REPORT BY THE U.S.

General Accounting Office

Status Of Strategic Petroleum Reserve Activities As Of September 30, 1982

During fiscal year 1982, about 78.6 million barrels of oil were delivered to the Strategic Petroleum Reserve, for an annual average fill rate of about 215,300 barrels per day. As of September 30,1982, the Department of Energy reported that the Reserve contained about 277.9 million barrels.

This report discusses a number of significant events, which occurred during the fourth quarter of fiscal year 1982, that affect the Reserve. It also discusses the progress being made in developing additional storage capacity for the Reserve.

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UNITED STATES GENERAL ACCOUNTING OFFICE
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 Henry M. Jackson
Ranking Minority Member, Committee
on Energy and Natural Resources
United States Senate

This is the second in a series of reports requested by the Senate Committee on Energy and Natural Resources on the administration's progress in filling the Strategic Petroleum Reserve (SPR) and its compliance with applicable laws. The March 25, 1982, letter requesting these reports is shown in appendix III.

This report covers SPR activities which occurred during the fourth quarter of fiscal year 1982. It discusses the administration's progress in filling the SPR and significant events related to developing and operating the SPR. Specifically, it notes that:

--The passage of the Energy Emergency Preparedness Act of 1982 (P.L. 97-229, Aug. 3, 1982) requires a minimum average annual SPR fill rate of 300,000 barrels per day beginning July 1, 1982. This requirement is subject to the availability of funds and continues until at least 500 million barrels of oil are stored. If the President finds the 300,000-barrels-per-day rate not to be in the national interest, the minimum required rate is 220,000 barrels per day or the highest practicable fill rate achievable with available funds. To achieve these fill rates the act also authorizes using interim storage capacity. Compliance with the act would result in the SPR reaching the 500-million barrel level sooner than now planned, but it would require the acquisition of a significant amount of interim storage capacity.

--The Department of Energy (DOE) reported that the SPR contained about 277.9 million barrels of oil as of September 30, 1982. During fiscal year 1982, about 78.6 million barrels were delivered to the SPR, for an average fill rate of about 215,300 barrels per day. During the

fourth quarter of fiscal year 1982, 13.8 million barrels were added to the SPR, for an average fill rate of about 150,000 barrels per day.

--The Defense Fuel Supply Center (DFSC), DOE's purchasing agent for a large part of the SPR oil, awarded three contracts on September 1, 1982, for 8.21 million barrels of oil (about 22,500 barrels per day) to be delivered in fiscal year 1983.

--DOE signed an agreement on August 24, 1982, with Petroleos Mejicanos (PEMEX--the Mexican State oil company) for the purchase of Isthmus crude oil. Under the terms of the agreement, a $1-billion advanced payment was made with oil deliveries to begin on October 1, 1982, and continue throughout fiscal year 1983. The price of the oil will be based on PEMEX's posted price at the beginning of each quarter, so the total quantity of oil may vary. This agreement is in addition to DOE's August 1981 contract with PEMEX which calls for the delivery of 50,000 barrels per day through August 1986.

--DOE expects that, if the President's fiscal year 1983 SPR budget request is enacted, the funding available will allow about 80.3 million barrels of oil to be delivered during the year, or about 220,000 barrels per day. DOE believes it may be able to store this amount of oil without using interim storage. This assumes that the leaching program for developing storage capacity slightly exceeds its schedule, and that capacity for 13.1 million barrels at the Sulphur Mines site becomes available. If the Sulphur Mines capacity is not available or additional quantities of oil above the 220,000-barrels-per-day rate are obtained, DOE will need to acquire interim storage capacity in fiscal year 1983. Based on DOE's expansion plans for fiscal year 1984, about 21.5 million barrels of interim storage capacity will be needed to achieve even a 220,000-barrels-per-day fill rate.

--DOE instructed DFSC to suspend spot market oil purchases on August 17, 1982, because oil deliveries already arranged were expected to be adequate to fill near-term available permanent storage capacity. DOE expects the suspension to remain in effect until about the second quarter of fiscal year 1983.

--DOE largely resolved the problems it had been experiencing with its leaching program and is now almost on schedule.

--Of the $5.5-billion available in the SPR Petroleum Account at the beginning of the fiscal year, DOE used an estimated $3.8 billion for oil deliveries through September 30, 1982, and for the new PEMEX contract. DOE also has obligated an estimated $600 million for oil deliveries

during the next fiscal year. This leaves about $1.1 billion to pay for the remaining oil to be delivered under existing contracts and for future oil purchases.

Appendix I discusses these topics in further detail. Appendix II presents figures and tables that support the discussion.

This report is based on our review of DOE and DFSC program documents, DOE publications, and studies related to the SPR program. To review the Government's activities in contracting for oil, we obtained data from DFSC on contracts awarded during the fourth quarter of fiscal year 1982. We reconciled a computerized DOE listing of all SPR crude oil receipts during the quarter with summary inventory reports for the same period. In reviewing DOE's activities to develop and maintain SPR storage facilities, we obtained data related to program activities such as leaching of new storage capacity. We obtained information on the availability and utilization of oil acquisition funds from both DOE and DFSC. We interviewed managers and operating personnel at DFSC who are responsible for the procurement of SPR oil. We also interviewed DOE personnel responsible for planning and managing the activities associated with the development and operation of the SPR facilities and personnel from the private contractors that carry out most of the program activities.

Our review was conducted in accordance with the GAO's "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions." We did not, however, verify the data related to oil procurement contracts, the volumes or quality of oil received by DOE, or the available capacity of SPR storage facilities because of the limited time available to conduct the audit work for this report. In addition to monitoring the status of SPR activities on a quarterly basis, we plan to report from time-to-time on issues dealing with the policies and effectiveness, economy, and efficiency of the Government's management of the SPR.

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In order to meet the required time frames for this report, we did not obtain official agency comments. However, we provided DOE and DFSC program officials a draft of this report and discussed its factual accuracy with them. Based on their comments, we made appropriate revisions. We plan no further distribution of this report until 7 days after its issue date unless you publicly announce its contents earlier. At that time, we will send 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
NPR	Naval Petroleum Reserve
PEMEX	Petroleos Mejicanos
SPR	Strategic Petroleum Reserve

APPENDIX I

STATUS OF STRATEGIC PETROLEUM RESERVE

AS OF SEPTEMBER 30, 1982

During fiscal year 1982, the Department of Energy (DOE) added about 78.6 million barrels of oil to the Strategic Petroleum Reserve (SPR), for an annual average rate of 215,300 barrels per day. This brought the total oil in the SPR as of September 30, 1982, to about 277.9 million barrels. While the fill rate during fiscal year 1982 was substantially less than the 292,000-barrels-per-day rate attained during fiscal year 1981, the total amount of oil in the SPR surpassed the 267 million barrels that DOE planned at the beginning of the year to have in storage by September 30, 1982.

