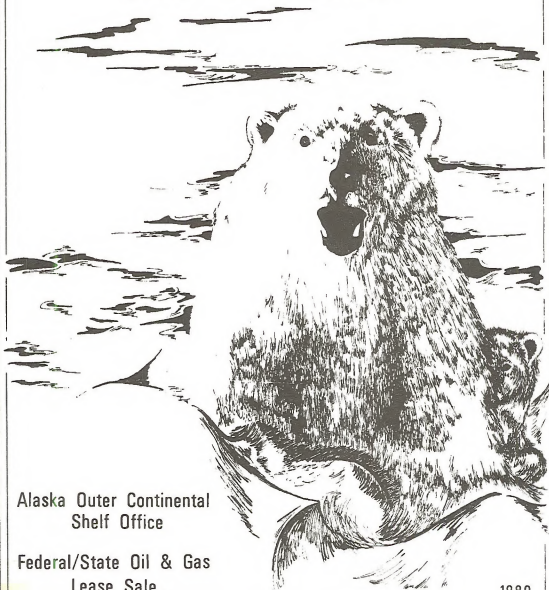




BEAUFORT SEA

FINAL ENVIRONMENTAL IMPACT STATEMENT

DRAFT SUPPLEMENT



Alaska Outer Continental
Shelf Office

Federal/State Oil & Gas
Lease Sale

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NOTE TO READERS

The purpose of this draft supplemental environmental statement (SES) is to address comments and holdings on the final environmental statement (FES) by the U.S. District Court for the District of Columbia in prior proceedings concerning the Beaufort Sea Lease Sale. Specifically, this SES addresses four major issues: (1) cumulative impacts of the lease sale, (2) alternative lease stipulations intended to mitigate the impacts of the sale, (3) alternative management schemes for the sale area, and (4) the impact of State leasing and management of four of the 27 disputed tracts over which the United States claims jurisdiction.

Not all of the material in this supplement is new. Some of the discussion in the supplement is parallel to, or repetitive of, that which appeared in FES and has been included to facilitate the readers' understanding of the various issues under discussion. It is particularly important, however, that the reader refer to or be familiar with, the material found in the Beaufort Sea Final Environmental Statement because this document (the SES) is not intended as a substitute for the FES, rather it only supplements the original analysis.

The public is encouraged to provide comments and suggestions relating to this draft supplement. Comments and suggestions will be accepted until 4:00 p.m. June 23, 1980, and should be sent to the Manager, Alaska OCS Office, P.O. Box 1159, Anchorage, Alaska, 99510. All comments received on or before the June 23 deadline will be evaluated during the preparation of the final supplemental statement.

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UNITED STATES
DEPARTMENT OF THE INTERIOR

DRAFT SUPPLEMENT TO THE
FINAL ENVIRONMENTAL IMPACT STATEMENT

Prepared for the December 11, 1979
Joint Federal/State Oil and Gas Lease Sale
in the Nearshore Beaufort Sea

Prepared by the
BUREAU OF LAND MANAGEMENT



Director, Bureau of Land Management

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DRAFT SUPPLEMENT TO THE FINAL ENVIRONMENTAL STATEMENT

Federal/State
Oil and Gas Lease Sale
Beaufort Sea

Summary Sheet

(X) Draft

() Final

U.S. Department of the Interior, Bureau of Land Management, Alaska OCS Office,
P.O. Box 1159, Anchorage, Alaska 99510.

1. Type of Action: Oil and Gas Lease Sale, Beaufort Sea.

(X) Administrative

() Legislative

2. Description of the Action: The proposed action under consideration in this Supplemental Environmental Statement (SES) is the issuance of leases on Federally-managed tracts under the terms and conditions set out in the Notice of Sale of November 7, 1979. In reaching a decision on whether to proceed with the sale of the Federally-managed leases as planned, the Secretary of the Interior has four major options open to him, as follows:

- A. Proceed with the sale as planned.
- B. Modify the sale by deleting certain tracts.
- C. Return all bids and re-schedule the sale at a later date.
- D. Cancel the sale entirely.

With regard to the four Dinkum Sands tracts, the action under consideration is the temporary relinquishment of Federal claims to management control over these tracts pending a determination by the U.S. Supreme Court of conflicting Federal/State claims. The options open to the Secretary are to (1) proceed with sale allowing Alaska to manage the four tracts but subject to certain Federal controls which apply to all tracts, such as Corps of Engineers permit requirements and Endangered Species Act consultation; (2) attempt to renegotiate the Dinkum Sands portion of the Interim Agreement to provide for more retained authority by the Federal Government; or (3) void that portion of the Interim Agreement pertaining to the four Dinkum Sands tracts.

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4. Comments Have Been Requested From The Following:

Department of Agriculture
 U.S. Forest Service
Department of Commerce
Department of Defense
 Army Corps of Engineers
Department of Transportation
 U.S. Coast Guard
 Materials Transportation Bureau
Department of Energy
Department of State
Advisory Council on Historic Preservation
Environmental Protection Agency
Department of Housing and Urban Development
Department of the Interior
 Bureau of Indian Affairs
 Bureau of Land Mines
 Fish and Wildlife Service
 Geological Survey
 Heritage Conservation and Recreation Service
State of Alaska
North Slope Borough and Associated Villages

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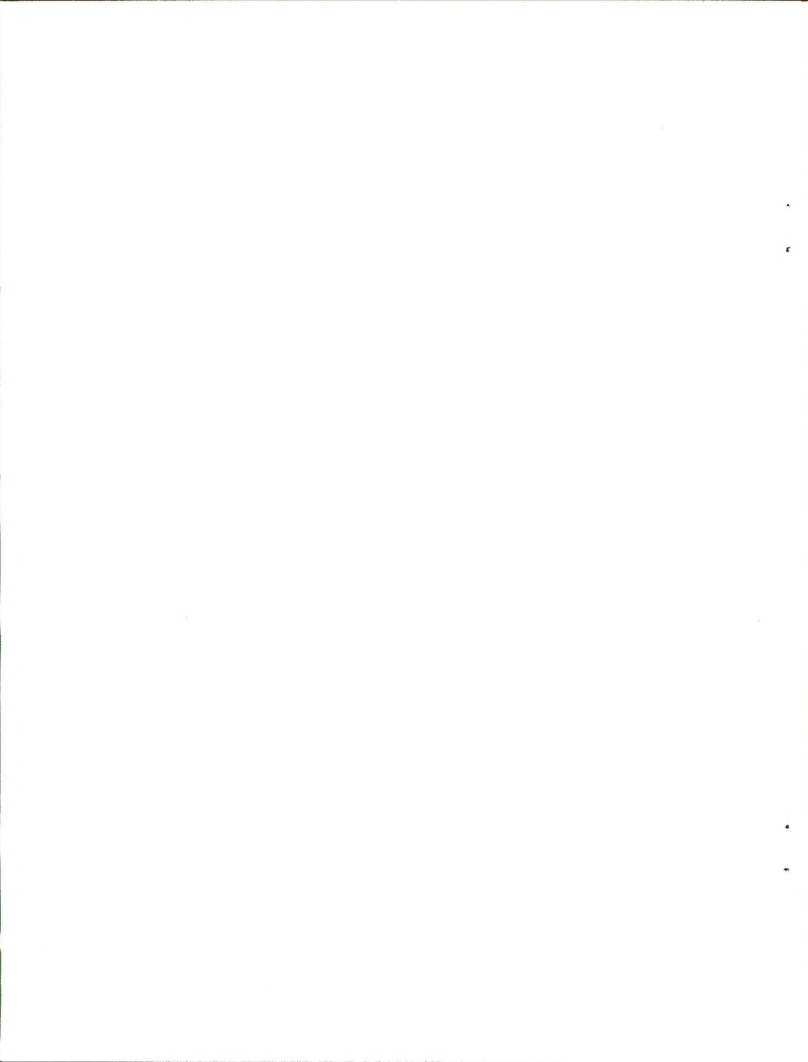
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2. Agreement Between the United States of America and the State of Alaska Pursuant to Section 7 of the Outer Continental Shelf Lands Act and Alaska Statute 38.05.137



I. DESCRIPTION OF PROPOSED ACTION

A. Administrative Events Prior to Lease Sale: Until the joint Federal/State Beaufort Sea lease sale of December 11, 1979, there had been no Federal offshore oil and gas leasing in the Beaufort Sea. However, the State of Alaska had held four competitive lease sales, the last of which, in 1969, resulted in the leasing of acreage in the vicinity of the Prudhoe Bay discovery.

