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The concept of the Strategic Petroleum Reserve is to provide protection against future oil embargoes by creation of a reserve equal to approximately 500 barrels of crude oil. As part of the reserve, an Early Storage Reserve is to be established to contain at least 150 million barrels by December 1978. The proposed reserve will contain only crude oil which will be stored underground in salt dome caverns or in mines, primarily along the Gulf Coast. Issues which require further analysis by Congress relate to three questions: (1) Is there a need for the type of Strategic Petroleum Reserve? (2) How should the Strategic Petroleum Reserve be filled? and (3) How should the Strategic Petroleum Reserve be financed? Findings/Conclusions: GAO continues to support the concept of a system of national emergency energy reserves. It believes, however, that the use of industry crude oil and product stocks may be an alternative to the creation of a Strategic Petroleum Reserve. The Federal Energy Administration plans to purchase oil for the reserve at near the national average composite price. As long as price controls remain on domestic oil, royalty oil could be acquired to fill the reserve, resulting in significant dollar savings with little or no adverse financial impact on small refiners. (RRS)

# REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES

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## Issues Needing Attention In Developing The Strategic Petroleum Reserve

### Federal Energy Administration

GAO's monitoring of the Strategic Petroleum Reserve Program has raised questions which need further analysis in three key areas.

FEA expects to spend up to \$8 billion to establish a Reserve of 500 million barrels of crude oil--90 days of oil imports--by 1982. Unanswered questions regarding the relationship between the type of Reserve outlined by the agency and the 120-day reserve in industry crude oil and product stocks previously reported by the Government to the International Energy Agency need further analysis.

FEA plans to fill the Reserve by purchasing oil on the open market. There are options to the agency's planned open market purchases. Specifically, under certain circumstances oil produced from Outer Continental Shelf and onshore Federal leases--on which royalties are paid--and oil from the Naval Petroleum Reserve at Elk Hills could offer substantial cost savings to the Government.

The Reserve will be financed from general tax revenues. There are alternative ways for financing. Imposition of a user fee such as a tariff on imported oil or an excise tax on gasoline would result in those benefiting from the Reserve paying for it.



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

B-178205

To the President of the Senate and the  
Speaker of the House of Representatives

This report discusses a number of issues pertinent to the effective development of the Strategic Petroleum Reserve. The authorization of this reserve is the major action which has been legislated so far to lessen U.S. dependence on imported oil. This report is intended to aid the Congress in its consideration of the Federal Energy Administration's Strategic Petroleum Reserve Plan which was submitted for congressional approval on December 15, 1976.

We made our review pursuant to the Budget and Accounting Act of 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Copies are being sent to Mr. James R. Schlesinger, Assistant to the President; the Director, Office of Management and Budget; the Administrator of the Federal Energy Administration; the Secretaries of Interior, State, Defense, and Navy; the Chairman, Senate Committee on Interior and Insular Affairs; the Chairman; House Committee on Interstate and Foreign Commerce; the Chairman, Subcommittee on Energy and Power, House Committee on Interstate and Foreign Commerce; and the Chairman, Subcommittee on Interior, House Committee on Appropriations.

A handwritten signature in dark ink, appearing to read "James R. Schlesinger".

Comptroller General  
of the United States

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FEA	Federal Energy Administration
GAO	General Accounting Office

COMPTROLLER GENERAL'S  
REPORT TO THE CONGRESS

ISSUES NEEDING ATTENTION IN  
DEVELOPING THE STRATEGIC  
PETROLEUM RESERVE  
FEDERAL ENERGY ADMINISTRA-  
TION

D I G E S T

By law, the Federal Energy Administration must create a Strategic Petroleum Reserve containing an estimated 500 million barrels of crude oil and/or petroleum products by December 1982. The purpose is to diminish U.S. vulnerability to the effects of a severe interruption in energy supplies and provide short-term protection from the consequences of interruptions in petroleum product supplies.

As part of the Reserve, an Early Storage Reserve is to be established to contain at least 150 million barrels of oil or products by December 1978. The Energy Policy and Conservation Act also gives the agency the authority to establish an Industrial Petroleum Reserve and a Regional Petroleum Reserve. The quantities of oil to be contained are to be part of, and not in addition to, the Strategic Petroleum Reserve.

The Federal Energy Administration submitted its Strategic Petroleum Reserve Plan to the Congress for approval on December 15, 1976.

The proposed Reserve will contain only crude oil which will be stored underground in salt dome caverns or in mines, primarily along the Gulf Coast. The agency expects to purchase the oil through normal Federal procurement procedures at near the national average composite price. The agency does not believe establishment of industrial and regional reserves to be necessary at this time. The estimated cost to design, construct, fill, and maintain the 500 million barrel Reserve through 1982 will be between \$7.5 and \$8 billion.

GAO recognizes the newness and complexity of the Strategic Petroleum Reserve Program and the time constraint placed on the Federal Energy Administration to develop its Plan.

In this report GAO identifies several issues which require further analysis and warrant consideration by the Congress before it formally approves the Plan. The issues relate to three basic questions.

--Is a Strategic Petroleum Reserve of the type outlined in the Federal Energy Administration's Plan needed?

--If so, how will the oil be purchased to fill it?

--What ways other than general tax revenues are available to finance a Strategic Petroleum Reserve?

GAO plans to continue its monitoring of this Program because of its magnitude and importance as a cornerstone of national energy policy.

IS THERE A NEED FOR THE TYPE OF STRATEGIC PETROLEUM RESERVE AS OUTLINED IN THE FEDERAL ENERGY ADMINISTRATION'S PLAN?

