UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

ENERGY AND MINERALS DIVISION

March 12, 1982

B-203117

The Honorable Philip R. Sharp
Chairman, Subcommittee on Fossil
and Synthetic Fuels
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

Subject: Leasing Storage Capacity for the Strategic Petroleum Reserve (EMD-82-62)

As agreed in testimony before your Subcommittee on March 2, 1982, we are providing supplemental information on accelerating the fill rate for the Strategic Petroleum Reserve (SPR) by leasing existing storage capacity on a temporary basis. Leasing is one option which would enable the Department of Energy (DOE) to satisfy section 1033 of the Omnibus Budget Reconciliation Act of 1981 (P.L. 97-35, Aug. 13, 1981), which states that the President shall seek to fill the SPR at an average annual rate of at least 300,000 barrels per day until the reserve contains at least 750 million barrels of oil.

As we testified, under DOE's current expansion plans and the fiscal year 1983 budget proposal, the SPR fill rate will continue to be constrained by the rate at which underground storage capacity can be created. The administration plans to complete the 750-million-barrel SPR by the end of fiscal year 1990. The SPR is scheduled to be filled at an average rate of about 186,000 barrels per day in fiscal year 1982. The fill rate would vary during each succeeding year, reaching a high of 225,000 barrels per day in fiscal year 1986 and a low of 68,000 barrels per day in fiscal year 1988. Leasing existing storage capacity until permanent capacity is available would enable DOE to accelerate the fill rate and take advantage of relatively favorable oil prices which now exist.

Tables 1 and 2 (see att. I) show the oil storage requirements and the costs that would be associated with achieving the 300,000-barrels-per-day fill rate goal by leasing existing storage capacity. Table 1 assumes that the fill rate goal is maintained until 750 million barrels are in storage. Table 2 assumes that the fill rate goal is maintained only until the first 500 million barrels are in

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storage; thereafter, the reserve would be filled at the rate constrained by the SPR expansion plan.

The permanent storage capacity shown in tables 1 and 2 reflects the current SPR expansion schedule. The difference between the amount of permanent storage capacity available annually and the storage requirements to meet the 300,000-barrels-per-day goal is the amount of temporary storage capacity that would have to be leased.

Table 1 shows that DOE would have to lease temporary storage capacity over 8 years in order to maintain a 300,000-barrels-per-day fill rate until 750 million barrels of oil are in storage. DOE would need to lease storage space ranging from about 42 million barrels in fiscal year 1982 to a peak of about 209 million barrels in fiscal year 1986. By early fiscal year 1987, 750 million barrels of SPR oil would be stored in some combination of permanent and temporary storage. Thereafter, oil would move from temporary to permanent storage as capacity becomes available, and DOE would have to continue leasing storage capacity for about 3 more years.

To maintain a 300,000-barrels-per-day fill rate until the first 500 million barrels of oil are stored, DOE would have to lease temporary storage capacity over 4 years. While DOE would still need to lease about 42 and 75 million barrels in fiscal years 1982 and 1983, respectively, the maximum temporary storage capacity needed for any fiscal year would occur in fiscal year 1984 and require 83 million barrels.

Tables 1 and 2 also show the cost of leasing temporary storage capacity, in constant 1982 dollars, using two price assumptions each for above ground storage tanks and oil tankers. We did not independently estimate prices for leasing above ground steel tanks or oil tankers, but calculated the costs for storage based on price ranges provided by DOE and industry groups. For a 300,000-barrels-per-day fill rate for the 750-million-barrel reserve, the total cost for leasing the storage capacity would range from $1.8 billion to $2.0 billion for above ground steel tanks and from $2.9 billion to $3.6 billion for oil tankers.

For a 300,000-barrels-per-day fill rate for the first 500 million barrels only, leasing costs would be about one-fourth the cost of leasing to maintain the 300,000-barrels-per-day rate until the 750-million-barrel reserve is completed. For above ground steel tanks the cost ranges from $471 million to $523 million, and for oil tankers the cost ranges from $785 million to $954 million.

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We hope this information will be of assistance to the Subcommittee and to the Congress in their deliberations on the

appropriate SPR fill rate. In order to meet the requested reporting time frames, we did not obtain official agency comments. As arranged with your office, we plan to distribute the report at this time to other interested parties.