Both the State of Alaska and the Federal government wished to hold lease sales in the Beaufort Sea area; however, a controversy existed over the jurisdiction of some of the submerged lands located midway between the shore and the barrier islands near Prudhoe Bay. (Fig.I.B.1.-1 of the final Beaufort Sea ES shows the areas of established jurisdiction and the areas under dispute.) Negotiations between the State and Federal governments led to a Memorandum of Understanding (MOU included as App. 2 of the FES on the sale) between the State of Alaska and the Department of the Interior in March 1978 regarding procedures for a proposed joint Federal/State lease sale. On March 10, 1978, the Department of the Interior and the State of Alaska issued a Call for Nominations on 236 blocks, and after extensive evaluation of environmental, cultural, recreational, and other factors, 50 blocks were deleted as unsuitable for leasing consideration at the time because of environmental, cultural, and subsistence concerns. The remaining 186 blocks were selected for further environmental study for possible oil and gas leasing.

The draft ES covering these 186 blocks was released in March 1979, and public hearings on the proposed sale were held in Barrow, Kaktovik, Nuiqsut, and Fairbanks in May and early June 1979. The final ES, reflecting information received at the hearings, specific written comments and recent study results, was released in August 1979. A joint issue document was prepared. A Proposed Notice of Sale, covering Federally-managed tracts only, was published in the Federal Register and sent to the Governor of Alaska on August 23, 1979. On October 26, 1979, the Governor met with the Secretary of the Interior and they formally agreed to proceed with the proposed joint lease sale. The Interim Agreement between the State of Alaska and the United States authorizing the leasing of disputed tracts was also signed at that meeting, as was an agreement regarding unitization of fields to provide for a fair and equitable allocation of production and costs of reservoirs underlying more than one lease.

The final Notice of Sale, (App. 1 contains the Stipulations and Information to Lessees sections of the Notice of Sale) covering both Federally-managed and State-managed tracts, was published in the Federal Register on November 7, 1979, and the sale was held in Fairbanks, Alaska on December 11, 1979.

B. Administrative Events Following the Lease Sale: Of the 46 Federally-managed tracts offered for lease, 25 received bids including 5 bids on tracts of undisputed Federal jurisdiction and 20 bids on tracts of disputed jurisdiction. Due to pending litigation (see sec. I.C. of this Supplemental ES), high bids on Federally-managed tracts have not yet been accepted. However, on March 21, 1980, the Secretary of the Interior did reject the high bid on tract BF-1 (a tract of undisputed Federal jurisdiction) on grounds of insufficiency. Also on that date, the bidders on the remaining 24 tracts were advised that their bids met the bid adequacy criteria, although formal acceptances could not be issued pending the outcome of the litigation. The State of Alaska concurred in this determination of bid adequacy on those tracts of disputed jurisdiction.

Of the 71 State-managed tracts offered for lease, 62 received bids, including bids on 58 tracts of undisputed State jurisdiction and bids on 4 tracts of disputed jurisdiction (the Dinkum Sands area). The State issued the bulk of its leases on January 10 and 11, 1980, effective February 1, 1980. After Federal concurrence on acceptance of the Dinkum Sands area leases, those leases were issued by the State on January 23 and 24, 1980, also effective February 1, 1980. By request, Union Oil's lease on tract 63 was made effective January 1, 1980; and the leases on tracts 67 and 68 were issued in February 1980, effective March 1, 1980.

C. History of Litigation Surrounding the Proposal: In November, 1979, the North Slope Borough, the Village of Kaktovik, and the National Wildlife Federation filed law suits to stop the Beaufort Sea lease sale. On December 7, 1979, the Federal District Court for the District of Columbia denied the plaintiffs request for an injunction against the Federal tracts, allowing the sale to be held on December 11 as scheduled. A similar request for an injunction against the State tracts was denied by an Alaska State court.

On January 22, 1980, the D.C. District Court enjoined the Secretary from accepting bids and issuing leases for the Federally managed tracts offered on December 11. Among other things, the court found that the Secretary had violated the National Environmental Policy Act (NEPA) because the final environmental statement (FES) failed to assess adequately (1) cumulative impacts, (2) alternative lease stipulations, and (3) alternative management schemes.

On February 1, 1980, the court held the Secretary had not assured that he could comply with NEPA and the Endangered Species Act (ESA) with regard to the four disputed tracts being leased by the State (Dinkum Sands). The State had already issued leases on these four tracts, but the court order did enjoin the lessees who are parties before the Federal Court from conducting pre-exploration, exploration, or production activities until the NEPA and ESA requirements were satisfied.

This SES addresses the finding of the D.C. District Court regarding the FES described by the court in its order of January 22, i.e., with regard to the Federal portion of the lease sale, this SES assesses the cumulative impacts of the sale, alternative lease stipulations, and alternative management schemes. In section VI, it also assesses the impacts of the State of Alaska's management of the four Dinkum Sands tracts.

D. The Proposed Action: The 20 percent bid deposits on the Federally-managed tracts in question have been submitted to the Secretary, but the injunction prevents him from issuing leases on these tracts until he has satisfied the NEPA and the ESA. Therefore, the proposed action under consideration in this SES is the issuance of leases on Federally-managed tracts under the terms and conditions set out in the Notice of Sale of November 7, 1979. In reaching a decision on whether to proceed with the issuance of the Federally-managed leases as planned, the Secretary of the Interior has four major options open to him, as follows:

1. Proceed with issuance of leases as planned. This option may be chosen if the Secretary determines, after examining the analysis provided in this document, that the mitigating measures established specifically for this sale, combined with his extensive continuing authority to impose further restrictions on oil and gas development in the area, are sufficient to satisfy the requirements of the OCS Lands Act and other applicable law.

