Strategic Petroleum Reserve

Final Environmental Impact Statement

Volume II

FES 76-2

December 1976

Federal Energy Administration
Strategic Petroleum Reserve Office

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FEDERAL AGENCY COMMENTS

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Washington, D. C. 20250

Mr. Robert L. Davies
Director, Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D.C. 20461

AUG 1 0 1976

Dear Mr. Davies:

In response to your letter of June 25, 1976, we have reviewed the draft environmental impact statement for the Strategic Petroleum Reserve. We have the following comments for your consideration.

We feel the Strategic Petroleum Reserve is necessary to mitigate the economic impacts of any future interruptions of petroleum imports. A dependable supply of petroleum products is certainly required for sustained agricultural production at current levels.

We feel the statement would be improved if the discussions on the top of page III-72 and on page VI-6 recognized that only a small fraction of the excavated rock from new mines will be marketable because high transportation costs limit the saleable area as covered on page V-105.

We would suggest that the current U.S. Department of Agriculture soil classification system be used for the soils descriptions on pages IV-92 and IV-93. The first major version of this system was published in 1960 as: Soil Classification, a Comprehensive System, 7th Approximation; Soil Conservation Service, U.S. Department of Agriculture, U.S. Government Printing Office, Washington, D.C., 503pp. An update of the system was published in 1975 as: Soil Taxonomy, a Basic System of Soil Classification for Making and Interpreting Soil Surveys, Agriculture Handbook No. 436; Soil Conservation Service, U.S. Department of Agriculture, U.S. Government Printing Office, Washington, D.C., 754pp.

Since water is compressed only one percent by a one mile head of water, we would suggest that compressibility of fluids as a phenomenon for accommodating waste liquids from deep well injection be deleted on pages V-9 and V-11.

We suggest that the National Pollutant Discharge Elimination System Program discussion on page VI-11 be closed with a statement that permits are not likely to be granted beyond January 1, 1985, because one of the goals of the Federal Water Pollution Control Act Amendments (PL 92-500) listed on page VI-7 is the elimination of discharge of pollutants into navigable waters by 1985.

Thank you for providing us the opportunity to review this statement.

Sincerely,

R. M. Davis
Administrator

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230

August 17, 1976

Mr. Robert L. Davies
Director, Strategic Petroleum
Reserve Office
Federal Energy Administration
1726 M Street, N. W.
Washington, D. C. 20461

Dear Mr. Davies:

The draft environmental impact statement entitled "Strategic Petroleum Reserve," which accompanied your letter of June 25, 1976, has been received by the Department of Commerce for review and comment. The statement has been reviewed and the following comments are offered for your consideration.

General Comments:

The living marine resources will be affected during the construction phase of this project by silting, oil spillage, and brine disposal during leaching and filling procedures. After completion of construction there will continue to be some oil spillage and brine disposal during oil cycling procedures.

A substantial part of the petroleum is to be stored in salt domes of the Gulf Coast region and brine disposal is likely to have an adverse impact on the living marine resources. The statement considers this aspect in a dispersion model. The area bounded by a salinity isopleth 0.5 parts per thousand (o/oo) above the ambient salinity is defined as the "area of detectable change." The area bounded by a salinity isopleth 1 o/oo above the ambient salinity is defined as the "area of influence." With some reasonable assumptions based on engineering of the diffuser and a current of 0.1 ft/sec (3 cm/sec) the area of influence would cover 226 acres and the area of detectable change would cover 2076 acres or 3.2 square miles during a 200 MMb salt dome development. Higher currents would result in smaller areas of influence and detectable change. Therefore, the magnitude of the impact area is highly site specific.

The East Coast Region will not be affected by brine disposal because salt dome storage is not planned. The potentially adverse environmental effects of siltation and oil spillage during construction, filling and cycling procedures are, however, present. Again, in the statement it is recognized that the estuaries and near-shore environments are already under considerable stress, implying that the effects of additional stress on the living marine resources must be carefully considered.

On the basis of the statement, recognizing the potentially adverse effects on the living marine resources, one can conclude that construction and maintenance of the SPR facilities need not have a major adverse effect on fishery resources provided adequate precautions are taken. There are some deficiencies in the statement. Consequently, it is difficult to evaluate the "adequate" in the precautions.

The statement has some good descriptions on the geology and hydrology of the regions in question so that a judgment can be made regarding freshwater usage or brine disposal in saline aquifers. However, there is no description of the structure, salinity, and circulation in the estuaries or near-shore coastal areas that will be affected. This makes evaluation of the dispersion model difficult: (a) Are criteria of 0.5 and 1 o/oo above ambient salinities realistic in terms of the biological production systems? (b) In the model, given the area of influence and detectable change, there is the implication of an infinite supply of ambient water. If the water is continually being recirculated, as is possible at least over a period of months, the salinity of the ambient water would continue to rise and possibly affect a much larger area than stated. The leaching of a salt cavern will take many months and therefore the possibility stated above exists.

The derivation of the equations used in the diffusion model, a document provided with the statement, appears reasonable. However, no literature references are given and there is no assurance that this model used for air pollution is also applicable to the brine disposal problem. Refer to our specific comment concerning Page III-50.

Obviously, some of these problems cannot be tackled until site-specific evaluations are made. In view of the very valuable fishery resources of both the Gulf Coast and East Coast Regions with sensitive portions of their life-cycle spent in the affected areas, the following suggestions are made:

1. Retain a consultant with wide experience in estuarine and coastal diffusion and dispersion problems who can quickly judge the adequacy of the model(s) used in site-specific studies.

2. Establish multidisciplinary teams of biologists and oceanographers, familiar with the site-specific marine biology and oceanography. These teams would judge the extent of possible damage to the estuarine and coastal environment caused by the development and maintenance of the SPR's. Rather than using arbitrary numbers such as 0.5 or 1 o/oo above ambient salinity, these teams would specify the tolerances and provide realistic boundary conditions to be used in dispersion models.

Biological descriptions for both the Gulf and East Coasts rely heavily on the use of "biotope" classification rather than on actual community description. Although a list of major biotopes is provided, the simple listing does not provide the reviewer with enough data to assess potential impacts to biological communities and systems. Individual biotopes should be characterized and ecological interactions within and between biotopes emphasized.

For example, it is stated (Page IV-110) that estuaries and marshes are extremely productive, and that many species are wetland-dependent during one or more periods of their life cycle. Marsh productivity should be discussed in terms of nutrient storage capacity and detrital transport mechanisms. Individual wetland-dependent organisms should be identified and how each is dependent discussed. Similarly, the discussion of "Species Important to the Ecosystem" (Page IV-119) should include relative importance of each species and how each functions within the system in a general sense.

In addition, commercial and sport-fish catch data are presented for the Gulf, but not for the East Coast. Catch data are useful in evaluating relative importance of individual fisheries and should be included for all areas which may be affected by project implementation. The East Coast sport catch is particularly understated. Although the striped bass is an important sport species, other species are equally important, particularly on a seasonal and/or regional basis.

Although the potential cumulative impacts of operating storage facilities are discussed in this section, consideration is not

given to the cumulative adverse effects of constructing the facilities. Construction impacts, when considered cumulatively, can severely affect water quality and resident biota, and should, therefore, be discussed in this section.

In a separate section, the impacts of constructing and operating storage facilities on the East Coast commercial and sports fishing industries should be addressed, inasmuch as they may be of considerable importance in the areas where the facilities could be located.

The environment of the impact area (Gulf Coast, East Coast) has been thoroughly described and summarized in previous Federal environment impact statements, e.g. (1) U.S. Department of the Interior, Proposed Increase in Oil and Gas Leasing on the Outer Continental Shelf, Final Environmental Impact Statement, July 1975, Washington, D. C.; and (2) U.S. Department of the Interior, Proposed Outer Continental Shelf Oil and Gas Lease Sale Offshore the Mid-Atlantic States Final Environmental Impact Statement, May 1976, Washington, D. C.

However, neither of the above documents are referenced in the subject statement. We believe that the environmental impact statement process could be streamlined to the benefit of both the public and the decision makers if Federal agencies made better use of available environmental information.

The summary maps of coastal environmental systems in section IV. B.1.f (pp. 40-62) and section IV.B.2.h (pp. 109-122) are virtually without value because of the poor quality of reproduction. We believe that it is counterproductive to include maps and other descriptive material that the reviewer is unable to decipher. The maps in these sections should be presented at a smaller scale or the quality of reproduction should be improved.

Specific Comments:

Page I-12 - The table on this page summarizes Federal expenditures required for alternate storage facilities. Actual dollar amounts are listed as expenditures per year. However, no reference is given on how these values were generated or over how many years this expenditure will take place. The numbers are meaningless without reference to the length of time over which the amounts will be needed.

Page III-50 - Two weaknesses in the discussion of the brine disposal problem are apparent. First, the major constituents shown in Table III-3 are not different from "sea salt" in any important respect. However, a more careful chemical analysis should be done to assure that in the 0.71% abundance of "H_2O insoluble" fraction, there are not significant amounts of metals or other substances noxious to marine organisms or consumers thereof.

Assuming a reassuring result from that determination, there should be no deleterious effects of brine disposal at sea, as long as the brine concentrations are reduced to sufficient levels. The statement expresses what appear to be conservative standards, but some biologists should be consulted on that. The results obtained from the advective-diffusion model, however, are inadequate even for a general evaluation of the scope of the problem to be addressed in later, site specific, evaluations. The model description contains some typographical errors and other points of confusion, but between the statement and "Appendix B" from the Radian Corp. report the model is understandable. The principal error is in assuming that lateral and vertical dispersion coefficients are equal and have the value 3×10^5 cm^2/S (322 ft^2/S) for the far field problem and 10^3 to 10^4 cm^2/S (1 to 10 ft^2/S) for the near field problem. These values are reasonable estimates for the lateral dispersion coefficients, but vertical coefficients on the order of 1 to 10 cm^2/S (10^{-3} to 10^{-2} ft^2/S) are more appropriate for either the near or far field problem in the ocean. The gravitational stability due to the density of the brine will in fact tend to bias the process toward the low end of this range. The result cited on pp. V-19, 20, that the brine is vertically well mixed within 200 feet of the diffusion is a direct result of using a vertical dispersion coefficient perhaps one to one hundred thousand times too large. A ballpark estimate of the time required for mixing from bottom to top in 20 feet of water is $T = D^2K_z$ 5×10^5 second, or about 5 days. In an ambient flow of 1 ft/sec, this would imply over 50 mile displacement before completion of vertical mixing. This is inadequate as a specification of concentration radius, but points up a critical flaw in the model application. From the source (Ref. AR-070), we judge that the error stems from a misinterpretation of either a question or the answer about appropriate values for dispersion coefficients which has led to a value appropriate to the horizontal direction to be applied also in the vertical. Thus, this model, in fact, does not assure us that brine disposal at sea will not result in a dense brine layer overlying an extensive area

of the bottom, or collecting in topographic lows with adverse ecological consequences. A more careful evaluation taking into account the density effect of the brine and appropriate modelling of diffusion processes is required.

Page III-101 - The table and graph on this page and the narrative references thereto should be updated to more accurately depict the current magnitude of the worldwide tanker oversupply crisis. While Table III-8 shows 516 vessels representing 36,845,100 DWT idle as of September 30, 1975, it is important to note that this inactive fleet had swelled to 557 ships aggregating 54 million DWT by May of 1976 and is currently estimated to be approximately 50 million DWT. In addition, the narrative should focus sharply on the age and size distribution of the idle fleet noting that to a large extent it has been the relatively new, large tankers which have been hardest hit and that it is precisely these ships which would be best suited to any strategic storage program. Of the above mentioned tonnage in lay-up approximately 70 percent was less than 10 years of age and 65 percent was in the 100,000 DWT and above category. In addition to this tonnage, there are approximately 22 U.S. flag tankers composing more than 1.2 million DWT idle at the present time.

Page III-103 - Because of the unprecedented magnitude of the oversupply problem many tanker owners have expressed an enthusiastic interest in making tonnage available for use in a strategic storage program. As a consequence, the statement on page III-103 under the heading Procurement of Tankers is very misleading. It is recommended that the present statement be deleted and the following paragraph be inserted in its place:

> "The data in Table III-8 show that there is an unprecedented surplus of tanker capacity in the world fleet, therefore, it is clear that a large pool of tonnage is now available and it appears likely that a surplus will continue into the eighties. It is for this reason that considerable interest in such a program has been expressed by tanker owners both independently and through the International Association of Independent Tanker Owners (INTERTANKO), an organization which represents 75 percent of the world's privately owned tanker tonnage, and by the International Maritime Industry Forum (IMIF). In summary there would be little difficulty in attracting a substantial supply of tanker tonnage to the storage program in light of the dismal prospect for employment in the near future."

Owners fixing tankers as floating storage installations should not be able to resume operational trading via an escape clause until the termination of an agreed upon storage charter. Therefore, the concern expressed in the statement of an escape clause which would protect tanker owners is not warranted and should be deleted from the text. The U.S. government as a charter should not accept such a clause in the terms of its storage charter.

Page III-102 - The statement on this page regarding Navy tankers in the National Defense Reserve Fleet should be clarified. These vessels are not prime candidates for inclusion in the reserve program because of their relatively small size. In addition, this is probably a good place to include a statement regarding the extensive experience which has been gained by the Maritime Administration since World War II in safely maintaining a large fleet of reserve vessels. At times during the thirty years of its operation the NDRF has included more than 2,000 merchant vessels maintained at as many as eight anchorages around the country. In the late 1950's, 158 million bushels of surplus grains were stored aboard vessels in the NDRF. This experience over an extended period of time clearly demonstrates the technical and environmental feasibility of safely maintaining a large idle fleet and of using that fleet for floating storage. Again, it should be emphasized that it is not being suggested that NDRF tankers be employed in the oil storage program but that the NDRF experience offers clear evidence of the technical viability of the floating storage concept and demonstrates that safe anchorages adequate to accommodate large numbers of vessels are available at a variety of locations in the United States.

Page III-103 - Under the heading Environmental Impacts, delete the reference to "air emissions from boilers" since neither the main nor auxiliary boilers are expected to be in operation.

Page III-104 - We suggest replacing the term "bilge tanks" with the word "bilges" on this page and elsewhere in the text.

Page III-106 - Under the heading Manpower Requirements, change "Maritime Commission" to "Maritime Administration."

Page III-106 - Under the heading Cost, it is recommended that the statement regarding the sale of tankers purchased for the storage program be revised. To rule out the tanker purchase option because

of expectations as to future ship sales for scrap or transportation based on the current market oversupply is not reasonable. The primary issue relating to the current market situation is the low prices for which idle tankers may be obtained. Estimates by INTERTANKO suggest that a 12-15 year old 100,000 ton tanker may be available for a price of about $2.5 million. Such depressed prices could make the purchase option quite attractive in some circumstances and it should not be arbitrarily set aside. It is likely that the supply/demand relationship of tanker tonnage will balance in the early eighties and it seems justified to consider purchases as well as chartering vessels for storage installations.

Page III-107 - From the cost discussion on this page, it is obvious that costs will vary from vessel to vessel. Foreign owners have indicated, however, that a charter rate of about $2.50 to $3.00 per ton per year would cover the running costs associated with a 285,000 DWT tanker serving in a storage capacity. Such estimates are now under investigation by the Maritime Administration and an independent cost assessment is being developed. Tentative conclusions indicate that very large vessels can be expected to provide storage at a reasonable price. It is therefore recommended that the example of the lay-up costs associated with the 50,000 DWT tanker cited on page III-107 be deleted as unrepresentative of the costs likely to be incurred in any floating oil storage program. Storage costs for a vessel over 100,000 DWT are being calculated.

Page III-110 - While it is generally felt that fair and even-handed treatment of the environmental issues was afforded throughout the Normal Operations section, the reference to the TORREY CANYON spill on page III-110 under the heading Catastrophic Events is an unfair example. The risk of a catastrophic spill from a securely moored tanker in a safe anchorage is quite different from that of a vessel underway at sea where in this case an error by her master caused the TORREY to run aground at full speed. It would be better to cite here the record of the National Defense Reserve Fleet or the record of the more than 500 tankers now laid-up safely around the world. In any case, the TORREY CANYON reference is irrelevant.

Note: The Maritime Administration at the request of the FEA has been investigating the prospects for strategic petroleum storage aboard idle oil tankers.

Pages IV-15 to IV-23 - This section should include information on tidal waters, including the fact that diurnal tides range between 1 to 2 ft. along most of the Gulf coast (Anon., 1975a). Also, the isohaline map of the Louisiana coast shown in Figure 3 in Chabreck (1972) should be included in the final environmental impact statement since it shows several areas in the Gulf coast (off Atchafalaya, East Cote Blanche and Vermilion Bays, as well as the Mississippi River Delta) to have ambient salinities of less than 10 ppt (see attached reference listing).

Pages IV-40 to 46 - The discussion of the wetlands on page IV-42 should include the value ascribed to tidal marshes by Gosselink et. al. (1974). Since many of the salt domes indicated for potential use are in Louisiana, the vegetation map of the Louisiana coastal marshes shown in Figure 2 of Chabreck (1972) should be included. The discussion of submerged grasses (page IV-45, 2nd paragraph) should include an indication of their value as summarized by Thayer et. al. (1975). Since the habitats of some fish and shellfish are noted on pages IV-45 (3rd paragraph) and IV-46 (1st paragraph), the habitats of the most valuable species listed in the Commercially Important Species section (pp. IV-50-55) should also be discussed here. The synopses by Cook and Lindner (1970), Lindner and Cook (1970), and Moffett (1970) on brown and white shrimp, and by Reintjes and Pacheco (1966) on menhaden should be consulted (see attachment for references).

Pages V-3 to V-5 - As previously noted, most Gulf coast diurnal tides range from 1 to 2 ft. Thus, even a small degree of subsidence could convert a periodically or regularly flooded marsh into a permanently flooded area incapable of supporting tidal marsh. Therefore, the final environmental impact statement should fully discuss the impact that subsidence (even as limited as 1 ft.) would have upon tidal marshes.

Pages V-15 to V-24 - The discussion in this section is very idealized in that the portrayed salinity distributions result from the assumption of a constant current flowing in one direction. Such a situation is unrealistic for near-shore environments where tide and wind are significant factors in determining bottom currents. For a more comprehensive picture of the possible configuration of salinity distribution, the model should be exercised for zero current and for periodically oscillating currents. In addition, the effects of sudden severe weather (e.g., hurricanes) on the

salinity distribution should be included. The final statement should fully discuss whether the anticipated speed and degree of mixing would be the same in portions of the Gulf where ambient salinities are much lower than oceanic waters. As noted in our above comments, Chabreck (1972) reported ambient salinities of less than 10 ppt in the Gulf off Atchafalaya, East Cote Blanche and Vermilion Bays as well as off the Mississippi River Delta (see attachment for reference).

Page V-16, Paragraph 1 - The reference in the last sentence should be to Section V.B.6, not IV.B.6.

Pages V-50 to V-52 - The statement says on page V-52 that the estimated ambient salinity concentration of the Gulf of Mexico is 35 ppt. However, the ambient salinity concentration off several parts of the Louisiana coast has been reported to be less than 10 ppt (Chabreck, 1972). Since the brine discharge location would be along the coastline over the shelf, the final statement should discuss whether a brine discharge in these locations would cause "...salinity increases only in excess of 5 ppt above ambient." In this regard, the effect of elevated salinities on early life stages of important species such as brown and white shrimp, Gulf menhaden, and blue crabs should be fully discussed. Accordingly, the salinity tolerances described by Copeland and Bechtel (1974), Barrett and Gillespie (1973), and Zein-Eldin and Griffith (1969) should be reviewed in the final statement (see attachment for references).

Page V-52, Lines 11 to 14 - It is indicated that a considerable impact on wetlands may occur with pipeline construction. The final statement should note that there are two general methods of pipeline installation, push-ditch and flotation canal, which may be used through wetlands. Excellent explanations of each method are contained in reports by McGinnis, et. al. (1972) and Willingham, et. al. (1975) and should be used in developing an explanation of both methods for the final statement. Another report (Anon., 1975b), which should also be cited, describes the environmental desirability of the backfilled push-ditch method by noting that the marsh should grow back in about one to two years after the ditch is backfilled.

The need for backfilling incompletely covered brine discharge pipelines in the Gulf which have been jetted into place should be discussed, since fishing trawls may "hang" on an exposed pipeline

or the walls of a trench. The feasibility of installing such pipelines into the seafloor by the method of fluidization described by van Steveninck (1975) should also be discussed, since that method would apparently leave little or no trench (see attachment for references).

The construction and operation of petroleum reserve facilities has the potential for significant impacts on the commercial and sport fishing industries of the Gulf Coast. Such impacts on fishing industries should be addressed in a separate section.

Pages V-56 to V-58 - This section should contain a full discussion of secondary industrial or domestic development that would be expected in the coastal wetlands as a result of constructing and operating a salt dome storage system.

Page V-124 - The source of Table V-33, Potential (oil) Spill Loss in Coastal Areas, is given as ODA-179, 1974. The Bibliography lists this reference as National Inventory of Sources and Emissions: Arsenic - 1968, published in May 1971. There appears to be an inconsistency in both the date of publication and the subject matter of the "Source," as given on Page V-124 and that given in the Bibliography.

Page V-134, Paragraph 1 - The discussion of the movement of oil spills is grossly oversimplified. The movement of spilled oil is the result of a complex interaction of wind, local currents and coriolis force. Although empirical observations are not conclusive, oil spills appear to move with a speed 1.5% to 3.5% of the surface wind and directed at angle of from 0 to 20^{o} to the right of the surface wind direction.

Pages X-1 to X-4 - This section should indicate the coordination which will be required in the development of plans for storage in any specific salt dome, including the consultation with the Federal and State fish and wildlife agencies. The Fish and Wildlife Coordination Act (PL 85-624 as amended, 16 U.S.C. 661-667e) prescribes in Section 662(a) that any department or agency of the United States, or any public or private agency under Federal permit or license, which intends to modify, control, impound, or divert certain waters or deepen the channel of any stream or body of water

must first consult with the United States Fish and Wildlife Service (FWS) and the State agency exercising administration over the wildlife resources of that State. In accordance with Reorganization Plan No. 4 of 1970 (35 FR 15627, 84 Stat. 2090) the functions of the Bureau of Commercial Fisheries, a previous component of the FWS which handled these responsibilities, were transferred to the Secretary of Commerce and ultimately delegated to the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). Therefore, whenever specific plans are being developed for a salt dome operation, consultation should take place with the regional directors of NMFS and FWS and the head of the State fish and wildlife agency.

Thank you for giving us the opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving fifteen (15) copies of the final statement. Also, it is requested that one copy of the final statement be sent directly to the Area Supervisor of the National Marine Fisheries Service, Environmental Assessment Division, 4700 Avenue U, Galveston, Texas 77550.

Sincerely,

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Enclosure

Anon. 1975a. Tide Tables 1976, East Coast of North and South America. NOAA-NOS. 290p.

Anon. 1975b. Environmental assessment of proposed pipeline construction in Terrebonne, Lafourche, Jefferson, and Plaquemines Parishes. Final Report Gulf South Research Institute Project No. 250-743-41 prepared for Louisiana Intrastate Gas Corporation and Louisiana State Gas Corporation. 136p.

Barrett, B.B. and M.C. Gillespie. 1973. Primary factors which influence commercial shrimp production in coastal Louisiana. Louisiana Wild Life and Fisheries Commission Tech. Bull. No. 9, 28p.

Chabreck, R.H. 1972. Vegetation, water and soil characteristics of the Louisiana coastal region. LSU, Bulletin No. 664, 72p.

Cook, H.L. and M.J. Lindner. 1970. Synopsis of biological data on the brown shrimp Penaeus aztecus aztecus Ives, 1891. FAO Fish. Rep., (57) Vol. 41.

Copeland, B.J. and T.J. Bechtel. 1974. Some environmental limits of six Gulf coast estuarine organisms. Contributions in Marine Science, Vol. 18, pp. 169-204.

Gosselink, J.G., E.P. Odum, and R.M. Pope. 1974. The value of the tidal marsh. Center for Wetland Resources, La. St. Univ., Baton Rouge, LSU-SG-74-03, vii+30 p.

Lindner, M.J. and H.L. Cook. 1970. Synopsis of biological data on the white shrimp Penaeus setiferus (Linnaeus) 1767. FAO Fish. Rep., (57) Vol. 4.

McGinnes, J.T., R.A. Ewing, C.A. Willingham, S.E. Rogers, D.H. Douglass, and D.L. Morrison. 1972. Environmental aspects of gas pipeline operations in the Louisiana coastal marshes. Final report from Battelle Columbus Laboratories to Offshore Pipeline Committee. 96p.

Moffett, A.W. 1970. The shrimp fishery of Texas. Texas Parks and Wildlife Department, Bulletin 50, 38p.

Reintjes, J.W. and A.L. Pacheco. 1966. The relation of menhaden to estuaries. pp. 50-58 in A symposium on estuarine fisheries. R.F.Smith Ed.Ch. Amer. Fish. Soc. Spec. Publ. No. 3, 154 pp.

Thayer, G.W., D.A. Wolfe, and R.B. Williams. 1975. The impact of man on seagrass systems. Amer. Scientist. 63(3):288-296.

van Steveninck, J. 1975. Pipeline burial by fluidisation. Offshore Technology Conference,Dallas, Texas. Paper No. OTC 2276. 2p.

Willingham, C.A., B.W. Cornaby, and D.G. Engstrom. 1975. A study of selected coastal zone ecosystems in the Gulf of Mexico in relation to gas pipelining activities (technical report). Final report from Battelle Columbus Laboratories to Offshore Pipeline Committee. 381 p.

Zein-Eldin, Z.P. and G.W. Griffith. 1969. An appraisal of the effects of salinity and temperature on growth and survival of postlarval penaeids. FAO Fish. Rep., (57) Vol. 3, pp. 1015-1026.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20201

AUG 10 1976

Mr. Robert L. Davies
Director, Strategic Petroleum
Reserve Office
Federal Energy Administration
Washington, D.C. 20461

Dear Mr. Davies:

We have reviewed the programmatic draft environmental impact statement for the Strategic Petroleum Reserve.

We are deferring comment on the potential environmental impacts of the proposed actions which would be of concern to this Department until we receive future site specific statements.

Thank you for the opportunity to review the document.

Sincerely,

Charles Custard
Director
Office of Environmental Affairs

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In Reply Refer To:
EGS-ER-76/611-MS760

SEP 10 1976

Dear Mr. Davies:

This is in response to a request for the Department of the Interior's review of the draft environmental statement for the proposed Strategic Petroleum Reserve program on the gulf coast and east coast.

In general, we consider the draft statement to be adequate as a discussion of programmatic concerns. It is noteworthy for the section on mitigating measures (p. VI-1 to 49) and for a concise summary of nuclear reactor risks (p. III-16 and 17).

GENERAL COMMENTS

Utilization of Salt Domes Offshore in the Gulf of Mexico for Storage

The text does not adequately discuss the Federal agencies which would be involved in a program of this type. The Bureau of Land Management and the Geological Survey would be involved because of their responsibilities under the Federal Outer Continental Shelf (OCS) leasing program; the Corps of Engineers and the Coast Guard would also be involved. In the event that a dome located on the Federal portion of the Gulf of Mexico is chosen, consideration must be given to the necessary pipeline right-of-way, facilities installation, and possible conflicts with existing lessees or other users of the area incorporating the proposed storage site.

Consideration should also be given to the value of the salt, and possibly sulphur, excavated from the dome in order to provide the petroleum storage space, and to the steps required for obtaining a lease to remove this mineral resource.

Disposal of the salt when constructing the caverns may induce environmental changes that must be recognized. The environmental effects of a specific storage facility on the OCS can be evaluated when precise locations are known.

Discussion of the Atlantic Coast

The text fails to discuss the Bureau of Land Management's OCS leasing program for the Atlantic coast and the effects that the leasing program will have on the Nation's petroleum supply as related to the strategic petroleum reserve and vice versa. The Mid-Atlantic OCS lease sale held on August 17, 1976, and the North Atlantic OCS sale planned for March 1977 could provide 580 million to 2.0 billion barrels of oil. Also, there is a lease sale planned for the South Atlantic OCS in late 1977, there are additional sales planned for each of these OCS areas within 2 years from the first sale date in each area, and, of course, there will be continuing sales in the Gulf of Mexico. The Nation's energy supply, and thus the Strategic Petroleum Reserve program, may influence or be influenced by the results of these OCS sales.

The discussion of impacts with regard to the use of tank farms in the Northeast should be updated to reflect recent reactions to new petrochemical development. The New Jersey Coastal Facilities Act and decisions relating to it now severely restrict any such development in that State. Petrochemical development in the New York Harbor area has been protested by increasing numbers of citizens. With the rash of refinery and tank farm fires in the Philadelphia area, a discussion of accidents and accident rates at these facilities seems warranted.

Socioeconomic and Environmental Data

One OCS environmental statement prepared by the Bureau of Land Management is referenced in the FEA draft statement. However, there are a number of other BLM OCS environmental statements which contain large amounts of baseline information, both socioeconomic and environmental, for the Gulf of Mexico and the Atlantic coast. Much of this information could be used in evaluating the onshore socioeconomic and environmental impacts of developing the Strategic Petroleum Reserve.

On page IV-78-79 and IV-137-138, "quality of life" rankings are presented based on the Midwest Research Institute's quality of life indicators. These rankings mean little unless the quality of life indicators and perhaps the assumptions behind them are presented, possibly in an appendix.

FISH AND WILDLIFE RESOURCES

Although the biology section of this statement basically refers the reader to other sources for information, it appears to be adequate as this is a programmatic environmental statement and site-specific environmental

statements will be issued prior to locating storage facilities to be used in establishing a strategic petroleum reserve. It is hoped that future site-specific environmental statements will offer a fuller discussion in the biology section rather than referring the reader to references that may not be readily available.

On page IV-122 under the heading "Species-Specific Information" the statement is made that:

> "There has been no single comprehensive survey of the entire region; however there have been several surveys of sub-regions."

It should be noted, however, that two major studies have been published which together provide coverage for the entire area. These studies are:

> Marine Experiment Station, Graduate School of Oceanography, University of Rhode Island, 1973, Coastal and Offshore Environmental Inventory - Cape Hatteras to Nantucket Shoals: Marine Publication Series No. 3, 2 vols.
>
> The Research Institute of the Gulf of Maine, Nov. 1974, A Socio-Economic and environmental Inventory of the North Atlantic Region - Sandy Hook to Bay of Fundy, 3 vols.

Also, in section VI.A.7 (Mitigating Measures - Biology) the following two pieces of legislation appear to be applicable and should be added: the Endangered Species Act of 1973 and the Fish and Wildlife Coordination Act.

The Endangered Species Act of 1973 (PL 93-205) gives the Departments of Interior and Commerce authority to determine endangered and threatened species and to protect them and their habitat. Section 7 of the Act requires that all Federal departments and agencies utilize their authorities by carrying out programs for the conservation of endangered and threatened species. Section 7 of the Act also explicitly directs all Federal departments and agencies to insure that any actions taken by them do not jeopardize endangered or threatened species or result in the destruction or modification of their habitat.

The Fish and Wildlife Coordination Act (16 U.S.C. 661-667e) requires that the U.S. Fish and Wildlife Service be consulted whenever the waters of any stream or other body of water are proposed or authorized to be controlled or modified for any purpose whatever by any department or agency of the United States, or by any public or private agency under Federal permit or license. The purpose of the consultation and ensuing

recommendations is the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for their development and improvement in connection with water-resource development.

CULTURAL RESOURCES

Although most of the process to be followed in meeting the requirements of Federal historic preservation laws and regulations is outlined appropriately in general terms, the FEA should indicate how it plans to fulfill these requirements in this particular program.

The general process, which FEA recognizes, involves identification of significant resources, assessment of the impact of the project on these resources, and development of plans to mitigate any adverse impacts. Although the EIS covers identification of properties already listed in or eligible for inclusion in the National Register and properties included in the State inventory, it does not discuss how the FEA intends to identify other potentially significant cultural resources which may be affected by the Strategic Petroleum Reserve program. Because the number and kind of historic, archeological, and paleontological resources which might be affected by the project are unknown, only an extremely general statement on the potential impact of the program on such resources can be made. Thus, it is also impossible to determine how potential adverse effects could be mitigated. Avoidance of cultural resources (p. VI-38) may not be possible in every project.

Specific comments follow:

Page IV-62, paragraph 3, lines 4-5: The National Historic Preservation Act of 1966 and Executive Order 11593 should be referenced.

Page IV-63, Paragraph 3: The current listing of the National Register should be referenced (i.e., February 1976 and subsequent monthly supplements).

Line 2 of this paragraph, as well as page IV-127, paragraph 4, line 2, should indicate that the National Register includes cultural resources of local and State significance in addition to the referenced sites of national significance.

Page IV-63, paragragh 4: We believe it would be appropriate for FEA to state here when a list of properties on State inventories will be complied, who will be responsible for this compilation, and how it will be used in project planning.

Page IV-63, paragraph 5: It would be useful to indicate what resources were included in the referenced study and map (e.g., State Inventory properties) and what percentage of the project area was actually surveyed by Environmental Consultants, Inc.

Pages V-54, paragraph 2, and V-96, paragraph 2: The final EIS should indicate that the "Criteria of Effect" were established by the Advisory Council on Historic Preservation, not the National Register.

Pages V-55 and V-97: The half-mile radius used to define the "surrounding environment" of a cultural resource does not seem to be within the intent of the law. The impact of any undertaking on a cultural resource is judged not by its effects on a certain physical area but on the character of the resource that qualified it for inclusion in the National Register. In some instances, undertakings that will occur beyond a half mile may severely impact a cultural resource, while in other cases, an undertaking may occur much closer than half a mile without damaging the resource.

We therefore recommend that "surroundings" be determined on a case-by-case basis, in consultation with the appropriate State Historic Preservation Officer.

Page VI-32: The statement at the bottom of this page can be construed to mean that the State Historic Preservation Officer initiates all National Register nominations. Although his office has to approve nominations submitted for his State, each Federal agency is responsible for initiating the nomination of any cultural resource within its jurisdiction that appears eligible for the Register.

Page VI-33: Executive Order 11593 is directed to the inventorying and evaluating of cultural resources on Federal land or within Federal jurisdiction or control rather than, as is stated on this page, those that are on nonfederally owned property. Since the discussion of historic preservation legislation is inaccurate in some places, FEA may wish to substitute the attached summary in the final EIS.

Page VI-35, paragraph 2 (bottom of page): The name of the State Historic Preservation Officer is listed incorrectly. The paragraph should read: "Nominations to the National Register are made by each State through the SHPO. In addition, Federal agencies are responsible, under Executive Order 11593, for nominating all properties under their jurisdiction and control that might qualify for the National Register. Procedures for nominating properties to the National Register are found at 36 CFR Part 60."

Page VI-36: We do not see the relevance of the NPS grants-in-aid program and the "Other Programs" listed here to FEA's decision-making process on this program. In the interest of brevity, these could be omitted from the final environmental statement.

We recommend that the discussion of the Advisory Council on Historic Preservation (ACHP) include references to section 106 of the National Historic Preservation Act of 1966 and the "Procedures for the Protection of Historic and Cultural Properties" found in 36 CFR 800. By eliminating the "Other Programs" on this page, this reference could be tied directly to the discussion of the ACHP procedures on page VI-37. Section f (p. VI-37) should be acknowledged as a discussion of 36 CFR 800. We also recommend that this paragraph be changed as follows:

"As a first step in planning a project for a specific site and before the initiation of any activity, the responsible agency official (who should be identified in the final EIS) shall identify properties located within the area of the undertaking's potential environmental impact that are included in or eligible for inclusion in the National Register. This will be accomplished by conducting or causing to be conducted a professional-quality interdisciplinary survey of the project's potential environmental impact area, in consultation with the appropriate SHPO. The results of this survey shall be evaluated in consultation with the SHPO, pursuant to 36 CFR 800.4(a)(2). The agency official will request offical determinations of eligibility for inclusion in the National Register for those properties that appear to meet the criteria for eligibility and those whose eligibility is questionable."

Page VI-38, paragraph 2: Section 106 of the National Historic Preservation Act of 1966 and 36 CFR 800 should be referenced.

Page VI-38, section G: The "Program Policy" is not entirely clear. The final statement should indicate how FEA defines "known historical and archeological sites." If it means all resources which are listed in or determined eligible for inclusion in the National Register, this should be stated.

It would also be useful for FEA to indicate its policy for situations where there is no prudent or feasible alternative to the use of sites and rights-of-way that affect historic and cultural resources listed in or eligible for inclusion in the National Register. For the purposes of the final statement, it is sufficient for FEA to state that it will comply with 36 CFR 800 in these cases.

The same considerations apply to item 7 on page VI-55. The final statement should indicate how FEA will insure avoidance of historic and archeological resources. If professional-quality interdisciplinary cultural-resource

surveys are to be conducted in each project area, this should be made explicit.

Page VII-3: While the first sentence of section D is true, the rest of the discussion is too vague to be of use in making decisions. The weakness in this section comes from overly general discussion earlier in the draft statement, as analyzed above. Again, it is not clear how sites are to be "located." What does "today's technology" mean, who is responsible for determining how exploration and analysis are to be done, and who will make the determination on what should be done with a site? This section could be clarified by leaving the first sentence as it is and changing the rest of the section as follows: "While it is as yet unknown how many historic and cultural resources may be affected by this program, it is FEA policy to survey each project area to locate such resources and to avoid them whenever possible. Where avoidance is not possible, FEA will consult the appropriate SHPO and, if appropriate, the ACHP, to develop a plan to mitigate the adverse impact of the project on such resources."

Page VII-3: While the statement in section E is basically correct, it is not particularly clear or helpful in making decisions. A better statement would be: "The possible destruction of archeological and historic resources as a result of new site development may result in serious long-term losses of information important to an understanding of history and prehistory. These losses are partly, but seldom wholly, balanced by the fact that such resources, when they cannot be preserved, can be thoroughly studied by appropriate scholars prior to their destruction, providing additions to scientific and historical knowledge of the area."

RECREATIONAL RESOURCES

In general, we do not believe that the draft statement adequately addresses recreational resources. In neither the Description of the Environment (ch. IV) nor Environmental Impacts (ch. V) is any mention made of outdoor recreation even though the project areas, the Gulf Coast and the East Coast, include some of the nation's most important and virtually irreplaceable shoreline recreation resources. We suggest that the final statement should include a detailed, quantified discussion of existing and planned recreation facilities and a thorough analysis of the project's impact on these facilities.

It is indicated (p. VI-55, sec. 8) that some sports hunting areas will be eliminated and that fishing and swimming will be temporarily affected in waters where high siltation occurs. These unsupported conclusions should receive detailed and specific documentation in the final statement.

It is stated that development of new storage facilities would affect hunting, fishing, and water-contact sports on a short-term basis (p. VIII-3 and 4). We believe this statement requires substantiation.

WATER RESOURCES

The statement does not include a general provision for mapping the configuration and extent of solution-mined cavities in salt. If geophysical mapping is to be done, for example, to assure adequacy in size and shape of each cavity and to determine its spatial relationship to other adjacent cavities, to structural features, and to margins of salt domes or masses, this should be mentioned, because it would aid greatly in evaluation of the potential for impacts on ground water and would constitute an important mitigating measure.