As discussed in our last report on SPR activities, 1/ DOE is now filling permanent storage capacity as it becomes available. DOE's ability to maintain, or accelerate, the SPR fill rate depends on its ability to meet the schedule for developing new capacity or acquire interim storage capacity.

Several major events have occurred since our last report.

--The passage of the Energy Emergency Preparedness Act of 1982 (P.L. 97-229) on August 3, 1982, established new minimum average annual oil fill rates for the SPR.

--About 13.8 million barrels of oil were injected into the SPR during the quarter, for an average fill rate of 150,000 barrels per day.

--DOE and the Defense Fuel Supply Center (DFSC), its purchasing agent for a large part of the SPR oil, awarded contracts for about 48 million barrels for delivery during fiscal year 1983. With oil acquired previously for fiscal year 1983 delivery, a total of about 67 million barrels are now contracted for delivery in fiscal year 1983.

--DOE instructed DFSC to suspend purchases under the open, continuous solicitation on August 17, 1982. DOE expects the suspension to remain in effect until the second quarter of fiscal year 1983 because of the large volume of oil already acquired for fiscal year 1983 delivery.

--DOE largely resolved the problems it had been experiencing with its leaching program and it is now almost on schedule.

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

--About $1.2 billion was spent or committed during the quarter for oil acquisition and transportation. This brought the total amount spent or committed during fiscal year 1982 to about $4.4 billion, and it leaves about $1.1 billion available to pay for oil deliveries under existing contracts and for additional oil purchases in fiscal year 1983.

The following sections discuss these activities more fully. In addition, this report presents information on the planned use of the St. James terminal and DFSC's efforts to collect overpayments which resulted from incorrect calculations of oil deliveries at the St. James terminal.

HOW THE ENERGY EMERGENCY PREPAREDNESS ACT OF 1982 COULD AFFECT SPR FILL ACTIVITIES

The Energy Emergency Preparedness Act of 1982, among other things, 1/ increases the required minimum average annual SPR fill rate from 100,000 barrels per day, as specified in the Energy Security Act (P.L. 96-294, June 30, 1980) to 300,000 barrels per day beginning July 1, 1982. This requirement is subject to the availability of funds and continues until at least 500 million barrels are stored. The act allows a lower fill rate in the event the President finds that the 300,000-barrels-per-day rate during a particular fiscal year would not be in the national interest. If the President makes such a finding, the minimum fill rate during that fiscal year would be 220,000 barrels per day or the highest practicable fill rate achievable with available funds.

The act also provides for using interim storage to accommodate the increased fill rate. Up to 10 percent of the funds available for oil acquisition and transportation can be used annually for establishing interim storage facilities and related expenses. If the 10 percent limit is not used in a fiscal year, the interim storage capacity funding limit of the following year may be increased by that unused amount.

Meeting the act's fill requirements would reduce the time required to reach the 500-million-barrel level. Filling the SPR at 300,000 barrels per day, beginning with the act's July 1, 1982, effective date, would result in reaching the 500-million-barrel level in August 1984. At the lower rate of 220,000 barrels per day, the 500-million-barrel level would be reached in July 1985. In contrast, if DOE's current expansion plans are followed, the

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1/Our report "Status of the Administration's Implementation of the Energy Emergency Preparedness Act of 1982," GAO/RCED-83-33, Oct. 8, 1982) discusses the current status of a number of reports that are required by the act.

500-million-barrel level would not be reached until April 1986. Figure 1 shows the effect of these fill rates on reaching the 500-million-barrel level. (All figures and tables are shown in app. II.)

In addition, meeting the act's fill rate requirements may require DOE to use a substantial amount of interim storage. DOE would need to obtain up to 43 million barrels of interim storage capacity by the end of fiscal year 1983 if the SPR was filled at 300,000-barrels-per-day beginning on July 1, 1982. Even if DOE fills the SPR at the lower level of 220,000 barrels per day beginning July 1, 1982, DOE could need about 6.4 million barrels of added storage capacity by the end of fiscal year 1983. 1/ As table 1 shows, in fiscal years 1984 and 1985, interim storage needs will rise to even higher levels.

DOE intends to measure compliance with the act by determining the average daily fill rate for each fiscal year. In this regard, for the fourth quarter of fiscal year 1982, DOE was 13.9 million barrels (150,000 barrels per day) short of the act's 300,000 barrel per day rate. In addition, for fiscal year 1983, DOE does not expect to be able to reach the average annual rate of 300,000 barrels per day. According to DOE, if the President's SPR budget request is enacted, available funds will enable it to only maintain an average annual fill rate of 220,000 barrels per day for fiscal year 1983. Further, DOE believes that it may be able to store oil at the 220,000-barrels-per-day rate during fiscal year 1983 without obtaining interim storage capacity by exceeding its leaching schedule and making 13.1 million barrels of capacity at Sulphur Mines available for storage.

SPR FILL UPDATE

As of September 30, 1982, the SPR contained 277.9 million barrels of oil. During the fourth quarter of fiscal year 1982, about 13.8 million barrels of oil, or about 150,000 barrels per day, were delivered to the SPR. During the entire fiscal year, 78.9 million barrels were added to the SPR for an average fill rate of about 215,300 barrels per day. (See figures 1 and 2 and tables 2 and 3 for oil deliveries.)

1/These amounts are based on DOE's assumption that the 13.1 million barrel Sulphur Mines storage site becomes available and that the current capacity expansion schedule is exceeded by 2.1 million barrels. If Sulphur Mines does not become available or the expansion plan is not exceeded, the interim storage requirements would be higher.

QUALITY OF THE SPR OIL

The oil stored in the SPR is of varying types and quality. Of the 277.9 million barrels of oil in the SPR, 98.8 million barrels or 36 percent, is low-sulfur oil and 179.1 million or 64 percent is high-sulfur oil. Alaskan North Slope, Isthmus/Maya blend, and Maya crude oils, which are heavier than the other crudes in the SPR, total 57.7 million barrels or 20 percent. Table 4 shows details on the quality of oil stored in the SPR.

As we reported earlier, 1/ DOE has contracted with Williams Brothers Engineering Company to conduct a study similar to the 1976 study on the acquisition strategy and specifications for the SPR oil. However, the completion of this study has been delayed beyond its August 1982 completion date because DOE has rescheduled some of the work to be performed and requested that Williams Brothers examine additional assumptions involving, among other things, energy demand and the mix of crude oil types. DOE does not anticipate publishing the study but expects to use it internally to make decisions on the oil quality specifications of future purchases.