A Government-owned 500 million barrel Strategic Petroleum Reserve as planned by the Federal Energy Administration may not be needed because the potential exists for using industry crude oil and product stocks for the Reserve at significant dollar savings. As reported by the Government to the International Energy Agency, U.S. industries maintain commercially held stocks of crude oil and products equivalent to 120 days of oil imports. (See p. 3.) GAO has not determined the extent to which these stockpiles can be used to satisfy the objectives of the Strategic Petroleum Reserve. Such a determination should be made and adjustments made as necessary in the Strategic Reserve Program as currently planned.

In order for these inventories to be used effectively as part or all of a Strategic Reserve, the Government must impose controls so that specified quantities of oil are maintained and appropriately used in the event of an embargo. This system would be similar to the Government controlled and industry owned oil storage programs of France and Japan. (See p. 5.)

The Federal Energy Administration agreed that further analysis is needed regarding the extent to which industry inventories can be used during a severe supply interruption and is studying the matter. However, the agency stated that it would be inconsistent with the Energy Policy and Conservation Act to designate existing industry inventories as part of the Reserve and not develop any new Storage. (See p. 6.)

GAO believes that, if these inventories are usable the Federal Energy Administration should determine the extent to which they are legally available. If additional authority is needed to allow their inclusion in the Reserve, the agency should seek such authority. (See p. 6.)

### HOW SHOULD THE STRATEGIC PETROLEUM RESERVE BE FILLED?

The Federal Energy Administration intends to fill the Strategic Petroleum Reserve through purchase of oil on the open market at a price near the national average composite price. However, other options exist for acquiring the oil in addition to open market purchase.

Oil produced from Outer Continental Shelf and onshore Federal leases, and oil from the Elk Hills Naval Petroleum Reserve, under certain circumstances, offer substantial cost savings to the Federal Government. If price controls remain in effect, significant savings can be incurred if such oil--on which royalties are paid--were purchased for the Reserve. For the approximately 356 million barrels of oil which could be purchased by the end of 1982, a savings of \$3.08 a barrel totaling about \$1.1 billion would result. (See p. 11.)

In its Plan the agency said a major reason for rejecting the purchase of such oil was because it would have an adverse financial impact on small refiners. However, such oil could be acquired with little or no adverse financial impact. Generally, the cost of crude oil to refiners is equalized by the agency's pricing regulations, regardless of the actual purchase price. (See p. 8.)

If the price of crude oil is decontrolled, the purchase of Elk Hills oil for the Reserve is a viable option. The Federal Energy Administration ruled against purchasing

Elk Hills oil because during price controls its cost would be higher than the national average composite price and there would be little or no budgetary benefit compared with purchases at world prices. For January 1977, although the average Elk Hills selling price of \$12.31 exceeded the projected national average composite price of \$11.73, it is below the projected world price of \$14.47. The agency maintains that under decontrol of oil prices, the price of domestic oil will rise to the world price. Based on information obtained by GAO, however, it appears that Elk Hills oil will remain below world oil prices under decontrol. (See p. 12.)

The Federal Energy Administration believes that using royalty oil for the Reserve is undesirable, but has no objection to using Elk Hills oil. The agency's position on royalty oil is that its use would result in indirectly passing some of the Reserve costs on to petroleum users since higher cost foreign oil would have to be obtained by the private sector as a substitute. The Federal Energy Administration points out that a particularly large share of the Reserve costs would be placed on a relatively few small refiners now obtaining a significant benefit from royalty oil. (See p. 13.)

Passing some of the Reserve costs to petroleum users should not preclude the agency from using royalty oil when it will result in reducing the costs of the Reserve. Minimizing Reserve costs is an objective of the Energy Policy and Conservation Act. GAO disagrees that relatively few small refiners now obtaining royalty oil would bear a particularly large share of the Reserve costs. (See p. 13.)

#### HOW SHOULD THE STRATEGIC PETROLEUM RESERVE BE FINANCED?

The Plan does not specify how the Reserve is to be financed; it implies that general tax revenues, largely personal and corporate income taxes, will be the source of financing. Consideration should be given to having those who will benefit directly from the Reserve bear its cost. This could be accomplished through imposing a user fee. (See p. 15.)



The benefits of the Reserve accrue to those who buy imported crude oil and the products derived therefrom by providing protection against the economic costs they would incur in the event of a supply interruption. GAO has not analyzed all available options for imposing a fee; however, it has identified two options--a tariff on imported crude oil and an excise tax on gasoline. (See p. 15.) Fees collected should be placed in the general funds of the U.S. Treasury and remain subject to congressional oversight.

The Federal Energy Administration stated that, as pointed out in the Plan, it is studying several options for financing the Reserve, including the options discussed by GAO. (See p. 16.)

## CHAPTER 1

### INTRODUCTION

The 1973-1974 Arab oil embargo demonstrated U.S. vulnerability to interruptions in imported petroleum supplies. FEA has estimated that the embargo and accompanying oil price increases resulted in a loss of up to \$45 billion in gross national product and 500,000 jobs. Of the loss in the gross national product, FEA attributes up to \$20 billion directly to the embargo. Future interruptions would likely have more severe impacts on gross national product, employment, and price indices than the 1973-1974 embargo since the economy has become increasingly dependent on imported oil and would likely be less able to adjust to a sharp decline in petroleum supplies.