The last two sentences on page V-9 need clarification. The first states that "most sedimentary rock will not fracture at pressures of less than 0.5 to 1.1 psi per foot of depth." The second states that "sedimentary rock on the Gulf Coast normally have hydrofracture pressures estimated at 1.0 psi per foot of depth which is equivalent to the normal pressure of overburden." Clarification is especially needed in view of the apparently low injection pressures (less than 600 psi) mentioned in the next sentence (p. 11). In the case of horizontal fractures, it may be true that the confining stress is roughly equal to the effective overburden load, that is, the fracture gradients may approach or exceed slightly 1.0 psi per foot of depth. Research has indicated, however, that such horizontal fractures are comparatively rare. Vertical or highly inclined fractures, on the other hand, form often and at much lower fracture gradients. For example, records of 276 induced and extended hydraulic fractures in the Gulf Coast, Mid-Continent, and West Texas areas showed fracture gradients ranging from about 0.6 or a little less to about 0.9 (Howard, G. C., and Fast, C. R., 1970, Hydraulic fracturing: Society of Petroleum Engineers of AIME, New York-Dallas, p. 19-20).

The apparent discrepancy in effects of withdrawing the ground water required needs explanation. Pages V-31 and V-32 discuss ground water needs for constructing and operating a 200-MMB salt cavity storage facility, indicating a resultant water-level drop of 150 feet. Page VI-53 mentions, on the other hand, a water-level drop of 250 feet for the operation phase alone.

The proposed depth of installation of the sacrificial anodes should be given, if they are to be used at shallow depth (p. VI-5). If use of deep anodes is planned, which may reach aquifers, mitigating mode(s) of construction should be described to assure protection against ground-water impacts.

OTHER COMMENTS

Introduction and Summary: It should be mentioned here that authorization is granted to store as much as one billion barrels of crude oil if necessary.

Page I-8, first full paragraph: The study of marine life tolerance should be referenced and its availability indicated.

Page I-9: The sentence about tropical cyclones should read "...great hurricanes every 80 years."

Page I-16, section c: Reduced petroleum supplies would have some impacts whether or not the Strategic Petroleum Reserve program was operational. The differences in impacts with and without the program should be summarized in this section.

Page II-22, paragraph 2: It is stated that "together the 8 sites have an existing storage capacity of 385 million barrels." The fact that these 8 sites alone have this great a storage capacity appears inconsistent with the later statement that 370 million barrels of existing storage capacity are potentially convertible to the program (p. VI-3).

Page II-23, paragraph 2: It is stated that "two existing government-owned tankage facilities were also identified" (p. II-23, par. 2). Little further information on this method of storage has been provided in the draft statement, yet this method is said to be the fourth priority out of eight methods under consideration (p. II-15). It would be useful to provide, at least, information on the capacity and location of the surplus tankage.

Page II-24: Would private companies have to bid for individual domes, mines, or tank farm sites, or would the Government obtain them by condemnation?

Page III-1: Since necessary storage facilities would have to be built, why is an Industrial Petroleum Reserve discussed as a nonstructural alternative?

Page III-34, last paragraph: It is stated that the equivalent of one additional 300,000-barrel tanker would be required about every 10 days to fill up a 500-MMB reserve in 5 years. The figure should be one additional tanker every day.

Page IV-87: A more recent map is plate 3 of U.S. Geological Survey Open File Report 75-61, Sediments, Structural Framework, Petroleum Potential, Environmental Conditions, and Operational Considerations of the Mid-Atlantic Area.

Page IV-92: The earthquake off Cape Ann took place in November 1755.

Chapter V: It is time consuming to extract the information about impacts from the material in this section, which also contains information on background, theory, and methodology that might better be placed in an appendix.

Page V-15: The basic equation is not dimensionally correct as written. This does not imply that the salinity dispersion results presented in the report are incorrect. The currents in the Gulf of Mexico are often erratic and often change direction. For these reasons, in site-specific environmental statements, consideration should be given to determining the duration and velocity of the prevailing currents in order to guarantee that the dispersion-model conditions are met. If there is no steady current, there could be a significantly larger area impacted by high salinity. (Appendix B, in which this model was to be discussed, is not included in the draft statement).

Page V-56, section 8.a: Does the figure of 260 acres for surface facilities apply to each site or to the total program?

Page V-79, last full paragraph: Although the wastes will be periodically delivered to a waste-disposal company, the impacts of off-site disposal should be analyzed.

Page VI-6 and 7, section 2: Minimum excavation is the normal and economical procedure. Any excavation has an effect, although it may be limited, and should not be considered to be mitigation.

Page VII-2, last paragraph: Water consumed is irretrievable. However, water rights and allotments (commitments) can be changed. Therefore, a water allotment cannot be considered irreversible or irretrievable until the water is actually consumed.

Sincerely yours,

William L. Fisher

Assistant Secretary of the Interior

Mr. Robert L. Davies
Director, Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

LEGISLATIVE and EXECUTIVE AUTHORITY FOR

FEDERAL PROGRAMS DIRECTLY AFFECTING HISTORIC PRESERVATION

ANTIQUITIES ACT OF 1906 PUBLIC LAW 209 16 U.S.C. 431-33 (1970)

This act provides for the protection of all historic and prehistoric ruins or monuments on Federal lands. It prohibits any excavation or destruction of such antiquities without permission of the Secretary of the Department having jurisdiction. It authorizes the Secretaries of the Interior, Agriculture and War to give permission for excavation to reputable institutions for increasing knowledge and for permanent preservation in public museums. It also authorizes the President to declare areas of public lands as national monuments and to reserve lands for that purpose.

HISTORIC SITES ACT OF 1935 PUBLIC LAW 74-292 16 U.S.C. 461-67 (1970)

This act declared as national policy the preservation for public use of historic sites, buildings, and objects. It led to the establishment of the Historic Sites Survey, the Historic American Buildings Survey, and the Historic American Engineering Record, by giving the Secretary of the Interior the power to make historic surveys, to secure and preserve data on historic sites, and to acquire and preserve archeological and historic sites. The National Historic Landmarks program and its Advisory Board were also established under this act to designate properties having exceptional value as commemorating or illustrating the history of the United States.

NATIONAL HISTORIC PRESERVATION ACT OF 1966 PUBLIC LAW 89-665 16 U.S.C. 470-470m (1970) as amended 16 U.S.C.A. 470h, 470i, 470l-470n (Supp. 1973)

This act provided for an expanded National Register of Historic Places to register districts, sites, buildings, structures and objects significant in American history, architecture, archeology, and culture. It provided for a program of matching grants-in-aid to the States for historical surveys and planning and for preservation, acquisition, restoration, and development projects. The act also established the Advisory Council on Historic Preservation, to advise the President and the Congress on matters relating to historic preservation. The Advisory Council is authorized to secure information it may need from Federal agencies in order to carry out its responsibilities. Section 106 of the Act requires Federal Agency heads to allow the Advisory Council opportunity to comment when undertakings to be licensed, funded, or executed by their agency will affect properties listed in the National Register.

THE ARCHEOLOGICAL AND HISTORIC PRESERVATION ACT OF 1974 PUBLIC LAW 93-291

Enacted May 24, 1974, the act is directed to the preservation of historic and archeological data that would otherwise be lost as a result of Federal construction or other federally licensed or aided activities. It authorizes the Secretary of the Interior, or the agency itself, to undertake recovery, protection, and preservation of such data. Where the Federal government financially aids in activity that may cause irreparable damage, the Secretary of the Interior may survey the data and undertake recovery and preservation. Archeological salvage or recording by the Historic American Buildings Survey or the Historic American Engineering Record are among the alternatives available to the Secretary. When the activity takes place on private land, the Secretary must compensate the owner for any resultant delays or loss of use of the land. This act presents two innovations over previous law: (1) only dams were covered; now all Federal projects are; and (2) up to one percent of project funds may be used for this purpose. This Act is not a substitute for Federal agency responsibilities under other environmental and historic preservation legislation.

EXECUTIVE ORDER 11593

This Executive Order, entitled "Protection and Enhancement of the Cultural Environment," emphasizes the leadership role of the Federal Government in the preservation of the Nation's cultural environment. It directs Federal agencies to establish procedures, in consultation with the Advisory Council on Historic Preservation, regarding the preservation and enhancement of non-federally owned historic and cultural resources. The order also directs all Federal agencies, in cooperation with the appropriate State Historic Preservation Officer, to locate, inventory, and nominate to the Secretary of the Interior all properties under their jurisdiction or control which appear eligible for listing in the National Register of Historic Places. In addition, the Advisory Council procedures for the implementation of Executive Order 11593 call for the identification of cultural resources in the potential environmental impact area of Federal projects. Agencies, in consultation with the appropriate SHPO, are to apply the National Register criteria for evaluation to these resources. For all properties which appear to meet these criteria, or where it is questionable whether the criteria are met, the agency is responsible for requesting offical determinations of eligibility for inclusion in the National Register from the Secretary of the Interior. Proposed procedures for determinations of eligibility have been published in the "Federal Register" and, when approved, may be found at 36 CFR part 63.

U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION*
WASHINGTON, D.C. 20210

AUG 2 6 1976

Mr. Robert L. Davies
Strategic Petroleum Reserve
Office
Federal Energy Administration
1726 M Street, N.W.
Washington, D.C. 20461

Dear Mr. Davies:

This is in response to your recent letter requesting that we review the Draft Administrative Environmental Impact Statement on the Strategic Petroleum Reserve.

In reviewing the statement, we noted a discrepancy in the level of direct labor expended for the strategic Petroleum Reserve, as cited on pages I-14 and VII-3, and contacted Mr. Ferguson at your office to point this out. We have no other comments.

Sincerely,

William B. Hewitt

WILLIAM B. HEWITT
Administrator
Policy, Evaluation and Research

*New Name: Employment and Training Administration

Form DOT F 1320.1 (1-67)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

DATE: 2 August 1976

In reply refer to: TPI-50

SUBJECT: Comments on Draft Environment Impact Statement of the Strategic Petroleum Reserve

FROM : Director, Transportation Energy Policy Staff

TO : Joseph Canny, TES-72

The Alternatives section states that when considering long term measures for national energy dependence as alternatives to the Strategic Petroleum Reserve, they should be examined in terms of providing near-term protection against import interruptions. Two general long term measures were identified for consideration; namely, increasing domestic energy supplies by developing presently unavailable resources, and reducing energy demand by conservation. Using 1980 projections, the potential increase in supplies and decrease in consumptions were estimated for various programs:

1.	accelerated development of domestic petroleum production; increase over business as usual projection for 1980:	1.1 million barrel/day
2.	accelerated development of Outer Continental Shelf of Lower 48, increase over business as usual projection for 1980:	.5 million barrel/day
3.	accelerated development of Alaska OCS, increase over business as usual projection for 1980:	.6 million barrel/day
4.	accelerated development of and enhanced recovery from Lower 48 Onshore fields, increase over business as usual projection for 1980	1.2 million barrel/day
5.	accelerated nuclear power, upper limit increase over business as usual projection for 1980 in terms of oil equivalent	.5 million barrel/day
6.	1980 projected savings from mandatory fuel economy standards	.4 million barrel/day

7. 1980 projected savings using carpool incentives — .1 million barrel/day

8. aggresive development of public transit, 1980 projected savings — .5 million barrel/day

9. affirmative Govt. action in the industrial sector, 1980 projected savings — .485 million barrel/day

Although these various programs and their impacts are discussed the text does not compare them to the Strategic Petroleum Reserve as it sets out to do, nor does it provide a framework for comparison. An official or a citizen seeking to weigh the alternatives might add up items 1, 2, 5, 6, 7, 8 and 9 to get a sum of 3 million barrels per day less petroleum demanded and more domestic petroleum resources available than the business as usual projection for 1980.* This works out to over one billion barrels of petroleum per year. This quantity is 850 million barrels more than the Early Reserve, and 500 million barrels more than the Strategic Reserve. From this comparison it can be inferred that the alternative measures would be more effective in both near and long terms in mitigating the impact of an oil embargo.

The alternatives merit a more thorough evaluation, and more effort ought to be given in comparing their benefits and environmental impacts with those of the Reserve.

Donald J. Igo

Donald J. Igo

* It would seen that item 1 should equal the sum of items 2, 3 and 4. It doesn't, however, and the smaller figure was used in the computation.

THE DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

ASSISTANT SECRETARY

JUL 29 1976

Dear Mr. Davies:

This is in response to your letter of June 25 to Mr. George Tolley, Deputy Assistant Secretary (Tax Analysis), requesting this Department's comments on the draft environmental impact statement for the Strategic Petroleum Reserve. The Statement was found to be adequate and comprehensive, and we offer the following comments for your consideration.

We believe that the maximum use of crude oil in underground storage, particularly salt domes, is the most preferable approach. Crude oil provides flexibility in the refining process and can be stored without concern for maintaining specifications.

The use of salt domes would present minimal safety hazards, storage problems, or management concerns. For all practical purposes stockpiles in salt domes are a sealed asset, yet available for rapid delivery in a closed system.

It should also be emphasized, as was noted in previous Treasury comments to OMB on the Industrial Petroleum Reserve, that the oil industry is faced with capital requirements estimated, in the National Energy Outlook, at $234 billion through 1985. Considering these capital requirements and the recent loss of percentage depletion and continued price controls, a significant additional responsibility for strategic storage could adversely affect investments in the development of new supplies of oil and gas.

Moreover, incremental stockpiling of products or crude oil by individual importers or refineries would undoubtedly be accomplished in additional above-ground tanks near their own facilities. From both economic and environmental points of view we believe this to be inferior to underground storage of crude oil under centralized control.

As a matter of principle, the need for strategic petroleum stockpiles, whether military or civilian, is a national need and the costs should be borne directly by the beneficiaries--the taxpayers.

I trust that these comments, generated by Treasury's Office of Investment and Energy Policy, will be of assistance to you in the preparation of a final impact statement.

Sincerely,

Warren F. Brecht

Warren F. Brecht
Assistant Secretary (Administration)

Mr. Robert L. Davies
Deputy Assistant Administrator for
Strategic Petroleum Reserves
Federal Energy Administration
1726 M Street, N.W.
Washington, D.C. 20461

cc: Mr. Stern, FEA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

17 AUG 1976 00003

OFFICE OF THE
ADMINISTRATOR

Executive Communications
Room 3309
Federal Energy Administration
Box HQ
Washington, D.C. 20461

Dear Sirs:

In accordance with our responsibilities under Section 309 of the Clean Air Act, as amended, the Environmental Protection Agency has completed its review of the Federal Energy Administration's draft environmental impact statement on a Strategic Petroleum Reserve. Our detailed comments are enclosed.

The FEA programmatic draft EIS explores the potential environmental impacts of implementing the Congressionally mandated Strategic Petroleum Reserve. This involves the securing of close to 500 million barrels of oil in long term storage facilities, such as salt domes and tank farms, as a national reserve against the possible interruption of foreign oil imports. EPA continues to be in general agreement with the need for a Strategic Petroleum Reserve, however we are concerned that certain alternative actions which could conceivably eliminate some of the expected adverse environmental effects of this program have not been discussed in sufficient detail to permit an informed decision on their merits. We have suggested further investigation in the following areas:

1) comparison of the environmental effects and practicality of offshore and onshore salt caverns,

2) the feasibility of extensive use of seawater, rather than freshwater, for "leaching" of onshore salt caverns,

3) the possibility of the recovery of brine injected in disposal wells for reuse as the oil displacing medium during "cycling" of the salt cavities,

4) the compatibility of the program's storage sites with appropriate State Implementation Plans for attaining and maintaining the National Ambient Air Quality Standard for photochemical oxidant, and

5) the more detailed examination of alternative methods of transporting foreign petroleum to United States ports, including the comparative environmental advantages and disadvantages of these transportation methods (direct shipment, "lightering," and transshipment).

In addition to these substantive technical concerns, EPA urges FEA to include in the final EIS some indication of its current plans for instituting the Strategic Petroleum Reserve program. The final EIS should differentiate between abandoned program alternatives and the remaining preferred plans. EPA is also concerned that the Early Storage Reserve Plan, submitted to Congress in April 1976, is not discussed or referred to in the draft EIS. This plan, and the Strategic Petroleum Reserve Plan due to Congress in December 1976, represent a significant narrowing of options and are important steps in the FEA decision making process.

We believe that these plans, along with other FEA decisions such as whether or not to implement the Regional and Industrial Petroleum Reserves, are part of the major action being proposed and therefore should be addressed more directly in FEA's programmatic statement. We suggest, therefore, that the final EIS include Early Storage Reserve and Strategic Petroleum Reserve plans as part of the proposed action and describe their environmental impacts as thoroughly as possible.

As a result of our review and in accordance with EPA procedures, we have rated the draft EIS Category 3 (Inadequate). The addition to the final EIS of the

information and analyses requested above should enable EPA to better evaluate the environmental impacts of the overall program.

Thank you for the opportunity to review and comment on this draft EIS. Should you have any questions regarding our comments, please let us know.

Sincerely yours,

Rebecca W. Hanmer

Rebecca W. Hanmer
Director
Office of Federal Activities (A-104)

Enclosure: Detailed comments on Strategic Petroleum Reserve draft EIS

THE ENVIRONMENTAL PROTECTION AGENCY'S DETAILED COMMENTS ON THE FEDERAL ENERGY ADMINISTRATION'S DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE STRATEGIC PETROLEUM RESERVE

General Comments

The draft EIS explores the potential environmental impacts of implementing the Congressionally mandated Strategic Petroleum Reserve (SPR). This involves the securing of close to 500 million barrels of oil in long term storage facilities, such as salt domes and tank farms, as a national reserve against the possible interruption of foreign oil imports. EPA is concerned that certain alternative actions which could conceivably eliminate some of the adverse environmental effects of this program have not been discussed in sufficient detail to permit an informed decision on their merits. In particular, we have suggested further comparison in the final EIS of the feasibility of offshore and onshore salt dome excavation, the substitution of seawater for freshwater in onshore salt dome excavation, and the recovery of waste brine from injection aquifers for reuse in oil displacement during emptying of salt dome storage cavities.

We also suggest that the final EIS indicate more clearly which of the wide range of alternatives the FEA currently plans to pursue. In a broad, programmatic EIS such as this, some indication of what action is actually proposed is essential to a thorough and realistic environmental evaluation. The final EIS should differentiate between abandoned alternatives and currently preferred FEA plans. Ultimately, the EIS should assist in project planning which optimizes resource use and minimizes pollution. Further information in the final EIS on the issues raised here and in our specific comments should contribute to the FEA planning process.

As strategies for energy supply and consumption multiply, coordination among energy-related projects becomes increasingly important. We stress, therefore, the need for comprehensive overall planning by the FEA to establish SPR storage sites in areas where energy developments can be most efficiently tapped, especially in the vicinity of the Gulf of Mexico, where oil and gas leasing and Deepwater Port planning, with associated refining and distribution capacity, is already underway.

Specific Comments

Water Quality

In the draft EIS, FEA concentrates most of its analysis on onshore sites for solution-mined salt dome cavities. While the possibility of locating offshore is mentioned on pages III-61-63, the analysis is not continued. Offshore siting presents certain difficulties, including the hazards of undersea oil storage, the susceptibility of submarine pipeline to damage, and the problems of marine oil cleanup. While offshore sites may be preferable to sites on oil-sensitive wetlands or estuarine areas, they may have serious disadvantages when compared to more secure dry land sites.

The use of offshore salt domes instead of onshore ones could, however, eliminate several adverse environmental impacts on the coastal regions of the Gulf of Mexico, and fit in well with planned energy developments in that area. The advantages include the avoidance of freshwater aquifer depletion and deep-well brine disposal problems, the elimination of acquisition costs if domes outside the 3-mile limit are used, the prevention of construction and oil spill impacts on sensitive shore ecologies, and the avoidance of the possibility of prior unmarked wells unexpectedly interfering with the new cavities.

In addition, the placement of storage cavities in the Gulf, rather than onshore, could enable more efficient collection of oil during the filling process, both from offshore drilling operations and from planned deepwater port projects. The oil could be intercepted before reaching shore, thus eliminating multiple onshore handling processes

in the already intensely developed coastal area. If the United States elects to fill the SPR by the purchase of imported oil, or by exercising its right of first refusal to Outer Continental Shelf oil, (Outer Continental Shelf Lands Act, 43 U.S.C. 341(b)) the location of salt cavities offshore could be quite convenient.

In view of the complexity of the comparison between offshore and onshore sites, we suggest a more detailed analysis in the final EIS. Further information on the practical and environmental aspects of undersea solution mining should be presented in the final EIS, including problems involved in siting such excavations near existing drilling or port operations, and the location of suitable offshore salt domes. A comparison of the risk, magnitude, and environmental harm of potential oil spills in onshore and offshore locations should also be made.

Factors which have a major influence on both the environmental impact and the practicality of the solution mining of onshore salt domes are (1) the immense volume of water required to dissolve the cavities, (2) the water volumes required to displace the stored oil in "cycling" or emptying the cavities, and (3) the disposal of equivalent volumes of salt-saturated brine.

Withdrawal of fresh water for the "leaching" process can have significant effects on local water supply, and disposal of the concentrated brine can have adverse effects on water quality. We therefore urge that a detailed analysis of all feasible alternatives to the use or contamination of potentially potable water in this construction phase be included in the final EIS, especially the possibility of using seawater extensively for both leaching and cycling.

The draft EIS estimates that cavern excavation alone will require water withdrawal at a rate "equivalent to the total water withdrawal... from the public water supply systems of a city of about one million inhabitants" for a 42-month period (pages V-28-29). If this water were taken from wells, the water table near the wells could be expected to drop 150 feet during the same period (page V-32). An obvious alternative source of water for this immense task is the Gulf of Mexico. Although the higher level of dissolved solids in sea water makes it somewhat less efficient as a salt solvent, the total volume required is less than

10% more than for fresh water. The FEA estimates at one point in the draft EIS that for each barrel of storage capacity, 6.2 barrels of fresh or 6.8 barrels of sea water would be required, a difference of only 9.7% (p. III-45). In another section, the total requirement for a 100 MMB cavity is predicted as 2.6×10^{10} MMB fresh or 2.8×10^{10} MMB sea water, a difference of only 8.9% (Table V-29, p. V-117). The final EIS should address this apparent inconsistency in water volume requirements.

In addition to avoiding the significant depletion of freshwater sources on land, the establishment of a piping system to the Gulf could facilitate ocean disposal of the resulting brine, averting possible contamination of freshwater supplies from land disposal as well. Further information on the practicality and environmental impact of such a system should be included in the final EIS.

For a realistic comparison of brine disposal techniques, more information is also needed on the feasibility of environmentally safe deep well injection. State regulations under the authority of the Safe Drinking Water Act, the availability of suitable aquifers for injection, the permeability of the strata segregating potential disposal aquifers, and the capacity of these aquifers to absorb the enormous flows to which they will be subjected should be basic items discussed in the final EIS. The final EIS should also present methods of pretreating the oil-contaminated brine produced by repeated filling and drainage of the oil.

In addition, we suggest an investigation into the feasibility of the recovery of injected brine from deep well aquifers for the displacement of oil during cavity emptying. It is possible for substantial amounts of brine to be recovered from a suitable aquifer, avoiding the problems of freshwater depletion and increased cavity leaching, as well as minimizing the total amount of brine requiring disposal.

In view of the hazards created by unmarked abandoned wells in the vicinity of salt domes along the Texas and Louisiana Gulf Coast, which may be improperly cased or plugged, we suggest that each dome be carefully examined for such intrusions before solution mining or filling is initiated.

Regarding oil spill and prevention issues, we are concerned that pipelines used in the development of the salt dome cavities be treated to impede internal corrosion caused by the brine solution. In addition, Spill Prevention Control and Countermeasure Plans will have to be prepared and implemented in accordance with 40 CFR, Part 112. The SPCC Plans apply to non-transportation related facilities that are onshore and offshore within the contiguous zone. An oil spill contingency plan should list the location of available cleanup equipment for expedient treatment of an oil spill.

The oil spill treating agents listed on page VI-43 are mentioned in Annex X of the National Oil and Hazardous Substances Pollution Contingency Plan. Authorization for use of dispersing agents, surface collecting agents, biological agents, and burning agents within the contiguous zone are considered on a case-by-case situation by the EPA Regional Response Team member. Sinking agents are not to be applied to oil spills within the contiguous zone. Authorization for use takes into account the hazard to human life or limb, explosion or fire hazard to property, hazard to a major segment of the population of vulnerable species of waterfowl, and whether or not the least overall environmental damage will result.

We are concerned over the statement on page VI-47 that "Another strategy for dealing with an oil spill, often the only feasible one, is to leave the spilled oil to be decomposed by biological processes." Biological processes will assimilate the light hydrocarbons, but degradation is very slow on residual oil and the heavier hydrocarbons. Since biological processes take time, the oil spill could extend over a large area. A better approach would be to mechanically remove the heavy concentrations of oil and let the bacteria assimilate the balance, which should be no more than a thin film.

Finally, the use of municipal wastewater treatment facilities should not be considered as an alternate for treatment of effluents from mine dewatering operations unless such use has been originally designed into the treatment facility.

Air Quality

A major concern in the Northeast and Gulf Coast areas is the location of surface storage facilities. The location of these facilities must be consistent with EPA's existing photochemical oxidant control strategy (i.e. construction and operation must not lead to a significant increase in total hydrocarbon emissions in an air quality control region (AQCR)). The most likely manner in which this can be acceptably demonstrated at present is if the storage facility replaces existing, less efficient storage facilities. The magnitude of the trade-off in emissions will have to be quantified and then demonstrated to EPA or the appropriate State as an element of the new source review procedures for each facility. Projected storage areas, in both the Northeast and Gulf Coast regions, are located in regions where existing hydrocarbon emissions have led to violations of the national ambient air quality standard for photochemical oxidants. The final EIS should discuss the compatibility of proposed surface storage facilities with State Implementation Plans in the affected AQCR's.

The draft EIS addresses the question of crude oil, oil products, and residual oil volumes for storage, but does not characterize the quality or range of characteristics of the fuel to be stored. The final statement should include what areas will store "sweet" and "sour" crude, and provide fuel characteristic ranges that will be specified in contract arrangements for purchase. We are concerned with the extent of conversion that refineries, petrochemical industries, and other users of the stored fuel may need to make, and the degree of disruption of users equipment that may result if use of the stored fuel becomes fact. The final EIS should discuss whether such use will cause any change in ambient air quality as a result of pollutant emissions?

Paragraph (d) on Page III-64, dealing with fire hazards, does not include any discussion of possible gases that may accompany crude oil. Is the crude oil to be degassed before storage? What volume of gas could be encountered if the crude is not degassed?

Also, we are concerned with the statement on page VI-28 that underground storage of petroleum is entirely exempted from new source performance standards under the Clean Air Act. This is true for subsurface caverns or porous rock reservoirs but it is only true for underground tanks in certain specific conditions (See 40 CFR 60.111(a)(3)).

Transportation

EPA is concerned that the draft EIS did not include a more detailed examination of alternative methods of transporting foreign petroleum to United States ports. We believe this examination should include the comparative environmental advantages and disadvantages of these transportation methods (direct shipment, "lightering," and transshipment). "Lightering" can be a potentially hazardous operation as petroleum is pumped through a hose connection between large and small tankers. This operation carries the risk of damage to the aquatic environment and the coastline from oil spills even under normally favorable weather conditions. We suggest that FEA provide in the final EIS a more detailed examination of the environmental benefits of lightering in comparison to those environmental benefits associated with the transshipment alternative.

Additional Comments

The EIS contained no discussion of the lifetime of the storage projects, nor did it include any mention of abandonment plans. We suggest that the final EIS analyze the potential abandonment alternatives and long term effects of the existence of salt dome cavities.

The technical hypotheses on which the draft EIS is based should be supplemented by data from actual experience. Existing salt dome cavities along the Gulf Coast and in Europe should be a rich source of information for planning and impact prediction. The frequency of spills, leaks, and ruptures, the brine disposal methods used, the success of impact mitigation, and other factors unique to salt dome excavation, such as subsidence and alteration of dome rise rates, should be addressed whenever possible by referencing to such experience.

The final EIS should include a more specific description of mitigating measures such as the "fail-safe design concepts and innovative spill prevention methods and procedures" alluded to on page VI-10, and the security measures appropriate for the protection of such large, strategic volumes of oil concentrated at one place. Site-specific plans may be considered inappropriate in a "programmatic" EIS such as this, however a general discussion of the planned techniques would be a useful addition to the final statement.

On pages V-119-120, Tables V-30 and V-31 contain manpower data which seem inconsistent. Table V-30 says that the construction of 500 MMB of storage capacity in new solution caverns would generate 1070-1780 man-years of employment, while Table V-31 predicts that the smaller capacity of 200 MMB would generate more than twice as much employment, or 4480-7140 man-years. A resolution of this apparent conflict should be provided in the final EIS.

Interstate Commerce Commission
Washington, D.C. 20423

OFFICE OF PROCEEDINGS

July 9, 1976

Mr. Steven E. Ferguson
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M Street, N.W.
Washington, D.C. 20461

Dear Mr. Ferguson:

We have reviewed your draft environmental impact statement on the Strategic Petroleum Reserve and have no substantive comments to offer.

We would, however, appreciate a copy of the final impact statement when available.

Sincerely,

Richard Chais

Richard Chais
Assistant to the Director
for Environmental Affairs

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUL 2 9 1976

Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M Street, N. W.
Washington, D. C. 20461

Gentlemen:

This is in response to your letter of June 25, 1976 inviting comments on the draft administrative environmental impact statement on the Strategic Petroleum Reserve.

We have reviewed the document and, with minor exceptions cited below, have determined that the proposed action has little radiological health and safety impacts and should not, if properly implemented, adversely affect any activities subject to regulation by the Nuclear Regulatory Commission.

Our only concern relates to the subsidence effects due to the use of ground water to leach salt from the domes used for possible storage. If your eventual choices for project sites includes some adjacent to nuclear plant sites, the NRC should be given the opportunity to evaluate the effect of such storage facilities on the nearby nuclear stations.

Thank you for providing us with the opportunity to review this draft environmental impact statement.

Sincerely,

Voss A. Moore

Voss A. Moore, Assistant Director
for Environmental Projects
Division of Site Safety and
Environmental Analysis

cc: CEQ (5 copies)

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

August 11, 1976

Mr. Robert L. Davies
Director, Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D.C. 20461

Dear Mr. Davies:

We have completed our review of the draft environmental impact statement on Strategic Petroleum Reserves as you requested. Basically, we have no substantive comment except to offer the suggestion of two variations of a possible alternate. The variations would be as follows:

1. Within developed fields, with established capacity potential, stop pumping, hold the oil in the ground as a ready reserve in each district.

2. Locate and prove new field, sink wells, but do not pump until strategic situation arises.

In our view, less environmental and economic costs would occur, less handling and resources would be committed, and storage would be proven to be relatively leak and hazard free.

Sincerely yours,

J. Clement Bordick

for Peter A. Krenkel, Ph.D., P.E.
Director of Environmental
Planning

STATE AGENCY COMMENTS

STATE OF ALABAMA

ALABAMA DEVELOPMENT OFFICE

GEORGE C. WALLACE
GOVERNOR

R. C. "RED" BAMBERG
DIRECTOR

W. M. "BILL" RUSHTON
ASSISTANT DIRECTOR

Oct. 14, 1976

TO: Mr. Robert L. Davis, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M Street, N.W.
Washington, D. C. 20461

FROM: Michael R. Amos
State Clearinghouse
State Planning Division

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT

Applicant: Federal Energy Administration

Project: Draft Environmental Impact Statement on Strategic Petroleum Reserve

State Clearinghouse Control Number: ADO-016-76

The Draft Environmental Impact Statement for the above project has been reviewed by the appropriate State agencies in accordance with Office of Management and Budget Circular A-95, Revised.

The comments received from the reviewing agencies are attached.

Please contact us if we may be of further assistance. Correspondence regarding this proposal should refer to the assigned Clearinghouse Number.

A-95/05
Attachments
Agencies Contacted For Comment:
Conservation and Natural Resources
Geological Survey of Alabama
Environmental Health Administration
Energy Management Board - Hudspeth
cc: Mr. Steven E. Ferguson, Strategic Petroleum Reserve Office, Federal Energy Administration, 1726 M Street, N.W., Washington, D. C. 20461

3734 ATLANTA HIGHWAY • MONTGOMERY, ALABAMA
MAILING ADDRESS: STATE CAPITOL • MONTGOMERY, ALABAMA • 36130
(205) 832-6810

RAUL H CASTRO
GOVERNOR

Arizona
State Land Department
1624 WEST ADAMS
PHOENIX, ARIZONA 85007
602 - 271-4634

OFFICE OF
STATE LAND COMMISSIONER

August 23, 1976

Steven E. Ferguson
Strategic Petroleum Reserve Office
1726 M St., NW
Washington, DC 20461

#76-80-0042

Dear Mr. Ferguson:

The Natural Resource Conservation Division of the State Land Department has reviewed your publication PROJECT NOTIFICATION AND REVIEW, STRATEGIC PETROLEUM RESERVE - FEA, applicant.

The State of Arizona, under guidance of the state Water Quality Control Council, is in the process of complying with standards required by P.L. 92-500. Salinity standards, particularly in the Colorado River, and generally applicable to all the state's major rivers, are a matter of critical concern to the state.

The notification and this particular application are understood not to apply to Arizona; however, the storage problem is paramount and this Department would appreciate early notification of any similar plans for Arizona, in order to submit this Department's element to the attention of the Honorable Raul H. Castro, Governor of Arizona, for consideration in his broader overall concern for availability of energy sources of all kinds.

It is our understanding that Mr. John Bannister, Executive Secretary of the Arizona Oil & Gas Conservation Commission is directly concerned with the general subject from that agency's point of expertise.

Thank you for forwarding us a copy of this application.

Sincerely,

Andrew L. Bettwy
State Land Commissioner

Peggy Spaw

By:
Peggy Spaw
Natural Resource Conservation Division

ALB:PS:fmr

CC: Clearinghouse
John Bannister, Executive Secretary
Arizona Oil & Gas Conservation Commission

To:

John Bannister
Oil & Gas Conservation Co.
8686 N. Central Ave. Suite 106
Phoenix, Az 85031

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-004

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

Economic Sec.	Arid Lands Stu
Indian Affairs	Highway
Mineral Resources	Agri. &Hort
Bureau of Mines	Oil & Gas Cons
Az. Mining Ass'n	Water
SW Minerals Explor.	Att'y Gen'l- Piersc
Archaeological Research	Renewable Nat'
Heinrichs GEOXploration	Resources
SW Environ. Services	OEPAD
Public Safety	6-Regions
Power	
Health	
Land	
Energy Programs	

Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☐ No comment on this project
☐ Proposal is supported as written
☑ Comments as indicated below

Comments: (Use additional sheets if necessary)

(1) No comments have been solicited from the State
(2) The great potential of Arizona for storage in the huge salt deposits west of Phoenix is ignored. Arizona has the potential to store more than the 500 mm B of oil in question. Arizona is a more secure storage area than the Coastal areas.
(3) Our potential must forcefully be called to the attention of FEA

Reviewer's Signature John Bannister Date 7-21-76

Title Ex. Sec Telephone 271-5161

BALANCE OF FORM TO BE COMPLETED BY REVIEWING AGENCY

TO:

Mr. Frank Servin, Exec. Dir.
District IV Council of Gov'ts
377 South Main St., Room 202
Yuma, Arizona 85364

State Application Identifier (SAI)
7/15/76 State AZ 76-80-0042 Number

From: Ralph Kingery
Arizona State Clearinghouse Staff

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

☐ Respond to Applicant
☒ Respond to Clearinghouse

Comments: (Use additional sheets if necessary)

Reviewer's Signature [signature] Date 7-23-76

Title Executive Director Telephone 783-1376

Mr. William H. Dresher
Dean, College of Mines
Dir. AZ Bureau of Mines
The University of Arizona
Tucson, Arizona 85721

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-00[redacted]

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
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Economic Sec.	Arid Lands Stu
Indian Affairs	Highway
Mineral Resources	Agri. &Hort
Bureau of Mines	Oil & Gas Cons
Az. Mining Ass'n	Water
SW Minerals Explor.	Att'y Gen'l- Pierso
Archaeological Research	Renewable Nat'
Heinrichs GEOXploration	Resources
SW Environ. Services	OEPAD
Public Safety	6-Regions
Power	
Health	
Land	
Energy Programs	

Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

No comment.

Reviewer's Signature William H. Dresher

Title Director

Date 7-22-76

Telephone 884-1401

Mr. Les Ormsby, Admin.
Arizona Power Authority
1810 West Adams Street
Phoenix, Arizona 85005

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

Economic Sec.	Arid Lands Stud
Indian Affairs	Highway
Mineral Resources	Agri. &Hort
Bureau of Mines	Oil & Gas Cons.
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m: Mrs. Jo Youngblood

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se return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further rmation or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

mments: (Use additional sheets if necessary)

iewer's Signature L Ormsby Date 7/19/76

e Telephone

TO: Carol Norris, Acting Chief
Planning & Management Div.
Dept. of Econ. Security
1717 W. Jefferson St.
Phoenix, Arizona 85007

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature Dick Yakmark Date 7/22/76

Title State Planner Telephone 271-5984

BALANCE OF FORM TO BE COMPLETED BY ...

O:

Mr. Wesley E. Steiner, Eng.
State Water Commission
222 N. Central Ave., Suite 800
Phoenix, Arizona 85004

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☑ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature [signature] Date 7-19-76

[signature]

Telephone

Mr. L. D. McCorkindale
Agriculture & Horticulture Dept.
414 Capitol Annex West
Phoenix, Arizona 85007

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-004

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

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6-Regions

Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☐ No comment on this project
☒ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature L. D. McCorkindale Date 7-19-76

Title Director Telephone 271-4373

BALANCE OF FORM TO BE COMPLETED BY REVIEWING AGENCY

TO:

John J. DeBolske, Exec. Dir
Maricopa Ass'n of Governments
1820 W. Washington Street
Phoenix, AZ 85007

State Application Identifier (SAI) 76-80-0042
7/15/76 State AZ Number

From: Ralph Kingery
Arizona State Clearinghouse Staff

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

☐ Respond to Applicant
☒ Respond to Clearinghouse

Comments: (Use additional sheets if necessary)

Reviewer's Signature Dave Schultz for Ken Driggs Date 7/23/76

Title Staff Assistant Telephone

MARICOPA•ASSOCIATION•OF•GOVERNMENTS
1820 WEST WASHINGTON PHOENIX, ARIZONA 85007 (602) 254-6308

July 20, 1976

TO: Mr. David French, MAG/TPO

FROM: Clearinghouse Staff Contact: Ken Driggs

SUBJECT: Project Notification and Review

Applicant: Federal Energy Administration Strategic Petroleum Reserve Office

Project Title: Strategic Petroleum Reserve - Draft Environmental Impact Statement - DES 76-2

MAG/State Application Identifier: 76-80-0042

MAG/ Log Number: 0739

A copy of an A-95 application form AZ-189 along with supporting project documentation is attached for your review and comment in accordance with requirements of OMB Circular A-95. Please review the proposal as it affects the plans and programs of your agency and register your response below. Please return only this completed form within fifteen (15) days of your receipt of this request.

- [X] No Comment on the above project.
- [ ] Proposal is supported as written.
- [ ] Project is unfavorable. (Reason stated below)
- [ ] Comments are attached.

Please contact the Applicant and advise the Clearinghouse should you desire a conference with Applicant, further information, or need additional time for review.