HOW OIL WAS ACQUIRED DURING THE QUARTER

SPR oil was acquired through several mechanisms during the fourth quarter of fiscal year 1982. More than half of the oil was acquired through contracts made by DFSC. In addition, a substantial quantity of oil was received from the Mexican State oil company, Petroleos Mejicanos (PEMEX). Smaller amounts were acquired under a memorandum of understanding involving the Elk Hills Naval Petroleum Reserve (NPR). Table 3 shows SPR oil acquisition activities for fiscal year 1982.

Defense Fuel Supply Center

DFSC acquired more than 50 percent of the oil delivered during the quarter through its open, continuous solicitation. 2/ Using this method, DFSC issued 5 contracts amounting to 8.4 million barrels between July 1 and August 10, 1982. (These contracts are shown in table 5.) DFSC was instructed by DOE to suspend purchases on August 17, 1982, under the open, continuous solicitation. According to DOE, the suspension was ordered because oil deliveries already arranged were expected to be

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1/"Strategic Petroleum Reserve: Substantial Progress Made, but Capacity and Oil Quality Concerns Remain," EMD-82-19, Dec. 31, 1981. (See page 37.)

2/The open, continuous solicitation involves making contract awards without readvertising the solicitation for offers of oil that is available on the "spot", or short-term, market.

adequate to fill near-term available capacity. DOE expects the suspension to remain in effect until about the second quarter of fiscal year 1983. (The arrangements for fiscal year 1983 oil deliveries are discussed further in a following section.)

PEMEX contract

During the quarter, 4.6 million barrels (50,000 barrels per day) were delivered to the SPR under DOE's August 1981 multiyear contract with PEMEX. About 1.2 million barrels (26 percent) of this oil were Maya crude and 3.4 million barrels (74 percent) were Isthmus crude.

This contract will ultimately result in 110 million barrels of oil being delivered to the SPR. As of September 30, 1982, 37.2 million barrels have been delivered under this contract.

Naval Petroleum Reserve oil

During the fourth quarter of fiscal year 1982, the SPR received about 161,000 barrels of oil through a memorandum of understanding with DOE's Office of Naval Petroleum and Oil Shale Reserves. The memorandum of understanding, which was signed on January 27, 1982, stated that the SPR would buy all available Elk Hills NPR oil in excess of contractual and equity requirements between February 1, 1982, and April 4, 1982. Of the 481,000 barrels of excess production during that 2-month period, 309,015 barrels have been delivered to the SPR.

CONTRACTS HAVE BEEN AWARDED FOR DELIVERY OF ABOUT 67 MILLION BARRELS IN FISCAL YEAR 1983

As of September 30, 1982, DOE had commitments for delivery of about 67 million barrels of oil during fiscal year 1983. This involves oil which will be delivered under two contracts with PEMEX and from 3 contracts awarded by DFSC. In addition, a smaller amount of oil will be received as a result of DOE negotiating consent orders with oil companies in settlement of oil pricing violations.

PEMEX contracts

DOE's August 1981 multiyear contract with PEMEX calls for deliveries during fiscal year 1983 of 18.25 million barrels or 50,000 barrels per day. Of this amount, 25 percent will be the heavier Maya crude and 75 percent will be Isthmus crude.

A new agreement was signed with PEMEX on August 24, 1982. It provided an advance payment of $1 billion for deliveries of Isthmus oil to begin October 1, 1982. The total amount of oil to be delivered and the length of the delivery schedule are not fixed but will depend on the posted price for Isthmus crude which

may change each quarter. The delivery schedule by quarter for fiscal year 1983 is as follows:

First quarter - 60,000 barrels per day

Second quarter - 120,000 barrels per day

Third quarter - 140,000 barrels per day

Fourth quarter - 120,000 barrels per day (until contract provisions are fulfilled)

DFSC contracts

On September 1, 1982, DFSC awarded three contracts for the delivery of 8.21 million barrels of light, low-sulfur oil to be delivered in fiscal year 1983. DOE originally requested that DFSC purchase about 18.25 million barrels for fiscal year 1983 delivery, but according to DFSC, only the offers for the 8.21 million barrels met the DFSC price criteria. The contractors and delivery schedules are shown in table 6.

Consent orders

For several years, DOE has been investigating alleged violations of Federal petroleum price and allocation regulations that were in effect between January 1, 1973, and January 28, 1981. Several of these investigations have resulted in consent orders between DOE and the individual oil companies which provided for oil deliveries to the SPR.

In March 1982, DOE signed a consent order with Quaker State in which Quaker State agreed to deliver oil valued at $4.8 million plus any applicable interest to the SPR. (Alternately, Quaker State has the option to pay the money directly to DOE.) The order was then published in the Federal Register for comment. On September 3, 1982, the order became final and Quaker State is to deliver the oil within 180 days from that date.

Another consent order involving Conoco, Inc., is pending. The proposed settlement involves Conoco supplying oil valued at $11 million to the SPR. The proposed consent order is expected to be final in the first quarter of fiscal year 1983.

PROGRESS IN DEVELOPING STORAGE CAPACITY

DOE currently is trying to certify storage capacity at the Sulphur Mines site and is developing new storage capacity at the Bryan Mound, West Hackberry, and Bayou Choctaw storage sites. Additionally, DOE is continuing its preparations to develop

capacity at the new Big Hill site. In our last report, we discussed problems DOE encountered in certifying a cavern at Sulphur Mines and in the leaching program. DOE's progress in resolving these problems is discussed below.

Sulphur Mines cavern 2-4-5

At the 26.2-million-barrel Sulphur Mines site, DOE has experienced difficulties in certifying the integrity of 13.1 million barrels of capacity referred to as cavern 2-4-5. 1/ By August 1981, prior to using the cavern for oil storage, DOE became aware of leaks at the top of the cavern. Although DOE has conducted several tests, it has been unable to identify the cause of the leaks. However, as a result of a test initiated in June 1982, in mid-September 1982 DOE decided to further test this cavern by pumping in 1.5 million barrels of oil and placing a nitrogen gas pad at the top of the cavern. The concept is that any leakage will be that of nitrogen gas and not oil since the leaks are at the top of the cavern. DOE is optimistic that these test results will show that the nitrogen gas leakage rate will be consistently low enough to provide a stable environment in which to store oil, and that use of the full capacity of the cavern will be possible. DOE expects to make a decision on using the cavern in December 1982.

Achieving full utilization of the 13.1-million-barrel capacity of cavern 2-4-5 is important because at DOE's expected fill rate of 220,000 barrels per day for fiscal year 1983, DOE will need 80.3 million barrels of storage capacity. However, DOE's expansion plans show that only 65.1 million barrels of capacity will be developed during fiscal year 1983 leaving about 15.2 million barrels to be stored. DOE believes that it will be able to store this amount if the 13.1-million-barrel capacity becomes available and if the current expansion plans are exceeded by 2.1 million barrels. Without full utilization of cavern 2-4-5, DOE would need to obtain substantial interim storage capacity to achieve the 220,000-barrels-per-day rate.