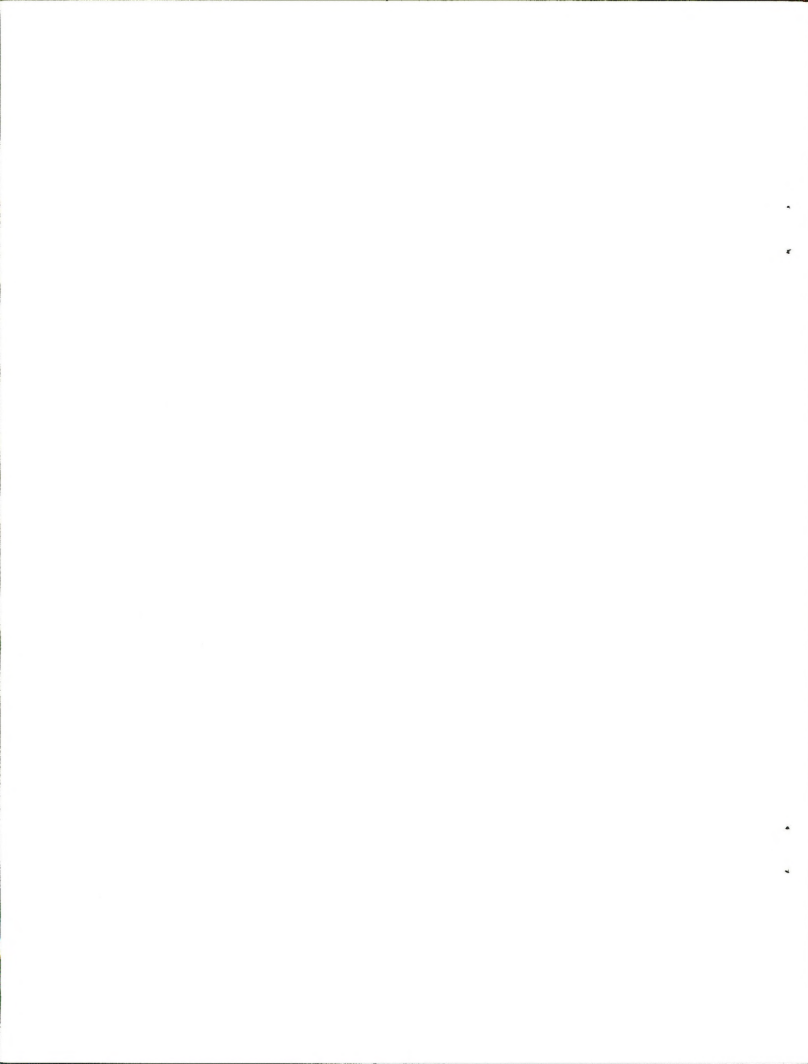
2. Modify the sale by deleting certain tracts. This would entail rejecting the bids on the tracts to be deleted, while accepting the highest qualified bids on the remaining tracts.

3. Return all bids and re-schedule the sale at a later date. This option is similar to the option of delaying the sale normally considered at the time of the sale. This option could be used to await the results of ongoing research, to wait for alternative management schemes to be more fully considered, or to enable the Department of the Interior to develop a different set of lease stipulations.

4. Cancel the sale entirely.

With regard to the four Dinkum Sands tracts, the action under consideration is the temporary relinquishment of Federal claims to management control over these tracts pending a determination by the U.S. Supreme Court of conflicting Federal/State claims. The options open to the Secretary are to (1) proceed with the sale allowing Alaska to manage the four tracts but subject to certain Federal controls which apply to all tracts, such as Corps of Engineers permit requirements and Endangered Species Act consultation; (2) attempt to renegotiate the Dinkum Sands portion of the Interim Agreement to provide for more retained authority by the Federal government; or (3) void that portion of the Interim Agreement pertaining to the four Dinkum Sands tracts.

More detailed descriptions of specific options open to the Secretary are discussed below in sections IV.A., IV.C. V.A., V.B., and VI.A.



II. DESCRIPTION OF THE ENVIRONMENT

A detailed description of the Beaufort Sea environment was contained in the Final Environmental Impact Statement (FES) published in August of 1979.

A. Physical Characteristics: Among the physical characteristics discussed in the FES were:

Location; geology including physiography, quaternary geologic history, hydrocarbon and other resource potential, potential natural hazards, gravel and sand; climate including regional climatology, temperature, precipitation, winds/storms/surges, sky cover/visibility, structural icing; physical oceanography including bathymetry, circulation, tides, waves and swells, sea ice, turbidity, sea surface temperature, river discharges, underwater noise; chemical oceanography including salinity, dissolved oxygen, nutrients, trace metals, hydrocarbon levels, air quality, and water quality.

B. Biological Characteristics: The biological characteristics of the Beaufort Sea coastal region were discussed as follows: Major habitats including coastal tundra, rivers, deltas, and coastline, lagoon/barrier island habitats, benthos, underice, ice lead and open water habitats; the food web matrix; biological organisms including primary producers, invertebrates, fish, birds, mammals; endangered and threatened species, and endangered species consultation requirement.

C. Social and Economic Characteristics: Discussion of the social and economic environment of the Beaufort Sea contained state-wide economics; regional economies including current Anchorage economic profile, current Fairbanks economic profile, North Slope economic profile; local economies including Barrow, Kaktovik, Nuiqsut, Prudhoe Bay/ Deadhorse; cultural resources including cultural context, known terrestrial archeologic and historic sites, potential marine archeologic sites, known paleontologic resources; visual resources, recreation and tourism, wilderness values; regional demographic resources including population trends, population composition; sociological considerations, statewide, Fairbanks, Anchorage, Barrow, Kaktovik, Nuiqsut, Prudhoe Bay Enclave; sociocultural systems including political development, regional development, subsistence patterns; regional space use, land use, land status, and transportation systems including regional transportation systems and local North Slope transportation systems.

The future economic and demographic environment without the proposal was also discussed. The following assumptions were made: industry assumptions, national variables, petroleum revenues, and state expenditure role. The causes of economic and demographic growth in Alaska including State and local base case economic and demographic projections were made. Local economic base case projections including local/State/region forecasts, significant factors affecting local growth, local base case forecasts, and future versus past growth projections were made. Sociological projections and recreation and tourism projections were made. Housing and regional transportation including highway mode, rail mode, waterborne mode, and air mode were discussed.

The Beaufort Sea socioeconomic and environmental studies programs were also discussed.

III. CUMULATIVE ENVIRONMENTAL IMPACTS

A. Other Projects Which May Contribute to Cumulative Impacts: The following energy related projects or proposed projects will contribute to cumulative effects described in sections III.B-I of this document. In addition, the FES for the sale discussed cumulative impacts and their nature and effects at the following pages: 197, 198, 205, 206, 207, 215, 226, 230, 236, 259, 264, 266, 267, 268, 269, 272, 273, 274, & 279.

In most instances, the nature of cumulative impacts is the same as the nature of the impacts of the sale itself as pointed out in the summary of cumulative impacts on page 259 of the FES, where it is stated:

"All of these proposed actions, by both Federal and State Governments, would result in impacts similar to, but cumulatively greater than, the impacts discussed in section III." (FES Sale BF.)

1. National Petroleum Reserve (Alaska): National Petroleum Reserve No. 4 (now NPRA) was established by Executive Order in February 1923. Since that time some level of exploratory activity for oil and gas has been carried out in the northern area of Alaska. The U.S. Geological Survey carried out active exploration in the Petroleum Reserve from 1944 to 1952. Gas fields were discovered at Gubik and Barrow. Gas from the Barrow fields is used in Barrow and the Naval Arctic Research Laboratory for heating and generating electricity. The discovery of an oil field was made at Umiat. No production of hydrocarbons has occurred from this discovery.

Following the discovery of oil at Umiat, substantial amounts of land north of the Brooks Range were opened to hydrocarbon exploration by the Federal Government noncompetitive leasing method. Extensive exploration was carried out by private interests on lands primarily south of the present oil field, but no commercial discoveries of oil were made.

In 1975, another exploratory effort was mounted by the Federal Government through a drilling contractor on the Reserve. Since that time, 19 exploratory wells have been drilled, plugged, and abandoned as dry holes. One gas find near Umiat was made in April 1980, that could contain enough gas for a commercial find. This will have to be proven through field delineation drilling. Four other exploratory wells are being drilled at this time. The termination date of the exploratory program is not firm, being subject to pending legislation.

Should commercial quantities of oil and/or gas be found in the Reserve, transportation routes of the resource will need to be considered. The location of the discovery could affect the transportation route selected. Should petroleum resources be found in the eastern part of the Reserve it could be assumed that these resources would be pipelined to Prudhoe Bay and then south through TAPS. Should resources be found in the western part of the Reserve, another pipeline route to a shipping point is possible.

Location of these routes is dependent on a large number of variables such as location of find, Borough and State zoning regulations, types of animal habitat to be traversed, and the location of a tanker port. No matter where the pipeline route goes, it will alter habitat and increase human disturbance factors. In any case, should this be necessary, an EIS will be prepared prior to activity.