Ronald Ross
Authorized Representative

MAG TPO
Agency

BALANCE OF FORM TO BE COMPLETED BY REVIEWING AGENCY

To:

Mr. Sidney S. Goodman, Jr.
Executive Director
Central Az. Ass'n of Gov'ts
512 E. Butte Ave.
Florence, Arizona 85232

State Application Identifier (SAI)
7/15/76
State AZ Number 76-88-0042

From: Ralph Kingery
Arizona State Clearinghouse Staff

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☐ No comment on this project
☑ Proposal is supported as written
☐ Comments as indicated below

☐ Respond to Applicant
☒ Respond to Clearinghouse

Comments: (Use additional sheets if necessary)

Reviewer's Signature: Sidney S. Goodman Jr.
Date: 7-20-76

Title: Exec. Dir.
Telephone: 868-5878

BALANCE OF FORM TO BE COMPLETED BY REVIEWING AGENCY

TO:

William C. Fay, Acting Dir.
Region VI-Southeastern Az
Governments Organization
92 Traffic Circle
Bisbee, Arizona 85603

State Application Identifier (SAI)
7/15/76 State AZ 76-80-0042 Number

MOR 76-149
7-21-76

From: Ralph Kingery
Arizona State Clearinghouse Staff

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☐ No comment on this project
☑ Proposal is supported as written
☐ Comments as indicated below

☐ Respond to Applicant
☒ Respond to Clearinghouse

Comments: (Use additional sheets if necessary)

Reviewer's Signature: Victor E Evans Jr. Date: 7-29-76

Title: Project Coordinator Telephone: 384-3883

BALANCE OF FORM TO BE COMPLETED BY REVIEWING AGENCY

TO:

William C. Fay, Acting Dir.
Region VI-Southeastern Az
Governments Organization
92 Traffic Circle
Bisbee, Arizona 85603

State Application Identifier (SAI)
7/15/76 State AZ Number 76-80-0042

MOR 76-199
7-21-76

From: Ralph Kingery
Arizona State Clearinghouse Staff

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

☐ Respond to Applicant
☒ Respond to Clearinghouse

Comments: (Use additional sheets if necessary)

Reviewer's Signature: Christopher M. Plunkett

Date: 8-5-76

Title: Plngs Res. mgr

Telephone: (602) 432-2237

Northern Arizona Council of Governments

P.O. BOX 57 • FLAGSTAFF, AZ - 86001 • (602) 774-1895

WILLIAM C. WADE
EXECUTIVE DIRECTOR

Regional A-95 Review

TO: Mr. Ralph Kingery
State Clearinghouse
1645 W. Jefferson, Suite 428
Phoenix, AZ 85007

RE: Project: FEA, Strategic Petroleum Reserve Office
Strategic Petroleum Reserve - Draft Environmental Statement
S.A.I. #: 76-80-0042

The Northern Arizona Council of Governments (NACOG) has completed its A-95 Review and Comment upon the above project. Action taken on this project notification is as follows:

☐ Proposal supported as described on the AZ-189 and any attachments.

☐ Proposal is supported with certain recommendations, provisions, etc.

X No comment on this proposal at this time.

☐ Proposal is not supported.

Please be aware that NACOG reserves the prerogative of making additional comments should new information become available to the Agency.

The Northern Arizona Council of Governments has appreciated this opportunity to review and comment on this project.

Thank you.

William C. Wade
Executive Director

Date: August 3, 1976

THIS A-95 REVIEW IS SUPPORTED IN PART BY A HUD 701 PLANNING GRANT.

BALANCE OF FORM TO BE COMPLETED BY REVIEWING AGENCY

TO:

Mr. Frank Servin, Exec. Dir.
District IV Council of Gov'ts
377 South Main St., Room 202
Yuma, Arizona 85364

State Application Identifier (SAI) 7/15/76

State AZ Number 76-80-0042

From: Ralph Kingery
Arizona State Clearinghouse Staff

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

☐ Respond to Applicant
☒ Respond to Clearinghouse

Comments: (Use additional sheets if necessary)

Reviewer's Signature [signature] Date 7-22-76

Title Executive Director Telephone 782-1376

TO: Ted H. Eyde, Sec
Southwestern Minerals Exp.
1235 E. Moonridge, Rd.
Tucson, Az. 85717

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
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Economic Sec.	Arid Lands Stu
Indian Affairs	Highway
Mineral Resources	Agri. &Hort
Bureau of Mines	Oil & Gas Cons
Az. Mining Ass'n	Water
SW Minerals Explor.	Att'y Gen'l- Piersc
Archaeological Research	Renewable Nat'
Heinrichs GEOXploration	Resources
SW Environ. Services	OEPAD
Public Safety	6-Regions
Power	
Health	
Land	
Energy Programs	

Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature James P. Vroman Date 10 August 1976

Title President, SMEA Telephone 792 3236

TO:

Mr. Clinton M. Pattea
Executive Secretary
Indian Affairs Commission
1645 West Jefferson St.
Phoenix, AZ 85007

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☐ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature [signature] Date 8-2-76

Title Telephone

TO:

Dr. Suzanne Dandoy, Director
Department of Health Services
1740 West Adams Street
Phoenix, Arizona 85007

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature R. Bruce Scott

Date 7-29-76

Title Assistant Director
Arizona Dept. of Health Services
Div. of Environmental Health Serv.

Telephone

TO:

Mr. Wm. N. Price, State Hwy.eng.
Environmental Plng. Services
Dept. of Trans. Highway Division
206 S. 17th Avenue
Phoenix, AZ 85007

From: Mrs. Jo Youngblood

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature James E. Dorre Date 7-28-76

Title Hdqtrs. Mgr. Telephone 261-7767

TO:

Tom Lynch, Chief
Energy Programs
Room 507
1700 W. Washington
Phoenix, Arizona 85007

From: Mrs. Jo Youngblood

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature T Lynch Date 7-26-76

Title Chief, energy programs Telephone 271-5303

TO:

Dennis Thompson
Office of Econ. Plann. & Dev.
3rd Floor
1624 W. Adams
Phoenix, Ariozna 85007

State Application Identifier (SAI)

July 15, 1976 State Az. Number 76-80-0042

From: Mrs. Jo Youngblood

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
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Please return this form to the clearinghouse no later than 15 working days from the date noted above. Please contact the clearinghouse if you need further information or additional time for review.

☑ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature D T Date 7/27/76

Title Telephone

OFFICE OF THE SECRETARY
RESOURCES BUILDING
1416 NINTH STREET
95814
(916) 445-5656

Department of Conservation
Department of Fish and Game
Department of Navigation and Ocean Development
Department of Parks and Recreation
Department of Water Resources

EDMUND G. BROWN JR.
GOVERNOR OF
CALIFORNIA

Air Resources Board
Colorado River Board
San Francisco Bay Conservation and Development Commission
Solid Waste Management Board
State Lands Commission
State Reclamation Board
State Water Resources Control Board
Regional Water Quality Control Boards
Energy Resources Conservation and Development Commission

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

SEP 17 1976

Mr. Steven E. Ferguson
Federal Energy Administration
1726 M Street
Washington, D.C. 20461

Dear Mr. Ferguson:

The State of California has reviewed the "Draft Environmental Impact Statement-Strategic Petroleum Reserve" dated June 1976, which was submitted to the Office of Planning and Research (State Clearinghouse) within the Governor's Office. The review fulfills the requirements under Part II of the U. S. Office of Management and Budget Circular A-95 and the National Environmental Policy Act of 1969.

The review was coordinated with the Departments of Conservation, Fish and Game, Navigation and Ocean Development, Parks and Recreation, Water Resources, Food and Agriculture, Health and Transportation; the State Water Resources Control Board; the State Energy Resources Conservation and Development Commission; the Public Utilities Commission; the Solid Waste Management Board; the Air Resources Board; the Coastal Zone Conservation Commission and the State Lands Commission. Our comments on the draft statement are set forth below.

The DEIS is deficient in its discussion of air quality impacts on the regions where increased petroleum production would occur, particularly the West Coast NPR-1 in Elk Hills, California, and NPR-2 in Buena Vista Hills, California. Considerations need to be made for such things as drilling engine emissions, storage tank losses, surge tank losses, fugitive hydrocarbon losses from valves and flanges, accidents and upset conditions in production operations, and exhaust emissions from auxiliary equipment (such as stationary generators, compressors and pumps). Also, emissions associated with the transport of petroleum from these areas to the Texas-Louisiana Gulf Coast and the Northern Atlantic Seaboard should be determined. Emissions from tankers and tanker terminals used to load and offload the petroleum should be quantified. Finally, the impact of increases in emissions from development and shipment of crude oil for these reserves on emergency episodes, health effects, etc. need to be identified.

There is essentially no justification in the report for taking petroleum out of the ground in California for the sole purpose of putting it back in the ground in another part of the country. We don't understand why the purpose of the Strategic Petroleum Reserve cannot be served by leaving the Naval Petroleum Reserve oil where it is. In the event of a reduction in foreign oil imports the oil could then be produced.

What is the relationship of this project to the proposal for the SOHIO Oil Terminal, which is currently under the study for the Port of Long Beach by the Department of the Interior, or to the proposed development of Elk Hills? It would appear that siting of petroleum reserves needs to be coordinated with projects concerned with the location of tanker terminals for oil transhipment to other points within the U.S.

The DEIS indicates the petroleum reserve project may include some facilities for liquified natural gas (LNG) and possibly even synthetic natural gas (SNG). The report should discuss these facilities in more detail. The availability of future supply of both LNG or SNG to the State is of major concern in order to achieve and maintain clean air.

We appreciate the opportunity to review the report.

Sincerely,

Claire T. Dedrick
Secretary for Resources

By 
L. Frank Goodson
Assistant to the Secretary
Projects Coordinator

Attachment

STATE OF DELAWARE
PLANNING OFFICE
DOVER

DAVID R. KEIFER
DIRECTOR

PHONE: (302) 678-4271

August 19, 1976

Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M. Street, N.W.
Washington, D.C. 20461

Dear Mr. Davies:

Re: Draft Environmental Impact Statement on Strategic Petroleum Reserve

The Delaware State Planning Office, as the State Clearinghouse, has reviewed the above referenced Draft Environmental Impact Statement for review and has circulated the same to other interested State agencies.

The comments on this Draft Environmental Impact Statement were received from the Department of Natural Resources and Environmental Control and are enclosed here for your information.

Sincerely,

David R. Keifer
Director

DRK/ARC/cp

Enclosure

EXECUTIVE DEPARTMENT
SHERMAN W. TRIBBITT
GOVERNOR

The First State DELAWARE

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND
ENVIRONMENTAL CONTROL
EDWARD TATNALL BUILDING
DOVER, DELAWARE 19901

JOHN C. BRYSON
SECRETARY

PHONE: (302) 678-4403

July 30, 1976

Ms. Ann Cullen
State Planning Office
Thomas Collins Building
Dover, Delaware 19901

Dear Ms. Cullen:

This Department has reviewed the Draft Environmental Impact Statement DES 76-2 on Strategic Petroleum Reserve.

The information presented would indicate that the impact within Delaware would be minimal as underground storage is not indicated and above ground storage may or may not be ordered. From information contained in Section E.2., page II-23, it is evident that 5 above ground tank sites plus 2 government owned tankage facilities have been preliminarily selected. However, these sites have not been identified in this D.E.S. making it impossible for us to comment on their possible environmental impact on Delaware.

As it is not illogical to assume that some if not all Region III, IPR might be stored immediately to the north of us the release of hydrocarbons to the atmosphere is of concern. This is of particular concern as the prevailing winds over Delaware come from NNE.

When specific sites, composition, and capacities have been identified for the East Coast, we would appreciate this knowledge as soon as available. This will permit additional and necessary planning and research time to be totally responsive to the environmental aspects of this very important aspect of national petroleum product management.

Very truly yours,

John C. Bryson
Secretary

JCB:WJT:m

SHERMAN W. TRIBBITT
GOVERNOR

The First State
DELAWARE

STATE OF FLORIDA

Department of Administration

Division of State Planning

660 Apalachee Parkway - IBM Building

TALLAHASSEE

32304

(904) 488-1115

Reubin O'D. Askew
GOVERNOR

R. G. Whittle, Jr.
STATE PLANNING DIRECTOR

Lt. Gov. J. H. "Jim" Williams
SECRETARY OF ADMINISTRATION

August 6, 1976

The Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D.C.

Dear Sir:

Functioning as the state planning and development clearinghouse contemplated in U. S. Office of Management and Budget Circular A-95, we have reviewed the following draft environmental impact statement:

Strategic Petroleum Reserve; DES 76-2; June 1976;
SAI#76-2531E.

During our review, we referred the environmental impact statement to the following agencies, which we identified as interested: Department of Administration, State Energy Office; Department of Environmental Regulation; Department of Natural Resources and The Game and Fresh Water Fish Commission. Agencies were requested to review the statement and comment on possible effects that actions contemplated could have on matters of their concern. The Department of Natural Resources and The Game and Fresh Water Fish Commission reported by telephone no adverse comments.

Based upon our review of the document, we find that it correctly and accurately evaluates the various aspects of this project which has potential for major environmental degradation. Since this document is of a programmatic nature, the detailed evaluation of potential impact in specific circumstances is omitted. Site specific environmental statements will be needed in order to assist detailed impacts of the program.

In accordance with the Council on Environmental Quality guidelines concerning statement on proposed federal actions affecting the environment, as required by the National Environmental Policy Act of 1969, and U. S. Office of Management and Budget Circular A-95, this letter, should be appended to the final environmental impact statement on this project.

We request that you forward us copies of the final environmental impact statement prepared on this project.

Sincerely,

R. G. Whittle, Jr.
Director

RGWjr:Kp

cc: Mr. J. Landers
Mr. Loring Lovell
Mr. Harmon Shields
Mr. H. E. Wallace
Mr. Walter O. Kolb

Office of Planning and Budget

Executive Department

James T. McIntyre, Jr.
Director

GEORGIA STATE CLEARINGHOUSE MEMORANDUM

TO: Federal Energy Administration
Washington, D. C. 20461

FROM: Charles H. Badger, Administrator
Georgia State Clearinghouse
Office of Planning and Budget

DATE: August 25, 1976

SUBJECT: RESULTS OF STATE-LEVEL REVIEW

Applicant: Federal Energy Administration

Project: Draft EIS-Strategic Petroleum Reserve

State Clearinghouse Control Number: 76-06-29-08

The State-level review of the above-referenced document has been completed. As a result of the environmental review process, the activity this document was prepared for has been found to be consistent with those State social, economic, physical goals, policies, plans, and programs with which the State is concerned.

The South Atlantic Coastal Plain and the State of Georgia are not involved in this project at the present time. Should, however, the State of Georgia or its immediate neighbors be included in the project in the future, early involvement with the State of Georgia is requested.

The following State agencies have been offered the opportunity to review and comment on this project:

Department of Natural Resources
Intergovernmental Relations
Office of Planning and Budget, Executive Division

cc: Ray Siewert, DNR

EXECUTIVE CHAMBERS

HONOLULU

GEORGE R. ARIYOSHI
GOVERNOR

June 21, 1976

The Honorable Frank G. Zarb
Administrator
Federal Energy Administration
Washington, D.C. 20461

Dear Sir:

The recently enacted legislation to establish a Strategic Petroleum Reserve requires "that each noncontiguous area of the United States which does not have overland access to domestic crude oil production have its component of Strategic Petroleum Reserve (SPR) within its respective territory." This congressional intent is clearly set forth in the Joint House/Senate Committee report which specifically mentions Hawaii in relation to particular regional petroleum needs. These needs are directly derived from Hawaii's isolation from energy sources and its almost 100 percent dependence on imported oils, foreign and domestic.

I wish to express Hawaii's concern that our State's remoteness of location and uniqueness in terms of energy resources may be overlooked as plans are formulated in Washington for the Early Storage Reserve (ESR) and the SPR.

Our review of your Early Storage Researve Plan published April 22, 1976, in fact does not provide strategic storage protection for Hawaii. Indications are that the FEA assumption has been made that Hawaii's needs can be met in the future from "surplus" North Slope crude. Our analysis indicates that Hawaii's refineries cannot manufacture specification petroleum products to meet their market product demands from North Slope Crude.

In order to protect Hawaii in accordance with the intent of the Energy Policy and Conservation Act, a well planned crude and products program for storage of petroleum reserves is essential in Hawaii. I have directed Mr. Alfred S. Harris, of our State Energy Office, to work with your Strategic Petroleum Reserve Office to define Hawaii's requirements more specifically in terms of facilities, customer requirements and refinery limitations.

We shall look forward to working with your office in developing a program to prepare Hawaii to meet future energy emergencies. The better our State is prepared to sustain its own functions, the less drain it will be on other regions as deficiencies develop.

With warm personal regards, I remain,

Yours very truly,

George R. Ariyoshi

bcc: Mr. William C. Arntz

STATE OF IDAHO
DIVISION OF BUDGET, POLICY PLANNING AND COORDINATION
BOISE, IDAHO 83720

CECIL D. ANDRUS
GOVERNOR

H. W. TURNER
ADMINISTRATOR

August 6, 1976

Federal Energy Administration
Petroleum Reserve Office
Washington, D. C. 20461

Att: Robert L. Davies, Director

Dear Mr. Davies:

The Idaho State Clearinghouse mailed copies of the draft administrative environmental impact statement on the Strategic Petroleum Reserve, SAI #00766975 to the following agencies for review and comment:

Dept. of Fish and Game - no comment
Idaho Office of Energy
Dept. of Health and Welfare, Div. of Environment
Dept. of Water Resources
Univ. of Idaho, Bureau of Mines and Geology - no comment

Although we received no comments and have none to offer, we appreciate the opportunity to review.

Thank you.

Sincerely,

Michelle Liebel

Michelle Liebel,
State Clearinghouse

lf

STATE OF ILLINOIS
EXECUTIVE OFFICE OF THE GOVERNOR
BUREAU OF THE BUDGET
SPRINGFIELD 62706

August 11, 1976

Mr. Robert L. Davies
Director, Strategic Petroleum
Reserve Office
Federal Energy Administration
1726 M Street, NW
Washington, D. C. 20461

RE: Draft Environmental Impact Statement - Strategic Petroleum Reserve
DEIS #76-07-091

Dear Mr. Davies:

Pursuant to the National Environmental Policy Act (NEPA) and the established rules and procedures for its implementation and in accordance with OMB Circular A-95 (revised) and the administrative policy of the State, the Illinois State Clearinghouse has no comment concerning the referenced subject.

It is requested that a copy of the final Statement be sent to the State Clearinghouse. Thank you for your cooperation.

Respectfully,

T. E. Hornbacker
State Clearinghouse Coordinator

TEH:mc

Indiana State Clearinghouse
State Budget Agency
212 State House
Indianapolis, Indiana 46204

Clearinghouse Use Only
St. Identification No.
7607190000
Date Received
7-8-76
Review Terminated
7-20-76

AUTHORIZATION TO FILE APPLICATION

TO: Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration

PROJECT: Environmental Impact Statement on the Petroleum Reserve

FEA
Federal Program Title; Agency and FDA Catalog No.

Amount of Funds Requested

The State Clearinghouse has reviewed the summary notification pertaining to the above project. With regard to the summary notification, the Clearinghouse makes the following disposition concerning this application:

_____ The proposed project is in accord with State plans, goals, and objectives at this time.

__X__ No comments at this time.

You may now complete and file your formal application with the appropriate Federal Agency. This form, with comments if any, is to be attached to that application, and the lower portion of this form is to be completed by you, detached, and returned to the State Clearinghouse when the formal application is submitted.

Sally Corn
Signature (Mrs. Sally Corn)
State Clearinghouse Reviewer — July 20, 1976
Title — Date

Indiana State Clearinghouse
State Budget Agency
212 State House
Indianapolis, Indiana

St. Identification No. 7607190000

The formal application for EIS on the Petroleum Reserve (Name of Project) was submitted to the FE on _____ by _____
Federal Agency — Date — Name of Applicant

Signature

STATE OF IOWA

Office for Planning and Programming

523 East 12th Street, Des Moines, Iowa 50319 Telephone 515/281-3711

ROBERT D. RAY
Governor

ROBERT F. TYSON
Director

STATE CLEARINGHOUSE

PROJECT NOTIFICATION AND REVIEW SIGNOFF

Date Received: June 30, 1976 State Application Identifier: 770010

Review Completed: August 19, 1976

APPLICANT PROJECT TITLE:
Draft Environmental Impact Statement, Strategic Petroleum Reserve

APPLICANT AGENCY: Federal Energy Administration
Address Washington, D. C. 20461
Attention: Robert L. Davies

FEDERAL PROGRAM TITLE, AGENCY AND CATALOG NUMBER: Federal Energy Administration

AMOUNT OF FUNDS REQUESTED:
NA

PROJECT DESCRIPTION:
This is the Draft Environmental Impact Statement on the Strategic Petroleum Reserve. Creation of the Reserve was mandated by Title I, Part B of the Energy Policy and Conservation Act of 1975. Its purpose is to mitigate the economic impacts of any future interruptions of petroleum imports.

The State Clearinghouse makes the following disposition concerning this application:

/X/ No Comment Necessary. The application must be submitted as received by the Clearinghouse with this form attached as evidence that the required review has been performed.

/ / Comments are Attached. The application must be submitted with this form plus the attached comments as evidence that the required review has been performed.

STATE CLEARINGHOUSE COMMENTS:

CH-14 Rev. 9-75

A. Thomas Wallace ss
Federal Funds Coordinator

ROBERT D. BELL
SECRETARY

JULIAN M. CARROLL
GOVERNOR

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
OFFICE OF THE SECRETARY
FRANKFORT, KENTUCKY 40601
TELEPHONE (502) 564-3350

September 8, 1976

Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

RE: Draft Environmental Impact Statement - Strategic Petroleum Reserve (76-29)

Dear Sir:

Please acknowledge the following late comments on the above listed Draft Environmental Impact Statement. The state archaeologist states:

> "I appreciate the opportunity to review the referenced draft environmental impact statement. While it does not specifically deal with areas located within the Commonwealth of Kentucky, the measures which it proposed for dealing with impacts upon archaeological properties are indeed relevant inasmuch as they should be uniform in their applicability to all of the United States. I have only one comment to make on those measures which I find, for the most part, explicit and in keeping with the procedures and practices followed by this office.
>
> On page VI-37, Sec. f., Required Procedures for Protecting Historical and Archaeological Resources, it stipulates that "all properties included or eligible for inclusion in the National Register should be inventories" within potential impact areas. This process of identification will, of necessity, involve on the ground survey of these impact areas. In the case of properties of archaeological significance, it is the stipulation of this office that this survey, and evaluation for inclusion on the Register, be performed by

competent, professional archaeologists. It is my recommendation that this point be emphasized in the draft statement where it is not emphasized in the present draft."

Sincerely,

Andrew Cammack, Review
and Communications Coordinator

AC:tlc

MARYLAND
DEPARTMENT OF STATE PLANNING
301 WEST PRESTON STREET
BALTIMORE, MARYLAND 21201
TELEPHONE: 301-383-2451

MARVIN MANDEL
GOVERNOR

VLADIMIR A. WAHBE
SECRETARY OF STATE PLANNING

August 9, 1976

Mr. Robert L. Davies
Director, Strategic Petroleum
Reserve Office
Federal Energy Administration
Washington, D. C. 20461

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT REVIEW

Applicant: Federal Energy Administration

Project: Draft EIS - Creation of Strategic Petroleum Reserve

State Clearinghouse Control Number: 77-7-2

State Clearinghouse Contact: Warren D. Hodges (383-2467)

Dear Mr. Davies:

The State Clearinghouse has reviewed the above statement. In accordance with the procedures established by the Office of Management and Budget Circular A-95, the State Clearinghouse received comments from the:

Department of Natural Resources, Environmental Health Administration, Department of Economic and Community Development and our staff noting that the statement appears to adequately cover those areas of major interest to their agencies. The Natural Resources and the Environmental Health agencies also supplied (copies attached) comments which might be of use in the preparation of final statement.

We appreciate your attention to the A-95 review process and we look forward to continued cooperation with your agency.

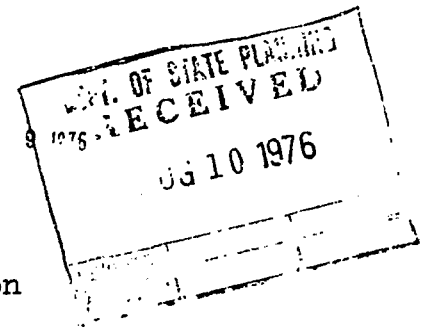
Sincerely,

Vladimir Wahbe

Attachments

cc: Harry Silberman
Donald Noren
Edward Symes
Bernice Payne
Lois Gilliam

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201



Date: AUG 9 1976

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT REVIEW

Applicant: Federal Energy Administration

Project: Draft EIS - Creation of Strategic Petroleum Reserve

State Clearinghouse Control Number: 77-7-2

We have reviewed the above draft environmental impact statement and our comments as to the adequacy of treatment of physical, ecological, and sociological effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:		See attached
2. Additional alternatives which should be considered:	X	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	X	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	X	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:		See attached
6. We identify issues which require further discussion of resolution as shown:	X	

Signature [signature]

Title Director, Environmental Health Administration

Agency Dept. of Health and Mental Hygiene

cc: Mr. Ferreri
Mr. Clise

Comments for: Draft EIS - Creation of Strategic Petroleum Reserve
No. 77-7-2

1. Specific effects requiring address on the type of product to be stored, how it will be stored and where it will be stored.

5. Environmental impact ranges from none for residual oil storage to severe for crude oil storage.

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

Date: July 12, 1976

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT REVIEW

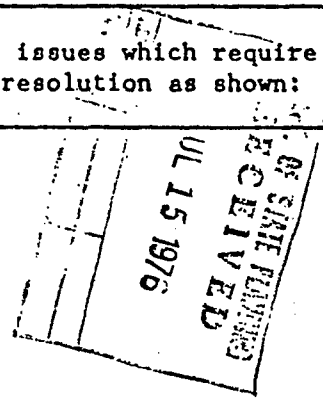
Applicant: Federal Energy Administration

Project: Draft EIS - Creation of Strategic Petroleum Reserve

State Clearinghouse Control Number: 77-7-2

We have reviewed the above draft environmental impact statement and our comments as to the adequacy of treatment of physical, ecological, and sociological effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:	X	
2. Additional alternatives which should be considered:	X	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	X	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	X	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:	X	
6. We identify issues which require further discussion of resolution as shown:		✓



Signature [signature]

Title Director

Agency Coastal Zone Management Program, E&CZ.

Henry Silbermann

JAMES B. COULTER
SECRETARY

STATE OF MARYLAND

LOUIS N. PHIPPS, JR.
DEPUTY SECRETARY

DEPARTMENT OF NATURAL RESOURCES
ENERGY & COASTAL ZONE ADMINISTRATION
TAWES STATE OFFICE BUILDING
ANNAPOLIS 21401

July 12, 1976

MEMORANDUM

TO: Henry Silbermann

FROM: Ken Perkins KP

SUBJ: Clearinghouse Project No. 77-7-2

CZM staff detected an error in the Table on page I-12 of the DEIS on the Creation of Strategic Petroleum Reserve. The entry for employment associated with conventional storage tanks should conform with the discussion of employment located on page III-97. The entry "20,000" should probably read "200".

CZM staff have reviewed the subject DEIS as generic statement and have found it to be generally adequate. When specific sites are selected for the location of the reserves, the site specific environmental impacts must be considered.

KP:dls

THE COMMONWEALTH OF MASSACHUSETTS

OFFICE OF STATE PLANNING
JOHN W. McCORMACK BUILDING ROOM 2101
ONE ASHBURTON PLACE
BOSTON, MASSACHUSETTS 02108
(617) 727-5066

MICHAEL S. DUKAKIS
GOVERNOR

FRANK T. KEEFE
DIRECTOR

August 11, 1976

Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M Street, NW
Washington, DC 20461

Re: A-95 Review of the Draft Environmental Impact Statement
Strategic Petroleum Reserve
State Clearinghouse Identifier: 76070855

Dear Mr. Davies:

The Office of State Planning has completed its review of the Draft Environmental Impact Statement on the Strategic Petroleum Reserve.

We find the EIS to be adequate in its assessment of the environmental and economic impacts that could occur from the implementation of the legislation.

Sincerely,

Frank T. Keefe
Director of State Planning

STATE OF MISSISSIPPI

OFFICE OF THE GOVERNOR

CLIFF FINCH
GOVERNOR

GLENN A. SMITH
COORDINATOR OF FEDERAL-STATE-LOCAL PROGRAMS

August 10, 1976

Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M. Street, NW
Washington, DC 20461

Re: Clearinghouse No. 76070601

Dear Mr. Davies:

The enclosed letters from the Mississippi Fuel & Energy Management Commission, Research and Development Center and the Mississippi Geological Economic & Topographical Survey are forwarded to be incorporated as a part of the State of Mississippi response to the Draft Environmental Impact Statement on the "Strategic Petroleum Reserve".

This letter does not constitute final review. Considerable interest has been shown in this statement, so much so, that the Governor desires to have a special statement included as comments. This letter will be forwarded to reach your office no later than August 19, 1976.

Thank you for the opportunity to comment on this very important statement.

Sincerely,

Edward A. May, Jr.
Clearinghouse Director

EAM/amk
Enclosures

SUITE 400, WATKINS BLDG. • 510 GEORGE STREET • JACKSON 39201 • (601) 354-7570

MISSISSIPPI FUEL & ENERGY MANAGEMENT COMMISSION

1307 Woolfolk State Office Building
JACKSON, MISSISSIPPI 39202

August 5, 1976

CLIFF FINCH
GOVERNOR

GEORGE A. COCHRAN
STATE FUEL COORDINATOR

Mr. Edward A. May, Jr.
Clearinghouse Director
Federal-State Programs Office
15th Floor,Sillers Building
Jackson, Mississippi

Dear Mr. May,

Reference is to your Clearinghouse Number 76070601, Environmental Impact Statement-Strategic Petroleum Reserve.

I find a glaring deficiency in the EIS in that the writers obviously ignored the potential role that Mississippi could play in the salt dome storage program. This deficiency becomes even more obvious when one views Figure IV-9 on page IV-29.

In view of the statements on page II-9 concerning the RPR, the failure to consider Mississippi, which is in Region IV, in favor of Louisiana and Texas, which are in Region VI, leads me to believe that perhaps the proposed program has already become "site specific", thus the generalized nature of the EIS fails to meet NEPA requirements.

Sincerely,

George A. Cochran

George A. Cochran
State Fuel Coordinator

Save Energy and You Serve America!

RESEARCH AND DEVELOPMENT CENTER

August 5, 1976

Mr. Edward A. May, Jr., Director
State Clearinghouse for Federal Programs
Federal-State Programs Office
Fourth Floor, Watkins Building
Jackson, Mississippi 39201

Dear Mr. May:

Reference: Environmental Impact Statement -- Strategic Petroleum Reserve
State Clearinghouse Number 76070601, July 9, 1976

In response to your request, I offer the following comments regarding the referenced document:

1. Although FEA Region IV, in which Mississippi is the only state with appreciable salt dome capacity, is one of four Regions which import sufficient petroleum products, according to the Energy Policy and Conservation Act of 1975, to have a Regional Petroleum Reserve of 34 million barrels of petroleum, no such reserve is contemplated by the EIS within Mississippi or elsewhere within Region IV.

2. The proportion of refined petroleum products should be maximized in order (1) to allow the reserve to function notwithstanding attacks by an enemy on vulnerable refineries and (2) to make the reserve more quickly responsive to shortages.

3. Coverage of impact on transportation systems is inadequate and does not take into account the Tennessee-Tombigbee Waterway or locations of proposed deep water ports.

4. No consideration was given to the impact the reserves could have in improving the economy of Mississippi, the nation's poorest state.

5. No consideration was given to the impact that the reserves could, and probably will have as a result of industrial growth in their vicinity.

6. It is recommended that, as a reinforcement to the system of reserves, the U. S. adopt a policy and program for counter-embargoing the OPEC nations.

Thank you for the opportunity to offer these comments, which I hope will be useful.

Very truly yours,

W. Byron Long
Assistant Director

WBL:gcm

P.O. DRAWER 2470 · JACKSON, MISSISSIPPI 39205 (3825 RIDGEWOOD ROAD) PHONE 601-982-6606

MISSISSIPPI GEOLOGICAL ECONOMIC
&
TOPOGRAPHICAL SURVEY

SURVEY BOARD
THOMAS H. SPENCER, JACKSON
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WILLIAM H. MOORE
DIRECTOR AND STATE GEOLOGIST
ALVIN R. BICKER, JR.
SENIOR ADMINISTRATIVE GEOLOGIST

2525 N. WEST STREET
POST OFFICE BOX 4915
JACKSON, MISSISSIPPI 39216
(601) 354-6228

August 5, 1976

Mr. Edward A. May, Jr.
Assistant to the Coordinator
Federal-State Programs Clearinghouse
Suite 400, Watkins Building
510 George Street
Jackson, Mississippi 39201

RE: Strategic Petroleum Reserve - EIS
State Clearinghouse No. 76070601

Dear Mr. May:

I have reviewed with interest the above referenced Environmental Impact Statement Draft, and would like to offer the following comments for consideration by the State of Mississippi.

We tend to favor subsurface storage of these products wherever possible, as opposed to a surface tank farm so as to lessen the impact on land use. Subsurface storage would, also, provide for greater protection against storm, fire, and sabotage.

It was mentioned that deep-well injection is a common method for disposing of brines in the Gulf Coast Region. This has been done in Mississippi and in a few cases a fresh-water aquifer has become contaminated. If a salt dome storage facility is planned in this State, we are certainly interested in seeing adequate care is taken for the protection of the aquifers containing potable water. If disposal in the Gulf of Mexico can be done safely and economically, this method would eliminate the possibility of fresh-water contamination in the subsurface.

There are numerous salt domes in Mississippi north and east of the depicted area on the map on page IV-3, but still within proximity of the ports (even the proposed deep-water port) on the Gulf Coast. We feel this State has a greater potential for participating in this program, if it is implemented, than is suggested in the draft. Figure IV-2 on page IV-4 shows this fact more clearly.

Most of the geologic and seismicity discussions appear to omit or treat very lightly the area of South Mississippi.

The section on mineral resources omits mentioning the bentonite and limestone being mined in South Mississippi.

Figure IV-8 on page IV-16 depicts the Pearl River as being in the "area of interest," but no streamflow data are listed in the table on the same page. Perhaps the table should be re-titled, "Summary of Streamflow in Texas and Louisiana Gulf Coast Storage Region."

Table II-2 on page II-8 shows the ten regions in which the country has been divided. Mississippi is shown to be in Region IV. The discussion on page II-9 concerning these regions states that Region IV is among those which have to import more than 20% of their petroleum products. Texas and Louisiana are not indicated to be in an importing region. The first sentence on page II-9 states, "The Regional Petroleum Reserve is designed to provide three months protection to FEA Regions wherein imports satisfied at least 20% of demand for refined petroleum products." In view of this policy, it is not clearly understood why Texas and Louisiana are given such apparent priority with regard to facilities of this type. Why not store these products where the shortages will first appear, if the stated purpose of the reserve is to mitigate the economic impacts of any future interruptions of petroleum products?

It doesn't appear sensible to pump domestic oil out of the ground and into a storage facility. We hope these storage facilities would be primarily used for imported oil.

If this agency can be of additional service, please contact us.

Sincerely yours,

MISSISSIPPI GEOLOGICAL SURVEY

John W. Green

John W. Green
Environmental Geologist

JWG/ns

STATE OF MISSISSIPPI
OFFICE OF THE GOVERNOR

Cliff Finch
GOVERNOR

Glenn A. Smith
COORDINATOR OF FEDERAL-STATE PROGRAMS

STATE CLEARINGHOUSE FOR FEDERAL PROGRAMS

TO: Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M. Street, N. W.
Washington, D. C. 20461

State Clearinghouse Number
76070601

Date: August 23, 1976

DRAFT ENVIRONMENTAL IMPACT STATEMENT: "Strategic Petroleum Reserve" DES 76-2.

(xx) 1. The State Clearinghouse has received a copy of the Draft EIS as noted above.

(---) 2. After proper notification, no State agency has expressed an interest in conferring with the applicant(s) or commenting on the proposed project.

(---) 3. The proposed project is: ( ) consistent ( ) inconsistent with an applicable State plan for Mississippi.

(xx) 4. Although there is no applicable State plan for Mississippi, the proposed project appears to be: (xx) consistent ( ) inconsistent with present State goals and policies as modified by the comments.

COMMENTS: The attached letter from Governor Cliff Finch is made a part of this final Clearinghouse action which represents the position of the State of Mississippi concerning this program.
This notice constitutes FINAL STATE CLEARINGHOUSE REVIEW AND COMMENT. The requirements of U. S. Office of Management and Budget Circular No. A-95 have been met at the State level.

cc All Planning & Development Districts
Gulf Regional Planning Commission

Edward A. May, Jr.
Clearinghouse Director

THE CAPITOL

JACKSON

CLIFF FINCH
GOVERNOR

August 16, 1976

Federal Energy Administration
Strategic Petroleum Reserve Office
Washington, D. C.

Gentlemen:

Re: Strategic Petroleum Reserve -DEIS

The State of Mississippi transmits herewith the State agencies' comments on the captioned matter.

The underground storage of a Strategic Reserve should focus on foreign crude oil. It does not appear reasonable at this time to withdraw domestic reserves from the sub-surface at one point to be put in a salt dome or other structure at another location.

The draft does not give attention to the potential in Mississippi for strategic storage.

Sincerely,

CLIFF FINCH
GOVERNOR

CF:hg

Christopher S. Bond
Governor

J. Neil Nielsen
Commissioner

Mark L. Edelman
Deputy Commissioner

State of Missouri
OFFICE OF ADMINISTRATION
Jefferson City 65101

August 5, 1976

Mr. Robert L. Davies
Director
Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D.C. 20461

Dear Mr. Davies:

Subject: 76070046

The Division of Budget and Planning, as the designated State Clearinghouse, has coordinated a review of the above referred draft environmental impact statement with various concerned or affected state agencies pursuant to Section 102(2)(c) of the National Environmental Policy Act.

Enclosed please find the comments received. None of the other state agencies involved in the review had comments or recommendations to offer at this time.

We appreciate the opportunity to review the statement and anticipate receiving the final environmental impact statement when prepared.

Sincerely,

George Lineberry

George Lineberry
Chief, Grants Coordination

CHRISTOPHER S. BOND
GOVERNOR

JAMES L. WILSON
DIRECTOR

missouri department of natural resources

P.O. Box 176 Jefferson City, Missouri 65101 314-751-3332

July 19, 1976

Mr. George Lineberry
Office of Administration
Room B-9, Capitol Building
Jefferson City, Missouri 65101

RE: A-95 Review #76070046 - Federal Energy Administration - Draft EIS - Strategic Petroleum Reserve

Dear Mr. Lineberry:

The Department of Natural Resources has reviewed the above noted project and has the following comment.

Plans for any Missouri storage facilities should be submitted to the Air Quality Program of the Department of Natural Resources for review. This cooperation, or possibly required action, needs to take place well in advance of construction efforts.

Sincerely yours,

DEPARTMENT OF NATURAL RESOURCES

for James L. Wilson
Director

JLW:crp

CHRISTOPHER S. BOND
GOVERNOR

JAMES L. WILSON
DIRECTOR

missouri department of natural resources

P.O. Box 176 Jefferson City, Missouri 65101 314-751-3332

July 14, 1976

Please reply to:
P. O. Box 250
Rolla, MO 65401

Mr. Gene Wenzl
Federal Energy Administration
Box 2208
Kansas City, MO 64142

Dear Mr. Wenzl:

The following is in response to your request for our comments on the suitability of using the limestone mines in the greater Kansas City area for bulk oil storage. I have talked over your request with Dr. Wallace B. Howe, State Geologist, James H. Williams, Chief, Engineering Geology Section and Dale Fuller, Chief, Groundwater Section. In general, we are all in support of the concept of such usage for those mines not suitable for conversion to a higher value utilization.