Bryan Mound

The leaching program to develop 120 million barrels of additional capacity at Bryan Mound is slightly ahead of DOE's baseline schedule. Although some resistance still exists in the Bryan Mound brine disposal pipeline, DOE sustained a brine disposal flow rate above the 900,000-barrels-per-day baseline for the fourth quarter of fiscal year 1982. (See table 8.)

1/During fiscal year 1982, 1.5 million barrels were certified as being available for oil storage, leaving 11.6 million to be certified. However, the 1.5 million barrels of capacity remained unfilled as of September 30, 1982.

DOE has no plans at this time to take any action on the brine pipeline because the disposal rate is exceeding the goals that DOE considers acceptable. DOE expects that some resistance in the pipeline will always be a part of brining disposal operations.

West Hackberry

The leaching program at West Hackberry for the development of 160 million barrels of additional capacity has improved during the fourth quarter but was still behind the baseline schedule as of September 30, 1982. During the quarter, the average brine disposal rate increased from about 588,000 barrels per day in the third quarter to about 788,000 barrels per day. This was accomplished by resolving electrical system problems and cleaning the water intake line.

The electrical problems, which were discussed in detail in our last report, centered on a transformer failure in June 1982. The transformer was repaired and reinstalled on September 17, 1982. Another transformer, which had sustained some damage but remained operational until the reinstallation was done, is being shipped out for repair. This transformer will serve as a spare after the repairs are completed.

The brine disposal problems at West Hackberry involved restrictions in the water intake line and the brine disposal line. To overcome the problems, the water line was pigged (a process where scrapers are sent through the line) at about the same time the electrical repair work was being done (September 15 - 17, 1982). The brine disposal lines were not cleaned because, according to DOE, the brine disposal rate is expected to reach about 900,000 barrels per day in the next quarter. DOE believes these actions will enable it to achieve the scheduled baseline program.

Bayou Choctaw

On June 29, 1982, DOE started to leach a 5-million-barrel cavern at Bayou Choctaw. During the fourth quarter, these leaching activities continued and as of September 30, 1982, about 460,000 barrels had been leached. When the cavern is complete, it will be exchanged for a 10-million-barrel cavern, owned by Allied Chemical Corporation, which now contains ethane.

DOE's current plans are to complete leaching and certification of the 5-million-barrel cavern in September 1985. When this is completed, the ethane from Allied's 10-million-barrel cavern will be transferred to the 5-million-barrel cavern. The ethane transfer is scheduled to be completed in June 1986. DOE will then certify the 10-million-barrel cavern and begin oil fill.

Big Hill

On February 5, 1982, the administration deferred $52.9 million for land acquisition and long-lead procurement for the new 140-million-barrel Big Hill storage site. Under the deferral DOE would delay spending these funds until fiscal year 1983, and consequently, extend the completion date of the SPR from 1989 to 1990. The Impoundment Control Act of 1974 (P.L. 93-344) states that a deferral takes effect unless either House of the Congress passes an impoundment resolution expressing its disapproval of the deferral. On July 29, 1982, the House of Representatives disapproved the deferral (House Resolution 479) and the deferred funds were made immediately available to DOE. Since the disapproval of the deferral, DOE has obligated $26 million of these funds to the Corps of Engineers for land acquisition activities.

Even with the resumption of activities at Big Hill, the SPR completion date is still expected to be in fiscal year 1990. According to DOE, the length of time involved in disapproving the deferral (almost 5 months) and the lack of major construction funds for fiscal year 1983 will make it difficult to complete the program sooner.

Because of the long-lead times involved in developing a new underground storage site, the extension will not affect the planned SPR capacity and resulting fill rates until fiscal year 1987. Then, additions to capacity will drop by 13 million barrels. In fiscal year 1988, the extension will cause available new capacity to be reduced from the previously planned level of 59 million barrels to only 25 million barrels and will result in dropping the average fill rate from 162,000 barrels per day to 68,000 barrels per day.

SPR PROGRAM FUNDING

About $5.5 billion was available in the SPR Petroleum Account at the beginning of fiscal year 1982. Of this amount, $3.8 billion was spent on oil delivered as of September 30, 1982, and for the new PEMEX contract. In addition, about $600 million has been obligated for some of the fiscal year 1983 oil deliveries that have already been arranged. The remaining $1.1 billion is being carried forward into fiscal year 1983 and is available to pay for oil deliveries under existing contracts and for future oil purchases. The funding, outlays, and commitments for oil acquisition and transportation in fiscal year 1982, are shown in table 9.

On October 2, 1982, the President signed the Continuing Appropriations for Fiscal Year 1983 and Other Purposes Act (P.L. 97-276), which appropriates funds for DOE and other Federal agencies through December 17, 1982. The act enables DOE to conduct SPR oil acquisition and transportation activities at a rate comparable to the fiscal year 1982 rate ($3.7 billion). However,

the administration had only requested $2.1 billion for fiscal year 1983; therefore, the act would enable DOE to acquire oil during the period October 1, 1982, through December 17, 1982, at a higher rate than requested in its budget. However, DOE is not planning on spending at the higher rate for this period, since this funding level is not for the entire fiscal year.

The act also appropriates $242 million for SPR storage facilities development and operations, planning, and program direction. This represents the full funding level that the administration requested for fiscal year 1983. However, the act did not appropriate funds that would permit major construction to begin at the Big Hill storage site during fiscal year 1983.

Reprogramming of funds completed during fiscal year 1982

On May 10, 1982, DOE submitted a request to the Senate and House Committees on Appropriations for approval of a reprogramming of $4.3 million to settle a claim by Banister Pipelines America, a subcontractor for the SPR program. The reprogramming was subsequently approved by the Chairmen and the ranking minority members of the Interior Subcommittees of the House and the Senate Committees on Appropriations. The funds were reprogrammed and DOE settled the Banister claim during the fourth quarter of fiscal year 1982.

OTHER ISSUES

During the course of our review, we obtained information on some additional aspects of the SPR program. These are the future use of the St. James terminal and the DFSC efforts to collect overpayments for oil.

St. James terminal to be used for drawdown testing

The St. James terminal was built by DOE primarily to receive oil from tankers for the Bayou Choctaw and Weeks Island storage sites. However, all of the capacity at Weeks Island has been filled and only 300,000 barrels of current capacity remain at Bayou Choctaw.

DOE currently plans to perform preventive maintenance at the terminal and to use the St. James facilities for occasionally testing the oil withdrawal capability at the Bayou Choctaw and Weeks Island storage sites. In addition, DOE will use the St. James terminal when the 10-million-barrel cavern at Bayou Choctaw is ready for oil, which is currently scheduled to be certified in 1986. Further, the St. James terminal is expected to be used by DOE to transfer oil to tankers in the event of an actual SPR drawdown.