There is a proposal before Congress that the Reserve be leased in whole or in part to the private sector for exploration and development. This proposal has not been acted on and will require Congressional action to accomplish. If carried out, an EIS will need to be prepared on specific lease sales and other related activities at which time the area and resources to be affected will be better known than now.

2. Prudhoe Bay Oil Development: In January 1964, exercising rights vested in it by the Alaska Statehood Act, the State selected 1,600,000 acres of Federally owned land on the North Slope bordering on the Beaufort Sea, and east of the Petroleum Reserve. The selection was tentatively approved by the U.S. Bureau of Land Management on October 9, 1964. The primary criterion for selection of the land was its potential for oil and gas production, and shortly after the selection was approved, the State began leasing in the Prudhoe Bay area.

Although the September 10, 1969, lease sale, with its \$900 million bonus bids, has attracted the greatest attention, the vast majority of the Prudhoe Bay oil field was sold in three previous lease sales (the 13th sale, Dec. 9, 1964; the 14th sale, July 14, 1965; and the 18th sale, January 24, 1967) for bonuses totaling a little more than \$14 million. At the time of the 13th, 14th, and 18th lease sales, no oil had been discovered in commercial quantity on the North Slope; and there remained many questions about the feasibility and expense of operating in the Arctic.

Oil in quantities of commercial significance was first discovered on the North Slope in 1967, near the shore of Prudhoe Bay, by Atlantic Richfield Company and Exxon Corporation. Drillings in early 1968 proved the existence of an oil pool of major proportions (9 billion barrels), and subsequent drillings resulted in the lesser proven pools (Kuparuk and Lisburne).

Field delineation and production drilling were carried out in the area between 1968 and 1977 when limited production was initiated. Shipment of oil to the tanker terminal in Valdez began in 1978 with the completion of the Trans-Alaska Pipeline. The operators have continued to develop the field.

The most recent plan to recover a greater amount of oil (about 1 billion barrels more) from the main Prudhoe Bay (Sadlerochit) producing formation is to water flood the formation. The facilities to carry out this plan provide for seawater flow from a Beaufort Sea intake to about 154 injection wells at 28 individual well pads. Seawater would be taken directly into a seawater intake and treating plant located at about a 3.7-m (12-ft) water depth in the Beaufort Sea at the end of an extension of the existing causeway. Total length of the existing and proposed extension is about 2 3/4 miles. The plant would filter, deaerate and heat the seawater. Marine life would be sluiced from intake screens and returned to the sea via a marine life return line. Screen debris, strainer backwash, and filter backwash would be returned to the sea by means of a separate outfall line. The treated, heated seawater would be pumped through two low-pressure pipelines located within the causeway. The common pipeline route would split at the shoreline and two separate lines would deliver seawater to injection plants at the east and west sides of the field. Injection plants would raise the seawater pressure and provide additional heating for freeze protection. High-pressure seawater would be pumped from each injection plant to two intermediate manifolds by means of high-pressure pipelines. Produced water from production centers would also be brought

to the intermediate manifolds. Seawater and produced water would be distributed through separate high-pressure pipelines to about 28 wells pads. Approximately 154 injection wells would transmit the seawater into the Sadlerochit formation some 2750 meters (9000 ft) below the surface. A DEIS is being prepared on this project and will be available from the Anchorage District Corps of Engineers. It should be referred to for more detail.

The operators have also continued to explore the possibilities of bringing the Kuparuk and Lisburne fields to production level. The Kuparuk oil field is located to the west of the present producing field, perhaps as far as the Coleville River, and may be the third or fourth largest (3.5 billion barrels) in the United States. This field is relatively shallow (6-8000 feet), and has no gas cap associated with it in contrast to the Sadlerochit field.

Phase I development has started with a pilot project west of the main producing field. It is estimated that production (60,000 barrels/day) from the pilot project will start in 1982. Total field production may not start until 1984 or later, with a total field life of 20-25 years. Production will depend in part on the availability of transportation to a shipping point.

Because the producing zone is relatively shallow, more wells and well pads and other associated facilities will be needed to produce the field. Early water injection to maintain and/or build field pressure is also indicated.

The Lisburne zone is primarily to the east and north of the present producing zone. Exploration to date indicates that there is probably a commercial sized field (400 million barrels of oil in association with gas and gas fluids) present in the formation.

The formation lies below (deeper) than the Sadlerochit formation and is in a different matrix (limestone) which makes it difficult, and more expensive, to delineate and produce. Because of this, many exploratory wells will need to be drilled to form an idea of where the permeable structures are that can be developed. Activity over the next 3-4 years will be low-level exploratory drilling. There will probably be no further development plans made until the exploration phase has been completed and the data analyzed.

In addition to these three oil zones in the immediate Prudhoe Bay Unit area, there are five areas north, east, and west of the unit that will receive additional exploratory effort in the years to come. A discovery was announced in the Point Thompson area in 1972 and the area was unitized in 1977 (at this location a commercial discovery is at least 500 million barrels and the upper limit of the field has not been determined). Exploratory drilling is continuing both on and offshore (State waters) to define shape and size of the field to determine if the find was of commercial quantity. If so, a pipeline to the Prudhoe Bay area would be required to move the product to the pipeline head.

There has been exploratory activity carried out in the Michelson Bay and Duck Island areas. Again, the activity is both on and offshore. No discovery had been announced and there is no information regarding the size of the fields. In the Gwydyr Bay and Milne Point areas exploratory activity is also being carried out. Again, no discovery has been announced nor estimates made regarding the possible size of fields. Exploratory units have been formed for these four areas.

This pattern was emphasized in the Joint Beaufort Sea Sale (BF) in December 1979. Areas farther offshore of the Point Thompson, Duck Island, and Gwydyr Bay exploratory zones received high bids and much industry interest. It can be expected that further offshore activity in these three areas will be forthcoming. Information regarding impacts from activity in these areas is contained in the FES.

None of these activities except the joint sale are the result of Federal actions, nor were State environmental impact statements developed. In addition, much of the information regarding these operations is of a proprietary nature.

In summary, future development of the area between the Canning and Colville Rivers will be from the central core area (present producing field) west to the Colville, east and north to at least Point Thompson and Flaxman Island, northwest in the Gwydyr Bay area, and north trending offshore. Total time necessary to develop this area is uncertain, but activities will probably not cease in the area for at least the next 50 years.

3. Trans-Alaska Pipeline System (TAPS): One of the major problems in oil and gas development in Alaska has been the expense of transporting oil to market. Development of the Kuparuk reservoir at Prudhoe Bay, a major discovery by any standards, was only recently considered marginally economic, despite the existence of the Trans-Alaska Pipeline since 1977. The cost of field development outweighed the price of the product until the recent large increase in oil prices.

The discovery at Prudhoe was of such magnitude, however, that it justified the expense of a pipeline. With TAPS in place, the Prudhoe Bay area is one of the two areas of Alaska (Cook Inlet being the other) which is accessed by a transportation infrastructure capable of supporting resource development. For this reason, exploration and development of additional oil and gas prospects is necessarily concentrated in the immediate Prudhoe Bay area.

During the passage of the Trans-Alaska Pipeline Act, 43 U.S.C. 1953, 1973, the Congress declared its intent in this area, saying the earliest possible construction of Trans-Alaska Oil Pipeline from the North Slope of Alaska to Port Valdez in that state will make the extensive proven and potential (emphasis added) reserves of crude oil available for domestic use and will best serve the national interest. Congress contemplated the development of the satellite fields, and of the other areas such as the Beaufort Sea, in authorizing the construction of the Trans-Alaska Pipeline.

Since start up in 1977, the pipeline has not operated at design capacity (2 million barrels/day) and it is unlikely that it will in the early 1980's. And past the late 1980's, additional oil will be needed to maintain its present level of flow (120 to 140 million barrels/day) as the production from the Sadlerochit field begins to decline.