The major problems which might be encountered are roof instability and ground and/or surface water contamination. Of the two, roof collapse would be the major problem. In general, collapse is related to the condition, thickness, and type of rock left in the roof, the type and thickness of overlying strata, and pillar size and spacing. In any case, this could be determined to a great degree during the mine survey.

The possibilities for groundwater pollution are slight. The main area for concern is the alluvial water of the Missouri River floodplain. Studies by Fenix and Scisson at the Kansas City Quarry and the observations of Mr. Dale Fuller, Chief of our Groundwater Section, indicate that this is unlikely to happen at least at this particular mine in Clay County which is adjacent to and slightly below the level of the floodplain. Groundwater in the bedrock of the area is in most cases mineralized and not an important factor. Surface water contamination would be from lateral seepage through the jointed shales which immediately underlie and overlie the limestone. The possibilities of lateral seepage could be determined during a site investigation.

Division of Geology and Land Survey
Dr. Wallace B. Howe, Director
State Geologist

In addition to the drive-in mines, there is also the future potential for storage in a deep mine such as is being developed by Centropolis. Also some of the large open pits quarries in the eastern part of the State might also be attractive if a proper cover such as a floating diaphragm were designed.

Mr. Williams of this office has sent the date of the hearing as well as your name to several people in the Kansas City area who are interested in development of the space. Possibly you have heard from them by now.

If there is need for additional information, feel free to call.

Yours truly,

James A. Martin, Chief
Mineral Resources
Geology and Land Survey

JAM/dsb

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

TRENTON 08625

OFFICE OF THE COMMISSIONER

24 September 1976

Federal Energy Administration
Strategic Petroleum Reserve Office
1726 M Street NW
Washington, DC 20461

ATTENTION: Mr. Stephen Ferguson - Room 330

Gentlemen:

The Department of Environmental Protection has reviewed the Draft Environmental Impact Statement - Strategic Petroleum Reserves. It is our determination that there is little substantive information to determine site specific environmental impacts. However, there are a number of inadequacies on a programmatic basis that immediately present themselves.

In order to implement the proposed plan there should be a means for identification and setting of criteria for selecting existing storage facilities to satisfy the minimum 150 MMB storage. This was not addressed in the Draft. Additionally, the timing of the construction program was not discussed (how many tank farms per year per region). Also, the allocation and distribution of petroleum during an actual embargo.

Conservation is addressed as an alternative in a perfunctory manner (only 6 pages out of about 600 were devoted to the subject). It should be discussed in greater detail since conservation could possibly reduce the volume of petroleum presently mandated for storage.

Use of existing facilities for long term storage or the conversion of existing facilities to the new use was not adequately addressed -- which would be an option that New Jersey should investigate.

The Final EIS should specify on a state basis the number of facilities that states may be required to accommodate, rather than by FEA region, so that states may factor these into their overall land and coastal planning. The Final EIS notes that only 72 MMB of petroleum will have to be stored in Region II; how much of this will be in New Jersey was not specified.

While this is clearly a program national in scope with Federal preemption implications, the extent to which FEA will impose its Federal prerogatives on local land use decisions needs to be made more explicit. This is important for New Jersey which has already been called the tank farm state and whose residents may be opposed to more tank farms.

Feasibility of pipelining reserve petroleum from Gulf of Mexico to Region II was addressed but not explored in detail. This is an option which New Jersey should explore to minimize impacts since it simply may not be able to accommodate all the tank farms proposed in its industrial areas and be unwilling to sacrifice its rural areas for this new program which FEA estimated would have the following secondary impacts:

Siting and location of several 10 MMB unit storage facilities could pose considerable problems in New Jersey because of the need to simultaneously site the facilities close to ports which would deliver the petroleum and near to existing pipelines from which the petroleum would be distributed in the region. This would indicate that these tank farms be located in existing industrial areas. Where farms were constructed in rural areas, the need would arise to create an infrastructure to link the tanks to existing pipelines and to incoming petroleum tankers and to establish an efficient method to distribute the stored oil to the market during the planned-for energy.

For New Jersey which is already heavily impacted by industry, this program would have considerable impact both during the construction and operational phase in terms of accelerating environmental degradation (air pollution from hydrocarbon emissions, groundwater contamination from oil seepage, noise during construction, adverse viausl impacts and preemption of hundreds of acres for the 72 MMB that will be stored). The possibility of oil spills from tanker traffic would also be increased.

Because of its programmatic nature, the Draft EIS does not contain data suitable for technical analysis as done for site-specific projects. If storage facilities are constructed or vacant facilities are put into use in New Jersey, hydrocarbon,

particulates, and sulfur dioxide emissions would be expected to increase. Any increases of hydrocarbon emissions are inconsistent with the present strategies of the State Implementation Plan of New Jersey. Increases of particulates and sulfur dioxide emissions should not lead to any new violations of the standards or exacerbate existing violations. Energy conservation and increased domestic energy supply measures should be an integral part of the reserve program.

Once operational, the tank farms will need to be maintained, condensate collected and drained off regularly, fire protection provided and a monitoring program enacted. Danger of a catastrophic accident cannot be ruled out.

Sincerely yours,

Lawrence Schmidt, Chief
Office of Environmental Review

LS:mm

OFFICE
OF
PLANNING
AND
PROGRAMMING

STATE OF NEBRASKA

BOX 94601 · STATE CAPITOL · LINCOLN, NEBRASKA · 68509 · (402) 471-2414

Governor J. James Exon
State Planning Officer

W. Don Nelson
Director

July 26, 1976

Robert L. Davies
Director, Strategic
Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

Dear Mr. Davies:

Project 76 06 30 72
Strategic Petroleum Reserve

Under the provisions of OMB Circular A-95, this office has completed a state level review of the subject Environmental Impact Statement.

The proposed program does not appear to be in conflict with any state level comprehensive plans.

This letter completes the state clearinghouse review.

Sincerely,

Warren G. White
Natural Resources Coordinator

WGW:jdb

STATE OF NEW MEXICO

STATE PLANNING OFFICE

GRACIELA (GRACE) OLIVAREZ
STATE PLANNING OFFICER

EXECUTIVE - LEGISLATIVE BUILDING
SANTA FE 87503
(505) 827-2315

JERRY APODACA
GOVERNOR

July 22, 1976

Strategic Petroleum Reserves Office
Federal Energy Administration
1726 M. Street, N.W.
Washington, D.C. 20461

RE: Draft Environmental Impact Statement, Strategic Petroleum Reserve, DES 76-2, June 1976

Dear Sirs:

Thank you for the opportunity to review subject Impact Statement. We have no comments at this time, but will appreciate you keeping us informed as developments on the project proceed.

Sincerely,

Jack M. Mobley, Planner II
Division of Natural Resources

JMM:anne

North Carolina Department of Administration

JAMES E. HOLSHOUSER, JR., GOVERNOR ● BRUCE A. LENTZ, SECRETARY

OFFICE OF INTERGOVERNMENTAL RELATIONS

EDWIN DECKARD
DIRECTOR

August 6, 1976

Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

Dear Mr. Davies:

Re: Draft Environmental Impact Statement Strategic Petroleum Reserve; SCH File Number 097-76

The State Clearinghouse has received and reviewed the above referenced project. As a result of this review, the State Clearinghouse finds that no comment is necessary on this project at time.

Sincerely,

Jane Pettus (Miss)
Clearinghouse Supervisor

JSP:mw

116 WEST JONES STREET RALEIGH 27603 (919) 829-2594

NORTH DAKOTA STATE PLANNING DIVISION

STATE CAPITOL—FOURTH FLOOR—BISMARCK, NORTH DAKOTA 58505
701 224-2818

July 30, 1976

STATE INTERGOVERNMENTAL CLEARINGHOUSE "LETTER OF COMMENT"
ON PROJECT REVIEW IN CONFORMANCE WITH OMB CIRCULAR NO. A-95

To: Federal Energy Administration

STATE APPLICATION IDENTIFIER: 7606309450

Mr. Steven E. Ferguson
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M Street, NW
Washington, D.C. 20461

Dear Mr. Ferguson:

Subject: Draft Environmental Impact Statement by the Federal Energy Administration on the Strategic Petroleum Reserve.

This Draft EIS was received in our office on June 30, 1976.

In the process of the A-95 review, the attached comments were received from the ND Wildlife Federation, State Geologist, and the North Dakota Geological Survey.

This document and attachments constitute the comment of the State Intergovernmental Clearinghouse, made in compliance with OMB Circular No. A-95.

Sincerely yours,

Lonnie A. Banks

Mrs. Leonard E. Banks
Associate Planner

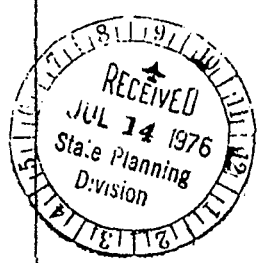
LEB/ds

Attachments

NDSIC FORM B (9/71)

PNRS NO.

Date Received



FROM: STATE INTERGOVERNMENTAL CLEARINGHOUSE
STATE PLANNING DIVISION
STATE CAPITOL
BISMARCK, NORTH DAKOTA 58501

ENVIRONMENTAL IMPACT STATEMENT TO BE REVIEWED

TO: Ms. Betty Morgan
ND Wildlife Federation
Bismarck, ND 58501

ISSUED BY: Federal Energy Administration

DATE: July 2, 1976

NAME OF PROJECT: Draft EIS - Strategic Petroleum Reserve

The attached Environmental Impact Statement is referred to your agency for review and possible comments. If you consider it satisfactory, please check the box labeled, "no comment." Otherwise, please check one of the other appropriate boxes. Your cooperation is asked in completing this memo and returning it to the State Intergovernmental Clearinghouse within 10 days from date of receipt. If no response is received within 15 days of date of notification it will be assumed you have no comment.

☐ No comment

☐ Meeting desired with applicant

☐ Comments submitted herewith

..... WE ARE MAKING AN ATTEMPT TO COMMENT .....

1. Specific comments which are to be attached to the review statement which will be submitted by the State Intergovernmental Clearinghouse: (Use reverse side or separate sheets if necessary)

2. Reasons why meeting is desired with applicant:

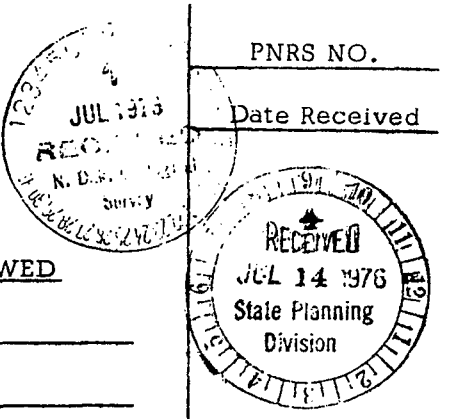
Reviewer's Signature: H. R. Morgan Date: 7-13-76

Title: Chairman, Energy and Environment Committee Tele: 223-8384

NDSIC FORM B (9/71)

PNRS NO.

Date Received



FROM: STATE INTERGOVERNMENTAL CLEARINGHOUSE
STATE PLANNING DIVISION
STATE CAPITOL
BISMARCK, NORTH DAKOTA 58501

ENVIRONMENTAL IMPACT STATEMENT TO BE REVIEWED

TO: Dr. Ed Noble
State Geologist
Grand Forks, ND 58201

ISSUED BY: Federal Energy Administration

DATE: July 2, 1976

NAME OF PROJECT: ~~Draft EIS - Strategic Petroleum Reserve~~

The attached Environmental Impact Statement is referred to your agency for review and possible comments. If you consider it satisfactory, please check the box labeled, "no comment." Otherwise, please check one of the other appropriate boxes. Your cooperation is asked in completing this memo and returning it to the State Intergovernmental Clearinghouse within 10 days from date of receipt. If no response is received within 15 days of date of notification it will be assumed you have no comment.

☐ No comment

☐ Meeting desired with applicant

☐ Comments submitted herewith

1. Specific comments which are to be attached to the review statement which will be submitted by the State Intergovernmental Clearinghouse: (Use reverse side or separate sheets if necessary)

We have no comment at this time; however, when and if North Dakota salt cavity storage is considered, we will have extensive questions and comments.

2. Reasons why meeting is desired with applicant:

Reviewer's Signature: Leo Kuhn Date: July 13, 1976

Title: Assistant State Geologist Tele: 777-2231

NDSIC FORM B (9/71)

PNRS NO.

Date Received

RECEIVED JUL 21 1976 State Planning Division

FROM: STATE INTERGOVERNMENTAL CLEARINGHOUSE
STATE PLANNING DIVISION
STATE CAPITOL
BISMARCK, NORTH DAKOTA 58501

ENVIRONMENTAL IMPACT STATEMENT TO BE REVIEWED

TO: Mr. Erling Brostuen
ND Geological Survey
Williston, ND 58801

ISSUED BY: Federal Energy Administration

DATE: July 2, 1976

NAME OF PROJECT: Draft EIS - Strategic Petroleum Reserve

The attached Environmental Impact Statement is referred to your agency for review and possible comments. If you consider it satisfactory, please check the box labeled, "no comment." Otherwise, please check one of the other appropriate boxes. Your cooperation is asked in completing this memo and returning it to the State Intergovernmental Clearinghouse within 10 days from date of receipt. If no response is received within 15 days of date of notification it will be assumed you have no comment.

☐ No comment

☐ Meeting desired with applicant

☑ Comments submitted herewith

. . . . . .

1. Specific comments which are to be attached to the review statement which will be submitted by the State Intergovernmental Clearinghouse: (Use reverse side or separate sheets if necessary) See back.

2. Reasons why meeting is desired with applicant:

Reviewer's Signature: Erling A Brostuen Date: July 16, 1976

Title: Geologist Tele: 77031

1. The development of a strategic petroleum reserve (SPR) is vital to our economic and national security.
   a. Minimizes the possibility of economic blackmail by Oil Cartel Countries.
   b. Provides a strategic reserve in the event of a national emergency.
2. Alternatives should be developed in conjunction with SPR, particularly the encouragement of exploration for onshore oil.
3. Subsurface (salt cavern) storage should be developed.
   a. Technology already available.
   b. Less vulnerable in the event of a national emergency.
   c. With proper equipment and operating practices, the hazards of oil spills and pollution by salt water can be essentially eliminated.
4. Operations should be expanded to include salt cavern storage along the proposed Northern Tier Pipeline to assure a supply of crude to northern refineries.

State of Ohio Environmental Protection Agency, Box 1049, 361 East Broad Street, Columbus, Ohio 43216 (614) 466-8565

August 17, 1976

James A. Rhodes
Governor
Ned E. Williams, P.E.
Director

Re: Draft EIS - Strategic Petroleum Reserve - FEA

OhioEPA

Mr. Robert L. Davies
Director Strategic
Petroleum Reserve Office
Federal Energy Administration
1726 M Street, NW
Washington, DC 20461

Dear Mr. Davies:

The Ohio Environmental Protection Agency, acting as lead agency and review coordinator on Federal Environmental Impact Statements, has solicited comments from other State Agencies on the adequacy of the above referenced document. Comments were received from sections of this Agency and the Ohio Department of Natural Resources. All commenting reviewers felt that the Draft EIS was quite thorough and very well done. Developed as a programmatic impact statement, the document has insured consideration of the cumulative impacts of the actious proposed.

The FEA, as well as other Federal Agencies, would benefit greatly in producing more documents such as this on other programs which, when taken together, produce cumulative impacts not forseen during production of individual impact statements.

We appreciate the opportunity to review the Draft EIS.

Very truly yours,

Ned E. Williams, P.E.
Director

NED/cm

STATE OF OKLAHOMA

State Grant-In-Aid Clearinghouse

5500 N. WESTERN • OKLAHOMA CITY, OKLAHOMA 73118 • PHONE (405) 840-2811

August 10, 1976

Mr. Robert L. Davies
Director, Strategic
Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

RE: 01G603--Draft EIS Strategic Petroleum Reserve

Dear Mr. Davies:

The environmental information for the above referenced project has been reviewed in accordance with OMB Circular A-95 and Section 102 (2) (C) of the National Environmental Policy Act by the state agencies charged with enforcing environmental standards in the State of Oklahoma.

The state agencies, comprising the Pollution Control Coordinating Board, have reviewed the proposed project and agree that no adverse environmental impact is anticipated. Therefore, the state clearinghouse requires no further review.

Sincerely,

Don N. Strain
Director

DNS:mt

ROBERT W. STRAUB
GOVERNOR

Executive Department
INTERGOVERNMENTAL RELATIONS DIVISION
240 COTTAGE STREET S.E., SALEM, OREGON 97310

August 17, 1976

Mr. Robert L. Davies
Director, Strategic
Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

Dear Mr. Davies:

Re: Strategic Petroleum Reserve
PNRS #7607 4 120

Thank you for submitting your draft Environmental Impact Statement for State of Oregon review and comment.

Your draft was referred to the appropriate state agencies. The consensus among reviewing agencies was that the draft adequately described the environmental impact of your proposal.

We will expect to receive copies of the final statement as required by Council of Environmental Quality Guidelines.

Sincerely,

William H Young

William H. Young
Administrator

WHY:lg

Commonwealth
of
Pennsylvania

GOVERNOR'S OFFICE
OFFICE OF THE BUDGET

Pennsylvania State Clearinghouse

P.O. BOX 1323 – HARRISBURG, PA. 17120 – (717) 787-8046
783-3133

September 22, 1976

P.S.C. APPLICATION IDENTIFIER # 76073003

APPLICANT NAME: Federal Energy Administration

PROGRAM NUMBER/TITLE: Strategic Petroleum Reserve

AREA OF PROJECT IMPACT:

The Governor's Budget Office, as the State Clearinghouse for the Commonwealth of Pennsylvania, certifies that in regard to the above referenced application, the applicant has complied with the requirements of OMB Circular A-95 Revised, Attachment A, Part I: Project Notification and Review System by notifying the State Clearinghouse of its intention to submit this application for a Federal grant-in-aid.

This application was sent to the agencies listed below to acquire their review and comment on same. An asterisk (*) preceding the name of a reviewing agency indicates that a comment was made by that agency on this application and said comment is attached hereto. The comments made by the reviewing agencies are intended to strengthen the objectives of this application and should be incorporated into the substance thereof. If you have any questions concerning these comments, then please call the State Clearinghouse for clarification. A copy of this transmittal and all attached comments must accompany this application when submitted to the Federal Government for funding.

*Dept. of Labor and Industry, *Dept. of Commerce, *Dept. of Environmental Resources, *Office of State Planning and Development,

In conclusion, the Pennsylvania State Clearinghouse is pleased to recommend Federal approval of this application.

Sincerely,

Greta M. Line

Mrs. Greta M. Line, Supervisor
Pennsylvania State Clearinghouse

Federal Energy Administration
New Post Office Building
12th Street and Pennsylvania Avenue
Washington, D.C. 20461

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES

The Secretary

P O BOX 1467

HARRISBURG, PENNSYLVANIA 17120

September 8, 1976

SUBJECT: Review and Evaluation of PSCH No.: 76-07-3-003
DEIS - Strategic Petroleum Reserve
Statewide

TO: Greta M. Line, Supervisor
Pennsylvania State Clearinghouse

FROM: MAURICE K. GODDARD
Secretary of Environmental Resources

This project has been evaluated on the basis of the actions proposed in the applicant's submission. Any changes made by the applicant subsequent to and not in keeping with our recommendations will require a new submission through the Pennsylvania State Clearinghouse. The Department retains an interest in this project. Inquiries concerning the following comments should be directed to Keith R. Gentzler, Chief, Division of Coordination, Office of Planning and Research, Department of Environmental Resources, P.O. Box 2357, Harrisburg, Pennsylvania, 17120. Phone: (717) 783-1334.

The Department of Environmental Resources recommends approval of this project with the understanding that the following conditions will be met:

(1) The Draft EIS discusses the proposed development of storage facilities for petroleum products by three different types; solution-mined cavities in salt, conventional underground mines and aboveground tankage. Storage of petroleum will occur mainly in two geographical areas; the Gulf Coast region and the East Coast region. Our Department's concern is with the East Coast region. Aboveground tanks are intended to be the main type of storage in this region.

(2) The proposed project will involve major construction work and conscientious use of good construction practices must be made for minimizing air and noise pollution. Operation of the storage tanks will cause hydrocarbon emissions. These must be controlled by use of floating roofs and vapor recovery systems as specified in Chapter 129 of the Rules and Regulations of the Department of Environmental Resources.

Continued

(3) Noise levels caused by construction and operation of storage tanks will be significant. Maximum effort should be made to minimize unnecessary machinery useage especially in residential areas.

(4) Mined areas often have fractures and channels connecting the mine with ground water supplies. Each specific mine site considered for petroleum storage should be evaluated to determine the possibility of ground water contamination. There already exists in the Philadelphia area, under private ownership, a most successful underground storage facility of petroleum products. The success of that facility clearly demonstrates the feasibility of both the geological and technical conditions for major petroleum reserve storage in eastern Pennsylvania. Specific site information is not contained in the Draft EIS. If the proposed project is funded, each site would have to be evaluated and considered separately.

OA-501 12-67

COMMONWEALTH OF PENNSYLVANIA

July 27, 1976

SUBJECT: P.S.C. #76-07-3-003

JUL 28 1976

TO: Pennsylvania State Clearinghouse
ATTENTION: Greta M. Line, Supervisor

FROM: Albert E. Smigel, Special Assistant for
Economic Affairs
Office of State Planning and Development

The Environmental Impact Statement Draft - DES 76-2, June, 1976, seems to call for little or no response from Pennsylvania. In substantiation of this statement, please note VI-39 - "principal states involved with the Strategic Storage Problem", and Table VI-5 on page VI-40, which lists 13 "State Land Use Programs (Sept. 1974)" and does not include Pennsylvania. I infer that either it is assumed that we do not have a land use program and/or we are not a "principal" state insofar as the Stockpile Program is concerned.

Given the seven facility types (I-12), Pennsylvania would be considered, if at all, for "new non-salt mines" (which limits us to rather limited bed-rock storage) and "conventional storage tanks". There are two unmentioned possibilities - above the water table abandoned coal mines and abandoned phosphate mines. These could accommodate only container storage.

If, as suggested in I-12, we were to put 10 million barrels above ground, the barrel cost alone would be about $120 millions. ($10 per 42-gallon barrel. Larger size barrels would be harder and more dangerous to handle, as well as presenting greater pollution potential.)

The volume of the barrels alone (with no account taken of aisleways, etc.) would be approximately 53 million cubic feet.

The weight of barrels and contents would be about 1.75 million tons.

The logistics problem for barrel/tank storage is formidable. What concerns me even more is the worthwhileness of the whole program. The initial stage which is slated for 1978 implementation (itself a highly dubious time projection) is supposed to store 150 million barrels. Based on current consumption, this is only a 9-day stockpile. Is this really a significant program? The cost certainly is significant.

The second stage projects 500 million barrels by 1982, much less than a 30-day supply by 1982. This "review and comment" is not the place to expand on the constraints and huge cost of this program. The cost/benefit ratio, in my judgment, is unfavorable. If these dollars were dedicated to coal gasification and liquefaction, I believe the benefits would be much greater.

AES/bcb

AUG 20 1976

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF LABOR AND INDUSTRY
HARRISBURG 17120

OFFICE OF THE SECRETARY

August 18, 1976

Miss Rosemary White
Project Review Coordinator
Pennsylvania State Clearinghouse
P. O. Box 1323
Harrisburg, Pennsylvania 17120

Dear Miss White:

Re: Pennsylvania State Clearinghouse
A-95 Review and Comment Request
P.S.C. # 76-07-3-003

Thank you for my review copy of the Draft Environmental Impact Statement DES 76-2 in the matter of Strategic Petroleum Reserve issued by the Federal Energy Administration. You solicited my comments.

I found the document very comprehensive and absorbing. Its content is well presented and substantiated and it is reassuring to know that the forces of Government are diligently seeking solutions to our oil dilemma.

I am sure that of the various methods presented for oil storage only those which produce a minimum effect on our environment and atmosphere will be selected.

Again, thank you.

Sincerely,

Paul J. Smith

Paul J. Smith

OA-501 12-68 AUG 05 1976

COMMONWEALTH OF PENNSYLVANIA

Department of Commerce
August 3, 1976

SUBJECT: PSCH # 76-07-3-003
Strategic Petroleum Reserve

TO: Rosemary White
Project Review Coordinator
Governor's Budget Office

FROM: Charles S. Welsh
Deputy Secretary
Department of Commerce

Charles S. Welsh

The Department of Commerce, Bureau of Appalachian Development, has reviewed the Strategic Petroleum Impact Statement DES 76-2, June 1976, and has no adverse comments relating to the proposal.

This proposal seems to have covered all areas of concern and interest in and with the industry and environment involved with petroleum.

FLM/ems

STATE PLANNING BUREAU
State Capitol
Pierre, South Dakota 57501
605/224-3661

SOUTH DAKOTA Office of
Executive Management

August 12, 1976

Robert L. Davies
Director, Strategic
Petroleum Reserve Office
Federal Energy Administration
Washington, D.C. 20461

RE: Draft administrative environmental impact statement on the Strategic Petroleum Reserve.

Dear Mr. Davies:

The S.D. State Planning Bureau has completed review of the subject project.

The following agencies were invited to review and comment:

S.D. Energy Office
S.D. Department of Natural Resource Development
Planning and Development Districts I-VI
State Geological Survey
Department of Environmental Protection

Based upon the information contained in this report and responses of the above agencies, we have no adverse comments on the proposal at this time.

Sincerely,

Dan R. Bucks
Commissioner
STATE PLANNING BUREAU

DRB/pvk

OFFICE OF THE GOVERNOR

DOLPH BRISCOE
GOVERNOR

September 20, 1976

Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

Dear Mr. Davies:

In accordance with the National Environmental Policy Act of 1969 and the Texas Policy for the Environment, the draft Environmental Impact Statement on the Strategic Petroleum Reserve program has been reviewed by the Budget and Planning Office and by interested and affected State agencies.

The enclosed comments of the reviewing agencies should be considered in their entirety. The following is a brief summary of their comments:

1. The Governor's Energy Advisory Council recommended additional, specific effects of the Strategic Petroleum Program be assessed. The Council emphasized the need for assessing the effects of allocating "old" oil to the Strategic Petroleum Reserve, effects of participation in "entitlements" for the Strategic Petroleum Reserve, and effects of sealing inlets against oil spills. In addition, the Governor's Energy Advisory Council expressed concern over potential environmental damage, particularly in view of the problems of subsidence and the competition for surface water supplies in this part of the Gulf Coast.

2. The Texas Parks and Wildlife Department provided extensive comments and supplied additional information on wildlife, fisheries, and recreational resources. Additions and modifications to several tables on fish and wildlife resources were recommended. The Department suggested several other aspects of brine disposal be discussed. Taking steps to minimize the creation of obstacles for offshore shrimp trawling operations also was recommended.

3. The Texas Department of Health Resources recommended that sites for oil storage be carefully selected to minimized groundwater contamination. The Department offered several comments on noise criteria and anticipated noise levels; it also indicated that the noise impact area may be much greater than predicted in the draft Environmental Impact Statement.

EXECUTIVE OFFICE BUILDING • 411 WEST 13TH STREET • AUSTIN, TEXAS 78701

4. The Texas Water Rights Commission recommended a special plan be prepared to ensure the overall, uninterrupted technical, administrative, and operational custody in the phase build-up of the Strategic Reserve components. Also this agency suggested a special analysis of impacts on vested surface water rights be prepared.

5. The Texas Department of Agriculture stated that the assessment does not give sufficient weight to the environmental effects of washing out cavities in salt domes and the subsequent brine disposal. Further, the Department of Agriculture suggested that the "no action" alternative be given more serious consideration since the target completion date for the strategic oil reserve storage facilities will be at a point in the future when U.S. crude oil imports are expected to decrease.

6. The Texas Water Quality Board suggested the environmental assessment of groundwater quality and related economic aspects of brine disposal be expanded. The Board also noted that recent experiences in Texas showed that salt mines may not be structurally sound and, therefore, encouraged further investigation relative to the structural integrity of overburden at storage sites.

The comments of all reviewing agencies are provided to assist your planning effort. If this Office can be of further assistance, please contact us.

Sincerely,

Charles D. Travis, Director
Budget and Planning Office

Enclosures

Governor's Energy Advisory Council

7703 North Lamar P.O. Box 15286 Austin, Texas 78761 Phone (512) 475-5491

Alvin C. Askew
Executive Director

Joe E. Ventura
Associate Executive Director

August 3, 1976

Mr. Charles D. Travis
Budget and Planning Office
Office of the Governor
411 W. 13th
Austin, Texas 78701

Attn: State Clearinghouse

Dear Mr. Travis:

The following comments are offered on Items 1, 5 and 6 of the Agency Review Transmittal Sheet with regard to Draft Environmental Impact Statement: Strategic Petroleum Reserve, DES76-2-June-76:

ITEM 1: Additional Specific effects which should be assessed:

(a) Effect on allocating "old" oil to Strategic Petroleum Reserve if utilized (III-32)

(b) Effect of participation in "Entitlements" for Strategic Petroleum Reserve if utilized (III-32)

(c) Effect of sealing inlets against oil spills (VI-45)

ITEM 5: Our assessment of how serious the environment damage from this project might be, using the best alternative and control measures:

(a) Subsidence is a serious consideration in the Gulf Coast Area which militates strongly against use of ground water for "leaching" or "cycling".

(b) Water supply questions are very serious:
1. Competition with other water resource needs.
2. Depletion of available ground water supplies.
3. Reduction of aquifer volumes through compaction.

4. Potential encroachment of salinity.
5. Significant lowering of water tables from "leaching" or "cycling".

(These problems militate against use of ground water or fresh surface water)

(c) The potential damage from oil spills is serious and requires every possible protective measure.

ITEM 6: We identify issues which require further discussion or resolution:

Any of the above listed items might be the subject of further discussion or resolution either in connection with this impact statement or possibly more effectively in connection with site-specific impact statements to be presented later.

Sincerely,

Alvin C. Askew
Executive Director

ACA/RR/gl

AGENCY REVIEW TRANSMITTAL SHEET

TO: Charles D. Travis, Director
Budget and Planning Office
Office of the Governor
(Attention: State Clearinghouse)

Date: Sent : July 13, 1976

Date: Due : August 3, 1976

Refer: EIS -6-07-002

FROM: Mr. Alvin Askew, Governor's Energy Advisory Council

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT: STRATEGIC PETROLEUM RESERVE, DES76-2-June

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:		X
2. Additional alternatives which should be considered:	X	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	X	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	X	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:		X
6. We identify issues which require further discussion or resolution:		X

[X] This agency concurs with the implementation of this project.

[ ] This agency does not wish to comment on the subject document because:

Name & Title of Reviewing Official

Enclosure (s)

TEXAS
PARKS AND WILDLIFE DEPARTMENT

COMMISSIONERS

PEARCE JOHNSON
Chairman, Austin

JOE K. FULTON
Vice-Chairman, Lubbock

JACK R. STONE
Wells

COMMISSIONERS

BOB BURLESON
Temple

JOHN M. GREEN
Beaumont

LOUIS H. STUMBERG
San Antonio

CLAYTON T. GARRISON
EXECUTIVE DIRECTOR

JOHN H. REAGAN BUILDING
AUSTIN, TEXAS 78701

July 27, 1976

Mr. H. Anthony Breard, Coordinator
Natural Resources Section
Governor's Budget and Planning Office
Executive Office Building
411 West 13th Street
Austin, Texas 78701

Dear Mr. Breard:

Reference is made to the "Draft Environmental Impact Statement: Strategic Petroleum Reserve, DES76-2, June, 1976" which you forwarded to this agency for review and comment on July 12, 1976.

Review of the document has indicated that it is generally well presented and documented. With a few minor exceptions, the anticipated regional impacts of the proposed activity are adequately and clearly addressed in the statement.

The discussion and tabular data concerning the Federal Energy Administration regions within which the project is expected to be implemented (pages II-9 through II-11) could be clarified by the inclusion of a map which shows the boundaries of these regions. In the absence of such a map, it is difficult to interpret the information provided in the text and tables.

The discussion of energy requirements for implementing the project (sections I.F.7 and III.B.1.e) could be made more complete by including information on the amounts of energy required for transportation and refining of the crude oil reserves and the energy requirements for the construction and placement of equipment required for development and operation of the facilities.

Table IV-12 should be amended by omitting the pinfish and sea catfish from the list of important sports organisms of the Gulf Coast region since there is not an active sport fishery for those species.

It is recommended that the data presented in Table IV-13 be omitted and that more recent and complete data be substituted. These data are contained in a recent Texas Parks and Wildlife Department report entitled "Survey of Finfish Harvest in Selected Texas Bays" by T. L. Heffernan et al. A copy of this report is attached for use by the Federal Energy Administration in the revision of the draft.

The information given in Table IV-14 should be supplemented by the addition of species listed in the "Texas Parks and Wildlife Department Regulations for Taking, Possession, Transportation, Exportation, Processing, Sale or Offer for Sale, or Shipment of Endangered Fish or Wildlife Threatened with Extinction in Texas," a copy of which is attached.

The interaction matrix of Table V-8, which rates the anticipated degree to which various coastal zone activities may impact various biotopes, is generally quite accurate. It is recommended, however, that several ratings be revised. These recommended ratings are given below in the following form:

Activity number/Biotope number - recommended rating

3/1 - 1	7/11 - 3	16/8 - 3
5/5 - 4	9/2 - 4	
5/6 - 4	15/6 - 4	
5/13- 3	16/6 - 3	
7/8 - 4	16/7 - 3	

The discussion of possible impacts of brine disposal in the Gulf of Mexico should be expanded to include those impacts which may result if the point of discharge was located on the migration routes of shrimp between the tidal passes and the deeper offshore waters. It should also include a discussion of the impact which may result from discharges of brine in areas of the Gulf of Mexico which are most heavily utilized by the offshore shrimping fleet.

Throughout the draft statement, the probable impacts of brine discharges are addressed with reference only to the effects of the salinity of the brine. Recent research has shown, however, that the effects of brine are due not only to its salinity, but to the fact that brine is directly toxic to marine organisms because of its reversed calcium-magnesium ratio as compared with normal sea salts. This aspect of brine should be discussed in the revised statement. ✓

In the discussion of the effects of brine discharges on page V-53, it is stated that "Brine disposal from cycling will cause no more impact than will the disposal of brine from the solution-mining because the layer of brine in proximity with the crude oil will not be discharged, thus preventing the discharge of any suspended or floating oil." This statement is inconsistent with information given in section V.D. which indicates that the soluble fractions of crude oil are extremely toxic to a wide variety of marine and estuarine organisms. The solubility of low-boiling aromatics such as benzene, zylene,

naphthaline, and phenanthrene makes it probable that these compounds will be present in large quantities in brine used for cycling crude oil or refined products through the storage facilities. The presence of these compounds would, therefore, render brine used for product cycling much more toxic than the brine used for solution-mining.

In section VI-A (Mitigating Measures), it is recommended that the advisability of completing wellheads beneath the substrate of the Gulf of Mexico and of complete burial of pipelines be discussed with reference to minimizing the creation of obstacles to offshore shrimp trawling operations.

The opportunity to review and comment upon this document is appreciated.

Sincerely,

CLAYTON T. GARRISON
Executive Director

CTG:BDK:pm

Attachments

TEXAS PARKS AND WILDLIFE DEPARTMENT
REGULATIONS FOR TAKING, POSSESSION, TRANSPORTATION, EXPORTATION, PROCESSING, SALE OR OFFER FOR SALE, OR SHIPMENT OF ~~ENDANGERED~~ FISH OR WILDLIFE ~~THREATENED~~ WITH EXTINCTION IN TEXAS
As Amended April 1975

1.01 AUTHORITY

This regulation is issued pursuant to Article 913a, Vernon's Texas Penal Code (Chapter 126, Acts of the 63rd Legislature, Regular Session, 1973).

1.02 EFFECTIVE DATE

This regulation shall take effect May 15, 1975, and shall remain in effect until amended, revoked, or modified.

2.01 CLOSED SEASON

Except as provided by Section 2.02, it shall be unlawful for any person to take, possess, transport, export, process, sell or offer for sale, or ship any of the following species of fish and wildlife within this state, and no person shall possess, transport, export, process, sell or offer for sale goods made from fish and wildlife not born and raised in captivity. As used in this section "person" means any individual, firm, corporation, association or partnership.

MAMMALS

Blue whale	Balaenoptera musculus
Finback whale	Balaenoptera physalus
Right whale	Eubalaena spp. (all species)
Sperm whale	Physeter catodon
Black-footed ferret	Mustela nigripes
Jaguar	Panthera onca
Margay	Felis wiedii
Ocelot	Felis pardalis
Red wolf	Canis rufus
West Indian manatee	Trichechus manatus
Bighorn sheep	Ovis canadensis

BIRDS

Brown pelican	Pelecanus occidentalis
Mexican duck	Anas diazi
Southern bald eagle	Haliaeetus l. leucocephalus
American peregrine falcon	Falco peregrinus anatum
Arctic peregrine falcon	Falco peregrinus tundrius
Attwater's greater prairie chicken	Tympanuchus cupido attwateri
Whooping crane	Grus americana
Eskimo curlew	Numenius borealis
Ivory-billed woodpecker	Campephilus principalis
Red-cockaded woodpecker	Dendrocopos borealis
Bachman's warbler	Vermivora bachmanii

REPTILES	
Atlantic ridley turtle	Lepidochelys kempii
Hawksbill turtle	Eretmochelys imbricata
Leatherback turtle	Dermochelys coriacea
American alligator	Alligator mississipiensis
AMPHIBIANS	
Cascade Cavern salamander	Eurycea latitans
San Marcos salamander	Eurycea nana
Fern Bank salamander	Eurycea pterophila
Texas blind salamander	Typhlomolge rathbuni
Houston toad	Bufo houstonensis
FISHES	
Big Bend gambusia	Gambusia gaigei
Clear Creek gambusia	Gambusia heterochir
Pecos gambusia	Gambusia nobilis
Comanche Springs pupfish	Cyprinodon elegans
Fountain darter	Etheostoma fonticola

2.02 PERMIT TO TAKE CERTAIN FISH AND WILDLIFE

No person may take, possess, or transport fish or wildlife classified as endangered species and named in this regulation for zoological gardens or scientific purposes, or take or transport fish or wildlife classified as endangered species as specified in this regulation from the wild, or from their natural habitat for propagation for commercial purposes, unless he has obtained a valid permit from this Department as required by the provisions of Article 913, Penal Code of Texas, 1925, as amended.

3.01 PENALTY

Any person who violates any provisions of this regulation is guilty of a misdemeanor and on first conviction is punishable by a fine of not less than $100, nor more than $200. A person who is convicted for a second violation of a provision of this regulation is punishable by a fine or not less than $200 nor more than $500, or confinement in the county jail for not less than 30 days, nor more than 90 days, or both. A person who is convicted for a third or subsequent violation of a provision of this regulation is punishable by a fine of not less than $500 nor more than $2,000, and confinement in the county jail for not less than six months nor more than one year.

4.01 AMENDMENTS

This regulation may be amended, revoked or modified in compliance with the provisions of Article 913a, Vernon's Texas Penal Code, at any regular or special meeting of this Commission upon finding that need exists for such action.