The major action taken by the U.S. to provide protection against future oil embargoes has been the creation of a Strategic Petroleum Reserve under the Energy Policy and Conservation Act (P.L. 94-163). The Act requires FEA to develop a national plan, which must provide, by December 22, 1982, a Strategic Petroleum Reserve equal to the amount of crude oil imported into the U.S. during the three consecutive highest import months of 1974 and 1975--approximately 500 million barrels. The purpose of the Reserve as stated in the Act is to diminish U.S. vulnerability to the effects of a severe energy supply interruption and provide limited protection from the short-term consequences of petroleum product supply interruptions.

The Act also requires FEA to create an Early Storage Reserve and gives the agency authority to create an industrial and a regional reserve. The quantities of oil to be contained in these reserves are to be a part of, and not in addition to, the Strategic Petroleum Reserve.

The Early Storage Reserve is to contain at least 150 million barrels of petroleum products by December 22, 1978. FEA submitted its Early Storage Reserve Plan to the Congress on April 22, 1976.

On December 15, 1976, FEA submitted its Strategic Petroleum Reserve Plan to the Congress for approval as required under the Act. The Plan details FEA's proposals for designing, constructing, and filling the Reserve. The Plan calls

for the Reserve to contain only crude oil to be stored in underground salt dome caverns or in mines, primarily located along the Gulf Coast. FEA expects to purchase the crude oil to fill the Reserve through normal Federal procurement procedures at near the national average composite price. FEA does not plan to establish industrial and regional reserves at this time. FEA estimates that through 1982, the cost to design, construct, fill, and maintain the 500 million barrel Reserve will be between \$7.5 and \$8 billion.

We recognize the newness and complexity of the Strategic Petroleum Reserve Program and the time constraint placed on FEA to develop its Plan for submission to the Congress. On April 26, 1976, the Administrator, FEA, formally requested GAO to monitor the agency's efforts in developing the Strategic Petroleum Reserve Program. GAO has been closely monitoring FEA's planning and development activities. In carrying out its work, GAO has received excellent cooperation from FEA's Office of Strategic Petroleum Reserve.

In our review of the Plan, we have identified several issues which we believe require further analysis by FEA and warrant consideration by the Congress in its deliberations over approving the Strategic Petroleum Reserve Plan. The issues identified by us relate to three basic questions.

- Is a Strategic Petroleum Reserve of the type as outlined in FEA's Plan needed?
- If so, how will the oil be purchased to fill it?
- What ways other than general tax revenues are available to finance a Strategic Petroleum Reserve?

#### SCOPE OF REVIEW

We interviewed FEA officials, reviewed the Strategic Petroleum Reserve Plan and related FEA records, and reviewed legislation pertinent to the Strategic Petroleum Reserve Program. We also interviewed officials of the Department of the Interior; Central Intelligence Agency; and Office of Naval Petroleum and Oil Shale Reserves, Department of the Navy.

GAO plans to continue its monitoring of the Strategic Petroleum Reserve Program because of its magnitude and importance as a cornerstone of national energy policy.

## CHAPTER 2

### IS THERE A NEED FOR THE TYPE OF STRATEGIC PETROLEUM RESERVE AS OUTLINED IN FEA'S PLAN?

GAO has supported the concept of a system of national emergency energy reserves to guard against future disruption of oil imports. GAO continues to support the concept. However, at this point, we believe unanswered questions still exist regarding whether the Strategic Petroleum Reserve Program as outlined in FEA's Plan is the most efficient approach. FEA's approach calls for the creation of a new centralized, Government-owned and controlled Reserve. With 500 million barrels of oil, this Reserve would make the U.S. essentially invulnerable to a loss of 45 percent of its imports for approximately six months. FEA cost estimates for such a Reserve are between \$7.5 and \$8 billion.

We believe that another approach may be available for creating a Reserve which was not given sufficient consideration by FEA. This approach relates to the use of industry crude oil and product stocks. To the extent that industry stockpiles could be used to offset the purchase of 500 million barrels of oil and related storage facilities, significant savings would result to the Federal Government.

Entirely separate from the new Strategic Petroleum Reserve Program, U.S. industries maintain commercially held stocks of crude oil and products equivalent to 120 days of oil imports. The U.S., through the Department of State, reported these stocks to the International Energy Agency, founded in November 1974 by 19 industrial oil-consuming nations. These nations entered into an Agreement on an International Energy Program to reduce members' vulnerability to oil supply interruptions through emergency allocation planning, encouragement of energy conservation measures, and the maintenance of oil stockpiles. Under the agreement, member countries are required to maintain emergency reserve stockpiles equivalent to at least 60 days of oil imports and are to increase these stockpiles to an equivalent of 90 days of oil imports by 1980. The U.S., however, has reported its stockpiles to be well in excess of these requirements.

According to the agreement, the oil stockpiles may be satisfied by

- oil stocks,
- fuel switching capacity, and
- stand-by oil production.

Oil stocks include crude oil, major refined petroleum products, and unfinished oils stored in refinery tanks, bulk terminals, pipeline tankage, barges, intercoastal tankers, oil tankers in port, inland ship bunkers, and storage tank bottoms. They also include working stocks and stocks held by large consumers as required by law or otherwise government controlled. Stocks excluded are crude oil not yet produced and crude oil, major refined petroleum products, and unfinished oils held in pipelines, rail and truck tank cars, sea-going ship bunkers, service stations, retail stores, and tankers at sea. Also, excluded are stocks held by other consumers and the military.

Fuel switching capacity is defined as normal oil consumption that can be replaced by other secure fuels in an emergency. In addition, this capacity must be (1) subject to government control in an emergency and (2) able to be brought into operation within one month.

Stand-by oil production is defined as a member country's potential domestic oil production in excess of normal oil production. This production must be subject to government control and be able to be brought into use during an emergency.