APPENDIX I

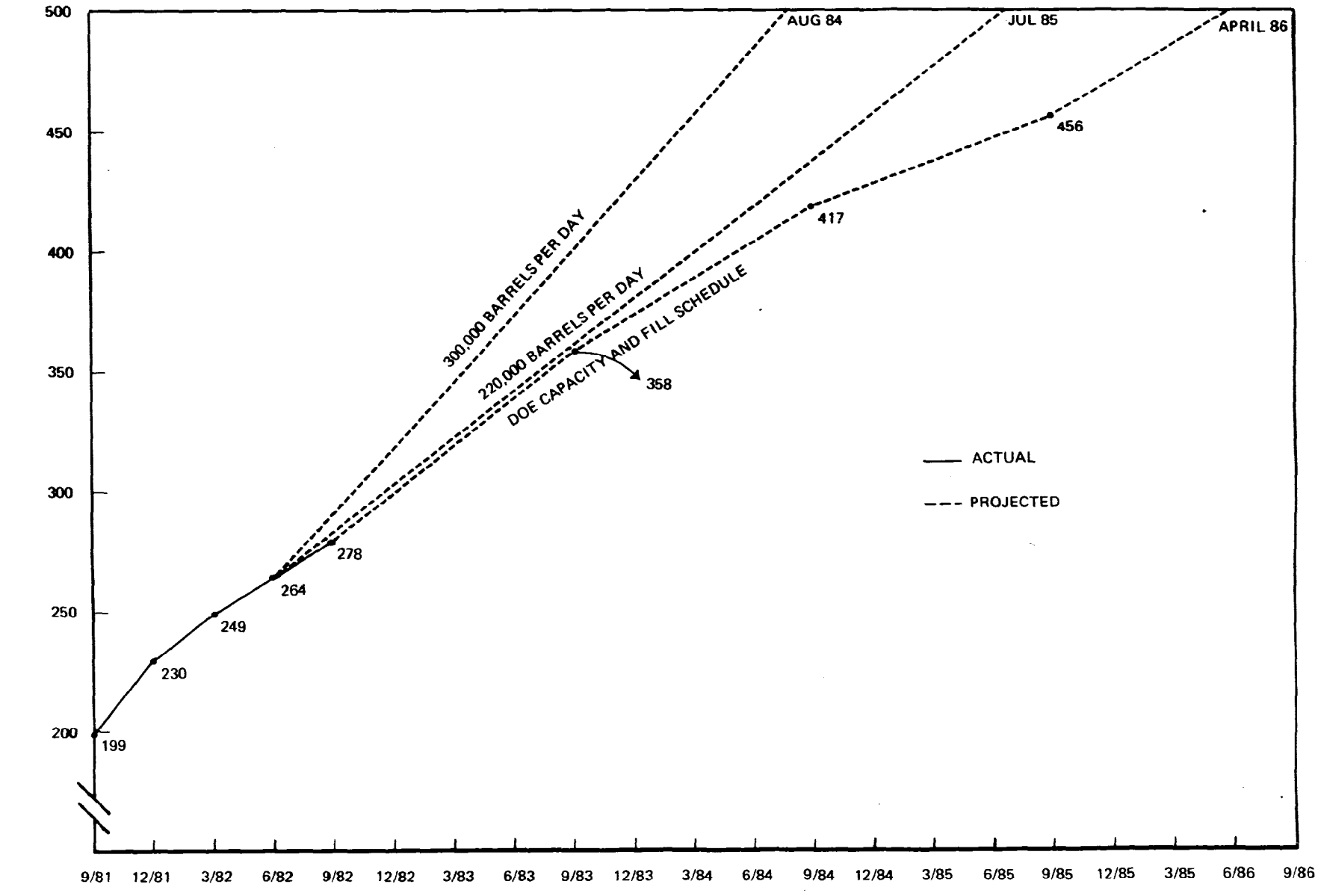
DFSC efforts to collect overpayments

From September 1980 to November 1981, the mathematical tables used to convert the levels of crude oil in each storage tank at the St. James terminal into an equivalent number of barrels were incorrect. This caused the oil receipts and SPR inventory totals, which are determined by using the tables, to be incorrect. This resulted in overstating the SPR inventory by 436,000 barrels, overpayments of about $13.8 million to twelve oil suppliers, and underpayments of about $48,000 to two suppliers. Collection of the overpayments is being directed by DFSC, and the overstated SPR inventory was corrected in May 1982.

The basic procedures that DFSC follows to collect over payments starts with the company being sent a demand letter which asks the company to reimburse DFSC for the overpayment. Only Exxon U.S.A. responded by paying the required amount (about $1 million). For the other companies, DFSC established claims which allows it to take action to recover the overpayments from the contractors. After this occurs, a final determination is issued by the contracting officer. In some cases, to obtain repayment, DFSC may offset the overpayment by reducing the amount paid on another contract the company has with DFSC. If the company disagrees with the decision, it may choose to have the decision reviewed by the Armed Services Board of Contract Appeal or the U.S. Court of Claims. Table 10 shows the contractors, the amount of overpayment, and the recovery status.

FIGURE 1

COMPARISON OF FILL RATES IN REACHING 500 MILLION BARRELS AND THE POTENTIAL NEED FOR ADDITIONAL STORAGE



APPENDIX II

Table 1

Alternative SPR Oil Fill Schedules

Fiscal year	Permanent storage (note a)	300,000-barrels-per-day fill rate (note b)	Additional storage requirement	220,000-barrels-per-day fill rate (note c)	Additional storage requirement
	(millions of barrels)				
1982	277.9	291.7	13.8	284.3	6.4
1983	358.2	401.2	43.0	364.6	6.4
1984	417	500.0	83.0	444.9	27.9
1985	456	d/518.3	62.3	500.0	44.0
1986	538				
1987	598				
1988	623				
1989	670				
1990	750				

a/See DOE's August 16, 1982, SPR Quarterly Report (p. 4). However, we revised the fiscal year 1982 capacity to show the amount actually stored and increased the fiscal year 1983 capacity from 343 million barrels to 358.2 million barrels to reflect a fill rate of 220,000 barrels per day. DOE's ability to store this amount without interim storage assumes that the 13.1-million-barrel cavern at Sulphur Mines will be certified for oil storage and that the current expansion plans are exceeded by 2.1 million barrels.

b/The Energy Emergency Preparedness Act of 1982 (P.L. 97-229, Aug. 3, 1982) requires, under certain circumstances, an average fill rate of at least 300,000 barrels per day beginning July 1, 1982, and continuing until at least 500 million barrels of oil are delivered to the SPR. There were 264.1 million barrels of oil in storage as of June 30, 1982.

c/The act also provides, under certain circumstances, for a lower average fill rate of 220,000 barrels per day beginning July 1, 1982, and continuing until at least 500 million barrels of oil are delivered to the SPR.

d/Under the 5-year PEMEX contract, 18.3 million barrels of oil are to be delivered to the SPR in fiscal year 1985. These deliveries would require additional storage capacity over the previous fiscal year.