STATE OF TEXAS:

COUNTY OF TRAVIS:

THIS IS TO CERTIFY THAT the foregoing is a true and correct duplicate original copy of "Regulations for Taking, Possession, Transportation, Exportation, Processing, Sale or Offer for Sale, or Shipment of Endangered Fish or Wildlife Threatened with Extinction in Texas" as adopted by the Texas Parks and Wildlife Commission at its meeting held on April 29, 1975.

WITNESS MY HAND AND SEAL OF OFFICE this the 7th day of May, 1975.

Clayton T. Garrison, Executive Director
Parks and Wildlife Department
State of Texas

Texas Department of Health Resources

Fratis L. Duff, M.D., Dr.P.H.
Director
Raymond T. Moore, M.D.
Deputy Director

1100 West 49th Street
Austin, Texas 78756
(512) 454-3781

July 30, 1976

Mr. Charles D. Travis, Director
Governor's Budget and Planning
Office
Executive Office Building
411 West 13th Street
Austin, Texas 78701

ATTENTION: John Janak, Assistant Chief
Intergovernmental Coordination

SUBJECT: Draft Environmental Impact Statement
Strategic Petroleum Reserve

Dear Mr. Travis:

A letter was received from Mr. H. Anthony Breard of your office dated July 12, 1976, requesting a review of the "Draft Environmental Impact Statement, Strategic Petroleum Reserve, DES76-2." The report was prepared by the Federal Energy Administration and is dated June, 1976.

We have reviewed the Draft Environmental Impact Statement for its public and environmental health implications and offer the following comments:

1. Sites for oil storage in salt domes should be very carefully selected in order to minimize the possibility of contamination of ground waters which are or may be used as potable water supplies.

2. The use of 60 L_{dn} (Loudness-day-night) as the acceptable noise criteria is questioned inasmuch as the Environmental Protection Agency has used a level of 55 L_{dn} as its criteria as shown on Page V-38.

3. Values for L_{dn}, shown in Table V-6 and V-7, appear to be calculated based on daytime only operation. Since nighttime operation reasonably can be expected, the L_{dn} would be about 8 db higher. Therefore, the noise impact area may be much greater than predicted.

4. There is an apparent discrepancy in Table V-7 on Page V-45; the noise level for one electric motor is recorded as being higher than the noise level for 6 motors.

The opportunity to review and comment on this proposed project is appreciated.

Sincerely,

Fratis L. Duff, M.D.
Director

AGENCY REVIEW TRANSMITTAL SHEET

TO: Charles D. Travis, Director
Budget and Planning Office
Office of the Governor
(Attn: State Clearinghouse; John Gosdin)

Date: Sent 7-13-76

Date: Due 8-03-76

Refer: EIS-6-07-002

RECEIVED
AUG 4 1976
Budget/Planning

FROM: Robert E. Schneider, Executive Director
Texas Water Rights Commission

Date of Review: 8-3-76

SUBJECT: U.S. FEDERAL ENERGY ADMINISTRATION--DRAFT ENVIRONMENTAL IMPACT STATEMENT--STRATEGIC PETROLEUM RESERVE (DES 76-2; JUNE 1976).

	Check (X) for each item	
	None	Comments
1. Additional specific effects which should be assessed and mentioned:	X	
2. Additional alternatives which should be considered:	X	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:		Prepare a special plan to ensure overall, uninterrupted technical, administrative, and operational custody in the phased build-up of the SPR, ESR, IPR, & RPR (pp II-4, 5).
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:		
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:	X	See Comments for Items 3, 4, and 6.
6. We identify issues which require further discussion or resolution:		Prepare a special impact analysis of the SPR, ESR, IPR, & RPR on vested surface water rights.

[X] This agency concurs with the implementation of this project. (*) (See Note)

[ ] This agency does not wish to comment on the subject document because:

NOTE (*) Concurrence is subject to reasonable consideration of the comments in Items 3, 4, and 6. These comments stem from the Commission's basic statutory duty to see that the matter of water rights is given specific, direct consideration in the project -- from its inception and uninterruptedly through the formulation, operation, and phase-out stages.

Alfred J. D'Arezzo
Analyst for Environment
& Interagency Coordination
Phone: (512) 475-2678
Name & Title of Reviewing Official

NOTED:

Robert E. Schneider
Executive Director

AGENCY REVIEW TRANSMITTAL SHEET

TO: Charles D. Travis, Director
Budget and Planning Office
Office of the Governor
(Attention: State Clearinghouse)

RECEIVED
AUG 10 1976
Budget/Planning

Date: Sent : July 13, 19
Date: Due : August 3, 19
Refer: EIS -6-07-002

FROM: The Honorable John C. White, TDA

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT: STRATEGIC PETROLEUM RESERVE, DES76-2-Jur

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:		✓
2. Additional alternatives which should be considered:		✓
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	✓	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	✓	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:	✓	
6. We identify issues which require further discussion or resolution:	✓	

☐ This agency concurs with the implementation of this project.

☐ This agency does not wish to comment on the subject document because:

II-111

Name & Title of Reviewing Official

Enclosure (s)

Texas Department of Agriculture
Office of the Commissioner

Austin, Texas 78711
Phone (512) 475-3324

MEMO

DATE: July 26, 1976

RE: Comments, DEIS: Strategic Petroleum Reserve, DES76-2, June, 1976

Category 1: The environmental effects of washing out a cavity in a salt dome is only casually addressed. The potential environmental impacts of disposing of the brine are great enough to merit closer attention. A section providing a detailed consideration of this problem is recommended.

Category 2: The "no action" alternative is mentioned but not seriously discussed. It should be, particularly in light of sections of the draft EIS which indicate the storage facilities would not be completed until 1982 and that by 1985 U.S. imports will have dropped to 1.2 MMBPD. If these estimates are correct, then enormous sums will have been spent for only a few years' partial protection. If present trends continue, however, our imports will not have dropped to 1.2 MMBPD. They may not decrease at all by 1985, and they may increase, in which case the proposed storage will likely be too small to be of much value. This whole course of action needs to be analyzed more comprehensively.

ED NICHOLS, ASSISTANT COMMISSIONER

TEXAS WATER QUALITY BOARD

PH. (512) 475-2651

1700 NORTH CONGRESS AVE
P.O. BOX 13246 CAPITOL STATION 78711
AUSTIN, TEXAS

August 13, 1976

Re: Draft Environmental Impact Statement for Strategic Petroleum Reserve, Federal Energy Administration

Mr. Charles D. Travis, Director
Governor's Budget and Planning Office
Office of the Governor
Executive Office Building
411 W. 13th Street
Austin, Texas 78701

Dear Mr. Travis:

The staff of the Texas Water Quality Board has reviewed the draft environmental impact statement for the strategic petroleum reserve program proposed by the Federal Energy Administration and offer the following comments for your consideration.

The environmental assessment on groundwater quality and related economic aspects of brine disposal should be expanded regarding the washing of caverns in Gulf Coast salt domes. Although the mechanics of brine injection are well known, the effects of inadequately designed and located injection wells has not been adequately addressed in the report. The disposal of brine into the caprock overlying a salt dome is practiced in many areas; however, potential problems can exist where sands either terminate against the dome or the caprock. Injection into the caprock, where it is in hydrologic contact with the sand, can result in shifting the salt water-fresh water interface further away from the dome. Even if the caprock is hydrologically isolated from the sands, the pressure increases in the caprock can result in the upward migration of injected brine when nearby inadequately cemented well bores exist in the salt dome. If properly constructed injection wells are completed off the flanks of the salt domes, then the potential environmental implications will be less, but the expense associated with the project will increase significantly.

Recent experiences in Texas indicate that salt mines may not be a structurally sound storage site. Collapse of incompetent overburden has resulted in the upward displacement of saline water into overlying usable quality water. The structural soundness of any area should thoroughly be investigated prior to serious consideration of storing petroleum products.

We appreciate the opportunity to comment on this proposed project. If we can be of further assistance, please let us know.

Sincerely,

Emory G. Long

Emory G. Long, Director
Administrative Operations

AGENCY REVIEW TRANSMITTAL SHEET

TO: Charles D. Travis, Director
Budget and Planning Office
Office of the Governor
(Attention: State Clearinghouse)

Date: Sent : July 13, 197

Date: Due : August 3, 197

Refer: EIS -6-07-002

FROM: Mr. Hugh C. Yantis, Jr. TWQB

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT: STRATEGIC PETROLEUM RESERVE, DES76-2-Jur

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:		✓
2. Additional alternatives which should be considered:	✓	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	✓	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	✓	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:	✓	
6. We identify issues which require further discussion or resolution:		✓

☑ This agency concurs with the implementation of this project.

☐ This agency does not wish to comment on the subject document because:

Emory G. Long

Name & Title of Reviewing Official

Enclosure (s)

TEXAS WATER DEVELOPMENT BOARD

JAMES M. ROSE
EXECUTIVE DIRECTOR

P.O. BOX 13087
CAPITOL STATION
AUSTIN, TEXAS 78711

AREA CODE 512
475-3187
1700 NORTH CONGRESS AVENUE

August 5, 1976

IN REPLY REFER TO:
TWDBP

Mr. Charles D. Travis, Director
Governor's Budget and Planning
Division
Executive Office Building
411 West 13th Street
Austin, Texas 78701

RECEIVED
AUG 11 1976
Budget/Planning

Attention: Mr. H. Anthony Breard

Dear Mr. Travis:

Re: Draft Environmental Impact Statement: Strategic Petroleum Reserve.

Our staff has reviewed the above-cited Draft Environmental Impact Statement. The purpose of the proposal is to create a petroleum reserve as mandated by the Energy Policy and Conservation Act of 1975 (P.L. 94-163). This program provides for the storage of oil along the Gulf of Mexico coast and the Atlantic Ocean coast using solution-mined cavities in salt (layers and domes), conventional mines, and above ground tanks. Locations of specific sites under consideration were not given to avoid acquisition problems.

No conflict is foreseen at this time between the proposal and planned or potential future development of Texas water resources. Subsequent site-specific Environmental Impact Statements will be forthcoming at which time candidate storage locations can be evaluated with reference to Texas water resource projects.

Sincerely,

James M. Rose

TEXAS AIR CONTROL BOARD

PHONE 512/451-5711
8520 SHOAL CREEK BOULEVARD
AUSTIN, TEXAS – 78758

CHARLES R. BARDEN, P. E.
EXECUTIVE DIRECTOR

JOHN L. BLAIR, Chairman
WILLIAM N. ALLAN
JOE C. BRIDGEFARMER, P.E.
FRED HARTMAN

CHARLES R. JAYNES
D. JACK KILIAN, M.D.
WILLIAM D. PARISH
E. W. ROBINSON, P.E.
WILLIE L. ULICH, Ph.D., P.E.

July 30, 1976

Budget/Planning

Mr. H. Anthony Breard
Natural Resources Section
Budget and Planning Office
Office of the Governor
411 West 13th Street
Austin, Texas 78701

Re: Draft Environmental Impact Statement: Strategic Petroleum Reserve, DES76-2, June, 1976.

Dear Mr. Breard:

We have reviewed the above cited document and are in agreement in principal with the salt dome storage concept. However, Texas Air Control Board construction permits may be required for surface facilities which handle volatile hydrocarbons. Vapor control devices may be required. We will have specific comments when the individual projects submit environmental impact statements for review.

Thank you for the review opportunity. If we can assist further, please contact me.

Sincerely yours,

Bill Stewart, P.E.
Deputy Director
Control and Prevention

AGENCY REVIEW TRANSMITTAL SHEET

TO: Charles D. Travis, Director
Budget and Planning Office
Office of the Governor
(Attention: State Clearinghouse)

RECEIVED
SEP 8 1976
Budget/Planning

Date: Sent : July 13, 19
Date: Due : August 3, 19
Refer: EIS -6-07-002

FROM: The Honorable Bob Armstrong, GLO

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT: STRATEGIC PETROLEUM RESERVE, DES76-2-Jur

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:	✓	
2. Additional alternatives which should be considered:	✓	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	✓	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	✓	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:		See below
6. We identify issues which require further discussion or resolution:	✓	

☑ This agency concurs with the implementation of this project.

☐ This agency does not wish to comment on the subject document because:

5. The primary concern is the impact on water quality.

A. J. Bishop
Name & Title of Reviewing Official

Enclosure (s)

AGENCY REVIEW TRANSMITTAL SHEET

TO: Charles D. Travis, Director
Budget and Planning Office
Office of the Governor
(Attention: State Clearinghouse)

RECEIVED
SEP 9 1976
Budget/Planning

Date: Sent : July 13,

Date: Due : August 3,

Refer: EIS -6-07-002

FROM: The Honorable Bob Armstrong, GLO

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT: STRATEGIC PETROLEUM RESERVE, DES76-2-

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:	✓	
2. Additional alternatives which should be considered:	✓	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	✓	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	✓	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:		See below
6. We identify issues which require further discussion or resolution:	✓	

☑ This agency concurs with the implementation of this project.

☐ This agency does not wish to comment on the subject document because:

5. The primary concern is the impact on water quality.

A. J. Bishop

Name & Title of Reviewing Official

MEMORANDUM

TO: Bob Waddell

FROM: A. J. Bishop

SUBJECT: Draft Environmental Impact Statement: STRATEGIC PETROLEUM RESERVE, DES76-2, June, 1976.

DATE: August 3, 1976

The Federal Energy Administration has proposed that the Strategic Petroleum Reserve program have 150 million barrels of oil in storage by December 22, 1978, and 500 million barrels to be stored by 1982 under the full program. Salt domes in the Gulf Coast region are being considered as sites for the storage program.

In the nearly three years since the Arab countries withheld oil shipments to the United States and raised the price of crude oil, Congress has created new federal agencies to deal with energy policies. One purpose of the petroleum products (oil and gas) reserve is to lessen any economic impacts of any future interruptions of petroleum imports; also, it will ensure that the supply of energy available to the United States will continue to be sufficient to meet our total energy demand.

The three alternative storage systems considered to meet this program consist of underground solution-mined salt cavities, conventional mines, or aboveground in tanks.

It has been recogonized for a long time that salt domes are very attractive storage or disposal sites for gases, liquids, or solids. Although salt domes are widely distributed and occur at many places in the United States, the ones in the Gulf Coast region are being considered as the site for this project. The main reasons are their large number, relative low cost, and strategic location (near refineries pipeline networks, port facilities, and large supplies of water).

The name and location of specific sites under consideration are being withheld to avoid hindering the Federal Energy Administration's ability to acquire such sites at a reasonable cost.

Jack Giberson, Chief Clerk of the General Land Office, stated that legislation will have to be passed in the next session of the Legislature to authorize the General Land Office to lease any of the salt domes, for storage purposes, on submerged public land as well as the

salt domes, if any, on State uplands. At the present time, the Land Office can not include underground storage when leasing State lands.

The environmental impact of oil stored by the three methods could range from inconsequential to substantial. The most sensitive parameters appear to be water quality and geology. The adverse impacts would include the degradation of surface water quality from construction runoff, increased dredging, and frequent oil spills. In addition, brine disposal from mining salt cavities will increase the salinity of the reclining waters, whether underground saline aquifers or small portion of the Gulf of Mexico. A reliable source of water is required for both creation of new cavities and the withdrawal of stored crude. A large water source is required; therefore, the salt dome must be located near a large surface-water body or over an aquifer with sufficient thickness and permeability. The water need not be fresh water. The salt domes near the Gulf or submerged ones that are situated over the voluminous Gulf Coast aquifers containing slightly saline to saline waters at moderate depths are especially advantageous. The use of large quantities of ground water for developing salt cavities could cause some surface subsidence over water storage areas, slow salt water encroachment, and movement of near-surface geologic faults; although, these are not anticipated.

Land usage will depend on the volume of oil stored at each site as well as the amount of land required for pipeline rights-of-way. The land surface required at each dome is variable but rather small. This amounts to one to two percent of surface area over the dome. The area could be as much as 135 acres for a 90 million barrel facility and up to 260 acres for a 200 million barrel storage cavity. The facilities that will use this acreage are primarily pumps, access roads, and pipe/manifolds connecting individual cavities.

Construction of the facilities over the salt dome storage area is expected to be of a small scale and consequently no appreciable impact on land use is anticipated. Also, no impact on land use planning is anticipated.

The historical precedence of petroleum storage, along the Gulf Coast region, indicates negligible impact to geological characteristics under conditions of sound engineering design and construction practices.

In the long term, water quality as related to activities of the storage system will stabilize to prestorage conditions. The above activities include the emplacement of pipelines, dredging operations, and development of new roads.

According to the Federal Energy Administration, the overriding objective of the program is enhancement of socioeconomic conditions during and after a severe interruption of imported supplies. They estimate that an impact in terms of job losses could reach an additional two million persons unemployed if a storage buffer is not available.

By not knowing the exact sites for the oil storage, it is difficult to state the impacts that could occur. All of the above statements are rather generalized, but regardless of where the selected domes are located on the Gulf Coast the primary concern is the impact on water quality.

AGENCY REVIEW TRANSMITTAL SHEET

TO: Charles D. Travis, Director
Budget and Planning Office
Office of the Governor
(Attention: State Clearinghouse)

Date: Sent : July 13, 197

Date: Due : August 3, 197

Refer: EIS -6-07-002

RECEIVED
AUG 3 1976
Budget/Planning

FROM: Mr. James H. Harwell, TIC

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT: STRATEGIC PETROLEUM RESERVE, DES76-2-Jur

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:	✓	
2. Additional alternatives which should be considered:	✓	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	✓	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	✓	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:	✓	
6. We identify issues which require further discussion or resolution:	✓	

☑ This agency concurs with the implementation of this project.

☐ This agency does not wish to comment on the subject document because:

Laura Koenig, Statistician
Name & Title of Reviewing Official

Enclosure (s)

AGENCY REVIEW TRANSMITTAL SHEET

TO: Charles D. Travis, Director
Budget and Planning Office
Office of the Governor
(Attention: State Clearinghouse)

Date: Sent : July 13, 197

Date: Due : August 3, 197

Refer: EIS -6-07-002

FROM: Dr. Charles G. Groat, BEG

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT: STRATEGIC PETROLEUM RESERVE, DES76-2-Jul

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

Budget/Planning

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:	✓	
2. Additional alternatives which should be considered:	✓	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	✓	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	✓	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:	✓	
6. We identify issues which require further discussion or resolution:	✓	

☑ This agency concurs with the implementation of this project.

☐ This agency does not wish to comment on the subject document because:

Enclosure (s)

Name & Title of Reviewing Official

OFFICE OF THE GOVERNOR

STATE PLANNING OFFICE
AREA CODE 802-828-3326

STATE OF VERMONT
MONTPELIER, VERMONT 05602

MEMORANDUM

A-95 REVIEW

To: Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

From: Lucinda M. Jones, State Planner LMJ

Date: August 9, 1976

Re: Draft Environmental Impact Statement, Strategic Petroleum Reserve

---

draft environmental impact statement
We have circulated your /negative declaration/environmental assessment/request for permit /through the clearinghouse process. We have received no adverse comments. Copies of comments are attached.; none received.

Please send three copies of the final statement to this office.

LMJ:en

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Anthony S. Earl
Secretary

BOX 450
MADISON, WISCONSIN 53701

August 24, 1976

IN REPLY REFER TO: 1600

Mr. Robert L. Davies
Strategic Petroleum Reserve Office
1726 M Street, NW
Washington, D.C. 20461

Dear Mr. Davies:

Re: Draft Environmental Impact Statement
for Strategic Petroleum Reserve

The Wisconsin Department of Natural Resources has completed its review of the above documents and offers these comments:

A major deficiency in the draft EIS is its treatment of the potential impact of the proposed facilities on ambient concentrations of photochemical oxidants. The document shows little understanding of the oxidant problem, and in at least one case, the rate of hydrocarbon (HC) emission seems to have been grossly underestimated.

On p. V-85, a maximum HC concentration of 66 $\mu g/m^3$ was calculated to result from the diurnal breathing emissions of twenty 500,000-barrel tanks of distillate oil. The emission rate used was 0.52 lb./hr. per tank. However, the new tank breathing loss emission factor for distillate fuel on p. 4.3-9 of the EPA publication Compilation of Air Pollutant Emission Factors (AP-42, July, 1973) gives an emission rate of 31.5 lb./hr. per tank for tanks this size. Even if a floating roof was used, the emission rate would be 4.55 lb./hr. per tank, which would be expected to cause frequent violations of the HC standard of 160 $\mu g/m^3$ since an emission rate of 0.52 lb./hr. per tank is enough to produce a concentration of 66 $\mu g/m^3$.

If the discussion on p. V-85 is correct in stating that the emission rate for distillate oil is about 8.7 times higher than residual oil, then the breathing emission rate for residual oil storage is 3.6 lb./hr. per tank rather than 0.06 lb./hr. per tank as stated. This suggests that residual oil storage in such large tank farms would also cause frequent violations of the HC standard if vapor emission controls were not used.

On page III-110, the calculation of breathing emissions is correct for tank storage of crude oil. The emission rate of 3500 lb./day from a new 560,000-barrel tank corresponds to an emission rate of 130 lb./hr. from a new 500,000-barrel tank. Even if this emission rate is substantially reduced for crude oil stored in tankers surrounded by water, the HC standard may be violated. The maximum ambient HC concentration expected from tanker storage of crude oil should be calculated and included in this section.

If the above residual oil breathing emission rate of 3.6 lb./hr. per tank is correct, then the filling emission rate of 1.8 lb./hr. per tank given on p. V-82 is much too low; and the filling emission rate of 46 lb./hr. per tank for distillate oil may also be too low. In view of the errors pointed out previously, all emission factors in the EIS should be rechecked. Reconsideration should be given to the statements that the emissions and air quality impacts are negligible, minimal or insignificant (pages I-9, V-37, VI-30, VI-54, VIII-2) and that there is a lack of need for emission controls such as floating roof tanks (p. III-93).

On p. I-6, reference is made to storing crude oil in tanks at selected East Coast refineries and storing petroleum products near distribution terminals. The introductory paragraph in the section on tankage (p. III-88), however, refers only to residual oil; and the analysis in Chapter V is only carried out for residual and distillate oil. The section on tankage should be clarified to indicate which petroleum liquids are being considered for aboveground tank storage and which have been ruled out. To be consistent with the "worst case" prototype approach on p. I-6, the stored petroleum liquid giving the highest HC emissions should be used in the analysis. Crude oil and some petroleum products have emission rates well above that for distillate oil and may be far higher than that for residual oil.

Anything which causes an ambient HC concentration approaching the 2860 $\mu g/m^3$ predicted to result from filling two 500,000-barrel tanks with distillate oil (p. V-84) would clearly be unacceptable during the oxidant season. The map on Fig. IV-16 shows that the oxidant standard has been exceeded in both the East Coast and Gulf Coast storage regions. However, there are probably winter months in each region during which violations of the oxidant standard rarely, if ever occur. If violations of the HC standard cannot be avoided during filling operations, filling should be scheduled for these months to minimize the chance of violating the oxidant standard. The draft EIS does not recognize the seasonal nature of the oxidant problem or the particular weather conditions which lead to high oxidant levels.

On p. V-36, air quality is discussed in terms of "large-scale poor dispersion conditions" and "air stagnation." While other pollutants generally reach their highest levels under such conditions, oxidants

behave differently. The highest oxidant levels may occur with moderate winds from certain directions. Therefore, the recommendation that filling operations be accomplished during "periods of good atmospheric dispersion" (pages V-84 and V-88) could be misleading. The SPR program should be committed to carrying out filling operations during those times of year and under those weather conditions least likely to lead to oxidant formation. In particular, filling should not be carried out on warm, sunny days, irregardless of the wind conditions. The same considerations apply to painting large storage tanks with hydrocarbon-based paints.

The program should be committed to applying the best available control technology to avoid violations of the HC standard. In addition, for aboveground storage of petroleum liquids more volatile than residual oil, the tank farms may have to be smaller than 10 million barrels.

A number of additional comments and questions on the air quality aspects of the proposed facilities can be briefly stated as follows:

P. IV-34, line 8. A word is missing. Should it be "but none reported a violation...."?

P. V-37. Emissions during the filling of underground salt domes are described as negligible because the facilities will be "closed." Isn't there always an air vent? The HC emission rate and air quality impact should be analyzed for air displaced from underground storage facilities by any filling permitted during the oxidant season.

P. V-38. Will the flare or condensing system to be used with salt mines also be used with other types of underground facilities?

P. V-83. A zero HC background concentration cannot be realistically assumed when there are full storage tanks near those being filled.

P. V-111. Will storage facility sites be selected so as to avoid cumulative air quality impacts?

P. VI-28, line 6. The New Source Performance Standards apply to crude oil stored in aboveground tanks as well as to any unexcluded "finished or intermediate [petroleum] products."

P. VI-29. How often will the temporary flare be used, and what will be the pollutant emission rates?

P. VI-30. The reference for the emission factors for residual oil should be stated. Emission factors should also be given for any other petroleum liquids which may be stored aboveground. Are floating roofs planned for any storage tanks which are to be built for distillate or crude oil? Why is a vapor recovery system not "convenient" to use with a residual oil storage tank?

P. VIII-2. No analysis was carried out for crude oil filling, but the breathing emissions for tank storage calculated on p. III-110 are more than enough to cause violations of the HC standard. Are the references on residual and distillate oil intended to be reversed to paragraph C.? The pertinent air quality question is not whether "long term degradation" will occur, but whether the one-hour oxidant standard will be exceeded more than once a year.

The draft EIS's treatment of the "advanced technologies" alternative on pages I-15 and III-8 also deserves comment. Included under this heading are solar heating systems and wind-powered electric generators for which the technology is already developed and is now commercially available for small installations. Instead of dismissing such systems as lacking the "potential for appreciable implementation within the seven-year time frame of the SPR", the EIS should estimate the total contribution which each could make if Government subsidies were used to develop the present and potential production capacities of these industries between now and 1985. The draft EIS's entire discussion of solar heating is apparently contained in one sentence in a footnote on p. III-8. The sentence states that solar heating is planned for "a number of buildings" by 1985, but the importance of solar heating is understated because these systems are primarily expected to replace electric energy rather than petroleum. In view of the four and one-half pages devoted to nuclear power plants and the extensive use of petroleum to generate electricity in some parts of the country, this treatment is both inadequate and inappropriate.

We thank you for the opportunity to review and comment on this draft environmental impact statement and would appreciate receiving two copies of the final environmental impact statement when it is completed.

Sincerely,
Bureau of Environmental Impact

James A. Huntoon
Acting Director

WYOMING
EXECUTIVE DEPARTMENT
CHEYENNE

ED HERSCHLER
GOVERNOR

76-100D

August 31, 1976

Mr. Robert C. Davies
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 North Street, N.W.
Washington, D.C. 20461

RE: Strategic Petroleum Reserve
Draft Environmental Impact
Statement

Dear Mr. Davies:

In compliance with the National Environmental Policy Act of 1969, Office of Management and Budget Circular A-95 (revised), and the Wyoming State Review Procedure, the State of Wyoming has completed its review of the above referenced draft impact statement.

Thank you for providing an opportunity to review the draft statement. We are looking forward to receiving the final statement.

Yours sincerely,

Ed Herschler

EH/dhr

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Department of Environmental Quality

Administration

Hathaway Building CHEYENNE, WYOMING 82002 Telephone 307-777-7391

August 2, 1976

Federal Energy Administration
Strategic Petroleum Reserve Office
Washington, DC 205__

Our Department has reviewed your Strategic Petroleum Reserve Draft Environmental Impact Statement DES 76-2 June 1976. Comments from our Water Quality Division are enclosed.

We appreciate the opportunity to review these materials and submit our views.

Very truly yours,

Robert E. Sundin

Robert E. Sundin
Director
Dept. of Environmental Quality

RES:ak
cc: Wyoming Planning Coordinators Office

ENCLOSURES

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Department of Environmental Quality

Water Quality Division

HATHAWAY BUILDING

CHEYENNE, WYOMING 82002

TELEPHONE 307 777-7781

M E M O R A N D U M

TO: Mr. Robert E. Sundin, Director, Department of Environmental Quality

FROM: Nelson J. Kuniansky, Water Quality Specialist, Water Quality Division, Department of Environmental Quality

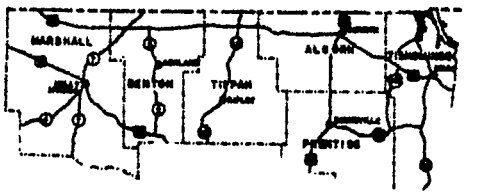
RE: Review of draft Environmental Impact Statement on the Strategic Petroleum Reserve prepared by the Federal Energy Administration

DATE: July 29, 1976

Upon reviewing the above referenced document I found neither a direct nor an implied potential for degradation of Wyoming water quality above that generally associated with continuing petroleum extraction. None of the development related to establishment and maintenance of the petroleum reserve is slated to occur in Wyoming. Therefore, the Water Quality Division has no comments to make with respect to this document.

NJK/dmh

LOCAL AGENCY COMMENTS



NORTHEAST MISSISSIPPI PLANNING & DEVELOPMENT DISTRICT
P. O. BOX 6-D
BOONEVILLE, MISSISSIPPI 38829

BATHA D. JUMPER
EXECUTIVE DIRECTOR

TELEPHONE (601) 728-6248

REGIONAL CLEARINGHOUSE FOR FEDERAL PROGRAMS

TO: Mr. Robert L. Davies
Director, Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D.C. 20461

State Clearinghouse Number
76060601

Date: August 3, 1976

PROJECT DESCRIPTION: ENVIRONMENTAL IMPACT STATEMENT - STRATEGIC PETROLEUM RESERVE. Creation of the Reserve was mandated by Title I, Part B of the Energy Policy and Conservation Act of 1975 (P.L. 94-163). Its purpose is to mitigate the economic impacts of any future interruptions of petroleum imports.

(X) 1. The Regional Clearinghouse has received notification of intent to apply for Federal assistance as described above.

( ) 2. The Regional Clearinghouse has reviewed the application(s) for Federal assistance described above.

(X) 3. After proper notification, no agency has expressed an interest in conferring with the applicant(s) or commenting on the proposed project.

( ) 4. The proposed project is ( ) consistent ( ) inconsistent with an applicable plan for Mississippi.

(X) 5. Although there is no applicable State-Regional plan for Mississippi, the proposed project appears to be (X) consistent ( ) inconsistent with present goals and policies.

COMMENTS: This notice constitutes FINAL REGIONAL CLEARINGHOUSE REVIEW AND COMMENT. The requirements of U. S. Office of Management and Budget Circular No. A-95 have been met at the Regional level. (This project is not confined to the boundaries of NEMPDD).

Leslie Hudspeth
Regional Clearinghouse Director

cc: Ed May, Jr.

REGIONAL CLEARINGHOUSE FOR FEDERAL PROGRAMS

South Delta Planning and Development District, Inc.
Route 1, Box AB52
Telephone 601 378-3831
Greenville, Mississippi 38701

STATE CLEARINGHOUSE NO.
76070601

TO: Mr. Robert L. Davies
Director, Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

DATE: July 16, 1976
RE: 77616B

PROJECT DESCRIPTION: ENVIRONMENTAL IMPACT STATEMENT - STRATEGIC PETROLEUM RESERVE. Creation of the Reserve was mandated by Title I, Part B of the Energy Policy and Conservation Act of 1975 (P.L. 94-163). Its purpose is to mitigate the economic impacts of any future interruptions of petroleum imports.

(X) 1. The Regional Clearinghouse has received notification of intent to apply for federal assistance as described above.

(X) 2. The Regional Clearinghouse has reviewed the application(s) for federal assistance described above.

(-) 3. The organizations listed under "COMMENTS" have expressed an interest in the proposed project.

(X) 4. The proposed project is (X) consistent ( ) inconsistent with the Overall Economic Development Plan for the South Delta Planning and Development District, Inc.

(-) 5. A _____ plan does ( ) does not ( ) presently exist for _____

(x) 6. The proposed project appears to be (x) consistent ( ) inconsistent with regional goals and objectives.

(x) Answered
(-) Not Answered

COMMENTS: This constitutes FINAL CLEARANCE at the ~~REGIONAL LEVEL~~.

cc:

Federal-State Programs Office
Jackson, MS

Signature: W. M. Merritt
WALTER M. MERRITT, EXECUTIVE DIRECTOR
Regional Clearinghouse:
SOUTH DELTA PLANNING AND DEVELOPMENT DISTRICT

Regional Clearinghouse No. 7616121
State Clearinghouse No. 76070601

SOUTHERN MISSISSIPPI PLANNING AND DEVELOPMENT DISTRICT

REGIONAL CLEARINGHOUSE FOR FEDERAL PROGRAMS
REVIEW AND COMMENTS

TO: Mr. Robert L. Davies
Director, Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D.C. 20461

DATE: August 12, 1976

PROJECT DESCRIPTION: ENVIRONMENTAL IMPACT STATEMENT - STRATEGIC PETROLEUM RESERVE. Creation of the Reserve as mandated by Title I, Part B of the Energy Policy and Conservation Act of 1975 (P.L. 94-163). It's purpose it to mitigate the economic impacts of any future interruptions of petroleum imports.

(X) 1. The Regional Clearinghouse has received copy of Draft EIS as noted above.

( ) 2. The Regional Clearinghouse has notified the appropriate metropolitan, local and regional organizations and is awaiting notification of their interest in the proposed project.

( ) 3. After proper notification, no local or regional agency (or other appropriate organizations) has expressed an interest in conferring with the applicant (s) or commenting on the proposed project.

( ) 4. The proposed project is ( ) consistent ( ) inconsistent with_____ plan for_____

COMMENTS: Based on the necessity for having a strategic Petroleum Reserve the SMPDD endorses the project, although limited adverse impacts may result from the Program.

This notice constitutes FINAL REGIONAL CLEARINGHOUSE REVIEW AND COMMENT. The requirements of the U.S. Office of Management and Budget Circular A-95 have been met at the Regional Level.

cc: Mr. Edward A. May, Jr.

Leslie Newcomb, Executive Director

SOUTHWEST MISSISSIPPI PLANNING AND DEVELOPMENT DISTRICT, INC.

P. O. Box 636 Meadville, MS. 39653 Ph. (601) 384-5858

August 26, 1976

Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M. Street, N W
Washington, D. C. 20461

SUBJECT: State Clearinghouse Number 76070601
ENVIRONMENTAL IMPACT STATEMENT -- STRATEGIC PETROLEUM RESERVE

Dear Mr. Davies:

Our office is in receipt of the above referenced Draft Environmental Impact Statement notification from the State Clearinghouse for Federal Programs.

After a review of the Overall Economic Development Program for the District, the proposed project appears to be consistent with regional goals, plans, and objectives. Enclosed is a copy of the final Regional Clearinghouse action and review.

Sincerely,

Robert E. Whiddon

Robert E. Whiddon
Executive Director

REW:ljd

Enclosure

SOUTHWEST MISSISSIPPI PLANNING AND DEVELOPMENT DISTRICT, INC.

P. O. Box 636 Meadville, MS. 39653 Ph. (601) 384-5858

REGIONAL CLEARINGHOUSE FOR FEDERAL PROGRAMS

(inside address)
Mr. Robert L. Davies, Director
Strategic Petroleum Reserve Office
Federal Energy Administration
Washington, D. C. 20461

Date: August 26, 1976

PROJECT DESCRIPTION:
Draft Environmental Impact Statement: STRATEGIC PETROLEUM RESERVE

(x) The Regional Clearinghouse has received notification of intent to apply for Federal assistance as described above.

(x) The Regional Clearinghouse has reviewed the application(s) for Federal assistance described above.

( ) The Regional Clearinghouse has notified the appropriate local and regional organizations and is awaiting notification of their interest in commenting on the proposed project.

(x) After proper notification, no local or regional agency (or other appropriate organization) has expressed an interest in conferring with the applicant prior to submission of the application.

( ) The proposed application is ( ) consistent ( ) inconsistent with the _____ plan for _____ _____.

(x) Although an applicable areawide _____ plan does not presently exist for southwest Mississippi, the proposed application is (x) consistent ( ) inconsistent with regional goals and objectives.

( ) Representatives of the following organizations wish to confer with the applicant(s) about the proposed project:

COMMENTS:

Signature Robert E. Whiddon
Robert E. Whiddon
Regional Clearinghouse:
Southwest Mississippi Planning
and Development District, Inc.

OTHER COMMENTS

American Petroleum Institute
2101 L Street Northwest
Washington, D.C. 20037
202-457-7070

Arne E. Gubrud
Environmental Affairs Director

August 12, 1976

00004

Office of Executive Communications
Room 3309
Federal Building
12th & Pennsylvania Avenue, N.W.
Box HQ
Washington, DC 20461

RE: DRAFT PROGRAMMATIC EIS -- Strategic Petroleum Reserve

Enclosed herewith are some comments, prepared by our Environmental Affairs staff, on the FEA draft environmental impact statement (DES 76-2) on strategic petroleum reserve, which appeared in the June 25 Federal Register, page 26262. Also enclosed are copies of two reports of API-sponsored research on the effects of oil spills which substantiate several of our specific comments.

The Institute appreciates the opportunity to review the draft and hope that its comments will be helpful.

Cordially,

Arne E. Gubrud

Enclosures (2):

(1) "Laboratory Studies on the Effects of Oil on Marine Organisms: An Overview", API Publication 4249

(2) "Effects of Oil and Chemically Dispersed Oil on Selected Marine Biota -- A Laboratory Study," API Publication 4191

COMMENTS ON FEA DRAFT ENVIRONMENTAL IMPACT STATEMENT
(DES 76-2)
STRATEGIC PETROLEUM RESERVE, JUNE 1976

1. Page I-9 and elsewhere

Throughout the document, beginning on page I-9 and wherever hydrocarbon emissions are mentioned, it is stated that emissions of hydrocarbons "will be negligible" or, in the case of distillate fuels, "may cause hydrocarbon standards to be exceeded," or (see p. VI-30) "do not merit the consideration of mitigating measures."

Such statements grossly underestimate the seriousness with which EPA views any increase in hydrocarbon emissions, however slight, in areas that have not attained air quality standards for photochemical oxidant, which include all of the proposed locations for the strategic petroleum reserve. Under the present Clean Air Act, after May 31, 1977, the construction of any new facility that would emit hydrocarbons is prohibited in nonattainment areas for the photochemical-oxidant standard, unless a compensating reduction in hydrocarbon emissions from other sources in the air quality control region can be made, beyond those reductions already programmed under the stated implementation plan for the region. Thus, unless Congress amends the present law, the strategic petroleum reserve program, as well as industry plans for expansion of storage facilities, refineries, and such projects as LOOP and Seadock, are in very real jeopardy of being blocked by EPA or, failing that, successfully challenged by environmentalists in the federal courts.

2. On Page V-131, first paragraph

The statement on "dissolution and slow degradation (in terms of years) of higher boiling fractions..." is only an opinion, and has not been established by scientific data. The time required for degradation of such fractions varies widely; depending upon environmental conditions.

3. On Page V-144, second paragraph

The statement on reduction of fish and shrimp production in Gulf waters is inconsistent with the results of more recent studies, e.g., by GURC, which afforded the opposite conclusion.

4. On Page V-144, third paragraph, last sentence

There has been no established link (even circumstantial) between petroleum hydrocarbons and tumors in bottom-feeding fish and clams, i.e., no cause/effect relationship. Research on this subject is in progress. The statement is misleading and scientifically

unvalidated.

5. On Page V-145, last paragraph, second sentence

The 0.1 ppm figure may be off by an order of magnitude, and should probably be closer to 1 ppm. It should be noted here that 0.1 - 1.0 ppm concentrations (of water-soluble fractions of oil) are rarely maintained in spill situations. Rapid dilution to ppb levels usually occurs.

