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Status of the Strategic Petroleum Reserve

Statement by

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before the Subcommittee on Energy and Power

of the Committee on Energy and Commerce

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SUMMARY

At the tenth anniversary of the gasoline lines, we are reminded of the importance of the SPR. At that time we had no effective Strategic Petroleum Reserve. Although the disruption of Alaskan oil was brief enough that we did not need to draw on the Reserve, it was an illustration that not all supply disruptions are politically motivated interdictions of imports. An SPR effective in limiting price increases and market distortions must contain a significant volume, its drawdown and distribution capability must be established, and the industry and public must have confidence in its early use and efficient operation.

As our import volumes rise, the size of the SPR should continue to increase. The IEA requires coverage in member country stocks of 90 days. The U.S. has more, since commercial stocks are over one billion barrels. Most of this oil--80 - 90%--is not available since it is pipeline fill, tank bottoms, etc. It is desirable for the U.S. to apply the 90-day criterion to SPR stocks alone. At an import level of 9.5 million B/D, the DOE's projected 1995 level, SPR volume on this basis would be 855 million barrels.

The federal government should continue to fund the SPR, a national security measure. Its benefits accrue not just to oil consumers, but provide flexibility for trade policy, military strategy, and other overriding concerns.

There are several reasons to build up a modest regional SPR of major petroleum products. Regionally stored products can be put in the market more quickly. A gasoline reserve on the West Coast, for instance, would have mollified some of the supply concerns following the Alaskan oil spill. Some regions, like the East Coast, are much more dependent than the rest of the nation on imports. Finally, as capacity utilization has grown, particularly in the downstream conversion units, U.S. refiners no longer have the excess capacity to make up a significant shortfall in the now necessary imported light product supply. Although the cost of regional light product storage is higher than salt cavern crude oil storage, the total necessary volume is low, so the total cost is as well. Almost 500 thousand B/D of residual fuel oil comes from foreign sources to the East Coast, mostly to utilities. The U.S. should also consider a reserve for resid, since U.S. refiners are unlikely to be able to provide substitute supplies which comply with environmental regulations.

Regional reserves of crude oil are likely unnecessary where import-dependent regions have product reserves. Hawaii, however, may deserve special consideration.

I. Introduction

It is almost exactly 10 years since the last oil crisis began to affect the American public in the form of gasoline shortages at the pumps. Our Strategic Petroleum Reserve then was about 70 million bbls and our draw-down rate had not yet been established. Today our SPR is 566 million bbls and our tested draw-down rate is about 3.2 million B/D for the first 120 days with progressive declines thereafter. Had we had an SPR one-third the size and draw-down rate of our current reserve in 1979 and had we used it early enough, there would have been no gasoline lines and price increases would have been significantly less.

Whether there will ever be another oil supply crisis which could be alleviated by use of the SPR is beyond anyone's knowledge. It is just as meaningless to claim that we are moving inevitably towards another oil supply crisis as it is to say it can't happen again. The mere fact that our imports are rising does not *per se* increase the probability of another foreign supply disruption. However, disruptions can take many forms. We had an example of this quite recently. The Valdez oil spill reduced Alaskan production for only 12 days and by only about half of Alaskan production during that period. Yet its impact was felt throughout the nation. Fortunately, because of its limited duration, there was no need or time to bring the SPR into play. But had Alaska's entire 2 million B/D production been shut in for, say, a month, the magnitude of the disruption may very well have caused us to draw on the SPR, if it could have been brought in quickly enough to allay fears and speculation about the duration of the disruption. In that case the psychological aspect of making the SPR available could have been more important in limiting price increases and market distortions than the actual volume drawn down. But this psychological tranquilizer requires of course a significant volume in place, a quick, effective and pre-tested draw-down and distribution method, and public confidence in its utilization and operation.

II. How Much Oil Should There Be in the SPR?

The first question I'd like to address is how much oil should there be in the SPR? The answer depends of course on our oil import volume and its share of total world oil trade. For instance, in 1985 our gross imports of 5.1 million B/D represented about 21% of world oil imports. Thus, assuming that a foreign oil disruption in that year would have been equally shared among all importers, 21% of the lost volume would have been borne by the U.S. In 1987 the U.S. share of world imports had risen to 24%. No final figures are available on world oil trade in 1988 but the 500,000 B/D increase in U.S. oil imports undoubtedly raised our share of world oil trade above the 25% level. Thus, our potential volumetric loss of imports from any foreign disruption is steadily rising. According to virtually all forecasts this trend will continue throughout the first half of the 1990's and

probably beyond. Our SPR must therefore be steadily raised to cover the growing potential loss from an import disruption.

Yet, as a ratio of our imports the SPR has moved in just the opposite direction. In 1984 our year-end SPR volume was equal to 96 days of net imports during that year. In 1985, as imports declined, the ratio rose to 115 days. Since then it has been declining each year. In 1988 it was 88 days and for the first quarter of 1989 the end-March SPR level of 566 million barrels was equal to only 81 days of net imports.