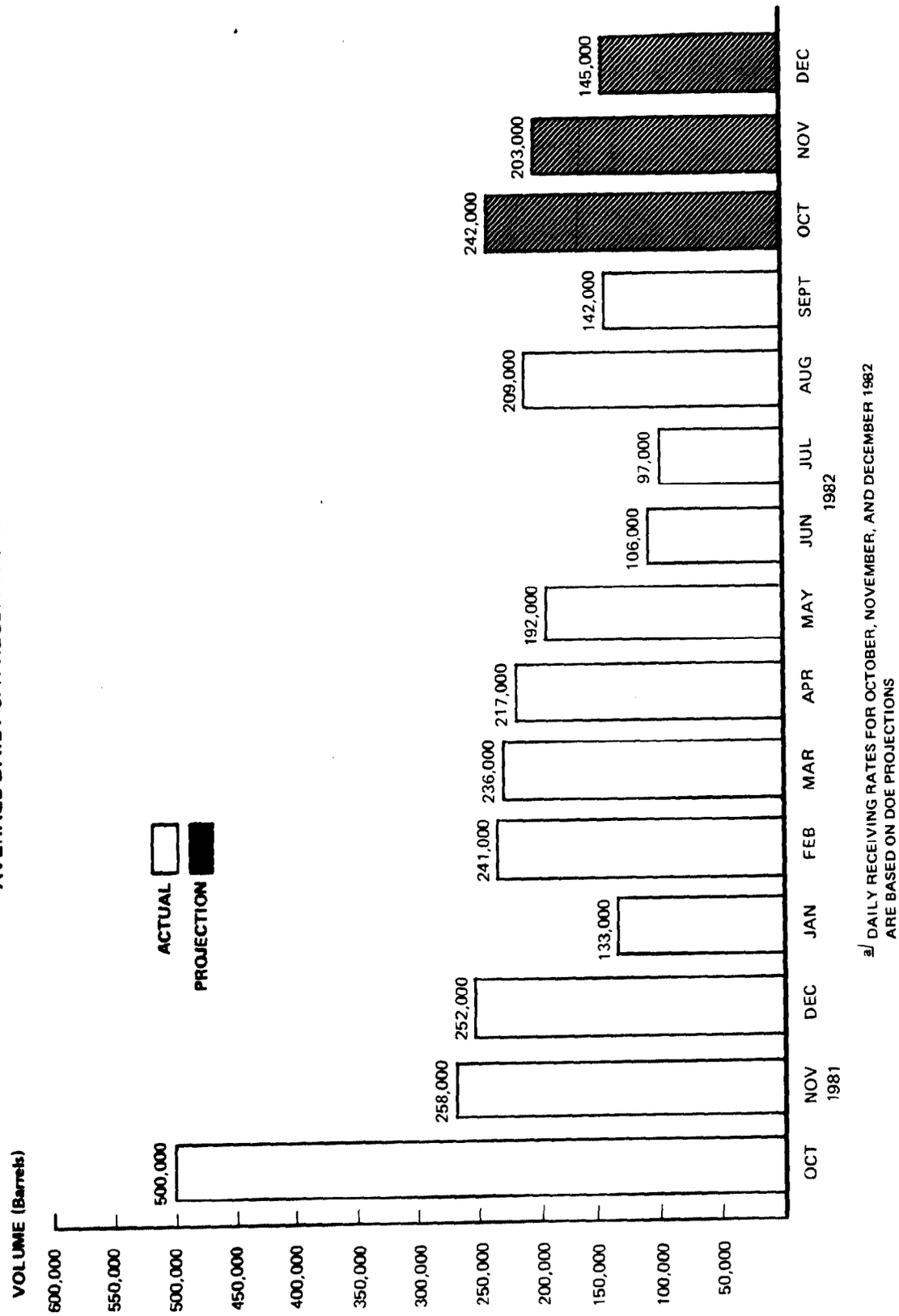
Source: DOE and GAO calculations based on the fill rate requirements in P.L. 97-229.

APPENDIX II

APPENDIX II

FIGURE 2

AVERAGE DAILY SPR RECEIVING RATE[a]



a/ DAILY RECEIVING RATES FOR OCTOBER, NOVEMBER, AND DECEMBER 1982 ARE BASED ON DOE PROJECTIONS

Table 2

Volume of SPR Oil Stored in Caverns and Other Facilities by Fiscal Year 1982 Quarter

Quarter	Volume of oil at start of quarter	Deliveries	Volume of oil at end of quarter	Average receiving rate For quarter	Average receiving rate Since Oct. 1, 1981
	(millions of barrels)			(barrels per day)	
Oct. 1, 1981 through Dec. 31, 1981	199.3	31.0	230.3	336,957	336,957
Jan. 1, 1982 through Mar. 31, 1982	230.3	18.2	248.5	202,222	270,330
Apr. 1, 1982 through June 30, 1982	248.5	15.6	264.1	171,429	237,363
July 1, 1982 through Sept. 30, 1982	264.1	13.8	277.9	150,000	215,342

Source: DOE.

APPENDIX II

Table 3

Summary of SPR Oil Deliveries for Fiscal Year 1982

Activity	Number of contracts	Estimated Value of contracts (millions)	Date of contracts	Oil delivered during fiscal year 1982 (millions of barrels)
Open continuous solicitation	32	$1,543.6	Sept. 1, 1981 to Aug. 10, 1982	a/43.1
PEMEX contract	1	1,417.7	Aug. 26, 1981	b/33.6
ARCO long-term contract	1	9.9	Dec. 4, 1981	c/.3
Other (note d)	4	e/49.3	1980 to 1982	1.6
Total				78.6

a/During fiscal year 1982, DFSC contracted for 46.42 million barrels of oil. By September 30, 1982, 43.1 million barrels were delivered and 2.9 million barrels remain to be delivered. The remaining 400,000 barrels represent under deliveries of contracted amounts.

b/This represents the volume of oil delivered during fiscal year 1982. In addition, 3.6 million barrels of PEMEX contract oil was delivered in September 1981 for a total of 37.2 million barrels since the contract went into effect. The contract provides for total deliveries of 110 million barrels through 1986.

c/On March 25, 1982, the contract was modified to reduce the total volume of oil deliveries from 2.14 million barrels to .3 million barrels.

d/Includes deliveries as a result of a consent order with Chevron Oil Co., a memorandum of understanding for surplus NPR oil, and contracts in previous years with the Pacific Refining Company and as part of the competitive exchange for NPR oil.

e/Consists of $33 million of oil required by the Chevron Oil Co. consent order and an estimated $16.3 million for the surplus NPR oil under the memorandum of understanding.