6. On Page V-146, second paragraph

This entire paragraph is factually wrong, as established by numerous scientists (independently). No potential public health implication for humans has been shown. Marine organisms rapidly purge oil which they have incorporated. This fact should be cited here. Many references are available.

7. On Page V-146, last paragraph

This is not entirely correct. Depuration of oil by marine organisms permits prediction of the unlikelihood of introduction of oil into human food supply.

8. On Page V-155, first paragraph, lines 8-9

Based on current studies being perofmred by VIMS on the effects of spilled oil on microbial populations in a marshland, the anticipated damage to microbes cited here is incorrect.

9. On Page IX-4

References ~~CO-223 and CO-224 are probably~~ Cowell rather than Colwell.

Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601

T. B. Redmond
Vice President of Planning and Administration

August 9, 1976

210003

Executive Communications
Room 3309
Federal Energy Administration
Box HQ
Washington, D. C. 20461

Re: Draft Programmatic EIS - Strategic Petroleum Reserves

Gentlemen:

The Draft Programmatic Environmental Impact Statement on Strategic Petroleum Reserves deals with the economic impacts of alternative methods of acquiring the oil, at Pages III-29 to III-37.

Amoco would refer to and asks that careful consideration be given to the abundance of testimony on this point at the FEA Hearing on July 19, 1976, on the Industrial Petroleum Reserve.

At that hearing, Amoco fully endorsed the SPR but strongly opposed an IPR on the grounds that it was inefficient and a diversion of scarce capital funds from necessary exploration and production projects.

At that hearing, Amoco and many others pointed out that the cost of the Strategic Petroleum Reserve should be borne by the entire U.S. populace to which the benefits accrue. Conversion of Naval Petroleum Reserve oil and royalty oil from Federal lands into a SPR is a sound way to achieve this result. Any pre-emptive assignment of "old" oil or of entitlements to the Federal Government to build up a SPR misplaces the burden in unequal fashion on a portion of the population. Worst of all in terms of distorted economic impacts is the simplistic concept of a "savings to the Government" of up to $3 billion by dumping the burden of an Industrial Petroleum Reserve on petroleum companies.

At Page III-37, it is stated that "it is not expected that investment projects of more than marginal importance to the industry or the Nation would be abandoned as a result of the requirement for industry to provide oil for the IPR". And again at Page III-37, "if these projects were

deemed sufficiently promising by industry, additional funds would be raised in equity or debt markets to finance them."

Amoco strongly objects to this lack of understanding of the oil industry. Typically, it is attractive exploration and production projects that are being delayed and postponed today. Even without an IPR, the financing constraints are real indeed. Capital spending for twenty large U.S. oil companies not only exceeded internally generated cash in 1975, but is growing faster than profits. A decade ago, U.S. business used only $0.60 of borrowed money for each $1.00 of internal cash. In 1974, the figures were $1.60 of borrowed money for each $1.00 of internal cash. Future earnings must increase over historical levels if industry is to support the ever-growing burden of debt necessary to finance continued exploration and development.

If the profits of our industry (or of any industry for that matter) are curbed, then the internal generation of capital will be restricted. External investors will be less willing to commit their funds to an already overextended industry. Because the petroleum industry is highly capital intensive, investment will be discouraged. Anything which forces diversion of corporate funds into low or no-return projects--such as the IPR--will necessarily impair our industry's ability to pay for finding and bringing to market the petroleum which this country needs.

Amoco appreciates this opportunity to comment on the Impact Statement covering the Strategic Petroleum Reserve.

Yours truly,

J. B. Redmond

HILL, CHRISTOPHER AND PHILLIPS, P. C.
1900 M STREET, N. W.
WASHINGTON, D. C. 20036

DUMOND PECK HILL
GEORGE L. CHRISTOPHER
RICHARD M. PHILLIPS
GILBERT C. MILLER
ALAN ROY DYNNER
JOSEPH J. BRIGATI
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THEODORE L. PRESS
RONALD W. STEVENS
STEPHEN W. GRAFMAN
CHARLES S. LEVY
EDWARD B. CROSLAND, JR.
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COUNSEL

TELEPHONE (202) 452-7000
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TELEX 440209 HIPH UI
WU 89-421
WRITER'S DIRECT DIAL NUMBER

August 10, 1976

Mr. Mark Steiner
Federal Energy Administration
1726 M Street, N. W.
Washington, D. C. 20460

Dear Mark:

Enclosed is a copy of Bonaire's comments on FEA's EIS for the Strategic Petroleum Reserve program. Please let me know if we can be of any further help to you.

With best regards.

Sincerely,

Herbert H. Brown

HHB:thg

Enclosure

Bonaire Petroleum Corporation N.V.
Bonaire, Netherlands Antilles

Suite 2785
1100 Milam Bldg.
Houston, Texas 77002
(713) 224-3063

Telex 774290
BONAIRE PET HOUSTON

August 6, 1976

Executive Communications
Room 3309
Federal Energy Administration
Box HQ
Washington, D. C. 20461

Gentlemen:

Pursuant to FEA's Federal Register notice of June 21, 1976, Bonaire Petroleum Corporation, N.V., herewith submits its comments on FEA's Draft Programmatic Environmental Impact Statement for the Strategic Petroleum Reserve. Fifteen copies of such comments are enclosed.

Very truly yours,

Gerald P. Smith
General Manager, Marketing

Comments of Bonaire Petroleum Corporation, N.V., on FEA's Programmatic Environmental Impact Statement for the Strategic Petroleum Reserve

Bonaire Petroleum Corporation, N.V. (hereinafter "Bonaire"), herewith submits its comments on the Federal Energy Administration's ("FEA") Draft Environmental Impact Statement ("EIS") for the Strategic Petroleum Reserve program, pursuant to FEA's Federal Register Notice of June 21, 1976. Bonaire, a corporation organized under the laws of the Netherlands Antilles and owned jointly by Northville Industries Corporation, Inc., New York, and Paktank, B.V., The Netherlands, owns and operates a major petroleum transhipment facility on the island of Bonaire, Netherlands Antilles.

Transhipment is an environmentally superior and relatively inexpensive means of transporting large volumes of petroleum from foreign ports -- particularly the Middle East and Africa -- to U.S. ports along the Gulf of Mexico. FEA's Draft EIS fails to discuss transhipment in the context of its analysis of alternatives required by the National Environmental Policy Act ("NEPA"). Accordingly, these comments are submitted to direct FEA's attention to transhipment as such an alternative and to suggest that transhipment be considered in both FEA's Final EIS and its decisionmaking process for implementing the Strategic Petroleum Reserve Program.

Specifically, the scope of the EIS should be expanded to cover the following three matters:

(1) the alternative methods of transporting foreign petroleum to U.S. ports -- such transportation for the Strategic Petroleum Reserve would constitute a "major Federal action" within the meaning of Section 102(c) of NEPA;

(2) the comparative advantages and disadvantages of these transportation methods, including transhipment; and

(3) the economic impact and influence of such transportation on the tanker market.

Each of these will be discussed below.

Transportation of Petroleum from Foreign Ports

The water depth of U.S. harbors along the Gulf of Mexico -- ports considered for the Strategic Petroleum Reserve in the Draft EIS -- is too shallow to permit Very Large Crude Carriers (VLCCs) of 160,000 - 330,000 DWT to enter and discharge cargo. These harbors, rather, can accommodate tankers no greater than 50,000 - 60,000 DWT, a fact which dictates that no matter what method is used to transport petroleum across the Atlantic Ocean, it must ultimately enter Gulf ports in vessels -- tankers or barges --

which draw no more water than would tankers of 50,000 - 60,000 DWT. Given this physical limitation, therefore, there are three ways in which foreign petroleum can be transported across the Atlantic and imported into the U.S.:

(1) by direct shipment in 50,000 - 60,000 DWT tankers which load petroleum in foreign ports and transport it uninterrupted into the U.S.

(2) by trans-Atlantic shipment in VLCCs which load petroleum in foreign ports and transfer it at sea to smaller vessels for import into the U.S. This process is called "lightering" when all of the petroleum is transferred to smaller vessels for import and the VLCC remains at sea; it is called "lightening" when a portion of the petroleum is transferred to smaller vessels and both these vessels and the lightened VLCC import the petroleum.

(3) by trans-Atlantic shipment in VLCCs which load petroleum in foreign ports and transfer it to land-based transhipment facilities

where it is stored in large tanks for a short period and then re-transferred to 50,000 - 60,000 DWT tankers for import into the U.S.

Each of these three transportation methods has certain advantages and disadvantages which translate into trade-offs between economic and environmental objectives: namely, minimizing the economic cost of transporting petroleum into the Strategic Petroleum Reserve versus minimizing the environmental risks. An optimum must, therefore, be achieved between these objectives.

Transhipment achieves this optimum for several reasons: First, unlike lightering or lightening which require the transfer of petroleum at sea from VLCCs to smaller tankers or barges, transhipment accomplishes this transfer dockside in a safe and secure harbor. Such conditions, of course, eliminate the otherwise potentially hazardous operation of pumping petroleum through a hose connection between vessels -- an operation which carries with it risks of possible damage to the aquatic environment and the coastline from oil spills even under normal weather conditions. In certain areas, such as the Gulf of Mexico, there is even greater danger because quick changes in weather conditions can cause

unfavorable conditions for lightering operations. (Tables V-33 and V-37 of the Draft EIS indicate the risks of oil spills associated with lightering operations.)

Second, transhipment facilitates administrative efficiency in importing large volumes of petroleum into U.S. harbors. Whereas the efficiency of trans-Atlantic shipments that are coupled with lightering or lightening operations depends on various unpredictable conditions, such as weather and unexpected port congestion which can result in substantial delay or demurrage charges, or both, transhipment is a basically predictable operation which can be planned with optimum certainty. Thus, individuals responsible for the unloading and loading of tankers at the transhipment facility and the unloading of tankers at the port of entry into the U.S. can schedule their respective operations to foster economic efficiency.

Third, transhipment takes advantage of the economies of scale. By using VLCCs from foreign ports to the transhipment facility, transhipment takes advantage of the overwhelming economies of scale for the long-haul trans-Atlantic movement of petroleum. Only for the short-haul shuttle shipment from the transhipment facility to the U.S. port are the more costly 50,000 - 60,000 DWT tankers used.

Comparative Economics of Transportation Methods

For illustrative purposes, Bonaire has requested an established ship brokerage firm, Long, Quinn and McAleer Co., Inc., to prepare an analysis comparing the cost of transhipment with the cost of direct shipment and with the cost of shipment coupled with lightering. A summary of this analysis is set forth in Attachment A to these comments. The shipping rates used for this analysis are the "World Scale Rates" commonly accepted by the petroleum industry; the transhipment point is the island of Bonaire. Attachment B is a brochure which contains a description of Bonaire's facility, pertinent shipping routes, and basic economic data on transhipment. All transhipment facilities contain the same types of equipment and components, although there are, of course, differences in the age of the facilities and their relative efficiencies. It should be noted that whether foreign or American flag tankers are used, the economic advantages of transhipment still pertain.

Economic Impact of the Strategic Petroleum Reserve Program on the Tanker Market

The Strategic Petroleum Reserve program and, particularly, the Early Storage Reserve will require the use of a large number of tankers and will thus introduce a substan-

tial new force into the tanker market. While there is at present an over-capacity of VLCCs worldwide, the impact of this force would still tend to drive up the cost of chartering tankers, which would in turn increase the price of petroleum transportation generally. These increased shipping costs, of course, would translate into higher costs for implementing the Strategic Petroleum Reserve program. This is a matter which should be addressed by FEA in developing its program plans.

Comments on Specific Portions of the Draft EIS

Page I-12 and 13 — A third measure to mitigate adverse environmental impact would be the selection of a petroleum transportation method which minimizes the risks of oil spills.

I-17 — A description and discussion of alternative methods of transporting oil should be added under "Alternative Methods for Acquiring the Oil." This should include transhipment and a comparison of it with other alternatives.

II-25 and 26 — Under "Petroleum Acquisition," the following points should be made: (1) the

cost of transportation is a major ingredient of the total cost of the Strategic Petroleum Reserve; (2) the demand for tankers will put upward pressure on the costs of chartering tankers and thus have an impact on market prices.

Page II-37 — The administrative aspects and mechanics of scheduling and coordinating tanker shipments into U.S. ports should be addressed.

III-33 et seq. — The section on "Alternatives" should be expanded to include specific transportation alternatives, including transhipment.

III-35 — The top paragraph states:

> "If the use of conventional ports continues, tanker capacity will generally be restricted to 300,000 barrels. The transfer of oil from very large commercial carriers to small tankers at foreign ports would cause substantial increases in ship traffic. This added congestion would increase the risk of collision and subsequent oil pollution."

This paragraph mischaracterizes the nature and operation of transhipment facilities.

Indeed, if transhipment were to be carried out at a major international port, there could be congestion. But, one of the principal purposes of establishing transhipment facilities in remote locations, such as the island of Bonaire, is to assure that there will not be congestion. Bonaire's facility, for example, was sited with the objectives of preventing port congestion and of maintaining streamlined, efficient operations. The facility does not increase the risk of collision or pollution. It is managed tightly to minimize these risks by accommodating a relatively small number of large vessels and not performing lightering operations.

Page III-35

The following four paragraphs discuss superports. It should be stated that no superport will be in operation until at least 1980. Therefore, superports will not be of assistance to the Emergency Storage Reserve.

Page V-128 — It should be stated that the method of transportation will also affect the risks of oil spills and that transhipment minimizes such risks.

V-151-159 — It should be stated that superports will not be available in time to be of assistance to the Early Storage Reserve.

VI-1 — "Mitigating Measures" should be expanded to include a third category of "mitigating influences": the selection of transportation methods that minimize adverse environmental impacts; transhipment should be specifically discussed as such a method.

VI-2 — This section sets forth the statutory basis and policy reasons underlying NEPA's requirement that programmatic EISs be prepared. This Draft EIS, however, has fallen short of NEPA's objectives and the guidelines of the Council on Environmental Quality in that it has not adequately considered an essential ingredient of the Strategic Petroleum

Reserve program: namely, transportation of petroleum from foreign to U.S. ports. The scope of the final EIS should be expanded to embrace such transportation, and thus the transhipment alternative should be described and compared with the other transportation alternatives.

BONAIRE PETROLEUM CORPORATION, N.V.

By _____
Gerald P. Smith,
General Manager, Marketing

Long, Quinn & McAleer Co., Inc.
1100 MILAM BLDG.
SUITE 3375
HOUSTON, TEXAS 77002

TELEPHONE
(713) 236-8084

TWX 910-881-1147

ASSUMPTIONS FOR PURPOSES OF ANALYSIS:

A. Crude Supply Assumptions:

1. Circa 270,000 barrels per day of either Iranian or Nigerian crude loading at Kharg Island and Bonny respectively.

2. Specific gravity of the Iranian light crude at 60 degrees F. being .8534 (corresponding to an API gravity of about 34.3) there would be 7.505 barrels per long ton of crude oil loaded.

3. Bonny light crude's specific gravity would be .8368 (corresponding to an API gravity of about 37.6), there would be 6.655 barrels per long ton loaded.

B. Ocean Transportation Parameters/Assumptions:

1. Due to port facility restrictions in U.S., 50/60,000 DWT vessels will be used for direct shipment and for shuttle service between Bonaire and New Orleans.

2. Assumes present World Scale rates will be increased by approximately 10 percent effective July 1, 1976 (see page 2).

3. Analysis is based upon present tanker market rates plus an additional 5 to 10 points, for one year term charter.

WORLD SCALE RATES */

Persian Gulf	1976 Present Rate Basis WS 100 **/	1977 Projected Rate Basis WS 100
Kharg Island/New Orleans	$17.29 LT	$19.02/LT
Kharg Island/Bonaire	15.08	16.59
Bonaire/New Orleans	2.90	3.19
West Africa		
Bonny/New Orleans	8.77	9.65
Bonny/Bonaire	6.79	7.47
Bonaire/New Orleans	2.90	3.19

*/ World Scale Rates are established by a London-based organization, The Association of Ship Brokers and Agents (World Scale), Inc., which regularly calculates the cost of moving cargo from virtually every port in the world to every other port. The factors that World Scale takes into consideration are vessel operating costs, capital recovery costs, port charges, pilotage and tug fees, and other related costs which would affect the total cost of transporting petroleum among these ports. Once World Scale calculates the costs -- for example, between Port A and Port B -- this calculation is established as World Scale 100. Thus, when a shipper wants to transport petroleum from, say, Port A to Port B, the shipper asks various shipowners to bid for the shipment. Depending upon the factors of supply and demand, the parties may negotiate upwards or downwards from World Scale 100. Today, since there is a surplus of large tankers, the market is depressed and it is possible to charter a VLCC for about World Scale 30. A small tanker -- in the range of 40,000 - 60,000 tons -- is demanding World Scale 75 to 80 in today's market. Two and a half years ago, during the Arab Oil Embargo, rates of World Scale 350 to 400 were common. The impact of supply and demand on World Scale rates is thus obvious.

**/ "LT" means Long Ton (i.e., 2,240 pounds); $17.29/LT, therefore, means $17.29 per Long Ton.

COMPARATIVE TANKER COST ANALYSIS

	COST $/LT	COST $/BBL
A. Kharg Island (Persian Gulf, PG) to New Orleans (NO)		
1. Foreign Flag Tankers		
a. Direct shipment 50/60,000 DWT vessel WS 80	15.216	2.027
b. Transhipment via Bonaire		
VLCC PG to Bonaire WS 30	4.977	.663
50/60,000 DWT vessel WS 80 Bonaire to NO	2.552	.34
	7.529	1.003 ***/
c. Lightered 80,000 DWT		
80,000 DWT vessel WS 60	11.412	1.52
Plus lightering		.075
		1.595
2. American Flag Tankers (WS Equivalent)		
a. Direct shipment 50/60,000 DWT vessel WS 190	36.138	4.815
b. Transhipment via Bonaire		
VLCC PG to Bonaire WS 60	9.954	1.326
50/60,000 DWT vessel WS 190 Bonaire to NO	6.061	.807
	16.015	2.133 ***/
c. Lightered 80,000 DWT		
80,000 DWT vessel WS 130	24.72	3.296
Plus lightering		.075
		3.371
3. Foreign VLCC/American Flag 50/60,000		
Transhipment via Bonaire		
VLCC PG to Bonaire WS 30	4.977	.663
50/60,000 DWT vessel WS 190 Bonaire to NO	6.061	.807
	11.038	1.470 ***/

***/ These costs do not include transhipment charges which would be approximately $.15-.20 per barrel.

	COST $/LT	COST $/BBL	
B. Bonny (Nigeria) to New Orleans			
1. Foreign Flag			
a. Direct shipment 50/60,000 DWT vessel WS 80	7.72	1.008	
b. Transhipment via Bonaire			
VLCC Bonny to Bonaire WS 30	2.241	.292	
50/60,000 DWT vessel WS 80 Bonaire to NO	2.552	.333	
	4.793	.625	***/
c. Lightered 80,000 DWT			
80,000 DWT vessel WS 60	5.79	.756	
Plus Lightering		.075	
		.831	
2. American Flag (WS Equivalent)			
a. Direct shipment 50/60,000 DWT vessel WS 190	18.335	2.395	
b. Transhipment via Bonaire			
VLCC Bonny to Bonaire WS 60	4.482	.585	
50/60,000 DWT vessel WS 190 Bonaire to NO	6.061	.791	
	10.543	1.376	***/
c. Lightered 80,000 DWT			
80,000 DWT vessel WS 130	12.545	1.639	
Plus lightering		.075	
		1.714	
3. Foreign VLCC/American Flag 50/60,000			
Transhipment via Bonaire			
VLCC Bonny to Bonaire WS 30	2.241	.292	
50/60,000 DWT vessel WS 190 Bonaire to NO	6.061	.791	
	8.302	1.083	***/

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August 4, 1976

OUR REF. 83193

Executive Communications
Room 3309
Federal Energy Administration
Box HQ
Washington, D.C. 20461

Re: Draft Programmatic EIS -
Strategic Petroleum Reserves

Dear Sirs:

By Federal Register notice of June 25, 1976, the Federal Energy Administration informed interested parties that it has prepared a draft programmatic environmental impact statement concerning the creation of a system of Strategic Petroleum Reserves.

In response to this notice, we are enclosing fifteen copies of three documents which the International Association of Independent Tanker Owners (INTERTANKO) wishes to submit for your consideration. These documents consist of: (1) INTERTANKO's comments on the Draft EIS, (2) INTERTANKO's June 1976 paper concerning Strategic Petroleum Reserves, and (3) a Frank Mohn A/S booklet concerning the FRAMO segregated ballast system.

Sincerely yours,

KIRLIN, CAMPBELL & KEATING

Ronald A. Capone
Stuart S. Dye
Attorneys for INTERTANKO

RAC:JWP/tlr

enclosure

THE U.S. PLAN FOR STRATEGIC PETROLEUM RESERVES

CALLS FOR STORING OIL IN TANKERS

INTERTANKO'S COMMENTS
ON THE DRAFT ENVIRONMENT IMPACT STATEMENT (EIS)
WITH EMPHASIS ON PAGES III - 100/110 (USE OF TANKERS)

1. General Comments.

Preparing for implementation of the strategic petroleum reserve program, the Federal Energy Agency has in the draft "Environment Impact Statement" (EIS) on strategical petroleum reserves (SPR) of June 1976 particularly emphasized underground storage of oil in existing salt domes or salt beds. The possibility of using tankers is also commented upon. On page II-14 of the draft it is however expressed that whereas the use of tankers is still considered, it is likely to be eliminated because of its relatively high cost and potential environmental hazards.

The International Association of Independent Tanker Owners (INTERTANKO) would question the basis for this preliminary conclusion and would strongly recommend that the possibility of using idle tankers as a temporary means of achieving the goals of petroleum storage reserve plan should be further explored. Reference is made to the National Petroleum Council's report entitled "Petroleum Storage for National Security" pp. 66-67/ 77-78 pointing out that it may be doubtful whether significant salt dome storage could be ready for operation as scheduled due to time needed for construction of necessary facilities, including deep water terminals. As tankers are ready available at low cost, this alternative offers a unique possibility to allow the time for completion of the salt dome storage scheme and should significantly assist achieving the goal of the Federal Energy Agency (FEA). Even when salt domes are completed, tankers may, due to the flexibility prove to be a useful supplement. In some

of an emergency the tankers would have the flexibility to allow quick transfer of oil to consuming areas and refineries to meet an immediate demand. In particular compared with the possibility of constructing new above-ground steel tanks, floating tankers should be the most attractive alternative.

The draft EIS contains several serious inaccuracies and does not take into account the experience and technology developed for tankers during the last years. Below are our comments on the draft EIS, pp. III - 100/110.

2. Availability of Tankers

The draft EIS (III - 100/101) recognizes the depressed tanker market and the surplus of tanker tonnage available for other usage. In the table it is indicated that 36.8 m.dwt. tankers are in lay-up. The fact is, however, that per August 1, 1976 nearer to 50 m.dwt. were without employment and laid up. In addition, sailing tankers are generally operating at reduced speed which under the present market conditions is more economical due to saving of fuel. Thus with full speed, additional tonnage estimated to another 30 m.dwt. capacity, can be released. It is likely that a full utilization of these 30 m.dwt. will take place before the lay-up figures will be drastically reduced. Furthermore, it is expected that about 20 m.dwt. of tanker tonnage may be delivered during the rest of 1976, and at least the same amount of tonnage during 1977. In the Annual Report of OECD for 1974 it is estimated that the present surplus of tankers will last until 1985. Even though INTERTANKO does not endorse this forecast, it seems clear that tankers will be available for several years to come.

EIS (III - 103) states that contractual "escape clauses" may be necessary for any arrangment with tanker owners. This must be strongly refuted. Such escape clauses do not exist in any standard contract used by major oil companies for period fixtures, and should not be necessary when contracting for the purpose of storing oil.

3. Safety

On anchor site selection (III - 103) good experience has been gained by classification societies during the last two years to provide safe lay-up berths outside port limits. Several vessels moored alongside each other are less exposed to heavy winds than single moored vessels. Ballasted laid-up tankers at various anchorages in Norway successfully withstood severe tests during the exceptional stormy winter 1975/76 when windforces up to and above hurricane (63 knots and above) were measured on several occasions. Fully loaded with oil tankers would be even less vulnerable.

A number of the technical problems referred to in the draft EIS (III - 104/107) are exaggerated. EIS seems to indicate that idle tankers will need a thorough check, cleaning, as well as costly installations before being available for storage. Tankers laid up worldwide are, however, required to be clean and gasfree. Generally they are able to depart for a storage berth in 2-3 weeks after notice is given. This period would be sufficient for manning, starting up procedures, dry docking or cleaning of vessel's bottom, classification survey, etc., and would be of no concern to the party leasing the vessels unless purchased/leased on an "as is where is" basis.

On auxiliary equipment for storage vessels, joint studies by Frank Mohn A/S, Bergen, Norway, and INTERTANKO's Technical Admisory Committee recommends use of simple and inexpensive portable pumps, heating systems, etc. Thus tankers used for storage should not normally need to raise steam or operate auxiliaries to heat or pump cargo, or handle ballast, but in case of an emergency, it might be desirable and possible to maintain some tankers fully operational. (See INTERTANKO's June 1976 paper, para. 10,15 through 19 and Frank Mohn A/S booklet, pp. 1 - 5).

Bilge water is mentioned in EIS to be a problem but can easily be stored in a slop tank. If needed, oil spill contain-

ment and clean up equipment can be acquired at low cost. Strategially located, such equipment could serve several groups of tankers, being transported to the spot by helicopters. A dual purpose is served as it will substantially contribute to improve any existing local contingency plan. (See para. 8 - 10 in INTERTANKO's June 1976 paper.)

The reference in EIS page III - 110 to the Torry Canyon accident is clearly irrelevant, as Torry Canyon grounded due to a navigational error cruising for full speed in the English Channel.

4. Cost

With the extraordinary slump in the tanker market, tankers (12 - 15 years of age) in lay-up today can be bought by the U.S. government for storage purposes at a price slightly above scrap value.

In the EIS report the question is raised what to do with the tankers at the completion of the early storage program. It is said that "the ability to sell tankers to a market already overloaded with excess capacity must be seriously questioned". This is no problem as tankers can be sold for demolition and a major part of the initial cost recovered. It will be known that ship scrap is a first class raw material for the steel industry for which there is always a demand. Moreover, after the expiry of the storage program the tanker market may have improved and the demand for tankers fit for trading may again be brisk.

It is furthermore said (III - 107) that the costs of having a tanker in lay-up include depreciation and lost revenue. However, if the owner has decided to keep his vessel in the short and medium term (1-3 years), these cost components will not be included in his calculations when the vessel is offered for a fixture. The owner would accept a rate which would produce a better result than having the vessel in lay-up.

The EIS refers to a case in which an oil company incurs $500,000 annually by having a tanker of 50,000 tons in lay-up. This is indeed a very high estimate as normal lay-up costs are in the $200,000 - $300,000 range for this size. These costs include manning, repair, maintenance and all other operational costs.

The calculations made in INTERTANKO's June paper, Part I, para. 11 - 14, demonstrate that tankers are highly competitive for storage of oil, and owners will quote rates that are far below the price of using, for instance, steel tanks on shore. In the "Early Storage Reserve" plan published by the Federal Energy Administration, April 22, (IV - 6) the costs to lease steel tanks are estimated to be in the $13 - $22 range per ton per year ($1.80 -$3 per barrel).

5. Conclusion

Based upon the above considerations, INTERTANKO would respectfully submit that the use of tankers is recommended.

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

AUG 9 1976

OFFICE OF THE
ASSISTANT DIRECTOR
FOR ASTRONOMICAL,
ATMOSPHERIC, EARTH,
AND OCEAN SCIENCES

Dr. Robert L. Davies
Director
Strategic Petroleum Reserve Office
Federal Energy Administration
1726 M Street, N. W.
Washington, D. C. 20461

Dear Dr. Davies:

Several individuals in the Foundation have reviewed the DEIS - Strategic Petroleum Reserve and have these comments for your consideration:

- The SPR should be thoroughly discussed in terms of projected energy demands through 1985 should we face another embargo.

- Site-specific statements should address adverse impacts of petroleum products other than crude oil.

- Impact areas are a mix of environmental impacts of the petroleum storage and effects of environmental factors on the storage. Seismic activity, an important factor, might be due either to the storage or have an effect on the storage. Meteorological impacts have effects only on the storage. These differences can be confusing, and need clarification in the DEIS.

Sincerely yours,

Edward P. Todd

Edward P. Todd
Deputy Assistant Director

Standard Oil Company of California
225 Bush Street, San Francisco, California 94104

K. T. Derr
Vice-President

August 5, 1976

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Draft Programmatic EIS -
Strategic Petroleum Reserve

Executive Communications
Room 3309
Federal Energy Administration
Box ~~HHS~~ HQ
Washington, D.C. 20461

Gentlemen:

Standard Oil Company of California is pleased to respond to the request for comments on a Draft Programmatic EIS - Strategic Petroleum Reserve, as published in the June 25, 1976 issue of the *FEDERAL REGISTER*, 41 F.R. 26262. Previous correspondence submitted by our company to the FEA concerning the Strategic Petroleum Reserve includes: 1) two letters from Mr. H. J. Haynes to Mr. Frank Zarb dated March 12, 1976 and July 19, 1976; 2) a letter from Mr. K. T. Derr to the Executive Committee of the FEA dated July 15, 1976 submitting our formal comments on the Industrial Petroleum Reserve in response to FEA's request. A considerable amount of the material herein is duplicative in concept and wording with earlier correspondence. For referral convenience, this previous correspondence is herewith included as Attachments 4, 5 and 6.

As stated in previous correspondence, our company generally endorses the establishment of an Early Storage and Strategic Petroleum Reserve as a means of reducing the economic consequence to the nation of a future short-term supply interruption. We are convinced that our nation will become increasingly dependent on oil imports under present energy policies and regulations and thereby more vulnerable to the adverse impacts which will result from possible future disruptions of our imported crude oil and product supplies. We are equally convinced that any feasible Early Storage or Strategic Petroleum Reserve can reduce the nation's vulnerability to possible future denials of imported oil for only a relatively short period of time as the cost of long-term security storage protection would be prohibitive. In the long term, the only sensible answer to our fundamental needs is to undertake as soon as possible an aggressive search for, and development of, indigenous energy alternatives to imported oil. Thus, it is important that a plan be provided to assure a balance of the benefits of petroleum security storage with the need to encourage domestic energy resource development.

Further, we recommend that FEA give careful consideration to evaluating what might be the nature of a supply disruption against which the Strategic Petroleum Reserve would serve as a supply buffer. In studying such

a fundamental aspect of the basis for the Reserve, FEA might wish to solicit input from a "task force" comprised of representatives of the military, petroleum industry, consumer groups, including industrial and agricultural users of petroleum to help define the potential for demand curtailment and fuels substitution in the event of a disruption. Petroleum demand priorities should be established by the FEA after consulting concerned parties and these priorities should be updated periodically.

In Attachments 1, 2 and 3, we have elaborated upon much of the draft programmatic Environmental Impact Statement on a section-by-section basis. However, we would like to emphasize in this letter our views on key areas of concern regarding the EIS Statement and the Strategic Petroleum Reserve in general:

(1) We are strongly opposed to the establishment of an industry-funded IPR. Since all of the component parts of the Strategic Petroleum Reserve, including the IPR, are intended to protect the nation against the threat to its economic well-being and military security which a supply disruption would pose, it follows that the funding responsibility should be borne by the national economy, and not the U.S. petroleum industry. The very reason for the SPR is to protect this nation against the advent of another embargo - a political act between governments. As such, it seems entirely appropriate that the cost to provide such safeguards should be funded entirely by the federal government.

(2) Government ownership and control of Early Storage and Strategic Petroleum Reserves should not preclude involvement of the private sector in planning, design, construction, management and operation of these reserve programs. This expertise can readily be obtained by the government through use of private contractors, which is common practice in a wide range of government procurement programs.

(3) We believe that Regional Petroleum Reserves are unnecessary in the short and intermediate term and probably longer term - beyond 1980. The availability of a carefully developed program and plan which takes into account alternative steps such as oil product demand reduction through conservation curtailment and conversion measures and uses spare refining capacity and yield flexibility along with distribution system flexibility should eliminate or, at the very least, substantially reduce the need for Regional Petroleum Reserves. Certainly, the West Coast, fast approaching a period of adequate self-sufficiency in domestic oil availability, would have little need for additional crude oil or product reserve storage.

(4) In our opinion, the best way to store petroleum for use in emergencies is in the form of crude, not manufactured products. Manufactured products tend to deteriorate (go off specification)

after long storage. Further, refining options are foreclosed when manufactured product is stored in lieu of crude.

No one can predict what form our next emergency will take - we could have a shortage of gasoline, heating oil or jet fuel. Since any shortage of imports would create idle refining capacity, storing crude in lieu of products would allow us to manufacture the products needed.

(5) It appears the FEA is considering procurement of crude oil for the Strategic Petroleum Reserve in a manner which indirectly equates to industry funding. For example, the FEA proposes to acquire crude oil for the Reserve by:

- Using lower priced controlled federal royalty oil.
- Allocating lower priced controlled (old oil) to the federal government.
- Having the federal government participate in the entitlements program and buy oil (domestic and imported) at the national average price.

All of these methods deprive refiners of price controlled oil which forces them to import higher priced foreign crude as the only feasible substitute. The FEA and Congress should recognize that the petroleum demand imposed by such a Reserve can only be supplied from foreign sources. Therefore, the above methods of acquiring oil for the Reserve would equate to indirect funding of the Reserve by the oil industry.

(6) The most economical and practical way to store the oil is in underground salt caverns located in the Gulf Coast Area. The Gulf Coast Area is ideal because it is close to an existing complex distribution network that can serve most of the U.S.

Utilization of tankers as an interim means of storing the Early Storage Reserve would be a poor substitute for existing underground storage caverns. Considering all factors, economic, political, etc., the use of tankers as storage facilities for the ESR would be an unacceptable alternative.

(7) We do not feel that the section of the EIS concerning oil spills presents an up-to-date account on the fate and effects of oil spills and methods to prevent and clean up those spills. In our opinion, this area is of sufficient importance to justify further investigation by the FEA into the latest available information on oil spills. We have attached a copy of recent testimony by Mr. E. W. Mertens, Chairman of the API Committee on the Fate and Effects of Oil in the Environment. This testimony discusses several of the API-sponsored studies which apply to many of the points made in the draft EIS. We hope this attachment will assist the FEA in finalizing this particular area

of the Environmental Impact Statement.

We appreciate having this opportunity to express our views on this draft Environmental Impact Statement.

Very truly yours,

K. T. Derr

Attachments:

I - Supplementary Comments on Draft Programmatic EIS.
II - Statement by E. W. Mertens on Environmental Impact of Proposed Oil and Gas Leasing OCS Gulf of Alaska.
III - Effects of Chronic Exposure of Oil on Marine Life Under Field Conditions.
IV - Mr. Haynes' March 12, 1976 Letter to Mr. Zarb.
V - Mr. Haynes' July 19, 1976 Letter to Mr. Zarb.
VI - Mr. Derr's July 15, 1976 Letter to FEA Exec. Communications on IPR.

ATTACHMENT 1

SUPPLEMENTARY COMMENTS ON DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR THE STRATEGIC PETROLEUM RESERVE.

STANDARD OIL OF CALIFORNIA
August 5, 1976

The prefacing letter expresses Standard Oil Company of California's basic position on key areas of the Draft EIS. Following are additional comments directed specifically at a number of sections in the programmatic EIS:

SECTION IID&E - MAJOR STORAGE AND DISTRIBUTION FACILITIES AND CANDIDATE STORAGE SITES

In our opinion the practical and economical way to store oil for the SPR is in underground salt caverns, located close to existing pipeline distribution networks and receiving terminals. The Gulf Coast area is a very suitable site because of its abundance of caverns and location relative to an elaborate petroleum distribution network already in operation. Crude can be moved to refineries as far away as St. Paul, Minnesota, or Buffalo, New York. Finished products can be moved from the Gulf Coast to any area in the upper Midwest and to the East Coast. In the case of PAD District V, forthcoming availability of Alaskan North Slope Crude oil should permit refineries to operate at appropriate levels during a foreign petroleum supply disruption.

Underground salt caverns are preferred over aboveground steel tanks because caverns:

- Are the least expensive form of storage. Depending on the amount of storage, cavern size, wells per cavern and proximity to water source and disposal areas, underground caverns should cost from $1.00 to $3.00 per barrel (including appurtenances and piping). Aboveground steel tanks (including site preparation, piping and appurtenances) would cost an estimated $5.00 to $10.00 per barrel, depending on soil conditions and location.

  Have low maintenance costs. Aboveground steel tanks require periodic painting.

  Are less vulnerable from a security standpoint. Underground caverns offer greater protection against damage due to storms, fire or sabotage.

  Have lower evaporation losses because underground caverns have less exposed surface area per volume stored than aboveground tankage. This is preferable from an environmental and economic point of view.

SECTION IIF - IMPLEMENTATION OF THE RESERVE

It is disturbing to note a number of inferences in this section which suggest that the Federal Government will become directly involved in terminal and port facilities and the actual movement of petroleum products during an emergency. If tankers and barges are required for transport, does the government intend to preempt the use of these vessels from the oil companies? Wouldn't the government's involvement in transportation and docking facilities amount to direct governmental control of oil company operations?

In our opinion, the oil industry did an excellent job of allocating petroleum products during the 1973/74 oil embargo. We question whether Government intervention into the supply aspect of another embargo would result in as satisfactory a conclusion. The overall success of the Strategic Petroleum Reserve and its effectiveness during a supply curtailment will depend largely on the Government's willingness to make full use of oil industry expertise in planning and carrying out appropriate distribution of the reserve.

SECTION IIIA1 - ALTERNATIVES TO THE STRATEGIC PETROLEUM RESERVE

Under the EIS "business as usual" projection, total domestic crude and natural gas liquids production in 1980 is estimated at 12.8 MMB/D (including 2.1 MMB/D from Alaska). Considering that since 1971, domestic crude and NGL production has declined from 10.9 MMB/D to the current 9.7 MMB/D, a projected increase of 3.1 MMB/D even with Alaska North Slope production appears quite optimistic, especially in light of recent disincentives enacted by the legislature. A more realistic, but still optimistic, forecast is that the "lower 48" production decline will be offset by new discoveries, enhanced recovery techniques and North Slope production such that total domestic production in 1980 will be 11.8 MMB/D. Unless steps are taken soon to encourage rather than discourage the development of domestic energy resources, even that level of production will be difficult to achieve.

Reference is made on III-9 to Outer Continental Shelf (OCS) production in 1975 off South Alaska. Actually, there was no OCS production off Alaska in 1975. All producing fields except for Swanson River were in the upper Cook Inlet in state waters.

SECTION IIIA2 - ALTERNATIVE METHODS FOR ACQUIRING THE OIL

The implication in this section that there are five distinct oil acquisition methods - Naval Petroleum Reserve oil, royalty oil, "old" oil, oil purchased on the open market, and importing oil - is misleading. We wish to point out that there are really only two distinct categories of oil: incremental domestic oil from the Naval Petroleum Reserves and oil imports acquired directly or indirectly by the U.S. Government. The utilization of royalty oil, "old" oil or open domestic market purchases all really involve the allocation of costs between the Government,

oil companies and consumers and not the source of the incremental hydrocarbons. The use of royalty oil, "old" oil or "national average price" domestic oil for the reserve would only serve to confuse everyone as to the true cost of the reserve and would indirectly result in funding of a portion of the SPR by private industry.