We did not analyze in detail the 120-day oil stockpile reported by the U.S. to the International Energy Agency nor the extent to which it can be used to satisfy the objectives of the Strategic Petroleum Reserve Program.

FEA maintains that it is misleading to assume that U.S. industry has inventories equal to 120 days of oil imports because much of industry inventories are not usable and are required just to keep the distribution system functioning, e.g., oil in pipelines, domestic ships and barges in transit, tank bottoms, etc. However, FEA's position is questionable, unless the U.S. has reported emergency energy reserves to

the International Energy Agency that are not in fact usable as reserves. It is questionable to consider the 120-day stockpile as reserves for the purpose of meeting the requirements of the International Energy Agency and then disregard it in making a decision on the nature of a domestic Strategic Petroleum Reserve.

To the extent the stockpiles and the facilities included in the 120-day stockpile are usable, Government costs of the Strategic Petroleum Reserve Program would decrease. Additionally, it would appear that the Program would be accelerated and environmental problems associated with facility construction reduced.

At present, the Government has no control over industry inventories. However, if these inventories are to be used for the Strategic Reserve, then Government controls must be imposed to insure that specified quantities of oil are maintained and that they will be appropriately used in the event of an embargo. During the 1973-1974 oil embargo, industry stocks increased rather than decreased. This was likely due to the anticipation that oil prices would rise once the embargo was lifted. The prices did, in fact, rise substantially; and, unless the Government can require industry to draw down its stocks during future embargoes, it is possible that industry will increase stocks again rather than draw them down to offset the impact of an embargo.

While such authority does not now exist, the concept of a government controlled/industry owned oil storage program is not new. Government controlled/industry owned oil storage programs currently exist in other countries, but responsibility and control of these programs involve a variety of relationships. While West Germany is a combination of government and industry control, France and Japan control the storage facilities with industry owning and operating them. By contrast, the Strategic Petroleum Reserve Program as proposed by FEA will be owned and operated by the Federal Government.

The U.S. would have to adopt a relationship similar to that of the programs of France and Japan if it chooses to use the industry stockpiles in lieu of, or as a part of, the Strategic Petroleum Reserve Program.

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In commenting on a draft of this report, FEA need that further analysis is needed regarding the extent to which industry inventories can be used during a severe supply interruption and stated that it is now undertaking a major study for this purpose. FEA stated that this analysis may impact future decisions regarding the ultimate size of the Reserve if it is concluded that more or less reliance should be placed on industry inventories as a partial substitute for the Reserve. FEA expressed concern, however, that the draft report suggested that it should have considered existing industry inventories for part or all of the Reserve.

FEA stated that it believes the intent of the Energy Policy and Conservation Act is to provide for additional petroleum storage over and above the amounts normally maintained by industry. FEA further believes it would be inconsistent with the Act to simply designate existing industry inventories as part of the Reserve and not develop any new storage.

As discussed above, and as agreed to by FEA, GAO believes that further analysis is needed to determine the extent to which the 120-day industry stockpile, as reported to the International Energy Agency, is usable in lieu of, or as part of, the Strategic Petroleum Reserve. If these inventories are usable, FEA should determine the extent to which they are legally available consistent with the requirements of the Energy Policy and Conservation Act. If additional authority is needed to allow their inclusion in the Reserve, FEA should seek such authority.

The Energy Policy and Conservation Act requires FEA to establish a Reserve equivalent to 90 days of crude oil imports--500 million barrels. FEA assumes that the 500 million barrels would make the U.S. essentially invulnerable to a loss of 45 percent of its crude oil imports for approximately 180 days. However, to the extent the industry stockpile equivalent to 120 days of total oil imports could be used, the need for a Government-owned Reserve would be reduced or eliminated.

## CHAPTER 3

### HOW SHOULD THE STRATEGIC PETROLEUM RESERVE BE FILLED?

FEA intends to fill the Reserve by purchasing oil on the open market at a price near the national average composite price through sale proposals from all potential oil sellers--both foreign and domestic. We believe that other opportunities exist in addition to or in lieu of open market purchase. We have identified the following:

- acquisition of royalty oil produced from Outer Continental Shelf and onshore Federal leases, and
- acquisition of oil from the Elk Hills Naval Petroleum Reserve.

#### ACQUISITION OF ROYALTY OIL

Royalty oil from Federal Outer Continental Shelf and onshore oil leases could be used--directly or through exchange agreements--for filling the Reserve. Under applicable laws, the Federal Government may collect all royalties in kind, i.e., as oil or natural gas, from Outer Continental Shelf and onshore Federal oil producing properties. According to officials of the Department of the Interior, the Federal Government presently collects less than 50 percent of its oil royalties in kind. These officials advised us that for fiscal year 1976, if the Federal Government had collected all of its oil royalties in kind, it would have collected about 74 million barrels. Royalty oil production is expected to remain about the same through 1982.

During fiscal year 1976, the Federal Government collected about 34 million barrels of oil in lieu of royalty payments. It sold this oil to small refiners at an average price of \$7.59 a barrel--the average price for total royalty oil production. As of September 1976, the most current information available, the average price for a barrel of royalty oil was \$7.66. As of January 1977, 55 small refiners had contracts with the Department of the Interior to purchase royalty oil. Most of these small refiners do not physically take possession



of the royalty oil because they are not located near the royalty oil producing properties. Instead, they enter into exchange agreements with other refiners to exchange their royalty oil for oil which is more accessible to them.