Under the IEA Agreement each member country is committed to maintain total commercial and strategic stock levels equal to 90 days of its net imports. The U.S. level is of course much higher since our commercial stocks are about 1 billion barrels. However, it is sometimes overlooked that in the U.S. 80-90% of these commercial stocks are not available for consumption but must remain in the distribution, refining and marketing system. For instance, the "minimum operating" stock level for crude oil has been estimated by the National Petroleum Council in a new study at 300 million barrels. The latest API data show total commercial crude stocks at 326 million bbls, or just 8.6% above the required minimum operating level. In the case of gasoline, current stocks of 227 million bbls are just 10% above the minimum operating level. The recent Alaskan experience has demonstrated the limitation of regular commercial stocks to cope with even relatively small disruptions.

It may therefore be desirable for the U.S. to gradually apply the IEA criterion of a stock volume equal to 90 days of net imports to SPR stocks only. Under this criterion the U.S. would currently be somewhat below the 90-day level, as pointed out before. By 1995 the DOE projects a net import level of 9.5 million B/D. This would require an SPR of 855 million barrels (9.5 x 90). That volume could be obtained with a fill rate of 122,000 B/D for the next 6 1/2 years, or almost twice the rate (67,000 B/D) of the first 100 days of 1989 but still much below the 1981-84 fill rate when the price of oil was substantially higher than now. Under the proposed fill rate, the SPR would move gradually towards the 90-day net import target by 1995. The draw-down and distribution capability of the SPR must of course also be raised during this period. However, the currently planned increase to 4.5 million B/D by 1992 would appear to be sufficient for any realistic eventuality, at least during the first half of the 1990's. Under the proposed higher volumes the draw-down rates could presumably be maintained for longer periods.

III. How Should the SPR Be Funded?

Our next question is how is the SPR expansion to be funded? The answer is, the same way the current fill rate is funded, i.e. by the federal government. The SPR is clearly a national security measure. It does not specifically benefit the oil industry and while it

benefits oil consumers by protecting them against physical shortages and excessive price increases in case of a disruption, its benefits go far beyond this direct function. It affects our military strategy, our diplomacy and our trade policy by buying us time and giving us a much higher degree of operating flexibility to deal with a threatening or actual oil disruption than if we had only commercial oil stocks. Thus, the SPR should be viewed as a national security expenditure and continue to be funded accordingly.

If budgetary constraints require alternative financing to fund an accelerated fill rate, the proposed sale of the U.S. Naval Petroleum Reserves (NPR) would seem an acceptable measure. The NPR's have no strategic value other than those of any other operating domestic oil field. Hence, if it can be demonstrated that the government would likely generate more funds by selling the NPR's than by collecting royalties on this operations, it should probably do so and earmark the funds obtained for incremental purchases of SPR oil.

IV. Should the SPR Be Expanded to Include Products or Other Locations?

I now would like to address the question of whether refined products should become part of the SPR. I believe there are several reasons for building up a modest regional SPR of major petroleum products. One reason is that regionally stored, readily available products could be put into the market much more rapidly than products made from SPR crude and could therefore prevent a price run-up at the very beginning of a supply disruption when the full extent of the disruption is not yet known. By way of illustration, if there had been 2-3 million bbls of SPR gasoline on the West Coast on March 24, ready for instant release, West Coast gasoline prices would hardly have risen by headline-making magnitudes, as they did.

A second reason is location. While total U.S. dependency on foreign refined products (except residual fuel oil) is relatively small -- 5% for gasoline and 9% for middle distillates in 1988, it is almost entirely concentrated on the East Coast which last year depended on imports for 14% of its gasoline and 23% of its middle distillates.

The third and perhaps most important reason for a regional refined products SPR is the U.S. refining situation. Until the mid-1980's the U.S. had substantial excess refining capacity, but since 1985 demand has increased while refining capacity has remained unchanged, with the result that capacity utilization has risen from 77% to about 85%. Meanwhile, the downstream units of most refineries which convert heavier products into gasoline are currently operating near capacity and will become even more strained as gasoline quality requirements become more stringent because of the mandatory reduction in vapor pressure.

As a result of these developments light products imports, which historically were brought to the U.S. only because of competitive foreign pricing, are now required to supplement domestic supplies, particularly during the seasonal consumption peaks for these products. Altogether, imports of refined and unfinished oil products other than residual fuel oil rose steadily from 1.36 million B/D in 1985 to 1.53 million B/D in 1988. In the first quarter of 1989 they were about 210 thousand B/D higher than in the same period of last year. As U.S. demand for these products keeps rising, it would seem that a growing share of the incremental requirements will have to come from abroad since it appears unlikely that any new refineries will be built in the U.S. The current process of debottlenecking existing refineries to raise their effective capacity can continue for some time but clearly has its practical limitations. Thus, future foreign supply disruption could well affect refined products imports beyond our ability to replace them from domestic distillation or conversion units.

