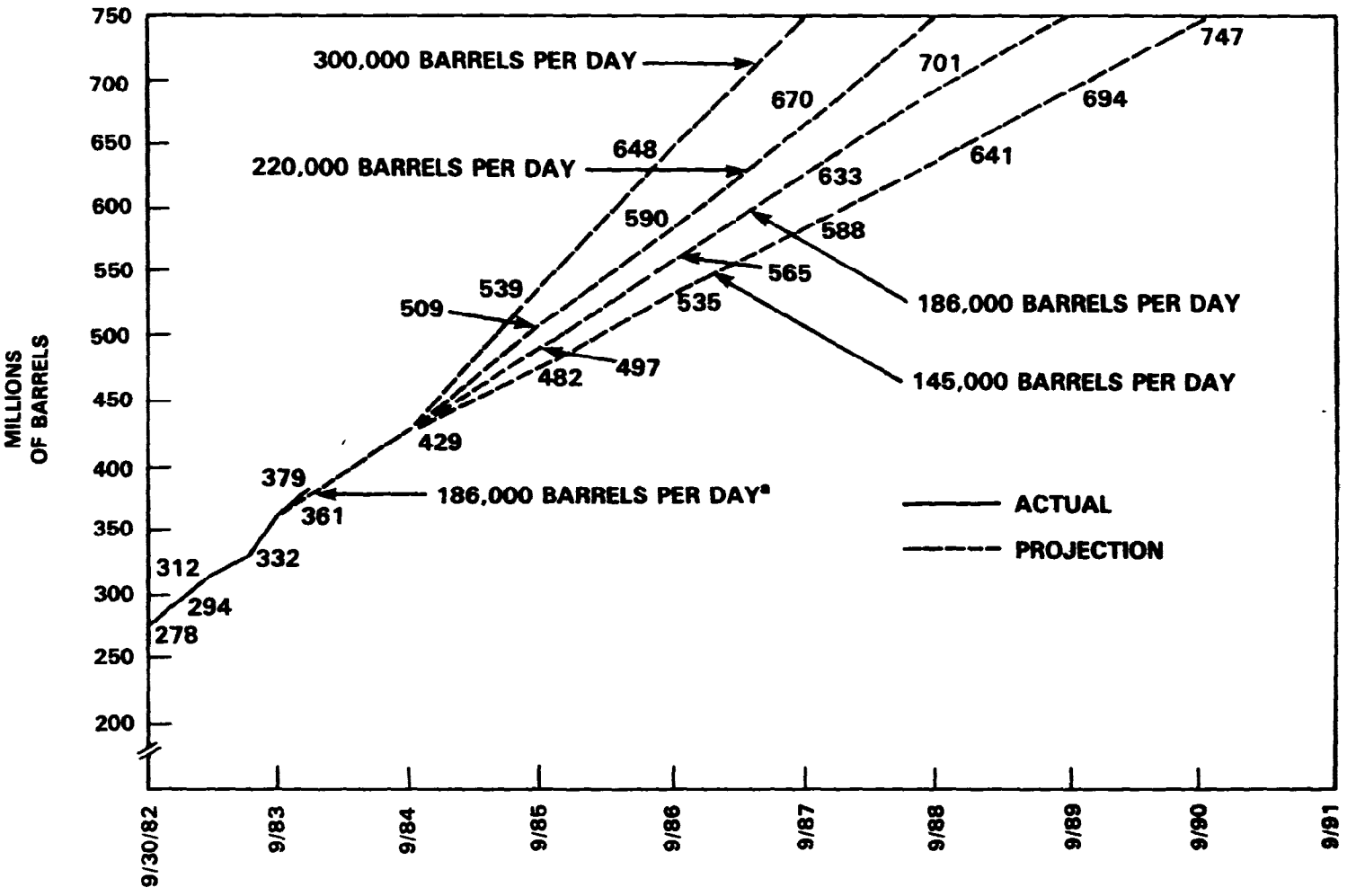
Recovery of overpayments for oil delivered to St. James Terminal