FEA considered acquiring royalty oil for filling the Reserve and concluded that it is not as desirable as the currently planned oil purchase policy. Reasons for this conclusion as stated in the Plan were:

- It would adversely impact financially on small refiners now relying on access to royalty oil.
- It would be necessary to terminate existing Interior Department royalty oil contracts to use this oil.
- The supply of royalty oil is not sufficient for the Strategic Reserve, and even if this approach were adopted, other oil would be required.
- Transportation costs for moving this widely dispersed oil to any market will be substantially greater than the cost of unloading ocean tankers into Reserve facilities.

The reasons cited by FEA, in our opinion, do not adequately reflect the royalty oil situation, as discussed below.

#### Adverse Financial Impact on Small Refiners

We believe that royalty oil could be used for the Reserve with little or no adverse financial impact on small refiners. Generally, the cost of crude oil to refiners is equalized by FEA pricing regulations, regardless of the actual purchase price.

FEA's crude oil pricing regulations are designed to substantially equalize average crude oil costs at the refinery level through the use of entitlements which permit refiners to share the benefits associated with access to price controlled crude oil. Under the regulations, all refiners

report monthly to FEA their volume of crude oil processed and the volume of price controlled oil included in the refiners' crude oil receipts. FEA issues each refiner enough entitlements to permit it to process the national average ratio of price controlled oil to total crude oil processed. Generally, refiners with a ratio of price controlled oil higher than the national price controlled oil supply ratio must buy entitlements to cover the excess; whereas, refiners with a lower ratio must sell entitlements for the amount they are under the national ratio. Therefore, the average cost to refiners with less than the average amount of price controlled oil is reduced because of the money they receive from the sale of entitlements. On the other hand, costs to those who process more than the average price controlled oil ratio are increased because they must purchase entitlements.

The regulations also contain an entitlement adjustment for small refiners in addition to the entitlements otherwise issued to them which grant them access to price controlled crude oil. According to an FEA official, this adjustment allows small refiners to acquire oil, on the average, for \$.54 a barrel less than the cost of oil to other refiners after entitlements.

The sales price of entitlements is determined by FEA each month based on the difference between the weighted average cost of decontrolled oil (imported oil, stripper well oil and oil produced from the Naval Petroleum Reserves) less \$.21 <sup>1</sup>/<sub>less</sub> the weighted average cost of price controlled oil.

FEA, however, grants to small refiners "exceptions relief" from the regulations when they can demonstrate that compliance with the program would cause them financial hardship. Exceptions relief means that these refiners do not have to buy entitlements if they have more price controlled oil than the national ratio. As a result, their crude oil costs, on the average, are lower than those of other refiners.

Currently, there are 19 small refiners who are getting full or partial exceptions relief. As of mid-January 1977, 13 of these refiners had contracts with the Department of the

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<sup>1</sup>/The \$.21 is the amount fixed by FEA regulation to give domestic oil a price advantage over imported oil (and decontrolled oil) and thus provide refiners an incentive to purchase domestic oil.

Interior to purchase royalty oil. These contracts are all scheduled to expire in mid-1979 and total 32,399 barrels a day or about 12 million barrels a year. It is apparent, therefore, that only the refiners getting exceptions relief and having royalty oil contracts would be adversely affected--13 of 55 small refiners--if royalty oil were not available to them and they could not obtain comparable priced oil elsewhere. Other refiners with royalty oil contracts would not be adversely affected--42 of 55 small refiners--because their prices are, in effect, equalized by FEA's pricing regulations.

### Termination of Existing Royalty Oil Contracts

In its Plan, FEA stated that use of royalty oil would require the termination of existing Interior Department royalty oil contracts with refiners. As pointed out above, of the 74 million barrels of royalty oil produced in 1976, only 34 million barrels were sold under contract to small refiners. All of these contracts are scheduled to expire by mid-1979. Until mid-1979, the royalty oil not under contract--40 million barrels--could be used for the Reserve. After mid-1979, the additional 34 million barrels could be used, making the total annual royalty oil production of 74 million barrels available for use.

### Royalty Oil Supply

FEA in its Plan stated that the supply of royalty oil is not sufficient for the 500 million barrel Strategic Petroleum Reserve, and even if this approach were adopted, other oil would have to be purchased. We agree with FEA on this position. However, in our view there is a substantial supply of royalty oil available and to the extent that royalty oil is acquired, significant cost savings to the Federal Government would result as discussed below.

Assuming the 13 small refiners' contracts totaling 12 million barrels a year are not terminated before their mid-1979 expiration date and not renewed; royalty oil could provide 356 million of the 500 million barrels for the Reserve by the end of 1982, based on FEA's schedule for filling the Reserve. If, on the other hand, their contracts were renewed after mid-1979, royalty oil could provide 314 million barrels.

The cost savings associated with the purchase of royalty oil are very significant when compared to the purchase of oil

at the national average composite price and are greater still when compared to the world price. Comparing costs for September 1976--the most current month for which royalty oil prices are available--the per barrel savings associated with acquiring royalty oil rather than acquiring oil under FEA's current plan would be \$3.08. This is the difference between the price FEA would have paid to acquire oil in September 1976 under its current plan (\$11.04) and the price of royalty oil plus transportation costs (\$7.66 + \$.30). Applying this \$3.08 savings to the 3/4 or 356 million barrels of royalty oil that could be provided by the end of 1982 (depending on the treatment of the 13 small refiner contracts), savings would range from about \$967 million to \$1.1 billion.

It should be pointed out, however, that the savings are contingent upon royalty oil remaining under price controls. Royalty oil is priced significantly below the national average composite price because it is subject to price controls. Therefore, as long as price controls remain in effect, acquiring royalty oil for filling the Reserve will result in significant savings.