In summary, the Trans-Alaska Pipeline was built with the expectation of further development both in capacity and length of time in service. Transportation capacity of oil from the area is and will be available when future production is begun. For more information regarding the project and its impacts, see FES published by the DOI in March of 1972.

4. State of Alaska 5-Year Oil and Gas Leasing Schedule: The Department of Natural Resources has primary responsibility for the management of the State's subsurface energy and mineral resources. Alaskans have indicated their desire for petroleum resource management, through a carefully planned leasing program. In response to this desire, the tenth Alaska legislature enacted H.B. 854, which repealed and reenacted an improved form of the Alaska statutes governing petroleum leasing.

The Commissioner of the Department of Natural Resources submitted a 5-year leasing schedule to the legislature in 1980. A major purpose of having a petroleum leasing schedule is to provide a plan to facilitate the orderly assessment and development of Alaska's petroleum resources. In conjunction with this schedule, Governor Hammond issued an administrative order creating an Advisory Committee on Oil and Gas Leasing, to ensure that before each proposed lease sale, the social, environmental, and economic impacts of the sale are analyzed. The public, local government, industry, and other interested groups will review all leasing actions through both formal hearings and informal consultations. It is clearly in the interest of all groups to reduce the uncertainty surrounding the State petroleum leasing program. An established leasing schedule will not only permit the public to comment on the planned areas of leasing, it will also permit the petroleum industry to allocate a portion of its resources to Alaskan petroleum exploration and development with some certainty of opportunity for exploration and development. The local, State, and Federal governments also require adequate time for the pre-sale evaluation and assessment of impacts.

The following 5-year leasing schedule was submitted to the State legislature in January 1980.

State of Alaska
5-Year Oil and Gas Leasing Schedule
January 1980

1980	May 20	Relinquished tracts on Arctic Slope (exempt acreage sale)
	Aug 19	Cook Inlet south of Kenai River (exempt acreage sale)
	Dec 2	Upper Cook Inlet onshore and offshore, including the Susitna Valley
1981*	Early	Prudhoe Bay uplands
	Mid	Lower Cook Inlet offshore and onshore (coordinated with planned federal sale)
	Late	Norton Basin offshore and onshore (coordinated with planned federal sale)
1982*	Early	Beaufort Sea (submerged lands)
	Mid	Middle Tanana Basin and Copper River Basin

	Late	Southwest Briston Bay uplands
1983*	Early	Upper Cook Inlet onshore and offshore, including Susitna Valley (possible drainage sale)
	Mid	Norton Basin
	Late	Minchumina Basin
1984*	Early	Beaufort Sea
	Mid	Eastern Gulf of Alaska

* Additional exempt acreage sales may be scheduled in 1981, 1982, 1983, and 1984 as acreage in these categories is identified for lease. Exempt acreage is acreage which can be leased without having been included in the schedule (AS 38.05.180(d) and (w)). In general, relinquished acreage will be reoffered on a regular basis as it becomes available.

In summary, it can be seen that the State intends to continue to lease areas in the Prudhoe Bay vicinity. Lease sales are scheduled for early 1980, 1981, 1982, and 1983. State actions alone will insure continued development in the Beaufort Sea/Prudhoe Bay area. The scheduled May 20, 1980 sale (about 200,000 acres located south, east, and west of Prudhoe Bay) has been delayed for administrative purposes.

5. Arctic Slope Regional Corporation Oil and Gas Leasing: The Arctic Slope Regional Corporation (ASRC) is a profit oriented organization as required by the Alaska Native Claims Settlement Act of 1971. It was formed in the interest of the Natives of the North Slope. The principal activity of the corporation is the management of resources within its jurisdiction. In addition, diversification into transportation, communications, tours, and technical services (i.e., planning and feasibility studies, geophysical investigations, etc.) has developed as an expression of corporate policy.

The ASRC has title to 4.3 million acres located in the North Slope Borough. During the past 2 years, three unsuccessful wells were drilled on ASRC's lands--two in the arctic foothills and one at Eagle Creek. In the very near future, ASRC proposes to drill another well in the western arctic area, about 55 miles southwest of Umiat. Future drilling plans are unknown at this time.

Physical location and size of an oil or gas find will dictate the method of transportation, i.e., pipeline to southern Alaska (Valdez), to Norton Sound, or somewhere on the Chukchi Sea, and, in any case, tankered south.

Thus, the relationship existing between possible ASRC petroleum finds and the Beaufort Sea proposal is one subject to future, unconfirmed oil or gas finds.

In summary, the ASRC has title to lands with oil and/or gas potential and will probably continue its low-level exploratory activities for some time. This is a private project and no EIS's have been issued nor future plans made available.

6. Alaska Natural Gas Transportation System: In October 1976, President Gerald Ford signed into law the Alaska Natural Gas Transportation Act (ANGTA). This act superseded the Federal Power Commission's normal procedures and called for the FPC to make a recommendation on an Alaska gas pipeline route directly to the President. In September 1977, President Carter issued a decision, as required by ANGTA, and an accompanying report in which he selected the Northwest Pipeline proposal as the designated means by which Alaska gas would be transported.

The proposal, presented by Northwest Pipeline Co., consisted of a natural gas pipeline roughly paralleling the trans-Alaska pipeline from Prudhoe Bay to Fairbanks. From that point the line would basically follow the Alaska Highway through Canada, eventually re-entering the United States at the Alberta border.

Much uncertainty surrounds the implementation of this proposal. Several other routes have merit and the possibility of an all-Alaskan route to tidewater and an LNG facility plus Alaskan petrochemical plants is also feasible. The two certainties that do exist are that there is a massive proven amount of gas on the North Slope and that it will be produced, transported, and used at some time the future.

In summary, while the transportation route and timing may be uncertain, gas production and transportation will add to the ongoing oil-related activity on the North Slope in the future. For more information regarding this project and its impacts, see the FES on the Alaska Natural Gas Pipeline Proposal published by the DOI in March of 1977.

7. Future Federal Leasing Activity: The Proposed Final OCS Oil and Gas Leasing Schedule issued in March 1980 shows a proposed lease sale in the Federal portion of the Beaufort Sea. This sale is scheduled to be held in February of 1983, should the Secretary of Interior decide to hold it.

In April of 1980, 441 blocks (778100 hectares) were selected for further study and development of an ES and future Secretarial decisions. This area stretches from offshore Flaxman Island on the east through Harrison Bay on the west. An EIS will be written regarding this proposal. The ES is scheduled to be published in July 82.

In summary, should the Secretary of Interior decide to hold this proposed sale additional activity will take place in the Beaufort Sea continuing the trend offshore.

Should commercial petroleum reserves be found in the proposed sale area, transportation from the area to a shipping area will be required. The oil and/or gas will probably be brought to shore by pipeline and pipelined to a treatment area then south. It is possible that the facilities at Prudhoe Bay will be used. These probable new transportation facilities will require some land area which will be removed as animal habitat for the life of the project. Human disturbances of animals living along the transportation corridor will also be increased.

B. Cumulative Impacts on Biological Resources: The cumulative impacts discussed in this section are based on the impacts described in the FES on the Joint Federal/State oil and gas lease sale published in August 1979. These

impacts are not conditioned by the mitigating measures that were included in the Final Notice of Sale (FNS) and the leases themselves. Impacting factors have been identified in sec. III.A.

1. Cumulative Impacts on Primary Producers: In the FES impacts regarding primary producers are summarized on pages 197 and 198.

"Primary production is mainly limited by light, nutrients, and grazing animals. The impact of the proposal on these three factors, and therefore on primary production, will be minor. Light levels in the air will probably not be affected. In the water column, they may decrease temporarily in relatively small areas. Nutrient levels in the water column may be increased locally by the resuspension of sediments by dredging; nutrient levels of the tundra water column may be increased by dilute concentrations of spilled hydrocarbons. Grazing animals may decrease primary production around onshore facilities, which would lead to a local increase in plant biomass. Offshore, a reduction of grazing zooplankton that may be killed by an oilspill could lead to a local increase in primary production. The effects will not be large and will not affect any of the larger animals migrating through or feeding in the area.