Sincerely yours,

J. Dexter Peach
Director

Attachment

ATTACHMENT I

Table I

Leasing Costs to Achieve the 300,000-Barrels-Per-Day Fill Rate Goal Until 750 Million Barrels are in the SPR

(By Fiscal Year)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Oil Storage Requirements					(millions of barrels)						
Permanent Storage (FY 1983 Budget)	199	267	343	417	456	538	598	623	670	750	
Leased Temporary Storage (note a)	--	41.5	75	110.5	181	208.5	152	127	80	--	
Total SPR Storage	199	308.5	418	527.5	637	746.5	750	750	750	750	
Cost of Leased Temporary Storage (note b)											
Above Ground Steel Tanks					(millions of constant 1982 $)						
Assuming $1.80/barrel/year (note c)		75	135	199	326	375	274	229	144	--	1,757
Assuming $2.00/barrel/year (note d)		83	150	221	362	417	304	254	160	--	1,951
Oil Tankers (note e)											
Assuming $3.00/barrel/year (note f)		125	225	332	543	626	456	381	240	--	2,928
Assuming $3.65/barrel/year (note g)		151	274	403	661	761	555	464	292	--	3,561

a/The total temporary storage needed to fill the SPR at a rate of 300,000 barrels per day is 975.5 million barrels. It is assumed that temporary storage is needed for each full year; however, the actual capacity requirements would vary depending on deliveries.

b/Does not include transportation costs.

c/DOE officials stated in December 1981 that they believe DOE could lease between 10 million and 30 million barrels of capacity at a monthly cost of about 15 cents per barrel.

d/In testimony before the Subcommittee on Fossil and Synthetic Fuels on March 2, 1982, a representative of the Independent Fuel Terminal Operators Association cited a figure of $2 per barrel per year as a rate at which members of the association would be willing to lease space.

e/According to H. P. Drewry's monthly report on "Shipping Statistics and Economics", worldwide there are 164 oil tankers of at least 100,000 deadweight tons (DWT) that are inactive--primarily either laid up or being used for oil storage. One DWT is equivalent to 7.3 barrels of storage capacity for Arabian Light oil. According to the Drewry monthly reports and the Journal of Commerce, leasing rates for large tankers have generally ranged from $11,000 to $13,000 per day.

f/Representatives of the Petroleum Industry Research Foundation and the Transportation Institute cited $3 per barrel per year for leasing oil tanker storage capacity in testimony before the Subcommittee on Fossil and Synthetic Fuels on March 2, 1982. This is equivalent to tankers with an average size of 200,000 DWT (1.46 million barrels) leased for $12,000 per day, or about 0.8 cents per barrel per day.

g/GAO calculation based on an assumption of an average size of 150,000 DWT (1.095 million barrels) leased for $11,000 per day, or 1.0 cent per barrel per day.

ATTACHMENT I

Table 2

Leasing Costs to Achieve the 300,000-Barrels-Per-Day Fill Rate Goal Until the First 500 Million Barrels are in the SPR

(By Fiscal Year)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Oil Storage Requirements	(millions of barrels)										
Permanent Storage (FY 1983 Budget)	199	267	343	417	456	538	598	623	670	750	
Leased Temporary Storage (note a)	--	41.5	75	83	62	--	--	--	--	--	
Total SPR Storage	199	308.5	418	500	h/518	538	598	623	670	750	
Cost of Leased Temporary Storage (note b)											
Above Ground Steel Tanks	(millions of constant 1982 $)										
Assuming $1.80/barrel/year (note c)		75	135	149	112						471
Assuming $2.00/barrel/year (note d)		83	150	166	124						523
Oil Tankers (note e)											
Assuming $3.00/barrel/year (note f)		125	225	249	186						785
Assuming $3.65/barrel/year (note g)		151	274	303	226						954

a/The total temporary storage needed to fill the SPR at a rate of 300,000 barrels per day is 261.5 million barrels. It is assumed that temporary storage is needed for each full year; however, the actual capacity requirements would vary depending on deliveries.

b/Does not include transportation costs.

c/DOE officials stated in December 1981 that they believe DOE could lease between 10 million and 30 million barrels of capacity at a monthly cost of about 15 cents per barrel.

d/In testimony before the Subcommittee on Fossil and Synthetic Fuels on March 2, 1982, a representative of the Independent Fuel Terminal Operators Association cited a figure of $2 per barrel per year as a rate at which members of the association would be willing to lease space.

e/According to H. P. Drewry's monthly report on "Shipping Statistics and Economics", worldwide there are 164 oil tankers of at least 100,000 deadweight tons (DWT) that are inactive--primarily either laid up or being used for oil storage. One DWT is equivalent to 7.3 barrels of storage capacity for Arabian Light oil. According to the Drewry monthly reports and the Journal of Commerce, leasing rates for large tankers have generally ranged from $11,000 to $13,000 per day.

f/Representatives of the Petroleum Industry Research Foundation and the Transportation Institute cited $3 per barrel per year for leasing oil tanker storage capacity in testimony before the Subcommittee on Fossil and Synthetic Fuels on March 2, 1982. This is equivalent to tankers with an average size of 200,000 DWT (1.46 million barrels) leased for $12,000 per day, or about 0.8 cents per barrel per day.

g/GAO calculation based on an assumption of an average size of 150,000 DWT (1.095 million barrels) leased for $11,000 per day, or 1.0 cent per barrel per day.

h/The additions to storage reflect deliveries of 50,000 barrels per day under the 5-year contract with PEMEX, Mexico's State oil company. These deliveries would require additional storage capacity over the previous fiscal year.