Over the past year DFSC has been involved in efforts to collect overpayments for oil delivered to the St. James Terminal between September 1980 and November 1981. During that period the mathematical tables used to convert the levels of crude oil in the terminal's storage tanks into an equivalent number of barrels were incorrect. According to DFSC, this caused overpayments of about $13.8 million to 12 suppliers and underpayments of about $48,000 to 2 suppliers. In prior reports, we reported on the underpayments being satisfied and on the recovery of about $1.3 million in overpayments from three companies. During this quarter, settlement was reached on another overpayment. According to DFSC, Amerada Hess Corporation agreed to a negotiated settlement, whereby Amerada Hess would pay about $900,000, including interest, on an overpayment claim of about $945,000. Also, during the quarter U.S.A. Petrochem Corporation filed suit in the U.S. Claims Court to block DFSC efforts to collect about $365,000 in alleged overpayments. Of the remaining 7 overpayments (amounting to about $11.2 million), six had been appealed in prior quarters to the Armed Services Board of Contract Appeals. Efforts are in process to collect the remaining overpayment which was not appealed. In future reports we will discuss, as appropriate, any significant changes in the status of DFSC's collection efforts.

APPENDIX II

FIGURES AND TABLES ON THE STATUS OF THE STRATEGIC PETROLEUM RESERVE

FIGURE 1: COMPARISON OF FILL RATES IN REACHING 750 MILLION BARRELS



[a]THE DEPARTMENT OF INTERIOR AND RELATED AGENCIES FISCAL YEAR 1984 APPROPRIATION ACT (PL98-146) REQUIRES A MINIMUM FISCAL YEAR 1984 FILL RATE OF 186,000 BARRELS PER DAY.

APPENDIX II

TABLE 1

COMPARISON OF FILL SCHEDULES AND

STORAGE REQUIREMENTS IN REACHING 750 MILLION BARRELS

Fiscal year	Storage capacity[c]	300,000 barrels per day after fiscal year 1984[a]		220,000 barrels per day after fiscal year 1984[a]		186,000 barrels per day[a]		145,000 barrels per day after fiscal year 1984[b]	
		Oil volume	Storage requirements[d]	Oil volume	Storage requirements[d]	Oil volume	Storage requirements[d]	Oil volume	Storage requirements[d]
	(millions of barrels)								
1984	430	429	+1	429	+1	429	+1	429	+1
1985	496	539	-43	509	-13	497	-1	482	+14
1986	548	648	-100	590	-42	565	-17	535	+13
1987	616	750	-134	670	-54	633	-17	588	+28
1988	662		-88	750	-88	701	-39	641	+21
1989	714		-36		-36	750	-36	694	+20
1990	750							750	
1991									

[a]For fiscal year 1984, a minimum fill rate of 186,000 barrels per day is required by the Department of the Interior and Related Agencies Appropriations Act (P.L. 98-146). However, the Energy Emergency Preparedness Act requires a minimum average annual fill rate of 300,000 barrels per day until at least 500 million barrels of oil are stored. The act also allows a lower rate if the President finds the 300,000 barrel per day rate not to be in the national interest. With the finding, the act requires a minimum rate of at least 220,000 barrels per day, or the highest practicable fill rate achievable with available funds.

[b]On June 30, 1983, the Secretary of Energy proposed a tentative compromise fill rate of 145,000 barrels per day.