There could be direct impacts from habitat destruction, petroleum and drilling fluids on a large percent of the kelp in the boulder field. Aside from the impacts on kelp, none of the impacts on primary production will seem large, compared with the natural variability of plant species and biomass."

Cumulative Impacts were identified as follows on page 198 of the FES:

"Additional offshore activities in the general area (deeper water or State inshore waters) would cause some increased disturbance to the primary producers. However, these cumulative impacts should not be large nor would they significantly affect the higher trophic levels. Because of the natural flushing, magnification of small effects will not result, and the cumulative impacts should be no more than any of the individual impacts."

The impacts on primary producers would be caused by reduction of light or nutrients that are necessary to their survival. Increased activity would in some cases, on a short-term basis, reduce either one or both of these. The nature of these impacts would be a local reduction of numbers of these organisms. However, the natural population variability and patchiness of these resources tend to reduce long-term effects over time.

The enforcement of Federal stipulations 4, 6, 7, and 9, State stipulations 5, 6, 8, and 10, Information to Lessees items f and g (Federal leases), and f and g (State Leases) as contained in the FNS, will further reduce these cumulative effects by prohibiting activities that would reduce light or nutrients. The trend in selecting these stipulations will probably continue in selecting stipulations to reduce cumulative impacts from other sale areas.

2. Cumulative Impacts on Different Types of Invertebrates: The FES identified the following impacts on pages 204 and 206:

"Macrobenthic populations around platforms, pipelines, and artificial islands will likely become depressed and exhibit higher rates of species turnover. It is believed that drilling activities (including production) will have a severe effect on benthic organisms in the immediate vicinity of the activities (30 meters). Recovery would take weeks to 5 years.

Long-term effects will depend on the reproductive energy of the system. Sensitive species such as coral or life forms, e.g., larvae, may be the most adversely affected. Sublethal effects due to chronic oil pollution may be significant. Dredging for gravel or pipeline laying (20 miles) will cause turbidity and habitat destruction. Recovery may take 5-7 years. Drilling muds and cuttings when diluted should have temporary and local effects upon the benthos. However, more research is needed on the effects of whole muds introduced into the arctic environment. Formation waters may introduce increased concentrations of heavy metals into the environment. It is not known how this could effect the ecosystem.

The effects of drilling muds upon corals in the proposed area could include smothering if the organisms cannot rid themselves of the materials. Because the organisms are sessile, they cannot avoid the discharges. The boulder field, where coral is found, also provides important habitat for kelp, invertebrates, and other marine organisms not found in areas with no hard substrate (boulders), is unique because it is the main solid rock substrate below the ice-scour depths within the proposed lease area. Oilspills have been shown to be detrimental to warm-water corals. The impacts in the arctic are unknown."

In addition cumulative effects were described on pages 205 and 207 to be:

"The cumulative effects of oil, heavy metals, and other pollutants are also unknown. Winter discharge of drilling fluids and formation waters under the ice could have significant adverse special biological significance and impacts upon the organisms that depend upon small specialized winter habitats. The extent to which the organisms could withstand a toxic environment is unknown. Further development may place too much stress on the benthic organisms which are the basis of the food web. Eighteen blocks are considered to be more sensitive than others in the proposed sale area from the aspect of benthic biota.

Turbidity from dredging or construction of artificial islands or pipelines could also cause damage and eliminate habitat. The cumulative effects of formation waters, heavy metals, oil, drilling fluids, and potential habitat destruction from dredging could severely damage the relatively small amount of coral in the proposed area."

"Cumulative impacts on planktonic or epibenthic invertebrates probably will not occur because of the rapid rate at which these invertebrates, and petroleum in water, are redistributed, and any sequence of impacts will probably not affect the same planktonic and epibenthic invertebrates."

The nature of impacts would be the loss of population caused by the reduction of habitat and chronic sublethal impacts that are endemic to the activities required by oil and gas exploration and production. It is estimated that these impacts would be fairly local except in the case of a major pollution event. Quantification of these impacts is not possible at this time.

Enforcement of Federal stipulations 3, 4, 6, 7, and 8, State stipulations 3, 4, 5, 6, 8, and 10, Information to Lessees items c, and n (Federal), and j and m (State) will reduce the amount of chronic pollution and, therefore, reduce the cumulative effects of offshore drilling. Selecting these stipulations indicates a trend and similar ones will probably be adopted in future sales in the Federal and State offshore areas which would tend to reduce cumulative effects of these sales. Federal stipulations 3, 7, and 9, and State stipulations 5 and 10 were specifically included to protect the boulder field in the sale area.

3. Cumulative Impacts on Marine and Fresh Water Fish Populations:
The FES concluded on page 215:

"Estimates of fish population decline because of actions from this proposal cannot be made at this time. Some fish species may be reduced in numbers because of pollutant events or habitat changes. Some fish species may benefit from construction activities associated with this proposal. These effects may be offsetting. While the total effect on fish population cannot be quantified at this time, it is estimated that in the long-term natural factors will affect fish populations more than manmade factors, provided the existing rules governing discharges in the ocean and removal of gravel and fresh water from streams are enforced and new regulations for site-specific problems promulgated as needed."

Cumulative effects identified in the FES on page 215 were:

"If other leases are held, and oil and/or gas are found in commercial quantities, in the future the cumulative effects of these activities would vary by area leased. If the new production area is nearshore, the anadromous, fresh water and juvenile salt water species would be increasingly stressed to the detriment of this population. If the future production areas are farther offshore, there would be little or no effect from the activity, provided technology was available to safely produce and transport the hydrocarbons."

The nature of the cumulative effects could be both a loss of habitat through dredging and filling and a gain in habitat in that additional shallow water edge areas would be built. Chronic pollution could be a continuing problem by reducing local fish populations although stringent mitigating effects in the form of stipulations have been added to leases in the present sales.

Shore based activities, such as causeway construction (docks, water flood project, pipeline protection), could cumulatively affect fish habitat. The impingement of fish (larval and juvenile forms primarily) in the water intake for the water flood project will have a local effect reducing these forms. Effects on fish populations cannot be estimated at this time although as more total experience is gained and study results become available additional or

more effective mitigating measures can be adopted through existing authority of the Secretary of Interior and the Alaska Oil and Gas Supervisor to reduce these cumulative effects.

Enforcement of Federal stipulations 3, 4, 5, 6, 7, and 9, and State stipulations 3, 5, 6, 7, 8, and 10, and items b, c, d, f, i, n (Federal) and a, f, g, h, j, and l (State) of the Information to Lessees section of the sale notice will reduce cumulative impacts from this sale. Selection of these mitigating stipulations indicates that selecting similar mitigating measures in future sales will reduce the cumulative effects of those sales.

4. Cumulative Impacts on Marine and Coastal Birds: After a wide-ranging discussion of impacts on birds, the FES concluded on page 226:

"The aggregate effect of adverse impacts likely to occur on avian species over 26 years of development, as listed in the Summary Discussion, will be a reduction in population numbers by a moderate amount over a long-term period. The most sensitive species to development include whistling swans, geese, oldsquaw, eiders, phalaropes, semipalmated sandpipers, black quillmot, ross' gulls, and sabine's gulls. The extent of the impacts is not quantifiable at this time because of the large number of influences involved and the uncertainties of oil and gas development in the arctic."

The FES continued on page 226 with the following discussion of cumulative impacts:

"Impacts of a lesser extent, taken individually, do not constitute a major concern. It is important, however, to evaluate cumulative impacts in light of the capacity of wildlife species to absorb and adjust to increased disturbances. This capacity becomes diminished with each additional disturbance. The result of increasing cumulative effects is a decrease in wildlife numbers and diversity."