#### Transportation Costs for Royalty Oil

In its Plan FEA stated that transportation costs for moving royalty oil to any market will be substantially greater than the cost of unloading ocean tankers into Reserve facilities because royalty oil is more widely dispersed. In our view, the more valid approach would be to compare the costs of transporting royalty oil to storage facilities on the Gulf Coast with the costs of transporting the oil FEA plans to purchase to the same storage facilities. In any event, as pointed out above, the total cost of purchasing royalty oil including transportation costs of \$.30--FEA's estimated average transportation cost for domestic oil--is substantially less than the national average composite price of oil. Additionally, if royalty oil were acquired for the Reserve, the Federal Government would not be precluded from entering into exchange agreements with other refiners to trade the royalty oil for oil which is more accessible to the storage sites.

#### ACQUISITION OF ELK HILLS OIL

Elk Hills Naval Petroleum Reserve contains estimated reserves of 1.2 billion barrels of oil. Under its current

development plan the Navy expects Elk Hills to reach its maximum efficient rate of production of 300,000 barrels a day by April 1979. Elk Hills oil is free of price controls under the Naval Petroleum Reserves Production Act of 1976 (P.L. 94-258), and is sold competitively on the open market. In our view, contingent upon decontrol of oil prices and Elk Hills oil remaining below the world oil price, Elk Hills oil has the potential for filling a portion of the Reserve at considerable cost savings to the Federal Government.

FEA does not expect to use Elk Hills oil to fill the Reserve because it would have higher budget costs than the national average composite price during price controls and would have little or no budgetary benefit compared with purchases at world market prices.

Based on pricing data obtained from FEA, the projected national average composite price of crude oil for January 1977 is \$11.73 a barrel. This is below the Navy's average January 1977 selling price for Elk Hills oil of \$12.31 a barrel. Therefore, at this time, Elk Hills oil is more expensive than oil purchased at the national average composite price.

FEA stated in its Plan that use of Elk Hills oil would have little or no budgetary benefit compared with oil purchased at world market prices. Elk Hills oil, however, is priced below the world price. The projected January 1977 world oil price is \$14.47 a barrel compared to the average Elk Hills January 1977 sale price of \$12.31 a barrel.

FEA has stated that, if domestic prices are decontrolled, domestic oil will rise to the world price. However, based on information obtained by us, it appears that Elk Hills oil, under decontrol, will remain below world prices. We were advised by an official of the Office of Naval Petroleum and Oil Shale Reserves, Department of the Navy, that West Coast decontrolled crude oil prices have historically been below average domestic decontrolled crude oil prices and are expected to remain lower primarily due to the excess oil supply on the West Coast. Given that excess, Elk Hills oil would be expected to be priced below the world price. According to Navy and FEA officials, California producers have been complaining that they have had to shut in producing wells because refiners were canceling contracts with them and purchasing Elk Hills oil.

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FEA, in commenting on a draft of this report, stated that although using royalty oil to fill the Reserve is undesirable, it has no objection to purchasing Elk Hills oil.

With respect to royalty oil, FEA stated that the issue of whether to use royalty oil is not really a question of how to fill the Reserve but part of the question of how the Reserve should be financed. FEA commented that using royalty oil would be an undesirable approach because of the inequitable distribution of the impact and the potential disruption of established supply relationships for small refiners. FEA's position is that using royalty oil for the Reserve would be an indirect way of passing some of the Reserve costs on to petroleum users since higher cost foreign oil would have to be obtained by the private sector as a substitute. In this case, FEA points out that a particularly large share of the Reserve costs would be placed on a relatively few small refiners now obtaining a significant benefit from royalty oil.

FEA's statement that use of royalty oil would indirectly pass some of the Reserve costs on to petroleum users may be true; however, this should not preclude the agency from using royalty oil when it will result in reducing Reserve costs. In this connection, the Energy Policy and Conservation Act requires that FEA, to the greatest extent practicable, acquire petroleum products for the Reserve with the objective of minimizing its costs. We believe that royalty oil, when purchased at costs less than FEA would otherwise have to pay, is consistent with that objective.

As far as the indirect financing issue which the agency believes would exist, we believe it to be part of a broader question of how the Reserve should be financed which is discussed in Chapter 4. FEA's position that use of royalty oil would be undesirable for the reasons stated appears inconsistent with its Plan which concludes that if changes in the availability or the cost of royalty oil make it attractive, FEA will use it to meet a portion of Reserve requirements. This conclusion was reaffirmed by the Administrator, FEA, on February 4, 1977, in hearings on the Plan before the Senate Committee on Interior and Insular Affairs.

Contrary to FEA's position that use of royalty oil would result in inequitable distribution of the impact and place a large financial burden on a relatively few small refiners, we believe this not to be the case. As discussed

on page 8 of this report, royalty oil could be used for the Reserve with little or no adverse financial impact on small refiners. Royalty oil contracts for the 13 small refiners receiving exceptions relief from FEA's entitlements program need not be terminated. In addition 40 million barrels of royalty oil are produced annually which are not being sold under contract to small refiners. In any event, all contracts that small refiners currently have with the Federal Government to purchase royalty oil are scheduled to expire in mid-1979.

With respect to use of Elk Hills oil, FEA stated that it has no objection to purchasing Elk Hills oil, to the extent it is suitable for storage and it costs no more than other available oil. FEA further stated that it would make cost comparisons as it proceeds with the purchase of oil for the Reserve.