In the environmental impact portion of Section IIIA2, the EIS states that the indirect methods of increasing oil imports would "stimulate domestic production of oil." The increase alluded to is not for domestic oil but for oil per se. To the extent the OCS and Alaskan oil are developed and produced, that development and production will result regardless of the SPR. Since demand for oil already far exceeds domestic production, we fail to see how creating a larger gap between domestic production and demand will stimulate domestic production. FEA must undoubtedly understand that domestic production will be stimulated by removing existing economic disincentives through price decontrol rather than by artificially manipulating the supply.

In Section A-2b the FEA concludes that filling a 500 MMB reserve in five years would require delivery by the equivalent of "one additional 300,000-barrel tanker about every ten days." Our calculations show that one 300,000-barrel tanker would have to arrive every day in order to fill a 500 MMB reserve in five years. Perhaps a 300,000 DWT tanker was intended. A 300,000 DWT tanker arriving every ten days would deliver approximately 2,250,000 bbls. or about 225,000 bbls. per day. If a 300 MDWT tanker was intended, we wish to point out that there are no existing receiving terminals on U.S. coasts that can receive VLCC^S or ULCC^S. If LOOP or Seadock becomes a reality, then VLCC^S and ULCC^S would be able to discharge at a U.S. port. However, LOOP and Seadock, if approved, are not scheduled to be completed until the early 1980^S. Therefore, any oil imported to the U.S. in the interim will have to be transported in 45-80 MDWT tankers. Given current draft limitations at most U.S. ports, the largest cargo size that can arrive is between 300 to 400 MBBLS. This means that one vessel in this tonnage range must arrive and discharge every day for five years to build a 500 million barrel reserve.

IIIA3 - METHODS OF IMPLEMENTING THE INDUSTRIAL PETROLEUM RESERVE

Our company firmly believes that the economic impact on the oil industry, if required to fund an IPR, would be substantial. To require the U.S. petroleum industry to purchase and store as an IPR 3% of its U.S. refinery crude runs plus product imports would result in an expenditure for the petroleum alone of about $2.0-2.5 billion. A reasonable allowance for facilities to contain this oil raises the total expenditure to at least $4.0-4.5 billion. In this section of the Draft EIS, the FEA rightly concludes that if the petroleum industry is forced to absorb $2.5 billion (or higher) in expenditures for an IPR, then it will defer and/or eliminate capital expenditures in a like amount. Unfortunately, FEA proceeds to classify such foregone expenditures as being of marginal importance.

The U.S. petroleum industry, at least based on Standard's experience, is *not* presently in a position to undertake investments of marginal

importance. The industry cannot afford to commit funds to capital expenditures which are of a "discretionary" nature. FEA should be well aware that recent governmental actions have reduced significantly the U.S. petroleum industry's availability of internally generated funds for investment. This has occurred in the face of inflation-induced, rapid increases in the cost of sustaining and augmenting domestic energy supplies. The magnitude of the cost of purchasing and storing these reserves is such that they cannot be undertaken and financed by private industry without significantly reducing exploration and development efforts or creating a competitive imbalance between individual companies. Reducing the industry's capital investment program by $2-4.5 billion would be one more step in the direction of assuring increased dependence on foreign oil and would thus be totally inconsistent with the assumed fundamental objective of the Strategic Petroleum Reserve.

The draft EIS implies that it would be a simple task to pass on costs of the IPR to users of petroleum products by virtue of the FEA's permitting the industry to charge higher prices for its products than otherwise would be the case. This conclusion ignores the fact that petroleum product prices are determined by the operation of market forces, and *not* by some formula which describes how costs can be "recovered." In its recent "Preliminary Findings" on the prospects for residual fuel oil decontrol, FEA reported that throughout the last half of 1975, the thirty largest U.S. refiners maintained "banks" of unrecovered costs aggregating to $1.0-1.5 billion.

These "banks" clearly indicate that far from being able to pass through the incremental costs associated with funding an IPR, the U.S. refining industry has not been able to recover all of the basic costs associated with its current level of activity. The reason: marketplace factors (periodically distorted by preferences granted to some firms by FEA's regulations and/or exceptions thereto).

FEA's apparent belief that costs associated with funding an IPR can be "passed through" fails to take into consideration facts such as: individual refiners produce varying percentages of individual refined products; varying proportions of these individual products are marketed in different regions of the country and in differing percentages to the various classes of customers - *i.e.*, each refiner participates in different markets; each refiner has individual raw material costs and operating efficiencies and yet might be competing with other refiners having different costs with the result that the impact of an IPR funding requirement upon an individual refiner's competitive position will be different from that for other refiners with whom he competes. In view of this, it is erroneous to believe that refiners can ignore competitive conditions in the marketplace and merely take on the additional costs associated with funding an IPR and recover them *with no impact on profitability or market share.*

Assuming, therefore, that the oil industry will be required to absorb the cost of funding an IPR, it is necessary to put the $4.0-4.5 billion funding requirement in proper perspective. It should be noted that the group of petroleum companies whose financial performance is followed by Chase Manhattan Bank has in recent years devoted about this same amount

of funds annually to U.S. petroleum exploration. The diversion of such otherwise productive funds to an IPR effectively requires the industry to defer one year's worth of U.S. exploration activity!

Additionally, the declining availability of natural gas and the need to maintain a healthy economy require the industry to add refining capacity in the U.S. It must also add needed refining facilities to accommodate gasoline lead phase-out if growing requirements for unleaded gasoline are to be met. What investments would FEA have the industry forgo in order to fund an IPR? Domestic exploration? Domestic petroleum development? Refining facilities?

There is *not* an unlimited supply of debt or equity capital available to the U.S. petroleum industry, but the "Draft Environmental Impact Statement" implies that there is. The limitation on capital availability is of particular concern in light of fundamental uncertainties facing the industry, uncertainties in part arising from government regulatory action. If the U.S. petroleum industry had to raise additional capital to purchase petroleum for storage in an IPR, such capital would be made available only at a higher cost than the last prior source of capital. The higher cost could prevent the petroleum industry from funding and undertaking more productive investments. Similarly, certain end-users who are now importing, or are planning to import petroleum products directly (*e.g.*, some electric utilities), would presumably have a similar basic funding problem.

FEA should not overlook the fact that capital devoted to productive investment by the private sector, such as by the petroleum industry in searching for and developing new domestic petroleum supplies, creates job opportunities, and generates additional tax receipts. Diversion of this potential investment away from productive activities so as to build up an IPR will have obvious detrimental impact on the nation's economy. Expenditures for a petroleum reserve result in tying up funds in working capital and do not result in the added employment opportunities which alternative capital expenditures would provide.

In view of the above considerations, we conclude that reducing the U.S. petroleum industry's capital investment capability by requiring it to establish an IPR would be an unfortunate step in the direction of diminishing domestic petroleum supply capability and consequently increasing U.S. dependence on foreign petroleum. This result would be totally inconsistent with what should be a U.S. energy policy objective and would exacerbate the impact of a supply disruption against which the Strategic Petroleum Reserve is meant to provide some security.

As a further argument in support of government funding of the *entire* Strategic Petroleum Reserve (and hence not requiring an IPR), it should be noted that there is substantial precedent for the federal government bearing the full cost of stockpiling strategic materials. The Department of Defense stockpiles significant volumes of various commodities in the U.S. and elsewhere. Crucial raw materials such as various metals are stockpiled and paid for in full by the federal government. As in the case of these important reserves, the Strategic Petroleum Reserve will benefit the entire American public and should therefore be fully

funded and controlled by the federal government.

SECTION IIIB1 - STRUCTURAL ALTERNATIVES - MINED CAVITIES IN SALT

Based on industry studies related to the "LOOP" project, it has been estimated that 200 to 250 MMB of salt cavern storage can be constructed and completed in about six years. Of this time about one year is required to define the project scope and develop sufficient design to order the large pumps required. Two years would be required for design and construction and about three years for the leaching process. Pumps handling 2 to 3 MMB/D, probably in the 10,000-15,000 BHP range would require at least two years to obtain after orders are placed. Completion of the storage is also critically dependent on leaching capacity. At a typical leaching efficiency of 7.5 barrels of water per barrel of salt removed (85% salinity) and a leaching rate of 2+ MMB/D (brine), about three years would be required to leach 200-250 MMB of storage. While it might be possible to increase th leaching rate above 2 MMB/D or take other steps to reduce the six-year period, sufficient data do not exist to date to permit that assumption.

Generally 10 MM barrels is considered a reasonable cavern size for crude storage based on present technology and provides good structural stability at relatively low unit cost due to economy of scale.

SECTION IIIB4 - STRUCTURAL ALTERNATIVES - TANKERS

In our opinion, utilization of existing laid-up tankers as a storage medium for the Early Storage Reserve, though feasible, would be undesirable for a number of reasons.

As stated in the Draft EIS, the cost of maintaining an anchored tanker in sailing readiness is "substantial." We estimate that the cost to maintain a tanker fleet (in steaming readiness) capable of storing 150 MMB of crude oil would be at least $200-$400 million per year. However, the EIS goes on to assume that tankers used for storage will not be kept ready for sailing. Considering that about 40 million DWT or 80 percent of the current inactive and laid-up tonnage involves tankers which are too large to enter any existing U.S. harbor fully loaded, most of the vessels leased would have to be anchored in open navigable waters. We question the acceptance by U.S. government authorities, the shipowners and their insurance underwriters of a plan that would allow these vessels to anchor in open waters without being in sailing readiness. In addition, most coastal areas surrounding our country are vulnerable to hurricanes and other forms of violent weather. We don't believe that the inherent risk, however remote, of leaving a storage vessel anchored in the path of an oncoming storm could be justified.

Regarding vessels which could be accommodated in existing harbors, the impact on visual aesthetics and proximity to populated or recreational areas also would pose formidable hurdles in the selection of suitable anchorage areas. Puget Sound, one of the only inland waterways large

enough to accommodate an 80-150 MDWT vessel, would be inappropriate as an anchorage area since it is located in one of the few areas where adequate domestic crude will soon be available.

The overall cost to store 150 MMB of crude oil in tankers for a three-year period would be about $900 million. The cost to provide permanent underground storage to handle the same volume of crude is estimated to be about $300 million. In addition, crude stored in caverns would eventually become an integral part of the estimated 500 MMB Strategic Petroleum Reserve. Crude held *temporarily* in tankers would ultimately have to be re-accumulated in some type of permanent storage facility. Thus, at the end of the three-year period, not only would we have nothing to show for our $900 million expenditure, we would have to spend additional millions to relocate the Reserve.

Due to the volatile nature of the tanker market, even in a period in which a considerable surplus exists, the costs for tanker storage indicated above may well be understated. The cost of leasing vessels for storage purposes would vary considerably from the first to the last vessel leased. Tanker rates would, in all likelihood, respond to a sudden reduction in surplus tonnage and increase substantially. Ultimately, increased transportation charges would add to the cost of petroleum imports throughout the world. The net effect on the cost of our nation's crude imports could well exceed the direct expense involved in leasing the tankers. The impact on other importing nations could cause obvious international repercussions. If other countries began leasing tankers for their own storage needs, the end result could be even more dramatic.

We believe every effort should be made initially to insure that our nation has a reliable storage system to minimize our vulnerability to future denials of imported oil. Use of tankers to implement near-term, temporary petroleum storage could, in addition to misdirecting government funds, seriously undermine efforts to achieve the more meaningful ultimate program by providing a false sense of security and confusing program priorities.

SECTION VD - OIL SPILLS

In general, this section is written in a rather negative tone. Questions are raised with little effort made to answer or qualify them. The latest state of the art for the prevention, control, and effects of oil in the environment has not been fully considered. In the summary and in the first sentence in Subsection D, a statement is made regarding the "extensive and unusually adverse effects upon ecosystems due to oil spills." This statement is not supported by the actual monitoring of a specific location following a spill. In every case it has been determined that the adverse effects are for a temporary period. Therefore, the statement should be revised to indicate that there is a potential for *temporary* adverse effects.

Table V-33 on page V-124 and the discussion on page V-128, present the worst case estimate of transport spill loss. The estimate is based on previous spill records, but no consideration is given to the fact that

improved operating practices, better equipment, more stringent regulations, additional operator training, have each contributed to a reduction in the volume of oil spilled from tankers.

Subsection 3 discusses the ecological impacts of spilled oil, beginning on page V-137. This discussion fails to consider the results of current research into the fate and effects of oil in the marine environment. Five years ago, the API instituted a comprehensive research program on the fate and biological effects of oil spills. A wealth of information resulted from this program, and it has not been reflected in the draft EIS. Attachments II and III prepared by Mr. Mertens cover this subject..

SECTION VI - MITIGATING MEASURES AND UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

In Section VIA, treating agents are discussed under the heading, "Containment and Cleanup at Terminal." We suggest that these be discussed under a separate heading because of the unlikely possibility that some treating agents will be used at terminals (*i.e.*, sinking agents and burning agents).

The subsection, "Containment at Sea," has a rather superficial discussion of the subject. Oil spill containment and cleanup in the ocean environment are possible under all except the most extreme conditions. The example given of 6-8' waves and one-knot currents would not necessarily prevent cleanup. Other conditions such as wave period and wind force influence the ability of equipment to operate effectively. In strong currents containment boom may be used to direct the oil to a skimmer or to a location where a successful cleanup can be accomplished. Government and industry have applied an intensive research effort in the development of large skimmers capable of operating in the ocean environment. Several prototype models have sucdessfully demonstrated using either or a combination of the continuous belt, the vortex, and the weir principle.

The last sentence of this subsection on page VI-44, states that a spill of 30,000 tons or larger could not be effectively contained in the open or coastal ocean waters before it reached the shore. This is another illustration of using the worst case example. The likelihood of a 30,000-ton catastrophic spill is remote. In any case, the implication that this entire amount, or a large portion thereof, would come ashore, is in error.

On page VI-45, "Containment at Coastal Inlets," a statement is made that it would be desirable to seal off inlets to prevent oil from reaching the most ecologically important areas. The DEIS should explain that there is a containment boom available that can be used to divert oil from these inlets to a location where the oil could be removed.

On page VI-46, "Beach Cleanup," the DEIS omits one consideration regarding oil stranded on inaccessible or rocky beaches. In this case, if the beach is not used extensively for recreational purposes, the most environmentally sound practice may be to allow the oil to weather and be removed by the mechanical action of the incoming surf or by marine life, such as limpets that graze on the rocks.

On page VI-49, in the second paragraph, the cleanup cost per barrel of cargo is discussed. The extrapolation of cost for a large spill is unrealistic. The high per-barrel cost of cleaning up a small spill is understandable, because of the industry practice of over-response to oil on the water. Equipment and manpower are called out and when only a small quantity of oil is spilled and recovered, the unit cost is high. This high unit costing cannot be realistically applied to a major spill.

ATTACHMENT II

STATEMENT OF

EDWARD W. MERTENS, CHAIRMAN

AMERICAN PETROLEUM INSTITUTE COMMITTEE ON

FATE AND EFFECTS OF OIL IN THE ENVIRONMENT

BEFORE

THE U.S. DEPARTMENT OF INTERIOR

BUREAU OF LAND MANAGEMENT HEARING

ON

ENVIRONMENTAL IMPACT OF PROPOSED OIL AND GAS

LEASING--OUTERCONTINENTAL SHELF, GULF OF ALASKA

(OCS SALE NO. 39)

AUGUST 12-13, 1975

ANCHORAGE, ALASKA

MR. CHAIRMAN:

My name is Edward Mertens. I am employed as a chemist by Chevron Research Company, a research subsidiary of the Standard Oil Company of California. During my career, which extends back to the close of World War II, I have held a number of scientific and research management assignments concerned with research work on the heavier fractions of crude oil and the many products derived from these fractions. I hold over 20 U.S. and foreign patents and have written a number of technical articles based on this work. These heavier fractions, incidentally, tend to persist longer after a typical oil spill.

Ten years ago my work began to involve the environmental and health aspects of these products. For the past six years, I have devoted full time to work on environmental problems. As the primary duty of my current assignment, I am Chairman of the American Petroleum Institute's Committee on the Fate and Effects of Oil in the Environment.

API initiated a comprehensive research program on the fate and biological effects of oil spills five years ago. The total cost of this program to the industry is well over a million dollars each year. I expect that this level of support will continue for at least the next several years.

Our program has already yielded a wealth of information. More than 40 papers either have been written or are in preparation by those investigators we have sponsored at

various universities and research organizations. Ultimately, this information will be an important contribution to the large body of literature pertaining to the fate and effects of oil in the marine environment.

Perhaps the most serious problem concerning the potential effects of oil on marine life was whether oil, once taken up by a marine organism, would be permanently retained by that organism and, if so, whether the oil would become concentrated as it moves up the food chain. If this were true, in time the oil would reach some member of the food chain that is used by the human race as part of its diet. Thus, it might constitute a threat to human health. This hypothesis has been advanced by literally scores of authors in their reports, reviews, environmental impact statements, research proposals, and similar writings that are concerned with the effects of oil on marine life. However, as my testimony today will show, these concerns have no valid scientific basis because extensive research shows that oil does not permanently enter the food chain.

This hypothesis is based largely on a study conducted by Blumer following a spill of No. 2 fuel oil in Buzzard's Bay, Massachusetts, in 1969[1] and his subsequent conclusions.[2] Blumer analyzed oysters exposed to this spill and found they had taken up oil fractions. He kept three of the exposed oysters--only three--in flowing seawater in his laboratory. One oyster was analyzed for its oil content after 72 days;

the other two after 180 days. Concerning this work he states, "Oysters that were removed from the polluted area and that were maintained in clean water for as long as six months retained the oil without change in composition or quantity. Thus, once contaminated, shellfish cannot cleanse themselves of oil pollution."[1]

My previous testimonies given at hearings sponsored by the Department of the Interior in Corpus Christi, Texas, last September[3] and in Beverly Hills, California, last February[4] cited nearly a dozen references[5-15] that refute Blumer's conclusion. Every reference reports that once an exposure to oil has passed, the amount of oil in the organism had either returned to, or closely approximates, the original background level. Release occurs rapidly at first, but in a few instances, as much as 6-8 weeks may be required before the last traces may no longer be detectable.[16,17] Further, this conclusion, namely, that oil is released quickly and either nearly or completely quantitatively, is corroborated by additional publications that have appeared in recent months.[17-23]

Even Blumer's data do not bear out his conclusion cited above. If one compares closely the concentration of oil he found in the oyster tissues after being held in the laboratory for six months[1] with the concentration of oil in the tissue found at the beginning of the depuration experiment,[24,25] the average content of oil per 100 grams of tissue are 3.8

and 6.9 milligrams, respectively. Even by his data, he shows a release of almost 50%, rather than none as he states in his conclusion. He claims that the oil quantities in the tissues before and after the experiment are in good agreement, especially if allowance is made for the apparent dilution of oil by growth of the oysters during the course of the experiment. His data show that the average gain in weight per animal was barely 5%. If the decline was attributed solely to dilution by growth, the average content of oil per 100 grams of tissue should have declined from 6.9 milligrams to 6.6 milligrams rather than 3.8 milligrams.

Thus, I am not aware of any reference in the literature--not even Blumer's work--that support his contention that oysters or any other marine organism retain whatever oil they have accumulated without change in composition or quantity once their exposure to oil has been terminated. On the contrary, every reference concerning uptake and depuration research that I have seen shows that marine organisms depurate once an oil spill episode or a simulated spill has passed. Indeed, this conclusion is shared by the Energy Policy Project of the Ford Foundation,[26] the National Academy of Sciences,[27] and the Marine Technology Society.[28]

These results which I have just summarized strongly refute the previously mentioned hypothesis which has been adopted widely by the critics of our industry. Since marine organisms subjected to an oil spill do not retain oil permanently,

we feel that it is highly unlikely that such contamination becomes concentrated by transfer from one trophic level to the next through the food chain. Thus, the possibility of transfer of harmful oil fractions by this mechanism so that they become a threat to human health becomes extremely remote or, more likely, nonexistent.

These latter conclusions are supported by research conducted both in the laboratory and in the field.

The question of magnification of hydrocarbon concentrations occurring from transfer up the food chain was investigated by Cox[7] and J. W. Anderson.[8] Neither investigator found any evidence of magnification. Their observations agree with those of Straughan, who found no evidence of biomagnification in her recently completed two-year study of the marine community exposed to the natural oil seeps near Santa Barbara.[29] Burns and Teal found no relation between the hydrocarbon content of an organism and its position in the food chain in their study of the Sargasso Sea community.[30] Thus, neither laboratory work nor field studies support the contention of the industry's critics that the concentration of oil increases as it progresses through the food chain.

Exposure at sublethal concentrations of oil has shown no effect on growth rate of marine organisms. This conclusion was reached by R. D. Anderson[6] and Cox[7] in their research on oysters and shrimp, respectively. Their conclusions agree

with those obtained by Mackin and Hopkins,[31] who found no difference in the growth rate between oysters growing in an area subjected to oil contamination and that of control oysters in an uncontaminated area. Nor did Straughan, in her work supported by API, find that the natural oil seeps near Santa Barbara affected the growth rate of marine organisms living in the area.[29] More recently, these results are confirmed by Battelle-Northwest studies at Lake Maracaibo, Venezuela. There they exposed lisa, a fish native to that area, for 11 weeks to Tia Juana Medium crude oil.[32] No effect on growth rate was observed. Since growth rate integrates many life processes and physiological factors, we are encouraged by those results. Part of our research program is directed toward studying more extensively the potential effects of exposure of marine life to sublethal concentrations.

It is widely believed by the public that whenever an oil spill of any reasonably large magnitude occurs, the aftermath is a major devastation of marine life. Further, the public is conditioned to believe that this devastation will persist for an extended period of time. Most of my remaining comments today will provide information that will show these beliefs are inaccurate insofar as all but the most severe spills are concerned.

A comprehensive survey of more than a hundred major spills that occurred throughout the world over a 12-year period (1960-1971) was made by Ottway.[33] An analysis of the data

from this survey revealed that birds represented the type of marine life most often significantly affected. In less than 25% of the spills were more than 50 birds involved. For other forms of marine life where damage could be described as extensive, the incidence was even less.[34] These levels are probably low because some of the spills may not have been adequately reported. Nevertheless, only a small number of spills, most notably the West Falmouth and the Tampico Maru spills, resulted in significant damage lasting a year or more. The latter spill, incidentally, occurred near Baja California in Mexico in 1957. Comparable damage resulted from the Torrey Canyon spill, but it is generally acknowledged that this damage resulted primarily from the use of improperly formulated dispersants applied in an improper manner rather than from the effect of the oil itself. All three of these spills occurred near shore.

On the other hand, spills from offshore platforms have been relatively rare. Of the 19,000 wells drilled in our continental waters over the past 25 years, only the Santa Barbara spill reached the beach in a quantity that required extensive cleanup. Its effect on marine life was slight and temporary.[35] Only two other significant platform spills have occurred.[36,37] Coincidentally, both of these were in the Gulf of Mexico in 1970. One of these was studied extensively to assess its environmental impact. Its damage

to marine life was inconsequential.[36] By all standards, this record of the offshore industry is impressive.

The factors that are responsible for the wide variations in the environmental effects of oils spills are identified by McAuliffe.[38]

He observes that three conditions are especially critical; and for a spill to have significant environmental damage, all three conditions must exist simultaneously. These conditions are:

1. The oil must be spilled into a confined body of water, such as a small bay. Thus, the volume of oil spilled is large with respect to the body of water being impacted.

2. The oil should be a refined oil, such as No. 2 fuel oil.

3. Storms or heavy surf must cause the spilled oil to be churned into the bottom sediments.

Indeed, all three conditions did exist in the case of the two spills, the West Falmouth and the Tampico Maru spills, in which significant damage attributed to the oil itself persisted beyond a year or two. In each case, the oil spill involved a No. 2 fuel oil, which was confined in a small area of shallow water for several days. Storms and/or heavy surf caused the oil to be churned into the bottom sediment.

In contrast, offshore platforms are almost without exception located in unconfined areas and in reasonably deep waters. Thus, the first condition outlined by McAuliffe can rarely be met. Secondly, a platform produces crude oil, which is substantially less toxic than most refined oils. Thirdly, in such deep waters, storms and heavy surf rarely, if ever, are able to churn oil into the sediments. Thus, the absence of all three factors minimizes the risk to the marine ecosystem.

Moreover, it must be remembered that since platforms are usually located well offshore, substantial changes in the character of the spilled crude oil will occur before it reaches the nearshore zone, which is the most biologically vulnerable area. Once oil is spilled, there is time for the lighter oil fractions to evaporate. Within a matter of hours, components of crude oil as heavy as gasoline have escaped into the atmosphere.[39,49] These fractions are generally acknowledged as the most toxic fractions. This conclusion is confirmed by work conducted by Battelle-Northwest at Lake Maracaibo, Venezuela. They demonstrated that after only two hours' weathering, the toxicity of the oil to shrimp had dropped substantially.[32] This drop correlated closely with an attendant drop in concentration of light aromatics in the water column.

There is time also for many of the components of the crude oil to be dispersed or, for some components, to be dissolved

in the water column. Subsequent dilution rapidly reduces their concentration to far below toxic levels. Further, their presence in the water column is often short-lived because many components partition readily from the water into the atmosphere.[41] And, finally, if a spill should threaten a nearshore zone or shoreline, there is time for cleanup equipment to be placed in operation.

The public has also expressed concern about chronic pollution of the oceans by oil that may occur from increased offshore drilling. They envision that the amount of oil entering the oceans will be substantial and that, consequently, the quantity and diversity of marine life will gradually diminish to a small fraction of the current level. My remaining comments today will point out that the day-to-day operation of additional offshore platforms will impose, at most, a very small incremental burden of oil to the oceans of our world.

Estimates of the quantities of oil that enter the oceans annually from various sources have been developed by the National Academy of Sciences.[27] Of the estimated six million metric tons that reach the oceans throughout the world each year, nearly 80% comes from river and urban runoff, municipal and industrial waste discharges, and marine transportation. About 10% comes from natural seeps and another 10% from atmospheric fallout. The contribution from offshore production is 1.3%.

Thus, the contribution of oil to marine waters from offshore production relative to the overall amount can be considered minimal if not negligible. With respect to the amount that comes from natural oil seeps, offshore production contributes only one-eighth as much. Significantly, even if we doubled the number of wells in our outercontinental waters, their total contribution to marine waters would be still a small fraction and would be only one-fourth of the amount that comes from natural oil seeps. This comparison is especially significant for the purposes of this hearing in view of the many natural seeps that are known to exist along the Gulf of Alaska shoreline.[42] Undoubtedly, many other seeps exist in the deeper waters of the Gulf that have not been observed.

In summary, we are convinced that oil poses far less of a threat to marine life than has been popularly believed. There is no evidence that oil is passed through the food chain and thereby becomes concentrated so that eventually it becomes a health hazard to man. Major oil spills from offshore platforms have been a rare occurrence to date. Those who oppose offshore drilling frequently express the fear that if a major spill should occur, it will have a devastating effect on marine life. This fear is unfounded, for out of more than 19,000 wells drilled in offshore waters so far, there has <u>never</u> been a spill where such devastating effects have taken place. Indeed, in only one spill has any

measurable damage occurred; and its extent was inconsequential. And, finally, even if we doubled the number of offshore wells, the added input of oil from such operations would add little more than 1% to the oil that now enters the marine waters annually.

Our Committee is convinced that by taking proper precautions that employ technology presently available, the added risk is extremely small. This conclusion is confirmed by the excellent record of the offshore industry since its beginning more than 25 years ago.

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ATTACHMENT III

"THE EFFECTS OF CHRONIC EXPOSURE OF OIL ON MARINE LIFE UNDER FIELD CONDITIONS".

By E. W. Mertens

Presented at the

Symposium on Science, Resources, and Technology in the Gulf of Alaska

October 16-17, 1975

Anchorage, Alaska

THE EFFECTS OF CHRONIC EXPOSURE OF OIL ON MARINE LIFE UNDER FIELD CONDITIONS

By E. W. Mertens[a,b]

Introduction

Surprisingly, the volume of literature concerning the effects of oil on marine life is extensive. Several comprehensive summaries of the literature have been published.[1,2,3,4] Whether one reviews the literature directly or the summaries that are available, it is apparent that most of the published work concerns laboratory work. Only a few field studies have been conducted. Moreover, whether the work involves studies conducted in the laboratory or in the field, most of the investigations are concerned with the acute effects, that is, the immediate kill resulting from a single exposure of marine organisms to oil. Comparatively little work has been directed towards studying the effects of chronic exposure.

Most of the chronic exposure work has been performed in the laboratory. However, whether one is studying effects of acute or chronic exposure, there is generally a lack of good correlation between field observations and laboratory bioassay work. This poor correlation is recognized in reports from workshops held in our country[5] and in England[6] to assess this problem and to recommend needed research.

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Although bioassay work does not serve as an accurate measure of what effects will occur under field conditions, it is useful in such studies as:

1. To develop comparative rankings of several toxicants to a given test organism.

2. To develop comparative rankings of the susceptibility of several organisms to a given toxicant.

3. To determine mechanisms of specific effects under closely-controlled conditions.

Fortunately, in recent years, some work has been directed towards investigating the effects of chronic exposure of oil on marine life under field conditions. Two widely known studies concern the spills of refined products. One spill was from the barge Florida at Buzzard's Bay, Massachusetts, in September 1969. The other occurred in a small cove of Baja California in Mexico when the ship Tampico Maru ran aground in March 1957. Less well-known are the studies recently concluded by the Gulf Universities Research Consortium on the effects of chronic exposure resulting from offshore production in the Gulf of Mexico upon the local marine life; the work completed by the Battelle-Northwest Laboratories on the effects of production in Lake Maracaibo, Venezuela, on the resident marine life; the effects of the natural oil seeps at Coal Oil Point near Santa Barbara on the marine life inhabiting the immediate area; the effects of tar balls washing ashore on the intertidal life along the shorelines of Bermuda; and the survey of marine life under platforms Hilda and Hazel in the Santa Barbara Channel.

Buzzard's Bay,
Massachusetts Spill

This well-documented spill[7,8,9,10,11,12,13,14] occurred in September 1969 when the barge Florida spilled approximately 4000 barrels of No. 2 fuel oil near West Falmouth Harbor in Buzzard's Bay, Massachusetts. The bottom sediments became saturated with the spilled oil and, thus, became a long-term reservoir, a source of chronic exposure. A massive kill of benthic invertebrates occurred over several acres. The afflicted area evidently increased as the immediate surrounding area became contaminated over the next several months. Damage was still extensive eight months after the spill.[10] Hunt[13] reported that significant recovery had occurred within 17 months; and further, after two years the area had completely recovered except the small boat harbor and the worst-polluted sections of the marshes along Wild Harbor River. When compared to the control stations in areas not affected, the small boat harbor and the marsh sections showed some detectable effects four years after the spill; otherwise, these areas had essentially recovered also.[14]

Baja California
(Mexico) Spill

North et al[15] monitored the recovery for several years following the spill of the tanker Tampico Maru at the mouth of a small cove of Baja California (Mexico) in March 1957. About one-third of the 60,000-barrel cargo of diesel fuel was lost on stranding and the remainder liberated during the next nine months as the ship broke up. Nearly

total devastation, especially of marine fauna, resulted and lasted through the Spring of 1957. As at Buzzard's Bay, the oil became embedded in the sediments, where it became a source of chronic exposure for several years thereafter. That summer, some fish and certain crustaceans appeared occasionally. Also, some planktonic larvae began to colonize. During this time, luxuriant growth of seaweed had developed, probably because of the absence of grazing animals.[16] The biota was 90% restored after three or four years, although the relative abundance of certain species was still somewhat changed after 12 years.[17] This conclusion was reached by comparing the biomass of the impacted area with that of nearby unaffected areas.[15]

Timbalier Bay
Gulf of Mexico

Undoubtedly, the most comprehensive studies concerning the effects of chronic exposure of oil to marine organisms ever conducted were those performed by the Gulf Universities Research Consortium (GURC). GURC is a research-oriented organization involving 20 major universities along the coast of the Gulf of Mexico. During 1972-1974, GURC conducted its program "Offshore Ecology Investigation" to determine what impact the drilling and production of oil had on the estuarine and marine environment in the coastal waters of Louisiana.[18,19,20] This area is the greatest offshore oil-producing region of our nation. The cost of this study exceeded 1.5 million dollars. This study involved a multidisciplinary approach in which 23 principal scientists participated.

Studies were concentrated on sites in Timbalier Bay where limited baseline data were generated prior to 1952. This area contains about 400 oil and gas wells, the first of which was drilled back in 1937.

The sampling stations were adjacent to platforms. Control data were obtained by selecting stations in the same region but where there had never been oil drilling or production. All sampling stations are located far enough from the Mississippi River mouth to minimize uniformly, but not eliminate, its impact. Because of the intensity of petroleum presence and production, there has been and is oil in this environment. Its presence is the result of natural seeps, spills, discharge of brine containing a few parts per million of petroleum hydrocarbons, as well as such sources as city wastes, seagoing ships, sports boats, and the plants and animals living in the environment.[20]

Among the many observations and conclusions derived from this study are the following:[18,19,20]

1. Seasonal changes, especially in temperature and in salinity, are far more significant than any other factor, including proximity to oil-producing areas. These changes caused variations in species diversity and in the population of a given species in each of the phytoplankton, zooplankton, and benthic communities. The seasonal variations, especially in the latter community, greatly exceeded the differences between a site of man's activity and a control site where there was no such activity.

2. All other natural phenomena such as floods, upwellings, and turbid layers have much greater impact upon the ecosystem than do petroleum drilling and production activities.

3. Concentrations of all compounds related in any way to drilling and production are so low as to present no known persistent biological hazard.

4. Timbalier Bay has not undergone significant ecological change. Every indication of good ecological health is present.

5. Except for an increase in the populations of certain life forms, the presence of man and petroleum production has had no major effect on the total mass nor on the diversity and distribution of living plants and animals. The exception is the structure of the platforms. These structures provide a surface where planktonic larvae of such organisms as barnacles, mussels, sea anemones, and other organisms may settle and flourish to become highly productive, complex communities.

Lake Maracaibo, Venezuela

Offshore production of oil in Lake Maracaibo, Venezuela, has spanned four decades. Battelle-Northwest Laboratories (Richland, Washington) conducted the first major ecological and pollution investigation south of the straits of Lake Maracaibo. Control data were acquired from concurrent studies of those sections of the lake where oil production does not occur. The major conclusions from this three-year study are:[21,22]

1. Without question, significant discharges of oil into the Lake Maracaibo Basin have resulted from the production of petroleum. Discharges also occur from natural seeps.

2. Both laboratory and field data show that present petroleum operations have not caused discernible damage.

3. Low concentrations of oil exist in the lake water. However, there is no evidence of a buildup of hydrocarbons in the muscle tissue of selected commercial species of fish or shrimp.

4. A review of the limited fisheries data does not suggest that this important resource is being depleted.

5. Evidence exists that nonpetroleum wastes, both domestic and industrial, are reaching such levels that water quality is becoming impaired. Consequently, the biological resources of the lake may suffer in future years.

Natural Oil Seeps at Coal Oil Point, Santa Barbara

A study of sublethal effects of natural chronic exposure to oil on marine organisms was conducted by Straughan and her associates over a three-year period, 1972-1974.[23] Her laboratory was the marine waters and the organisms inhabiting them at Coal Oil Point near Santa Barbara, California, where natural seeps of oil have been known to exist for centuries. Natural seepage there occurs at a rate estimated to be as high as 100 barrels per day.[24] Significantly, the Biology Department of the Santa Barbara campus

of the University of California uses this same water piped ashore to maintain marine organisms in their laboratory.[25]

For this work, extensive control data were obtained from studies conducted at Pismo Beach (north of Santa Barbara), Gull Island (near Santa Barbara), and Santa Catalina Island (near Los Angeles).

The major conclusions from this study are:

1. All organisms are present that would be expected to be in that environment if oil seepage was not there.

2. Exposure to the natural oil seepage has no effect on either the growth rate or reproductivity of the resident organisms.

3. No abnormal growths in organisms were observable either by external examination or by dissection.

4. There is no evidence of bioaccumulation (increase in concentration) of hydrocarbons by transfer up the food chain.

Chronic Exposure of Marine Organisms to Tar Balls, Bermuda

A relatively recent phenomenon is the influx of tar balls washing ashore along the Bermuda coastline.[26,27] The Bermuda Biological Station for Research began a two-year study in June 1974 to determine whether the influx of tar balls was having any effect upon the local intertidal life.

Control data were obtained by studying beaches that were slightly impacted. Also used were the extensive baseline data developed by annual studies extending back to the 1890's.

Tentative conclusions reached after more than a year's study are:[28]

1. There is no measurable effect of tar influx on the number of organisms of any species at any locality inhabiting the intertidal zone.

2. Exposure to the tar influx has no effect upon the reproductivity of the organisms.

3. Size of organisms is not affected by the exposure to tar influx.

Survey of Marine Life Under Offshore Platforms in Santa Barbara Channel

Platforms Hilda and Hazel were constructed in the Santa Barbara Channel in 1959 and 1960. During their construction, a survey revealed that the surfaces of these structures quickly became encrusted and a complex marine community including sessile, benthic, and pelagic forms developed.[29]

A year's study was initiated early in 1975 under the direction of the Institute of Marine Resources, Scripps Institute of Oceanography, to assess the extent and complexity of the marine community under these platforms. Observations gained from this work so far are:

1. A prolific, highly complex community exists under these platforms. By comparison, communities on either the soft or hard bottom control areas are much less complex and much less abundant.

2. An estimated 20,000-30,000 fish feeding upon this sea life inhabit the area under the platforms. At

least 50 species of fish are present. Moreover, 110 species of invertebrates live on or near the structures and 77 species of worms inhabit the nearby sediments.

3. All sea life beneath the platform appears to be extremely healthy.

4. Every available surface is encrusted with mussels, barnacles, aggregate anemones, or other types of sessile sea life.

5. Several organisms, such as pile perch and seastars, are much larger than normal. Mussels 8-10 inches in length are numerous; larger ones have been observed.

6. Drill cuttings had been deposited at the base of the platform. Being sterile, they did not support marine life for two to three years after the platforms were constructed.[29] Today, this pile is overlain by a depth of 37 inches of shells and now supports a teeming community of seastars, anemones, nudibranches, and other benthic organisms.

Factors Influencing the Severity of Effects of Oil Exposure to Marine Life

An extensive review of the several factors that determine the degree that an oil spill can damage marine life isssummarized by Straughan.[31] McAuliffe stresses that three conditions are especially critical; and for a spill to have significant environmental damage, all three conditions must exist simultaneously.[32] These conditions are:

1. The oil must be spilled into a confined, shallow body of water such as a small bay. Thus, the volume of oil spilled is large with respect to the body of water being impacted.

2. The oil should be a refined oil, such as No. 2 fuel oil.

3. Storms or heavy surf must cause the spilled oil to be churned into the bottom sediments.

Indeed, all three conditions did exist in the case of the two spills, the Buzzard's Bay and the Tampico Maru spills, in which significant damage attributed to the oil itself persisted beyond a year or two. In each case, the oil spill involved a No. 2 fuel oil, which was confined in a small area of shallow water for several days. Storms and/or heavy surf caused the oil to be churned into the bottom sediment. Evidently, the relatively higher concentration of the intermediate molecular weight aromatic compounds in No. 2 fuel oil is responsible for greater toxicity of this product. Such compounds are typified by, but not restricted to, naphthalene and the methylnaphthalenes.[33]

In contrast, offshore platforms are almost without exception located in unconfined areas and in reasonably deep waters. Thus, the first condition outlined by McAuliffe can rarely be met. Secondly, a platform produces crude oil, which is substantially less toxic than most refined oils. Thirdly, in such deep waters, storms and heavy surf rarely,

if ever, are able to churn oil into the sediments. Thus, the absence of all three factors minimizes the risk to the marine ecosystem.