Source: DOE and DFSC.

APPENDIX II

Table 4

Volume and Percentage of the Different Types of Crudes Delivered to the SPR as of September 30, 1982

	Type I (note a)	Types II-V (note b)	Type VI (note c)	Type VIa (note d)	Maya (note e)	Total
	(millions of barrels)					
Volume of oil delivered to the SPR	121.4	98.8	31.4	16.6	9.7	277.9
	(percent)					
Percentage of total oil delivered to the SPR	44	36	11	6	3	100.0

a/High-sulfur crudes (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 light, low-sulfur content (maximum .5 percent sulfur content) and, with 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.

Source: DOE.

APPENDIX II

APPENDIX II

Table 5

Contracts Awarded for Fiscal Year 1982 Deliveries Under the Open Continuous Solicitation

Supplier	Number of contracts	Total barrels to be delivered (note a)	Percent of oil to be delivered
		(millions)	
Amoco	1	1.95	4
Coral Petroleum	1	.80	2
Derby & Co.	15	18.37	40
Exxon International	4	13.27	29
Gatoil	3	3.40	7
Texas Energy Reserve	1	.45	1
Tradax	2	1.25	3
T. W. Oil	2	3.90	8
U.S. and S.A. Enterprises	3	3.03	7
Total	32	46.42	b/100

Fourth Quarter Open Continuous Contracts

Contract date	Supplier	Total barrels to be delivered (note a)	Type of oil (note c)	Delivery dates First	Delivery dates Last
		(in millions)			
July 15, 1982	Exxon International Co.	1.50	I	Sept. 1982	Sept. 1982
July 27, 1982	Derby & Co., Inc.	1.00	III	Aug. 1982	Sept. 1982
Aug. 10, 1982	Derby & Co., Inc.	1.00	III	Aug. 1982	Aug. 1982
		.50	III	Sept. 1982	Sept. 1982
		1.00	III and IV	Aug. 1982	Aug. 1982
		.60	I	Aug. 1982	Sept. 1982
Aug. 10, 1982	Coral Petroleum	d/.50	III	Aug. 1982	Sept. 1982
		.50	I	Aug. 1982	Sept. 1982
		.30	I	Aug. 1982	Sept. 1982
Aug. 10, 1982	U.S. and S.A. Enterprises	.50	III	Aug. 1982	Sept. 1982
		1.00	I	Sept. 1982	Sept. 1982
Total		8.40			

a/Figures represent contracted delivery amounts rounded to the nearest ten thousand. However, actual quantities delivered may vary.

b/Column does not add due to rounding.

c/Type I is sour crude, defined as having between 0.5 percent and 1.99 percent sulfur content. Types III and IV are sweet crudes, defined as having less than 0.5 percent sulfur content.

d/This cargo was canceled September 10, 1982, due to lack of a shipping vessel.

Source: DFSC.

APPENDIX II

Table 6

Contracted Daily Deliveries for Fiscal Year 1983

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
		- -(barrels per day)- -		
Original PEMEX contract	50,000	50,000	50,000	50,000
New PEMEX agreement	60,000	120,000	140,000	a/120,000
Other long-term contracts (note b)				
Exxon International Co.	41,630			
Trans Ocean Gulf Oil Co.	10,000	10,000	10,000	10,000
Citation Oil & Gas, Ltd.		8,111		
Total	161,630	188,111	200,000	180,000

a/Deliveries at this rate will continue until the contract provisions are fulfilled.

b/To achieve the daily rates shown, the total quantity of oil contracted for was divided by the number of days in the delivery period. The actual deliveries may vary.

APPENDIX II

Table 7

Status of SPR Underground Storage Capacity and Fill Activities as of September 30, 1982

Phase I sites	Actual capacity	Capacity certified for use (note a)	Capacity filled
	(millions of barrels)		
Weeks Island	72.6	72.6	72.6
Bayou Choctaw	44.3	44.3	44.0
Sulphur Mines	26.2	b/14.6	12.4
West Hackberry	48.9	48.9	47.6
Bryan Mound	64.5	64.5	64.4
Subtotal	256.5	244.9	241.0

Phase II sites	Planned capacity	Gross capacity leached	Capacity available for oil fill (note c)
Bayou Choctaw	10	d/ --	--
West Hackberry	160	34.2	3.6
Bryan Mound	120	66.0	29.9
Subtotal	290	e/100.2	33.5
Total for SPR	546.5	345.1	f/274.5

a/Storage facilities certified ready to receive oil.

b/DOE has been unable to certify the remaining 11.6 million barrels of capacity because of pressure losses which may be caused by leaks. DOE is currently conducting cavern tests and expects to have the results in December 1982.

c/The volume of oil in underground storage is the same as capacity available for oil fill.

d/A newly leached 5-million-barrel cavern will be exchanged for an existing 10-million-barrel cavern owned by Allied Chemical Corporation at the Bayou Choctaw site after leaching is completed. As of September 30, 1982, 460,000 barrels of the 5 million barrels had been leached. DOE currently expects to complete leaching in September 1985.

e/DOE can inject oil into caverns while leaching continues. In the early stages of cavern leaching, only a small percentage of the leached gross cavern capacity can be filled. In later stages, a much higher percentage of the leached gross cavern capacity can be filled.

f/An additional 3.4 million barrels of oil is in pipelines and surge storage tanks. This brings the total oil in the SPR system to 277.9 million barrels.

Source: DOE.

Table 8

Average Leaching Rates

	January	February	March	April	May	June	July	August	September
	(thousands of barrels per day)								
Bryan Mound									
Baseline	900	900	900	900	900	900	900	900	900
Actual	719	903	924	894	955	927	906	971	956
West Hackberry									
Baseline	600	600	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Actual	a/281	750	780	751	749	b/264	754	839	c/773

a/Cavern leaching was stopped for several days as part of routine maintenance to reposition pipes and to clear brine disposal lines.

b/During June, leaching was stopped for 11 days at West Hackberry because of modifications being made to the electrical system.

c/During September 1982, leaching was stopped for 5 days to make electrical repairs and to clean the water line.