We agree that cost comparisons should be made. Additionally, we believe that Elk Hills oil is suitable for Reserve storage. We were advised by an official of the Navy's Office of Naval Petroleum and Oil Shale Reserves, that 75 percent of Elk Hills oil production will be of the quality specified by FEA in its Plan as being the most desirable for Reserve storage.

## CHAPTER 4

### HOW SHOULD THE STRATEGIC PETROLEUM

#### RESERVE BE FINANCED?

FEA's Plan does not explicitly state how the Reserve will be financed; however, it implies that the Reserve will be funded from general tax revenues. We believe that consideration should be given to having those who will benefit directly from the Reserve bear its cost. In our view this can be accomplished through imposition of a user fee, such as a tariff on imported oil or an excise tax on gasoline.

If the Strategic Petroleum Reserve Plan is implemented the costs will be great. FEA estimates that the 500 million barrel Reserve will cost between \$7.5 and \$8 billion. As discussed in Chapter 3, the costs could be reduced by acquiring royalty oil or Elk Hills oil to fill the Reserve. Even if Government-owned crude oil is used, substantial cost will be involved to create the Reserve.

FEA's Plan implies that general tax revenues, largely personal and corporate income taxes, will be the source of financing for the Reserve. However, it is both efficient and equitable to pay for public services through "user fees" when the users of a service can be identified and the fee collection is administratively feasible. The Strategic Petroleum Reserve is an insurance policy for all U.S. buyers of imported crude oil and through them, all consumers of petroleum products. It "insures" those who buy imported crude oil (and products derived therefrom) against the economic costs they would incur in the event of a disruption in supply. It may also prevent embargoes from occurring at all. The benefits of this insurance and protection are directly received by the users of imported crude oil and petroleum products. We believe that it is reasonable to tax users of imported crude oil and the products derived from it to pay the costs of the Reserve. While we have not analyzed all available options for imposing such a fee or tax, we have identified two such options for consideration--a tariff on imported crude oil and an excise tax on gasoline.

There may be several ways to establish a user fee. Perhaps the simplest would be a flat rate indexed to inflation. A flat rate could be imposed for a set period, i.e., five years, and be renewed only if collections were insufficient to cover actual Reserve Program expenditures plus



any expected additional costs. For instance, if imports averaged 2.5 billion barrels annually over the next five years which is slightly less than 1980 projections, a tariff of \$.60 a barrel would result in \$7.5 billion being collected over a five-year period. In the case of an excise tax on gasoline, if gasoline consumption were to remain at current levels--105 billion gallons annually--over the next five years, an excise tax of 1.5 cents a gallon would result in over \$7.5 billion being collected in a five-year period. Actual collections would depend both on the amount of the tariff or excise tax and the quantity of oil imported or gasoline consumed. It is our view that the fees collected should be placed in the general funds of the U.S. Treasury and remain subject to congressional oversight.

A tariff of \$.60 a barrel would cause about a 4 percent rise in the cost of imported crude oil. Under FEA's entitlements program, this increase would, in effect, be spread equally among refiners purchasing domestic as well as imported crude oil, and the additional costs would be passed through ultimately to all users of petroleum products. This price increase would have a modest upward impact on domestic prices of petroleum products, probably about 0.8 cents a gallon.

Both a tariff and an excise tax are advantageous in that they are administratively feasible to collect. A tariff on imported oil would be more equitable than an excise tax on gasoline. The tariff would ultimately be paid by all consumers of petroleum products and, therefore, by those who would directly benefit from the Reserve. However, the excise tax would place the cost burden only on consumers of gasoline. The tariff is an indirect tax on consumers; whereas, the excise tax is a direct tax and more visible to the consumer.

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In commenting on a draft of this report, FEA stated that, as pointed out in the Plan, it is now studying several options for financing the Reserve, including the two options discussed by GAO.

## CHAPTER 5

### SUMMARY

FEA is required to create a Strategic Petroleum Reserve containing an estimated 500 million barrels of crude oil and/or petroleum products by December 1982. On December 15, 1976, FEA submitted its Strategic Petroleum Reserve Plan to the Congress for approval. This Plan details FEA's proposals for designing, constructing, and filling the Reserve. The Plan states that the Reserve will contain only crude oil which will be stored underground in salt dome caverns or in mines, primarily along the Gulf Coast. FEA expects to purchase the crude oil through normal Federal procurement procedures at near the national average composite price. FEA states in the Plan that the estimated cost to design, construct, fill, and maintain the 500 million barrel Reserve through 1982 will be between \$7.5 and \$8 billion. These funds will be generated from general tax revenues.

We believe reasonable questions exist as to the need for a Reserve of the type outlined in FEA's Plan. In our view, far more serious consideration needs to be given to the potential for using industry crude oil and product stocks for the Reserve.

The U.S. Government, through the Department of State, has reported to the International Energy Agency that U.S. industries have crude oil and product stocks equivalent to 120 days of oil imports. We do not know the extent to which it is feasible to use the entire 120-day industry stockpile for the Reserve. However, we believe the extent to which these reserves could be used should be determined and adjustments made as necessary in the Strategic Petroleum Reserve Program as currently planned by FEA. In order for these inventories to be used effectively as part or all of a Strategic Reserve, the Government must impose controls to insure that specified quantities of oil are maintained and that they will be appropriately used in the event of an embargo.

FEA agrees that further analysis is needed regarding the extent to which industry inventories can be used during a severe supply interruption and is studying the matter. However, FEA believes that it would be inconsistent with the Energy Policy and Conservation Act to designate existing industry inventories as part of the Reserve and not develop any new storage.

We believe that, if these inventories are usable, FEA should determine the extent to which they are legally available. If additional authority is needed to allow their inclusion in the Reserve, FEA should seek such authority.