The nature of cumulative effects will be a continued loss of summer habitat, both uplands and water and an increase in disturbance causing activities related to increasing (both in space and intensity) oil and gas development. Those species that adopt or adjust (seagulls, ravens) to these disturbance activities will be the least affected. Those species (snow gees, common eiders, whistling swans) that lose the most habitat and/or cannot adjust to the continuing disturbances will be affected most. Habitat is limited and birds displaced either because of habitat loss and/or human disturbance will be forced to use less suitable habitats to the detriment of the species. This could also cause additional competition for prime habitats which could further reduce bird populations because habitat quality would then be reduced and over crowding on nesting, resting, and feeding areas could increase the incidences of disease and weaken individual birds.

The general effect of these types of impacts could result in reduction of numbers of marine and coastal birds. Some species will be impacted more than others but the general trend will be the reduction of the numbers of birds using the area. Individual species populations reduction estimates cannot be made at this time. However, because of the great natural variability of bird populations, it may not be possible to determine causes of bird population reduction.

Enforcement of Federal stipulations 2, 4, 6, 7, and 8, State stipulations 2, 4, 5, 6, 8, and 9, and Information to Lessee Items b, f, g, h, i, j (Federal), and f, g, h, k, and l (State) will further reduce impacts from this and established models for similar mitigating effects to reduce primary and cumulative effects from further Federal sales.

5. Cumulative Impacts on Seals: The FES analyzed impacts on seals and concluded on page 229:

"According to the available information it is possible that the proposed sale could have a negative impact on the seal population. Human perturbations and chronic oiling of hauling grounds cause the abandonment of hauling grounds and rookeries. Hauling grounds, however, occupy parts of five leasing units in the proposed sale area.

Although a major oilspill would probably occur once during the life of the proposal, seals could suffer from kidney damage and eye disorder because of that one spill or from chronic pollutant events.

There exists the possibility of ingestion of toxic food and water. These effects would depend upon the amount of oil present and upon the opportunities for animals to escape from it. Exposure to large amounts of oil in restricted leads might be lethal; and insidious aftermaths could result from small amounts of oil over long periods. However, such consequences are speculation at this time."

"Seal populations can be affected by the activities and pollutant events associated with this proposal. The chance is small that haul-out and rookery areas will be affected since only one major spill is predicted for the life of the project. The chance does exist however, that haul-out and rookery areas can be polluted. This could adversely affect the population using that area, but to what extent cannot be estimated at this time."

Cumulative impacts were assessed as follows on page 236:

"Impacts associated with future sales and their related activity will further erode the availability and quality of marine mammal habitat. If the proposed State sales are successful, the identified impacts will increase. Should there be another Federal sale, it would be further offshore and further removed from the inshore habitats that could be affected, although some marine mammals such as the whales, polar bears, and ring seals would probably experience a larger impact."

As with all wildlife species discussed in relation to this sale, the nature of the impacts will be a loss of habitat, habitat quality reduction through pollutant events and/or disturbance as the major types of cumulative impact.

Activities on State-owned shoreline and island areas could cause reduction of the amount of haul-out and feeding areas. Activities related to this sale and future Federal sales could cause reduction of seal pupping and winter feeding habitat. As habitat amount is reduced, population numbers are usually reduced.

There are a number of natural and other man-caused (primarily hunting) reasons for population reduction that will make it almost impossible to assess cause of population reduction unless it can be tied to a specific event such as a massive spill.

Enforcement of lease included Federal stipulations 2, 4, 6, 7, and 8, State stipulations 2, 4, 5, 6, 8, and 9, and Information to Lessee items b, g, h, i, j, m (Federal), g, h, k, l, and m (State) will reduce cumulative impacts associated with this project. Selection of these measures indicates the trend that mitigating measures associated with future sales will be similar or improved because of knowledge and experience gained from this sale thereby reducing cumulative effects of the future sales.

6. Cumulative Impact on Polar Bears: In the FES on page 231 it was concluded that:

"It is probable that the polar bear population using the area affected by the proposal will be reduced by an unknown amount. However, the amount of reduction anticipated with mitigating measures in place is judged not to violate the treaty.

Polar bear maternal denning habitat is in the shortest supply and is primarily on State land and it is assumed that activities associated with this proposal will further reduce this critical habitat. The amount of population reduction may affect sport hunting and bag limits in the future in that if the State desires to maintain a certain population level of polar bears, hunting will need to be curtailed."

Cumulative impacts will be caused by continuing and increasing oil and gas-related activity to the north, west, and east of the Prudhoe Bay area which will further erode polar bear land denning site availability. The nature of these cumulative impacts caused by this lack of denning will probably reduce numbers of polar bears in the Beaufort Sea off Alaska. As the food chain narrows toward the top, some species become more sensitive to food source reduction. The polar bear feeds primarily on ringed seals. A reduction of the seal population in an area could reduce the population of polar bears in the area. This may not result in the reduction of the total polar bear population, but could reduce it locally because of displacement.

Additional Federal and State activity offshore plus continuing actions onshore will cumulatively reduce the polar bear population between the Canning River and Cape Halkett over the next 50 years. The extent of this reduction on the Alaskan polar bear population is not known.

Enforcement of Federal Stipulations 2, 4, 6, 7, and 8, State stipulations 2, 5, 6, 8, 9, and 13, and Information to Lessee items b, h, i, j, m (Federal), and h, m, and n (State) will lessen the cumulative impacts on polar bears. There could be, however, a population reduction because of energy development on the North Slope of Alaska and offshore areas.

7. Cumulative Impacts on Caribou: The FES on page 232 summed up the discussion of adverse impacts on caribou as follows:

"Because caribou will be disturbed during their summer activities and their habitat will be reduced, it is probable that caribou populations using the area will suffer a decline. The extent of this decline is not known. However, no critical caribou habitat has been identified as being destroyed, so the effect should be small."

Reproductive cycles of caribou in the arctic reoccur within the same general timeframe each year. One calf is born to most adult females in a herd each year, usually within a period of two to three weeks at the end of May and in early June. Almost all the females of one herd come together from great distances in the spring to use specific traditional areas referred to as the calving areas or calving grounds. Disturbance caused by human activity on calving and post calving areas can be more adverse than similar disturbances in the rest of their habitat.

It appears that females are more sensitive to disturbance during the calving and post-calving periods. They are also at the low point of their annual cycle, having completed a long migration carrying a calf. That they return to the same general calving areas indicates that the habitat there is highly suitable for that activity. Alteration of access and frequency, timing, and extent of man's use of calving and post-calving grounds could be the most likely adverse cumulative effect.

For these reasons, a reduction in caribou population is more likely to take place wherever calving grounds are significantly involved. However, caribou herds in Alaska have gone through some massive short-term population reductions that cannot all be attributed to human disturbance.

As energy producing activities spread east, west, and north of the Prudhoe Bay area, more habitats will be affected. The Porcupine herd calves primarily east of the Canning River where no oil and gas related activities are envisioned at this time. Some of this herd, however, does calve and gather in post calving aggregates west of the river in the Point Thompson area.

The Central Arctic herd is presently being affected by the ongoing energy production and as the Kuparuk field becomes more active, more habitat will be affected.

Should oil and gas activities increase to production on NPRA and ASRC lands the Western arctic herd will be affected.

Cumulative effects from all of this ongoing and anticipated activity will probably mean a reduction of caribou habitat and probably population reductions until some equilibrium of habitat and population is reached. What that means in final population numbers cannot be assessed at this time.

Because all Federal tracts are offshore, away from caribou habitat, only Federal stipulation 5 applies to reducing impacts on caribou in that it requires landfall from offshore pipelines to be made in designated areas. Enforcement of State stipulations 4 and 7 and Information to Lessees items a, b, and k will reduce these cumulative impacts.