The SPR for light products could be limited to gasoline and distillate fuel oil and could be relatively small in volume, perhaps 5% of total SPR. The per-barrel-cost of storing these products regionally would be substantially higher than the cost of storing crude in caverns in Louisiana and Texas. But, given the relatively small volumes that would have to be set aside for this purpose, the total cost would be relatively small. On the other hand, the benefit to the U.S. economy in even a minor supply crisis could be quite considerable. Perhaps a way could be found to make these SPR products available in a sub-emergency supply constraint even without a Presidential proclamation of an energy emergency. The Secretary of Energy, or a Cabinet Committee headed by him, could be given this authority for a limited period.

I have only talked about light products so far. However, our principal product import is, of course, residual fuel oil. Last year we imported nearly 600 thousand B/D of this product, equal to 45% of our total consumption. Again, most of it went to the East Coast where it accounted for 82% of total supplies. About 14%, or 79 thousand B/D, of East Coast resid imports came from the U.S. Virgin Islands which is not a foreign source. But a serious supply disruption in the nearly 500,000 B/D of real East Coast Imports could not be readily offset in appropriate quality by domestic refiners.

The principal users of this product in PAD I are electric utilities. Some of these also use natural gas as a power generating fuel. But during the heating season they would probably be unable to substitute gas for oil since gas supplies are fully utilized. The power industry is likely to require growing supplies of residual fuel oil in the 1990's as electric demand rises while nuclear power plant construction ends and few new coal-fired plants will be built. All of the increase in resid supplies will come from foreign sources, since domestic refiners convert their resid to light products. The Administration should therefore consider securing some residual fuel supplies for emergency purposes.

Regarding the question of regional crude oil SPRs, the DOE in its recent study is considering (but not actually advocating) the establishment of a crude SPR at the U.S. East (PAD I). In 1988 PAD I refineries imported nearly 1.2 million B/D of crude oil of which less than 6% came from Canada. Thus, the region had a 90% overseas crude import dependency. On the other hand, as the DOE study points out, it takes only 6-8 days to ship crude from the Gulf Coast SPR location to the East Coast. Thus, the establishment of a crude SPR in PAD I does not seem compelling. If a regional products SPR is established in PAD I, as discussed earlier, the need for a crude SPR would become still less compelling.

The question of a crude oil SPR in Hawaii is of a different nature. The state currently receives about 50,000 B/D of crude from Alaska and 60,000 B/D from foreign overseas sources. Over the next 10 years, shipments from Alaska will be substantially reduced, as Alaska production declines, perhaps even eliminated. Since, according to the DOE study, it takes 20 - 24 days to ship oil from the Gulf Coast to Hawaii, the establishment of a small local SPR should at least be considered, despite the relatively high per-barrel-cost estimated by the DOE.

V. Comments on Dr. Philip Verleger's Views

Finally, as per the request in your letter, Mr. Chairman, I would like to make some comments on the papers submitted to the Committee by Dr. Philip Verleger on some operative aspects of the SPR.

We fully agree with Dr. Verleger's concern that "prompt" implementation of existing emergency plans at the very beginning of a disruption is vital to avoid a crisis and that the system currently is not designed to do this. At present perhaps 30 days would pass between the President's declaration of an energy emergency and arrival of the first supply of SPR crude at U.S. refiners. And since the President is unlikely to declare an energy emergency at the first sign of a supply disruption, the time lapse between the actual event and the first physical contribution from the SPR could be considerably longer.

We also agree, as pointed out in our discussion of regional products storage, that for psychological and bureaucratic reasons the initial decision to activate the SPR should not be made by the President but by the Secretary of Energy or a Cabinet committee chaired by him. Similarly, we agree that the International Energy Agency's (IEA) activating trigger of a 7% reduction in supplies may be too rigid and could delay actions at the beginning of a crisis which is when it is most needed to prevent massive market distortions.

The relationships between the physical market and the several futures exchanges for crude and products has structurally changed the market, as Dr. Verleger points out. This change is irreversible and will inevitably affect the market in any future supply disruption.

However, it is possible to mitigate the price run-ups at the beginning of a crisis by establishing advance liaison between the government agency managing the oil emergency (the DOE) and the Commodities Futures Trading Commissions (CFTC), the government agency which oversees futures trading in the U.S. The governors of the commodity exchanges have the authority to take specific steps to counter excessive price moves of the commodity traded. Of course, the CFTC's jurisdiction is limited to exchanges located in the U.S. But perhaps informal crisis management agreements could be established with the principal foreign commodity exchanges on which oil is traded.

We believe that the role of the U.S. government in an oil supply crisis should remain that of a supervision of the emergency program and distributor of SPR oil directly into the market on the basis of market signals, such as the auctions planned for this purpose. We do not think the U.S. government should become involved in oil trading during a crisis. Nor should it be allowed to intervene directly in the market at its discretion in a pre-crisis situation.

Finally, we believe SPR oil should be distributed by the responsible government agency directly through existing established trade channels and that no layer of pre-selected first buyers should be interposed between the primary supplier of SPR oil and its actual users.