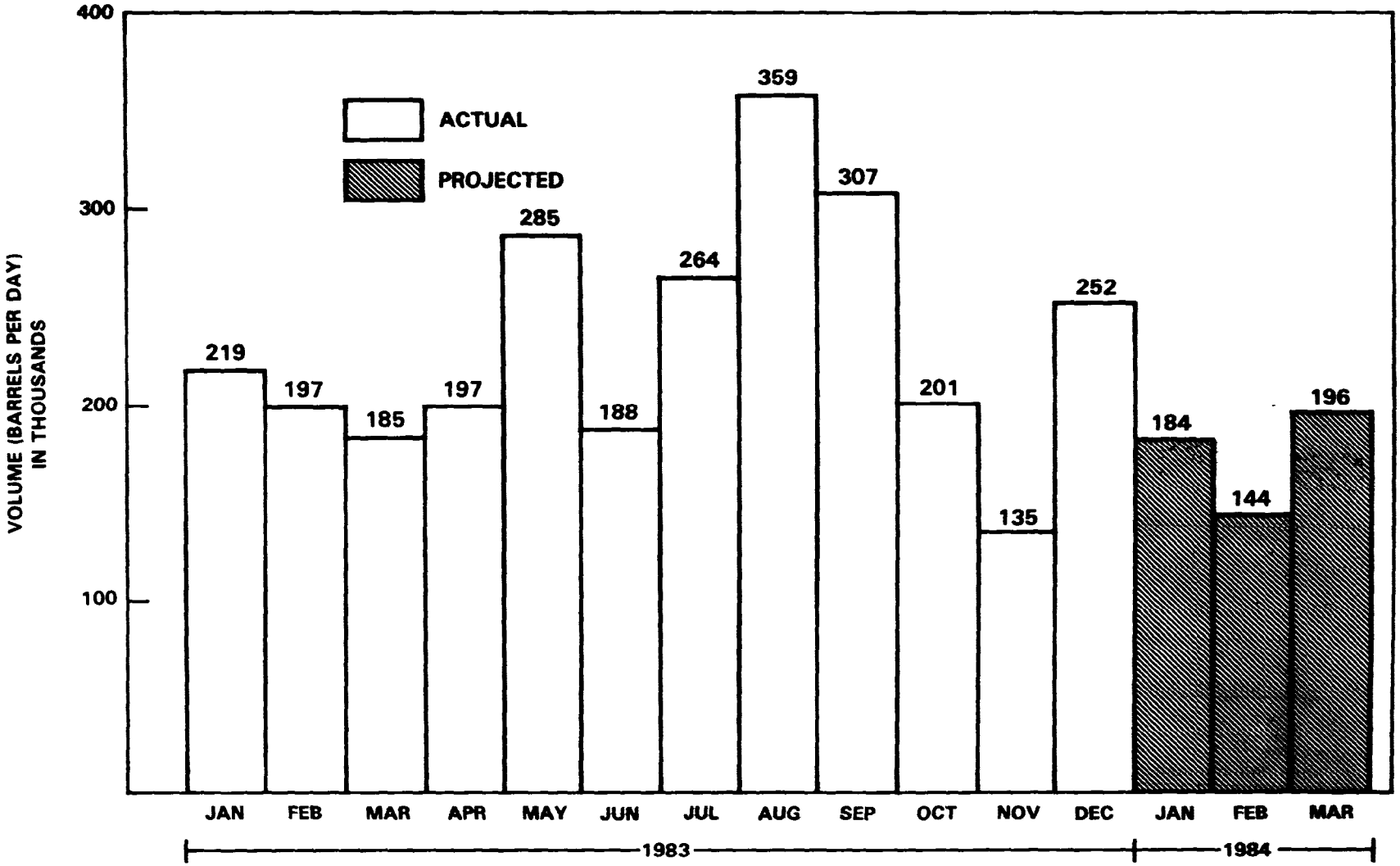
[c]The storage capacity shown is the total amount of permanent space DOE plans to have available by the end of the fiscal year. This schedule assumes oil fill at Big Hill will begin in fiscal year 1987.

[d]A positive amount indicates excess capacity available while a negative number indicates that additional storage is needed. DOE has determined that in addition to the permanent capacity as shown above, up to about 20 million barrels of on-site interim storage capacity could be available by the end of fiscal year 1984. This amount could grow to 22.35 million barrels by the end of fiscal year 1985.

Source: DOE and GAO calculations.

APPENDIX II

FIGURE 2: AVERAGE DAILY SPR RECEIVING RATE[a]



[a]DAILY RECEIVING RATES FOR JANUARY, FEBRUARY AND MARCH 1984, ARE BASED ON DOE PROJECTIONS OF FUTURE DELIVERIES AND ARE SUBJECT TO CHANGE

APPENDIX II

APPENDIX II

TABLE 2

OIL VOLUME STORED

BY FISCAL YEAR 1984 QUARTER

Quarter	Oil volume at start of quarter	Deliveries	Oil volume at end of quarter	Average receiving rate For quarter	Average receiving rate Since 10/01/83
	(millions of barrels)			(thousand of barrels per day)	
Oct. 1, 1983 through Dec. 31, 1983	361.0	18.1	379.1	196.7	196.7

Source: DOE.