Conclusions

The major conclusions that may be derived from the chronic exposure studies that have been conducted to date are:

1. Low level chronic exposure of crude oil has, at most, negligible effect on marine life.

2. Chronic exposure of marine life to sediments saturated with refined petroleum products can have adverse effects. However, the transport of refined products, as typified by No. 2 fuel oil, into the sediments can occur only if certain critical conditions prevail during or immediately after a spill.

3. No evidence exists that the incidental release of oil to the marine environment from day-to-day operation of platforms has a measurable impact, either adversely or beneficially, on the local marine life.

4. The transport of refined products by ships or barges along the coast of Alaska is a greater hazard to the marine environment than the transport of crude oil or than the operation of offshore platforms.

:msr,lym

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Standard Oil Company of California
225 Bush Street, San Francisco, California 94104

H. J. Haynes
Chairman of the Board

ATTACHMENT IV

(originally attachment 2 to Mr. K. T. Derr's letter of 7/15/76 to Executive Communications)

March 12, 1976

Mr. Frank G. Zarb
Administrator
Federal Energy Administration
12th Street and Pennsylvania Avenue, NW
Washington, DC 20461

Dear Mr. Zarb:

We understand that you, as FEA Administrator, must submit a plan to Congress by March 21, 1976, specifying the details of the Early Storage Reserve. This program will be designed to provide initial protection against disruption of imported crude oil and product supplies by storing a minimum of 150 million barrels by end of 1978. To implement the Early Storage Reserve program you are further authorized to establish Industrial and Regional Petroleum Reserves and to develop appropriate mechanisms for incorporating such reserves into the Strategic Petroleum Reserve, when it becomes operational. Significantly, the Energy Policy and Conservation Act leaves the important considerations of ownership, financing, and control of these reserves to you, as Administrator, to determine.

We had hoped to have an earlier opportunity to comment on various aspects of this program and we propose to submit our detailed comments on the Plan in the future if an opportunity to do so is provided. As little time remains before your scheduled submission date, we would like to share the following general comments with you.

First, our company generally endorses the establishment of an Early Storage and Strategic Petroleum Reserve, as we are convinced our nation will become increasingly dependent on oil imports under present energy policies and regulations, and thereby more vulnerable to the adverse impacts which will result from possible future disruptions of our imported crude oil and product supplies. However, from a practical standpoint, we believe that any feasible Early Storage or Strategic Petroleum Reserve can reduce the nation's vulnerability to possible future denials of imported oil for only a relatively short period of time because the cost of long-term security storage protection would be prohibitive. Longer term, the only answer to our

fundamental needs is to undertake as soon as possible an aggressive search for, and development of, indigenous energy alternatives to imported oil. Thus, it is important that you plan to provide and balance the benefits of petroleum security storage with the need to encourage domestic energy resource development.

Second, we believe the federal government should own, finance, and control both the Early Storage and Strategic Petroleum Reserves. It is essential that these reserves be clearly distinguished from normal working stocks of crude and products maintained by industry. The basic purpose of Early Storage and Strategic Petroleum Reserve is to reduce the risk of and protect the nation against a threat to its economic well-being and to its military security. Further, the benefits of having such reserves in the event of a denial, accrue to the entire nation rather than a specific industry, group of consumers, or region. Public policies should determine the level of such reserves in the event of an emergency. The magnitude of the cost of these reserves is such that they cannot be undertaken and financed by private industry as a normal business investment. Finally, substantial legal and historical precedent exists for government ownership and financing of emergency stockpiles of critical materials.

Third, we believe that Regional Petroleum Reserves are unnecessary in the short and intermediate term and probably longer term -- beyond 1980. The availability of a carefully developed program and plan which takes into account alternative steps such as oil product demand reduction through conservation curtailment and conversion measures and uses spare refining capacity and yield flexibility along with distribution system flexibility should eliminate or, at the very least, substantially reduce the need for regional petroleum reserves.

Fourth, government ownership and control of Early Storage and Strategic Petroleum Reserves should not preclude involvement of the private sector in planning, design, construction, management, and operation of these reserve programs. This expertise

can readily be obtained by the government through use of private contractors, which is common practice in a wide range of government procurement programs.

We fully recognize and appreciate the complexity involved in developing plans of this scale and scope and stand ready to assist you in any way you may deem helpful.

Respectfully,

H. J. Haynes/JWB

Standard Oil Company of California
225 Bush Street, San Francisco, California 94104

ATTACHMENT V

H. J. Haynes
Chairman of the Board

July 19, 1976

Mr. Frank G. Zarb, Administrator
Federal Energy Administration
Washington, D.C. 20461

Dear Mr. Zarb:

In my March 12, 1976, letter to you I expressed Standard Oil Company of California's basic position generally supporting the Congressionally required Strategic Petroleum Reserve. In your April 2, 1976, response you emphasized the importance of continuing to encourage domestic energy resource development. I encourage you to continue the efforts you have made in seeking to foster Congressional awareness of this vital concern.

I understand that the FEA is holding a hearing on July 19 to receive information on the need for an Industrial Petroleum Reserve (IPR) as a component of the Strategic Petroleum Reserve. In the notice requesting written comments and oral presentations for the hearing, FEA lists eight broad issues on which it seeks input. Under separate cover we are formally responding to FEA's request for written comments. A copy of these comments is also attached to this letter.

In order to be responsive to the many issues FEA raises, our response is somewhat lengthy. Hence, I would like to express to you personally our single major concern regarding the consideration of an industry-funded IPR. Basically, the U.S. petroleum industry should not be required to finance, as an IPR, a portion of the Strategic Petroleum Reserve, which will be controlled by the government.

The industry faces unprecedented financial requirements in undertaking the domestic energy resource development which you recognize as being essential. The financial burden of an IPR would be on the order of $4 billion, allowing for the cost of storage facilities. This is an amount which approximates the recent annual outlay by the affected firms for U.S. petroleum exploration. You can appreciate that diverting such funds to an IPR will inevitably result in stretching out exploration expenditures, to the detriment of our nation's energy supply capability.

The Strategic Petroleum Reserve will act as a partial deterrent against potential petroleum supply disruptions, and in the event of a disruption would serve to reduce the effect and would extend

the period of time during which the nation's economy can continue to operate at reasonable levels. Since the nation's economic well being would be the beneficiary of the Strategic Petroleum Reserve, then it is only appropriate that the general funds of the U.S. Government be the source of funds for the Reserve.

What is vitally needed is for Congress to follow through on its recognition that a Strategic Petroleum Reserve is of national importance, by formally authorizing the funding necessary both to acquire the petroleum and to prepare, maintain and operate the facilities associated with the entire Reserve. We hope that after the hearings on the subject of an IPR have been held, and after considering written comments, FEA will conclude that an IPR is not appropriate. We also hope that FEA will request Congress to recognize the need for government funding of the Strategic Petroleum Reserve, and that Congress will act decisively and promptly in concluding that government funding is essential.

I appreciate your consideration of our viewpoint on this extremely important subject.

Sincerely,

H. J. Haynes

Standard Oil Company of California
225 Bush Street, San Francisco, California 94104

July 15, 1976 ATTACHMENT VI

Vice President

Industrial Petroleum Reserve

Executive Communications
Room 3309
Federal Energy Administration
Box HH
Washington, D. C. 20461

Gentlemen:

Standard Oil Company of California is pleased to respond to the request for comments on an Industrial Petroleum Reserve (IPR), as published in the June 3, 1976, issue of the Federal Register, 41 F.R. 22415.

In its request, FEA sets forth eight issues on which it specifically requests industry input. In the first attachment to this letter we attempt to respond to those issues. However, we wish to point out in this prefacing letter some overriding concerns we have about the basic concept of an IPR.

Standard's concerns regarding an IPR have previously been expressed personally by letter from Mr. H. J. Haynes to FEA Administrator Frank Zarb, and a copy is attached (Attachment 2) for convenient referral. Generally, we endorse the establishment of a Strategic Petroleum Reserve as a means to reduce the economic consequence to the nation of any future denial of increasingly utilized foreign petroleum. Since such a Reserve will serve to protect the nation against the threat to its economic well-being and military security which a supply disruption would pose, it only makes sense that the funding responsibility be borne by the national economy, and not by the U.S. petroleum industry. In view of this, we must oppose the establishment of an industry funded IPR for reasons discussed hereafter.

To require the U.S. petroleum industry to purchase and store as an IPR 3% of its U.S refinery crude runs plus product imports would result in an expenditure for the petrol alone of about $2.0-2.5 billion. A reasonable allowance for facilities to contain thi oil easily raises the total expenditure to $4.0-4.5 billion. We wish to emphasize that, in our view, the industry cannot fund such an expenditure without foregoing an equivalent expenditure in a productive activity, for example, exploration for incremental domestic energy supplies.

The Energy Policy and Conservation Act, which authorizes the establishment of a Strategic Petroleum Reserve, leaves to the FEA Administrator's discretion the possibi requirement that a portion (an IPR) be provided by the industry. The legislation

indicates that if it is decided to establish an IPR, then the implementation must not impose unequal or unnecessary hardships on individual refiners or importers. We do not see how FEA could require industry funding of an IPR without causing such unequal or, more importantly, unnecessary hardships.

For reasons mentioned above, we believe that general U.S. government funds should be the source of financing for the entire Reserve. As a possible alternative, the funding could be obtained by imposing an incremental federal excise tax upon users of petroleum products. However, this raises questions about equity since current consumers would be funding an asset which serves to benefit the nation's general economic welfare.

The FEA's recently-issued "Draft Environmental Impact Statement" on the Strategic Petroleum Reserve indicates that FEA seems strongly committed to an IPR. FEA appears to conclude that the industry can readily "recover the costs" associated with establishing an IPR by virtue of FEA's permitting the industry to charge higher prices for its products than otherwise would be the case.

This conclusion ignores the fact that petroleum product prices are determined by the operation of market forces, and not by some formula which describes how costs can be "recovered." In its recent "Preliminary Findings" on the prospects for residual fuel oil decontrol, FEA reported that throughout the last half of 1975, the 30 largest U.S. refiners maintained "banks" of unrecovered costs aggregating to $1.0-1.5 billion. We have no reason to believe that such "banks" are significantly different now.

These "banks" clearly indicate that far from being able to pass through the incremental costs associated with funding an IPR, the U.S. refining industry has not been able to recover all of the basic costs associated with its current level of activity. The reason: marketplace factors (periodically distorted by preferences granted to some firms by FEA's regulations and/or exceptions thereto).

FEA's apparent belief that costs associated with funding an IPR can be "passed through" fails to take into consideration facts such as: individual refiners produce varying percentages of individual refined products; varying proportions of these individual products are marketed in different regions of the country and in differing percentages to the various classes of customers - i.e., each refiner participates in different markets; each refiner has individual raw material costs and operating efficiencies and yet might be competing with other refiners having different costs with the result that the impact of an IPR funding requirement upon an individual refiner's competitive position will be different from that for other refiners with whom he competes. In view of this, it is erroneous to believe that refiners can ignore competitive conditions in the marketplace and merely take on the additional costs associated with funding an IPR and recover them with no impact on profitability or market share.

In the above-referenced "Draft Environmental Impact Statement," FEA rightly concludes that if the petroleum industry is forced to absorb the $2.5 billion (or higher)

expenditures for an IPR, then it will defer and/or eliminate capital expenditures in a like amount. Unfortunately, FEA proceeds to classify such foregone expenditures as being of marginal importance.

The U.S. petroleum industry, at least based on Standard's experience, is not presently in a position to undertake investments of marginal importance. The industry cannot afford to commit funds to capital expenditures which are of a "discretionary" nature. FEA should be well aware that recent government actions have reduced significantly the U.S. petroleum industry's availability of internally generated funds for investment. This has occurred in the face of inflation-induced, rapid increases in the costs of sustaining and augmenting domestic energy supplies.

It should be recognized that the U.S. has probably no realistic prospects of discovering and producing inexpensive incremental reserves of petroleum. Replacement oil will be more costly than that which is being produced. It is an unfortunate circumstance, in light of this, that price controls on crude oil and refined petroleum products operate to inhibit the industry's ability to replace diminishing U.S. reserves with the only secure near-term option - much higher cost domestic petroleum. Price controls make no timely recognition of the higher costs associated with replacing currently-produced crude oil.

To put the $4.0-4.5 billion IPR funding requirement in perspective, it should be noted that the group of petroleum companies whose financial performance is followed by Chase Manhattan Bank has in recent years devoted about this same amount of funds annually to U.S. petroleum exploration. The diversion of such otherwise productive funds to an IPR effectively requires the industry to defer one year's worth of U.S. exploration activity!

Additionally, the declining availability of natural gas and the need to maintain a healthy economy require the industry to add refining capacity in the U.S. It must also add needed refining facilities to accommodate gasoline lead phase-out if growing requirements for unleaded gasoline are to be met. What investments would FEA have the industry forego in order to fund an IPR? Domestic exploration? Domestic petroleum development? Refining facilities?

There is not an unlimited supply of debt or equity capital available to the U.S. petroleum industry, but the "Draft Environmental Impact Statement" implies that there is. The limitation on capital availability is of particular concern in light of fundamental uncertainties facing the industry, uncertainties in part arising from government regulatory action. If the U.S. petroleum industry had to raise additional capital to purchase petroleum for storage in an IPR, such capital would be made available only at a higher cost than the last prior source of capital. The higher cost could prevent the petroleum industry from funding and undertaking more productive investments. Similarly, certain end-users who are now importing, or are planning to import petroleum products directly (e.g., some electric utilities), would presumably have a similar basic funding problem.

FEA should not overlook the fact that capital devoted to productive investment by the private sector, such as by the petroleum industry in searching for and developing new domestic petroleum supplies, creates job opportunities, and generates additional tax receipts. Diversion of this potential investment away from productive activities so as to build up an IPR will have obvious detrimental impact on the nation's economy. Expenditures for a petroleum reserve result in tying up funds in working capital and do not result in the added employment opportunities which alternative capital expenditures would provide.

In view of the above considerations, we conclude that reducing the U.S. petroleum industry's capital investment capability by requiring it to establish an IPR would be an unfortunate step in the direction of diminishing domestic petroleum supply capability and consequently increasing U.S. dependence on foreign petroleum. This result would be totally inconsistent with what should be a U.S. energy policy objective and would exacerbate the impact of a supply disruption against which the Strategic Petroleum Reserve is meant to provide some security.

As a further argument in support of government funding of the entire Strategic Petroleum Reserve (and hence not requiring an IPR), it should be noted that there is substantial precedent for the federal government bearing the full cost of stockpiling strategic materials. The Department of Defense stockpiles significant volumes of numerous commodities in the U.S. and elsewhere. Crucial raw materials such as various metals are stockpiled and paid for in full by the federal government. As in the case of these important reserves, the Strategic Petroleum Reserve will benefit the entire American public and should therefore be fully funded and controlled by the federal government.

In summary, we are strongly opposed to the establishment of an IPR and recommend that FEA undertake as soon as possible an appropriate approach to encouraging Congress to fund the entire Strategic Petroleum Reserve out of general revenues and/or specific new revenues, such as from sales of Naval Petroleum Reserve oil.

While not specifically addressed in this inquiry, we wish to comment on some indications (for example, in the "Draft Environmental Impact Statement") that, apart from considerations of an IPR, FEA is considering procurement of crude oil for the Strategic Petroleum Reserve in a manner which indirectly equates to industry funding. For example, the government might retain price-controlled federal royalty oil to build up the Reserve. Refiners deprived of such price-controlled oil must ultimately look to the importation of higher-priced foreign crude oil as the only feasible substitute. The FEA and Congress should recognize that the sound decision to establish the Reserve similarly requires recognizing that the petroleum demand imposed by such a Reserve can only be supplied from foreign sources. The government, and not the petroleum industry (whether directly or indirectly), should promptly undertake to arrange for funding of the Reserve.

As an aside, we recommend that FEA give careful consideration to evaluating what might be the nature of a supply disruption against which the Strategic Petroleum

Reserve would serve as a supply buffer. In studying such a fundamental aspect of the basis for the Reserve, FEA might wish to solicit input from a "task force" comprised of representatives of the military, petroleum industry, consumer groups, and industrial and agricultural users of petroleum to help define the potential for demand curtailment and fuels substitution in the event of a disruption. Petroleum demand priorities should be established by the FEA after consulting concerned parties, and these priorities should be updated periodically.

Many of the issues FEA raises in its notice can only be intelligently addressed if some reasonable definition of how a disruption might impact the U.S. economy were considered. We encourage FEA to consider undertaking such an approach on this vital subject.

While the foregoing outlines our basic opposition to industry funding, via an IPR, of part of the Strategic Petroleum Reserve, the first attachment to this letter attempts to be a responsive comment on the issues outlined in FEA's request.

We appreciate having this opportunity to express our views on this subject.

Very truly yours,

R. T. Dunn

Attachments

SUPPLEMENTARY COMMENTS ON INDUSTRIAL PETROLEUM RESERVE
STANDARD OIL COMPANY OF CALIFORNIA
JULY 15, 1976

The prefacing letter and the March 12, 1976, letter from Mr. H. J. Haynes to FEA's Administrator, Mr. Frank G. Zarb, (attached hereto) express Standard Oil Company of California's basic position with respect to the justification for an Industrial Petroleum Reserve (IPR). Accordingly, they should be considered an integral part of this response.

The following comments on the eight issues outlined in FEA's May 28, 1976, notice should not suggest that Standard Oil Company of California considers an IPR sufficiently justified to warrant a detailed examination of the particular itemized issues. Nonetheless, to be responsive and to support our general position, we volunteer the following points.

For convenience, we preface our comments by paraphrasing the specific issues on which FEA is seeking input.

* * * * *

1. *Assess the economic impact on the industry of being required to store 3% of its annual crude oil input plus product imports and to have this storage in place by the end of 1978, 1980, or 1982 (three separate cases). Discuss impact on world oil market, U.S. capital markets, exploration, competition, and refinery siting.*

A. Economic impact on the industry. If the U.S. petroleum industry were required to own and store 3% of its annual crude oil refinery input plus 3% of product imports, the economic impact would be fundamentally the same regardless of whether the accumulation is accomplished by the end of 1978, 1980 or 1982. Obviously, there could be more severe bottlenecks in procuring supplies of critical materials, more severe difficulties in raising the necessary capital, and undoubtedly other problems if the accumulation were to be attained in too short a period of time.

In theory, the higher carrying charges associated with the alternative of procuring the petroleum supplies earlier would have to be weighed against the probably higher costs associated with deferring the accumulation of an IPR over a stretched out time period. However, one should not ignore the finite limitations on capital availability to the industry for such purposes; compressing the time frame to require and store petroleum for an IPR only makes it more improbable that the industry can pursue its more vital task of sustaining and augmenting domestic energy supplies.

B. Impact on world petroleum market. The present foreign petroleum production rate is well below measured capacity. Consequently, an additional demand equivalent to 3% of annual U.S. refinery crude runs plus annual U.S. imports of petroleum products, even if accumulated during a single year, could easily be supplied assuming the OPEC nations did not act to frustrate the accumulation. It is difficult for us to assess the effect on world oil prices of accumulating petroleum for an IPR--or, for that matter, the overall Strategic Petroleum Reserve.

C. Impact on U.S. capital markets and on petroleum exploration, competition, and refinery siting. While the impact on overall U.S. capital markets or funding on IPR should be fairly minor, the required expenditure represents a sizable proportion of the total capital needs of the U.S. petroleum industry. To place it in perspective, the acquisition and storage costs associated with an IPR could easily be $4-4.5 billion. Compared to the industry's productive expenditures, this practically equals the entire expenditures in the U.S. for acquiring leases--a first step in undertaking the search for new supplies (according to the Chase Manhattan Bank's analysis of the group of companies it follows, their aggregate lease expenditure was $3.6 billion in 1973 and $5.8 billion in 1974). This outlay is several times the recent aggregate annual outlay by the Chase group of companies for geological and geophysical activities ($0.7 billion in 1973 and $0.9 billion in 1974).

To the extent that funds are used for an IPR, they cannot be used for activities such as exploration. We are talking about an expenditure sufficiently large to translate to nearly a one-year deferral of exploratory expenditures on the basis of the above-cited figures. Furthermore, if the industry is to develop alternative energy sources, carry out research and development programs, and provide funds for exploration and other activities to mitigate the problem of increased reliance upon foreign petroleum, it will need all the cash flow and borrowing capacity available to it. The additional capital funding which would be required if the industry had to fund an IPR would simply delay--perhaps indefinitely--an ultimate solution to the nation's energy problem. Industry funding of an IPR would consequently be directly contrary to one of the major objectives of the Strategic Petroleum Reserve; i.e., reducing the nation's vulnerability to a foreign supply disruption.

With respect to competitive impact, it should be apparent that to the extent that storage requirements would be disproportionately distributed among members of the industry, a negative competitive impact would be unavoidable. In view of this, the program would improve the competitive position of some at the expense of others. As we have observed through the application of price controls to the petroleum industry in recent years, competition operates best through day-to-day market adjustments. Any circumvention of these market adjustments results in inefficiency and a tendency toward even more complex and potentially distorting government regulations.

As regards refinery siting, a consequence of requiring the industry to establish an IPR would probably be that some members of the industry more than others would be confronted with the need to curtail or defer refinery capacity-related expenditures. This is especially so if, as we would expect, the funding impact would not be the same for all members of the industry. To the extent that refining increments are consequently not added in the U.S. because the funds are no longer available at acceptable cost after dedicating funds to an IPR, U.S. petroleum product demands will be supplied from foreign refineries in an amount greater than in the absence of IPR funding requirements. A consequence would be increased payments to foreign countries and foregone employment opportunities in the United States. An additional siting impact could result from an IPR operating to pose barriers to entry into the U.S. refining industry due to the additional expense associated with refiners' having to fund an IPR.

2. *If industry must establish an IPR and is permitted to pass through the costs to customers, discuss impact on competitive relations within the industry. Include demand, supply and price considerations.*

FEA is apparently not only assuming that price controls on refined petroleum products will be operative for a time period at least equivalent to that necessary to fund an IPR (through 1982?), but, further, that these controls will readily accommodate recovery of the costs which would be associated with an IPR. Concerning the latter, the FEA has itself pointed out that for the 30 largest U.S. refiners alone, the aggregate unrecovered costs ranged between $1.0 and $1.5 billion during the last half of 1975. Based on our own experience, we would expect a similar magnitude at this time. Concerning the former, FEA is moving ahead with its previously expressed intentions to seek Congressional approval for easing out price controls, in the nation's best interest.

In view of the actual operation under price controls (accumulation of significant amounts of unrecovered costs) and in a decontrol situation, it should be clear that prices do not reflect an automatic recovery of costs, but rather are determined by conditions in the marketplace.

In a competitive environment, it is improbable that certain "indirect costs" such as those which would be associated with funding an IPR could be recovered incrementally. Furthermore, an individual refiner or importer competes in certain regional markets and sells petroleum products to varying percentages of the traditional "classes of trade." Each refiner or importer has unique raw material and operating costs to consider when evaluating a decision to seek new or retain existing business. Consequently, the additional burden of funding an IPR will be just that--an additional burden which cannot be presumed to be fully and equitably recoverable in the marketplace by all refiners and importers. However, it must be recovered either in the marketplace or from the government, if the refiner is to remain in business.

In support of the above, we point that an unfortunate fact of life associated with any regulatory program (and this has been evident in many of the programs FEA administers) is that preferential treatment frequently is bestowed upon individual firms and/or select groups within the industry regulated. Accordingly, it would not be surprising to see exceptions made for certain refiners or terminal operators, for example, to receive at least a partial exemption from any prorata share of the cost of establishing an IPR. The result would be an opportunity to increase market share (without the normal need to operate more efficiently) at the expense of non-exempt participants, or to retain market share at possibly higher prices with resultant greater profit than would be the case in the absence of the preference.

As we understand it, a refiner's IPR obligation would be related to his refinery runs in the preceding year. Thus, in evaluating whether or not to compete for incremental new business, he must consider the additional IPR obligation resulting from increasing his crude oil runs. In contrast, an exempt firm without such a potential added cost would be expected to gradually take business away from non-exempt firms.

FEA expressly refers to the impact on the tanker industry in this item. We do not see how the source of funding for an IPR (and we are to assume here that the industry bears the cost) will have any unique impact upon tanker tonnage requirements both as to size and service since, in the alternative, government funding of an equivalent component of the Strategic Petroleum Reserve would presumably result in the same volume of incremental foreign petroleum imports.

3. *How should the IPR interrelate with other FEA crude oil price and entitlement regulations which will be applicable through 5/31/79? Should the Entitlements Program somehow be manipulated to ease financial burden on certain segments of the industry?*

Here again the implication is that FEA will continue to administer price control regulations on crude oil (presumably beyond May 31, 1979, the expiration date for the 40-month domestic crude oil price regulation) and, via cost pass-through, on refined petroleum products. FEA then apparently concludes that prices will be governed more by cost pass-through regulations than by conditions in the marketplace. We cannot accept these assumptions and we must conclude, as in our response to Item 2 above, that it is unreasonable to expect refiners to recover from their customers the costs associated with an IPR and particularly unreasonable to presume that every participant will be reimbursed for all the costs and on a timely basis.

If FEA were to administer and modify its Entitlements Program to apportion among all participants on some prorata basis the aggregate IPR costs for the industry, it would not be compensating the industry for the expenditure but merely attempting to spread the costs. Again, as most particularly evidenced in FEA's Entitlements Program, we would expect that FEA will be pressured to bestow preferential treatment upon individual firms, segments of the industry, and possibly regions of the country.

Notwithstanding these fundamental concerns, FEA would also have to establish an appropriate determination of all the costs associated with the IPR, including cost of capital, depreciation of facilities (and possibly amortization of the inventory acquisition costs since these will presumably not be available for use in normal activities), direct operating costs, property taxes, insurance, and possibly income tax. Such administrative difficulties are a further indication of the need for government funding and control of the entire Strategic Petroleum Reserve with no further consideration of the justification to require an IPR.

4. & 6. *Response consolidated because of similarity of issues.*

How can existing "readily available inventories" be identified? Assuming most of the Strategic Petroleum Reserve is stored underground, should an IPR nevertheless require local above-ground storage, or should the IPR be part of the underground storage with industry paying rental fees to the government for use of government-financed and acquired underground sites?

To what extent does the industry presently build inventories above minimum working levels (after allowing for seasonal buildups) which could be distributed during an emergency with no impact upon a refiner or importer's ability to sustain "normal operations"? What are the products? How are they stored and where? Could they be counted in meeting part of an IPR storage requirement?

In answer to this question, at this particular time, it is almost impossible to establish what volume of existing industry inventories is "readily available" and somehow judged to be surplus to the operational requirements of the industry. To determine this would be a study in itself, the results of which, we suspect, would not justify the effort.

However, if FEA were to approach this problem along the lines we suggest in our prefacing letter (i.e., study the nature of a potential disruption and incorporate factors such as demand curtailment and fuels substitition), it could well be that "normal inventories" could satisfy a greater number of days' demand in the event of a supply disruption, given a nationwide response to curtail varying degrees of "discretionary" consumption. Somewhat offsetting this, however, could be increased U.S. military requirements arising from restrictions imposed by normal foreign supply.

The FEA should realize that in tailoring supplies to meet requirements in the absence of a disruption, the U.S. petroleum industry tends to administer its inventories so as to optimize, as far as possible, the balance between minimizing investment in inventories and maintaining inventories sufficient to ensure adequacy and flexibility of supply.

Concerning the location of part of an IPR in above-ground tankage, we are of the opinion that economic and environmental considerations will act to preclude such facilities. Additionally, there is the consideration of wasteful allocation of U.S. economic

resources associated with potential multiplication of moderate-sized above-ground facilities. We believe the optimum configuration of the Strategic Petroleum Reserve is a storage of crude oil alone, in lower cost underground salt domes, located on the U.S. Gulf Coast proximate to existing industry transportation and distribution facilities.

For the above reasons, we also tend to conclude that a "Regional Petroleum Reserve" is not warranted, and that this is especially the case for PAD District V, where the forthcoming availability of Alaskan North Slope crude oil should permit refineries to operate at appropriate levels during a foreign petroleum supply disruption, in accordance with national objectives.

5. *If the industry owns and controls the IPR at local storage sites, FEA presumes it would need to approve, control, require reporting, audit and inspect such facilities, and seeks comments.*

For reasons such as those stated in our above responses to Items 4 and 6, we believe it is not feasible for the industry to contribute to an IPR by constructing and utilizing above-ground tankage at local storage sites. Among the reasons for opposing such duplicated and costly facilities would be FEA's need to play "watchdog" and administer complex controls such as those listed in this Item 5.

6. *Comments are consolidated with those for Item 4 above.*

7. *How can FEA assure that industry maintains and exclusively devotes to the IPR appropriate crude oil and product storage? FEA seeks comments on how to determine that types of crude and/or products should be stored in an IPR to best protect the country's security and to assure equitable sharing of cost burdens by all industry participants.*

The best way we can respond to this item is to suggest that FEA define the nature of a supply curtailment (or of several alternative supply curtailments) against which the Strategic Petroleum Reserve is to provide a safeguard. It would be far more efficient for FEA itself to approach the problem in this manner than to rely upon the multitude of individual responses which would result from the members of an industry as diverse as petroleum.

FEA's study should consider the availability of surplus refining capacity if foreign crude oil supplies were denied to the U.S. to some extent. Additionally, FEA should also recognize the possibility that Caribbean Refineries, which traditionally have served to supply products for certain U.S. markets, likewise might have surplus capacity. FEA should consider among its options the possibility of transporting crude oil (of appropriate quality) from the Strategic Petroleum Reserve to Caribbean Refineries where, for example, a high yield of residual fuel oil could be produced. Among the other factors FEA should consider on this item is the U.S. responsibility with respect to the International Energy Program.

Only after studying many alternative "scenarios" as to the nature and duration of a supply disruption should FEA determine the nature and quantity of petroleum supply requirements for the Strategic Petroleum Reserve. In evaluating the many parameters, FEA should solicit active input from the petroleum industry and various end-users of petroleum, such as electric utilities, as well as representatives of industries reliant upon petroleum products. The ultimate "optimization" can only be approached by centralized control, a further argument in support of government funding for the procurement of the entire Strategic Petroleum Reserve.

8. *How should the amount and nature of petroleum storage for each refiner or importer be determined? Should firms whose imported volumes in prior years were below certain specified levels be exempted? If so, what should the levels be? How should new entrants to the industry be treated under the IPR? Should there be exemptions for importers for petrochemicals or asphalt? Should any storage requirements be imposed for LPG and natural gas liquids?*

FEA would not need to consider these items if it recognized that an IPR is inappropriate. (This is not to say that the Strategic Petroleum Reserve is inappropriate.) The particular questions FEA poses here indicate that preferential treatment not only would be inevitable but that FEA is already aware of those sectors of the industry which will most likely seek such preferences. The only equitable approach to having, for example, all refiners be responsible for funding some prorata share of an IPR is to apply the criterion on which the obligation is based uniformly to all refiners regardless of size, location, or other unique organizational considerations. The same should apply to all importers of petroleum products. Exempting certain products may make sense but this should be determined only after very careful consideration of the impact such exemptions might have on competition and price levels.

Regarding LPG and natural gas liquids storage requirements as a potential part of the Strategic Petroleum Reserve, FEA is undoubtedly aware that there is not in the U.S. at this time any significant incremental producibility for these products, often "by-products" of natural gas production. Hence, where would the incremental supplies come from to meet demand while accumulating storage volume? Additionally, some of these products are used interchangeably with other refined petroleum products and in this regard are not unique from the refined products. For FEA to somehow determine what volumes of these products are interchangeable with refined petroleum products and thereby require such volumes to be accumulated in storage (while current normal demand is met by incremental refining) is an expensive way to compensate for refined petroleum product shortages which alternatively could be offset by refining crude oil supplied from the Strategic Petroleum Reserve in surplus refining capacity available during a supply disruption.

The complexities of addressing the questions FEA poses in this item give further support to the basic approach of accumulating the Strategic Petroleum Reserve by storing crude oil alone, in large volume salt domes on the U.S. Gulf Coast.

* * * * *

TEXACO
INC.

1050 SEVENTEENTH STREET, N.W.
WASHINGTON, D.C. 20036

WILLIAM K. TELL, JR.
VICE PRESIDENT

August 9, 1976

Executive Communications
Room 3309
Federal Energy Administration
Box HQ
Washington, D. C. 20461

00001

Re: DRAFT PROGRAMMATIC
ENVIRONMENTAL IMPACT STATEMENT
STRATEGIC PETROLEUM RESERVE

Gentlemen:

As set forth in the Federal Register, June 25, 1976, Texaco submits the following comments on the draft programmatic environmental impact statement concerning the creation of a system of Strategic Petroleum Reserves.

Texaco strongly believes the assessment of the economic impact of an Industrial Petroleum Reserve on industry's capital resources, as presented on page III-37 of the EIS is grossly misleading. The estimate of capital investments of $15 to $20 billion per year for the next several years is substantially under the capital requirements necessary to expand this nation's energy base. A recent estimate by the First National City Bank places the annual capital outlay at $46 billion over the next 10 years.

The economic impact statement assumes promising investment plans will not be eliminated or deferred by increased investment requirements for security storage since "additional funds would be raised in debt markets to finance them." This is an overly simplistic and unrealistic assessment of the capital markets. Financing -- particularly for exploration -- is a continuing challenge to the extremely capital intensive and high-risk petroleum industry. Since funds utilized in the search of new oil reserves cannot be borrowed against the expectation of finding oil, the industry is required to raise internally the predominant portion of its cash requirements.

Nevertheless, because the petroleum industry has not generated sufficient earnings and other cash flow to meet its capital needs in recent years, it has had to borrow increasing amounts of outside capital.

In the 1970's, 30 of the largest oil companies internally generated only 70% to 75% of their financial requirements, a significant drop when compared with the 85% to 90% in the early 1960's. As a result, the ratio of "debt-to-invested-capital" for these companies grew 5.2% annually, from 13% at the end of 1965 to 21% at year-end 1974, and undoubtedly to an even higher figure at year-end 1975. In comparison, the "debt-to-invested capital" ratio for significantly less risk-oriented "all manufacturing" companies increased only 3.4% annually, from 18% in 1965 to 24% in 1974:

	1965		1974	
	Petroleum	All Mfgr.	Petroleum	All Mfgr.
% Long Term Debt of Total Borrowed and Invested Capital	13.4%	17.8%	21.1%	24
Annual % Change: 1974/65			5.2%	3.4%

Sources: Petroleum: Chase Manhattan Bank
All Mfgr: Federal Trade Commission

This increasing ratio of debt-to-capitalization is making the petroleum industry less attractive to potential investors, thereby resulting in a reduction of marketable securities and a corresponding rise in interest costs. As it becomes increasingly difficult for the industry to raise additional funds in equity or debt markets, less monies become available for high-risk capital intensive exploration projects which must be undertaken if we are to find and develop badly needed new sources of petroleum.

The EIS provides a discussion on the alternative methods of acquiring the oil for the Strategic Petroleum Reserve. On pages III-33 and III-34, the statement identifies 3 methods of filling the reserve which would increase the demand for domestic oil production and concludes this could stimulate the domestic production of crude. Texaco does not concur that a further

increase in the demand for domestic crude will stimulate production. At a time when the U. S. is importing 40% of its petroleum requirements it is apparent that the demand for domestic crude is far greater than its productive capacity and oil production is declining. Increased domestic production can only be achieved by eliminating burdensome price controls and allowing a return to the free marketplace.

Additional comments on the EIS are as follows:

Page III-9

The statement that adverse effects of oil spills are higher for OCS development than for onshore is correct but not complete. It should also be stated that the adverse effects of oil spills from OCS development are less than those from the use of tankers in oil import service operations which is the alternative to OCS production.

Ref: Petroleum in the Marine Environment National Academy of Sciences, 1975 - page 6

Page III-31

The statement suggests that NPR oil could be used for the SPR by relocating it to storage facilities presumably located in the Gulf Coast area. No consideration is given to the quality of this oil. It must be recognized that some East Coast and Gulf Coast refineries are not capable of processing high sulfur, low gravity crude due to sulfur restrictions and/or equipment limitations.

Page IV-95

Reference is made to the statement, "As a general statement, industrial sources of pollutants have contributed about twice the oxygen-demanding material as non-industrial wastewater sources (including municipal sewage and urban runoff) to the streams of the East Coast region." The statement does not reflect the current situation. The National Commission on Water Quality in its report to Congress on March 18, 1976 stated on Page 18, "industrial discharges will come closer (than municipalities' discharges) to meeting the 1977 deadline although about 20% may be unable to do so." (The 1977 deadline was required by the Federal Water Pollution Control Act

which was legislated in 1972). The report also stated that, "at least another decade will be required (by municipalities) to complete what was legislated in 1972 to be met by 1977."

Page V-59 and V-99

In "Economic and Social Impacts", the Input-Output model used to determine the economic impact of the SPR did not consider the capital costs of purchasing 150 million barrels of oil by 1978 and 500 million barrels by 1982. It is reasonable to expect that the expenditure of over $5 billion for the oil would have some economic impact and should be considered in the analysis.

Page V-133

Wave-induced effects are postulated as penetrating the ocean to a depth of 50 to 100 feet. The existence of a thermocline at a depth of about 30' in the ocean indicates that mixing due to wave action does not exist as a factor to the depths of 50' to 100'.

Page V-143

The reference to chronic pollution at barge docks is not currently pertinent as a result of improved oil transfer practices. In particular the reference to an "irridescent sheen" is incorrect since the existence of such is considered by EPA to be an oil spill violation (40 CFR 110) and enforcement procedures of the Coast Guard require their action in such an event (33 CFR 153).

Page V-144

Reference is made to toxic aromatics being readily soluble in water. The actual levels are in the order of 0.1% or less, which could better be defined as "slightly soluble".

Ref: Journal of Physical Chemistry
Vol. 70, No. 4, April 1976, p. 1274
"Solubility in Water of Paraffin, Cycloparaffin, Olefin, Acetylene, Cycloolefin and Aromatic Hydrocarbons"
By Clayton McAuliffe

Page V-146

There is a reference to the accumulation of carcinogens in marine organism tissues with subsequent passage to man. This statement is incorrect due to: (1) API evidence concerning the uptake and depuration by marine animals which proves that the food chain syndrome does not exist, (2) Cancer experts do not consider human ingestion of cancerous tissues as being an effective or even possible route to human infection.

Ref: Petroleum in the Marine Environment
National Academy of Sciences, 1975
Page 99

Page VI-42

The reference to the chronic and continuing small spills from routine operations is not valid as industry has made great progress in minimizing such occurrences. The routine placement of containment equipment is not a currently required practice nor do we anticipate the need for such high cost precautionary measures. Our earlier comments re page V-143 are applicable to this section on "containment and clean-up at terminal."

Page VI-43

It should be noted that Federal regulations now prohibit the use of almost all of the chemicals listed in the tabulation as "treating agents". (33 CFR 153.305)-(40 CFR 110.7, 2001 et seq.)

Page VI-44

There is an implication that a spill of 30,000 tons offshore will reach the shore in all cases. This is not true--for weathering, wind, waves, and other sea action frequently prevent the onshore arrival of spills. In addition to this, weathering appreciably alters the oil such as to reduce its environmental impact.

Very truly yours,

William K. Lee, Jr.

WKTjr/gk