APPENDIX II

Table 9

Outlays, Commitments, and Funds Available for Petroleum Acquisition and Transporation as of September 30, 1982

	Funds available from previous fiscal years	Fiscal year 1982 appropriations	Estimated fiscal year 1982 outlays (note a)	Estimated fiscal year 1983 commitments	Estimated funds available
			(millions)		
Obligated to DFSC (note b)	$1,373	$1,639	$1,891	$378	743
Obligated to PEMEX Contracts and for other outlays (note c)	433	1,738	1,943	228	0
Unobligated funds with DOE	d/	307	--	--	307
Total	$1,806	$3,684	$3,834	$606	$1,050

a/Actual outlays through August 31, 1982, are available through DOE. Outlays for September 1982 deliveries are estimated.

b/Includes PEMEX contract transportation costs and DFSC administrative costs.

c/Includes funds for the two PEMEX contracts, customs and terminaling costs, and the direct purchase of Naval Petroleum Reserve oil.

d/About $12.7 million of unobligated funds remain on-budget.

Source: DOE and DFSC.

APPENDIX II

APPENDIX II

Table 10

Status of DFSC Collection Efforts

Contractor	Amount	Current status
Amerada Hess	$ 944,508.94	Established claim on August 12, 1982. Hess proposed settlement being considered by DFSC.
Amoco	275,693.70	Offset July 30, 1982.
Atlantic Richfield (ARCO)	201,400.60	Established claim on August 12, 1982.
Chevron U.S.A., Inc.	150,448.20	Established claim on August 12, 1982.
Coastal States Trading	523,755.04	Established claim on August 12, 1982.
Coral Petroleum	412,477.17	Established claim on August 12, 1982.
Derby	4,930,251.52	Derby has appealed contracting officers determination.
Exxon U.S.A.	911,405.09	Exxon reimbursed DFSC in March 1982.
Listo Energy, Inc.	592,232.36	Established claim on August 12, 1982.
Houston Oil and Refining	1,893,773.61	Established claim on August 12, 1982.
U.S.A. Petrochem	364,948.03	Established claim on August 12, 1982.
U.S. and S.A. Enterprises, Inc.	2,628,350.76	Established claim on August 12, 1982.

Source: DFSC.

APPENDIX III

United States Senate
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
WASHINGTON, D.C. 20510

March 25, 1982

The Honorable Charles A. Bowsher
Comptroller General of the United States
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Bowsher:

The Congress attaches a high priority to the rapid fill of crude oil into the Strategic Petroleum Reserve (SPR). The SPR is an essential element of this Nation's efforts to provide protection against the potential consequences of an international oil supply interruption.

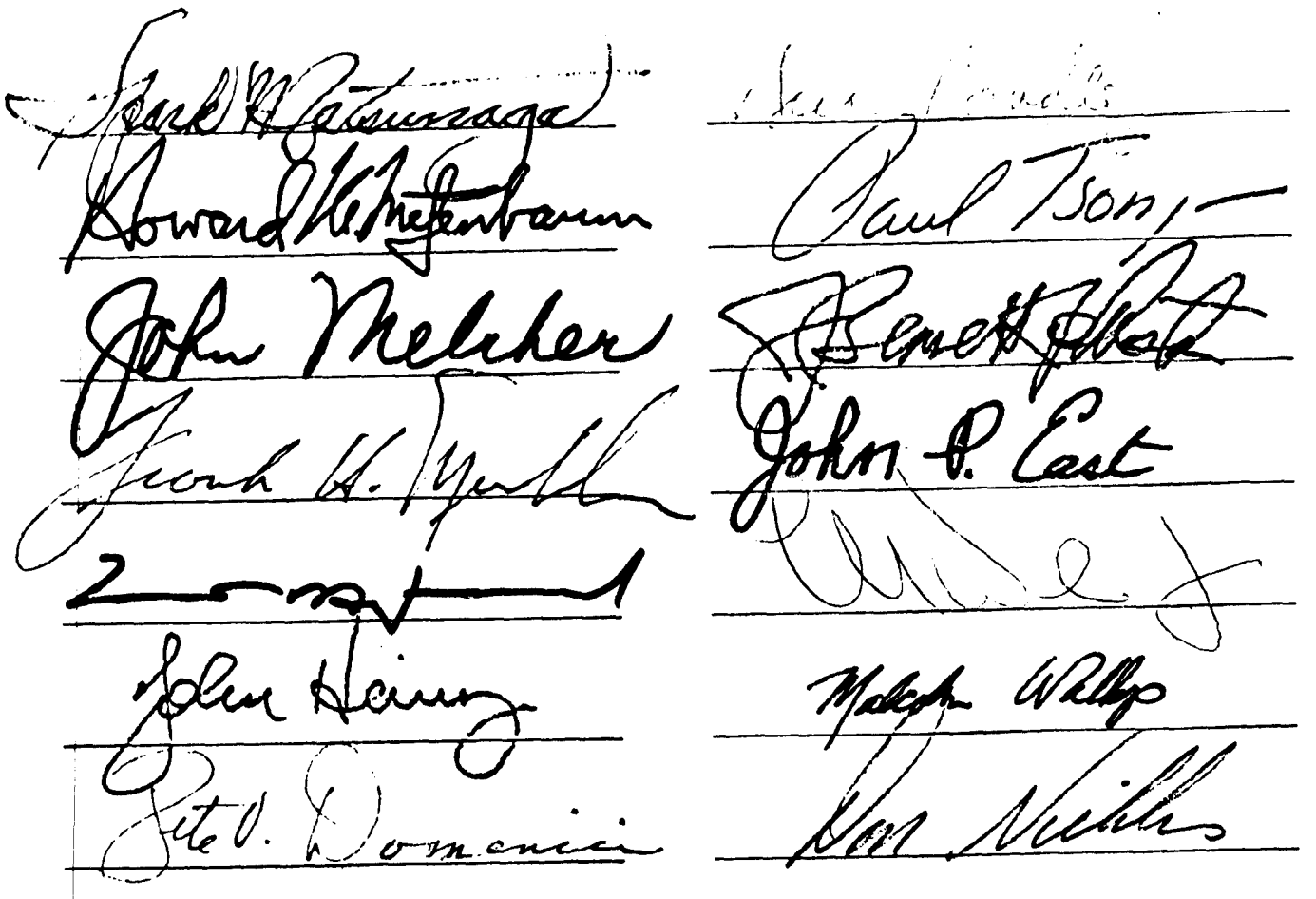
Pursuant to a letter dated July 23, 1980, the GAO issued eleven reports reviewing the Administration's progress and activities in filling the SPR. These reports have proven to be most informative and have provided Congress with information needed for policy formulation.

Accordingly, we are requesting that the GAO further assist Congress by monitoring the SPR program activities and reporting by letter to the Committee on a quarterly basis as to the Administration's progress in filling the SPR and in complying with the requirements of applicable law. These reports should begin in the next calendar quarter and continue through the end of fiscal 1985.

Please let us know if the Senate Committee on Energy and Natural Resources can be of any assistance in carrying out this request.

Henry M. Jackson
James A. McClure
Dale Bumpers
John W. Warner
Wendell H. Ford
Gordon Humphrey

APPENDIX III



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