APPENDIX II

TABLE 3

SUMMARY OF OIL DELIVERIES

FOR FISCAL YEAR 1984

	Oil deliveries for quarter ending 12/31/83	Oil under contract as of 12/31/83[a]	Oil to be contracted[b]	Total
	(millions of barrels)			
Open, continuous solicitation[c]	11.0	2.8	31.7	45.5
PEMEX contract	4.3	14.0	0	18.3
Term contracts				
Shell International Trading Co.	1.5	.9	0	2.4
BP Oil International Ltd.	1.3	.6	0	1.9
Consent orders[d]	0	0	0	0
Total	18.1	18.3	31.7	68.1

[a]Represents the amount of oil that is under contract and to be delivered in fiscal year 1984.

[b]Represents the amount of oil that remains to be contracted for and delivered in fiscal year 1984.

[c]The open, continuous solicitation involves making contract awards without reissuing the the solictation for offers of oil that is available on the "spot", or short-term market. At the end of fiscal year 1983, two contracts for a total of about 3 million barrels of oil under the open, continuous solicitation remained to be delivered. These deliveries occurred in the quarter ending 12/31/83. Table 4 provides further information on open, continuous solicitation awards during the quarter.

[d]During the quarter, Conoco, Inc. elected to pay DOE $11 million under a consent order rather than deliver oil valued at that amount to the SPR.

Source: DOE.

APPENDIX II

TABLE 4

OPEN, CONTINUOUS SOLICITATION AWARDS FOR

QUARTER ENDING DECEMBER 31, 1983

Contract Date	Supplier	Oil type[a]	Total barrels (millions)
October 4, 1983	T.W. Oil, (Houston) Inc.	Sweet	1.00
October 4, 1983	Gulf-Tex Resources, Inc.	Sweet	1.00[b]
October 4, 1983	BP Oil International, Ltd.	Sweet	1.00
October 19, 1983	T.W. Oil, (Houston) Inc.	Sour	1.10
October 19, 1983	Bomar Oil Inc.	Sour	1.10
October 19, 1983	Gulf-Tex Resources, Inc.	Sour	.50
October 19, 1983	Derby & Company, Inc.	Sour	.50
	Derby & Company, Inc.	Sweet	.50
October 19, 1983	BP Oil International, Ltd.	Sweet	1.00
November 1, 1983	BP Oil International, Ltd.	Sweet	2.00
December 6, 1983	Texaco, Inc.	Sour	.35
December 6, 1983	Carey Petroleum, Ltd.	Sour	.30
December 6, 1983	Derby & Company, Inc.	Sweet	.50
December 21, 1983	Shell International Trading Co.	Sweet	.50
Total			11.35

[a]Sour crude for the SPR has a sulfur content of over 0.5 percent; sweet crude has a maximum sulfur content of 0.5 percent.

[b]DFSC and Gulf-Tex mutually agreed to terminate 500,000 barrels of this award.

Source: DFSC.

TABLE 5

TOTAL SPR DELIVERIES BY CRUDE

TYPE AS OF DECEMBER 31, 1983

	Type I[a]	Types II-V[b]	Type VI[c]	Type VIa[d]	Maya[e]	Total
	(millions of barrels)					
Volume delivered	186.1	134.3	31.4	16.6	10.7	379.1
	(percent)					
Percentage of total oil delivered	49	35	8	4	3	100[f]

[a]High-sulfur crude (maximum 1.99-percent sulfur content) with an API gravity range of 30 to 36 degrees. Type I oil includes Arabian Light and Isthmus crudes.

[b]High-quality crudes with a low-sulfur content (maximum 0.5-percent sulfur content) and an API gravity range of 30 to 45 degrees. These types include some North Sea and West African crudes.

[c]Type VI was established for Alaskan North Slope crude, an intermediate-sulfur crude (maximum 1.25-percent sulfur content) with an API gravity range of 26 to 30 degrees.

[d]Type VIa was established for the Maya/Isthmus blend under the PEMEX contract. The blend is a high-sulfur mixture with an API gravity of at least 28 degrees.

[e]Maya crude is a lower quality oil which has a maximum sulfur content of 3.5 percent and an API gravity of at least 22 degrees.

[f]Does not add due to rounding.

Source: DOE.