FEA plans to purchase oil for the Reserve at near the national average composite price. We believe that alternative oil purchase options should be considered; specifically, royalty oil produced from the Outer Continental Shelf and onshore Federal leases and oil from Elk Hills. We believe that as long as price controls remain on domestic oil, royalty oil could be acquired to fill the Reserve and would result in significant dollar savings with little or no adverse financial impact on small refiners currently contracting for royalty oil.

At current prices, acquisition of Elk Hills oil to fill the Reserve is a more costly approach than oil acquired under FEA's current plans. However, if domestic oil is decontrolled and reaches the world price, we believe Elk Hills oil is a desirable alternative if its price continues to remain below the world price.

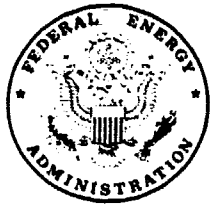
FEA believes that using royalty oil for the Reserve is undesirable, but has no objection to using Elk Hills oil. FEA's position on royalty oil is that its use would result in indirectly passing some of the Reserve costs on to petroleum users since higher cost foreign oil would have to be obtained by the private sector as a substitute. FEA points out that a particularly large share of the Reserve costs would be placed on a relatively few small refiners now obtaining a significant benefit from royalty oil.

Passing some of the Reserve costs to petroleum users should not preclude FEA from using royalty oil when it will result in reducing the costs of the Reserve. Minimizing Reserve costs is an objective of the Energy Policy and Conservation Act. We disagree that relatively few small refiners now obtaining royalty oil would bear a particularly large share of the Reserve costs.

FEA plans to finance the Reserve from general tax revenues. We believe that it may be more efficient and equitable to have those who will benefit directly from the Reserve bear its costs. This could be accomplished through

imposing a user fee such as a tariff on imported oil or an excise tax on gasoline. In addition, it is GAO's view that the fees collected should be placed in the general funds of the U.S. Treasury and remain subject to congressional oversight.

FEA is studying several options for financing the Reserve, including the options discussed by GAO.



## FEDERAL ENERGY ADMINISTRATION

WASHINGTON, D.C. 20461

10 FEB 1977

OFFICE OF THE ASSISTANT ADMINISTRATOR

Mr. Monte Canfield, Jr.  
Director  
Energy and Minerals Division  
General Accounting Office  
Washington, D. C. 20548

Dear Mr. Canfield:

This letter is to confirm the key comments that we provided to your staff on February 9, regarding the General Accounting Office's draft report on the Strategic Petroleum Reserve (SPR).

Our principal comments are as follows:

1. Use of Industry Inventories

The draft report suggests that the Federal Energy Administration (FEA) should have considered using existing industry inventories for part or all of the SPR. FEA believes that the intent of the Energy Policy and Conservation Act was to provide for additional petroleum storage, over and above the amounts normally maintained by industry. We believe it would not be consistent with the Act to simply designate existing industry inventories as part of the SPR and not develop any new storage.

We agree, however, that further analysis is needed regarding the extent to which industry inventories can be utilized during a severe supply interruption. We are now undertaking a major study of industry inventories for this purpose. This analysis may impact future decisions regarding the ultimate size of the Reserve if it is concluded that we should place more or less reliance on industry inventories as a partial substitute for the Reserve. The current SPR Plan proposes to place considerable reliance on industry inventories, as discussed in Chapters II and V.

## 2. Use of Royalty Oil

The issue of whether to use royalty oil is not really a question of how we fill the Reserve. It is a part of the question of how the Reserve should be financed. If FEA were to use royalty oil for the Reserve it would simply be an indirect way of passing some of the SPR costs along to petroleum users. If FEA used the low cost royalty oil, higher cost foreign oil would have to be obtained by the private sector as a substitute. In this case, a particularly large share of the SPR costs would be placed on a relatively few small refiners who now obtain a significant benefit from the royalty oil.

We are now studying several possible options for financing the SPR, but we believe that using royalty oil would be an undesirable approach because of the inequitable distribution of the impact and the potential disruption of established supply relationships for small refiners.

## 3. Use of Elk Hills Oil

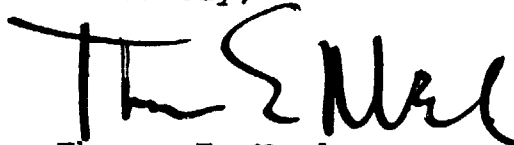
As explained to your staff, FEA has no objection to purchasing Elk Hills oil, to the extent it is suitable for SPR storage, if it costs no more than other oil available for storage. We will make these cost comparisons as we proceed with the purchase of oil for the SPR.

## 4. Financing the Reserve

As we stated in the SPR Plan, FEA is now studying several options for financing the Reserve Program, including the two options suggested in your report.

We appreciate the opportunity to comment on the draft report, and we look forward to the continued useful input from your staff on this important Program.

Sincerely,



Thomas E. Noel  
Assistant Administrator  
Strategic Petroleum Reserve

PRINCIPAL OFFICIALS  
RESPONSIBLE FOR ADMINISTERING ACTIVITIES  
DISCUSSED IN THIS REPORT

Tenure of Office

From

To

FEDERAL ENERGY ADMINISTRATION

ADMINISTRATOR:

John F. O'Leary	Feb. 1977	Present
Gorman C. Smith (Acting)	Jan. 1977	Feb. 1977
Frank G. Zarb	Dec. 1974	Jan. 1977
John C. Sawhill	Apr. 1974	Dec. 1974
William E. Simon	• Dec. 1973	Apr. 1974