TABLE 6

STATUS OF SPR UNDERGROUND CAPACITY

AS OF DECEMBER 31, 1983

Storage facilities	Permanent capacity available	Capacity filled
Phase I sites:	-----(millions of barrels)-----	
Bayou Choctaw	46.1	45.1
Bryan Mound	65.6	64.4
Sulphur Mines	26.3	26.0
Weeks Island	73.0	72.3
West Hackberry	48.8	49.0
Total	259.8	256.8
Phase II sites:	Planned capacity	Capacity filled
Bayou Choctaw	10.0	(a)
Bryan Mound	120.0	81.4
West Hackberry	160.0	37.0
Total	290.0	118.4
Tanks and pipelines	-	3.8
Total for SPR	549.8	379.1[b]

[a]A newly leached cavern with 4.5 million barrels of usable capacity will be exchanged for an existing 10-million-barrel cavern owned by Allied Chemical Corporation at the Bayou Choctaw site after leaching is completed. DOE currently expects to complete leaching in August 1984.

[b]Does not add due to rounding.

Source: DOE.

TABLE 7

SUMMARY OF LEACHING ACTIVITIES

FOR QUARTER ENDING DECEMBER 31, 1983[a]

	Brine disposal		Cumulative oil capacity[b]	
	Baseline	Actual	Baseline	Actual
	(thousands of barrels per day)		(millions of barrels)	
Bryan Mound:				
October	900	907	72.7	72.9
November	900	857	75.3	74.7
December	900	455[c]	78.5	77.0
West Hackberry:				
October	900	894	31.4	30.4
November	900	901	34.7	32.4
December	900	957	38.1	37.5
Bayou Choctaw:				
October	53	40	3.2	3.2
November	53	40	3.4	3.4
December	53	44	3.6	3.6

[a]This table compares the actual leaching activities with baselines that have been established for the SPR contractor. To allow for contingencies, the contractor baselines are more stringent than the overall baselines established for the SPR program.

[b]Cummulative oil capacity represents the amount of cavern volume available for storing oil. The figures shown for Bayou Choctaw represent the cummulative leached volume because the activities at Bayou Choctaw are directed at creating a cavern that will not store oil but will be exchanged for a larger existing cavern owned by Allied Chemical Corporation.

[c]Bryan Mound leaching was stopped for two weeks in December to allow scheduled maintenance to be preformed. West Hackberry is scheduled for a simular two week shut down next quarter.

Source: DOE.

APPENDIX II

TABLE 8

STATUS OF THE SPR PETROLEUM ACCOUNT

AS OF DECEMBER 31, 1983[a]

Funds made available	Amount (millions)
Carryover from fiscal year 1981	$1,806
Fiscal year 1982 appropriations	3,684
Fiscal year 1983 appropriations	2,074
Fiscal year 1984 appropriations	650
Total made available	$8,214
Funds used or committed	
Fiscal year 1982 payments	$3,687
Fiscal year 1983 payments	1,641
Estimated fiscal year 1984 payments as of 12/31/83[b]	539
Estimated DOE's unpaid obligations as of 12/31/83[c]	1,637
Total used or committed	$7,504
Estimated Unobligated funds at DOE	$ 710

[a]The SPR Petroleum Account was established in October 1981 to pay for petroleum acquisition and transportation. This is an off-budget account.

[b]Amount consists of DOE's actual reported payments through November 30, 1983, and DOE's estimated payments for December 1983.

[c]Unpaid obligations represents funds that have been committed to pay for fiscal year 1984 oil deliveries under the first PEMEX contract, or are obligated to DFSC for upcoming oil deliveries or purchases, and expected transportation costs. DFSC estimates that of the funds obligated to it, about $725 million is available as of December 31, 1983, for future purchases.

Source: DOE and DFSC.

APPENDIX II

TABLE 9

PRIOR GAO QUARTERLY REPORTS

1. Progress in Filling the Strategic Petroleum Reserve Continues, but Capacity Concerns Remain (GAO/EMD-82-112, July 15, 1982).

2. Status of Strategic Petroleum Reserve Activities as of September 30, 1982 (GAO/RCED-83-29, Oct. 15, 1982).

3. Status of Strategic Petroleum Reserve Activities as of December 31, 1982 (GAO/RCED-83-93, Jan. 14, 1983).

4. Status of Strategic Petroleum Reserve Activities as of March 31, 1983 (GAO/RCED-83-136, Apr. 15, 1983).

5. Status of Strategic Petroleum Reserve Activities as of June 30, 1983 (GAO/RCED-83-203, July 13, 1983).

6. Status of Strategic Petroleum Reserve Activities as of September 30, 1983 (GAO/RCED-84-11, Oct. 14, 1983).

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