8. Cumulative Impacts on Endangered Species: The three endangered species in the area are considered separately.

a. Cumulative Impacts on Bowhead Whales: After analyzing impacts the FES stated on page 236:

"During that part of the fall when the bowhead whales could be present in the proposed lease area, their migration patterns, feeding behavior, breeding, and possible parturition could be altered by oil and gas activities. The quality and quantity of food available to the whales also may be affected by the proposed activity.

Furthermore, oil spills could prevent cutaneous respiration in the skin of bowheads, and baleen could be fouled, thus preventing successful feeding. Encounters with underwater structures could prove fatal to individual whales. Impacts of noise on the bowhead whale have been only casually observed by NMFS scientists and strongly advocated by the Native community. No scientific substantiated knowledge about noise impacts is presently available.

Most of the above summarized impact assessment is based on subjective judgment since little or no scientific quantitative or qualitative data are available."

Cumulative Impacts were addressed as follows on page 236:

"In addition to the proposed Federal/State lease sale, the Canadians are conducting extensive oil and gas exploration and development in the Canadian Beaufort Sea in areas occupied by the bowhead whale. These activities, plus any generated by a U.S. Beaufort Sea sale, may cause further disturbance to the endangered bowhead whale population. Furthermore, future offshore oil and gas activities, combined with the proposed sale activity, could result in synergistic perturbations complicating survival or reducing the bowhead survival potential."

In addition to the above listed activities, the present Department of Interior's March 1980 Proposed Final OCS Oil and Gas Leasing Schedule listed proposed sales in the Norton Basin in 1982, St. George Basin in 1982, the second Beaufort Sale in 1983, the Navarin Basin in 1984, and the Chukchi Sea and Hope Basins in 1985. These areas plus the Canadian Beaufort Sea constitute the range of or are proximated to areas used as habitat for the bowhead whales that traverse the Beaufort Sea spring and fall.

Should these animals not be able to adjust to the human activities associated with OCS oil and gas exploration and/or production, there probably would be a reduction in population. Unknown potential responses of bowheads to noise or disturbance may cause abandonment of certain areas of known use. Increasing activity means increasing opportunities for pollutant events that could also adversely affect bowhead populations.

Enforcement of Federal stipulations 2, 4, 6, 7, and 8, State stipulations 2, 5, 6, 8, and 9, and Information to Lessees items b, h, i, o, and p (Federal), and h, m, and n (State) will reduce cumulative impacts from this sale. Experience gained from early activities associated with this sale and the

completion of ongoing studies will allow the Secretary of Interior to determine if other mitigating measures that are within his purview are needed. In addition, lessees will have to comply with the Endangered Species Act, which provides substantial protection to the bowheads. Before building gravel islands from which drilling will occur, lessees will have to obtain permits from the Corps of Engineers. In issuing such permits, the Corps will have to comply with Section 7 of the Endangered Species Act, which requires consultation with the National Marine Fisheries Service whenever an endangered whale may be affected by the proposed action. Therefore, the cumulative effect of this sale on the bowhead whale should not be substantial. The NMFS has concluded that exploratory activities on Federally-managed tracts, with the seasonal restriction in place (Federal stipulation 8), are not likely to jeopardize the continued existence of the bowhead whale.

b. Cumulative Impacts on Gray Whales: Because few gray whales penetrate the Beaufort Sea as far as Barrow, no specific impacts nor cumulative impacts were discussed in the FES relative to this project. Additional proposed sales in the Bering and Chukchi Seas may affect the gray whales during their summer fall migrations. Cumulative impacts from these proposed sales will be detailed in the EIS's for those areas. The NMFS has concluded that exploratory activities on Federally-managed tracts with the seasonal restriction in place (Federal stip. 8) are not likely to jeopardize the continued existence of the gray whale.

c. Cumulative Impacts on Peregrine Falcons: The FES stated:

"After OCS initiated formal consultation on the endangered arctic peregrine falcon with FWS, the Deputy Director from FWS submitted a biological opinion regarding the impact of the proposed lease sale activities on this species. The Deputy Director stated that, "After careful review of the findings by the consultation team, it is my biological opinion, subject to conditions identified in the biological summary, that the proposed project is not likely to jeopardize the continued existence of the endangered arctic peregrine falcon."

"Conclusion: It is not likely that the proposal will adversely affect the peregrine falcon populations of the North Slope."

With no adverse effects from this proposal no cumulative effects were assessed.

C. Cumulative Economic Impacts: The FES on pages 248 and 249 by way of conclusion stated, "this proposal will result in an insignificant number of additional jobs in Anchorage and Fairbanks during the life of the proposal. In the North Slope region, the proposal should provide 100 to 200 jobs during the early and late years of the project and 400 to 500 jobs during the peak activity."

"During the peak years the project should contribute approximately 2 percent to total statewide employment.

"The statewide impact on personal income is expected to closely parallel the impact on employment. The anticipated development is expected to contribute approximately 2.1 percent to personal income.

"State expenditures are expected to grow approximately 1.9 percent during the project.

"Overall, the proposal will add approximately 2 percent to all indicators of economic and employment growth and activity."

1. Statewide Cumulative Impacts: Cumulative impacts assessment was integrated into the econometric forecasting process (via ISER's MAP models) used to estimate potential economic, demographic, and fiscal effects. This was done, in part, by estimating future levels of economic activity via assumptions regarding State revenues and expenditures, levels of or changes in selected national economic variables, and growth of "exogenous" industries in Alaska, or specifying development scenarios. Specific petroleum development projects assumed included:

- continued oil and gas explorations and development at Prudhoe Bay and the Kuparuk and Lisburne Formations.
- continued oil and gas production in upper Cook Inlet
- expansion of the trans-Alaska oil pipeline
- construction of the ALCAN gas pipeline
- construction of Pacific Alaska's proposed LNG plant at Nikiski.

Additional assumptions were incorporated regarding other petroleum and non-petroleum mining, the agriculture-forestry-fisheries sector, Federal Government employment, and other exogenous sectors. These, and other, assumptions made in 1979 were combined via the MAP model to produce economic forecasts to the year 2000. Estimates addressed both cumulative and incremental effects of the sale.

For the intermediate case, cumulative and incremental effects are the same. These effects are summarized below.

Employments Effects: By the year 2000, the total State employment impact is projected at 6,704, or 2 percent more than the base case. The major impacts are expected to occur after the beginning of development in 1987. At the peak of projected direct employment in 1989, the impact could be 6,649, or a 2.5 percent increase over the base case.

Beaufort development causes no significant change in the structure of the economy, and serves to reinforce the trend toward an increased importance in the support sector.

Personal Income: Personal income is projected to be \$662.8 million higher because of Beaufort development. This is 2.1 percent higher than in the base case.

State Fiscal Position: Total State revenues are projected at 302.9 million more than that for the base case by the year 2000. State expenditures would grow at an average annual rate of 9.48 percent, only slightly more than that for the base case. The level of service, as measured by real per capita expenditures, remains close to the base case.

By the year 2000, the State general fund balance is projected to be \$1.5 billion, or 16.2 percent greater than in the base case. Interest on this larger fund balance would mitigate the expenditure effects of the proposal.

2. Regional Cumulative Impacts: Development in the Beaufort will affect the North Slope, Southcentral, Anchorage, and Fairbanks economies. Employment, personal income, and State revenues and expenditures will be increased, however, the precise distribution of these effects will be determined by the location of employment, the distribution of State expenditures, the size of local economies, and interactions between regions. It is not expected that the proposal would affect the distribution of growth.

North Slope Borough revenues would be impacted positively, mitigating the impact of forecasted short-term deficits.

3. Local Cumulative Impacts: Employment impacts on North Slope communities are expected to be moderate, adding an estimated (net) 75 jobs to Barrow, 4 jobs to Kaktovik, and 5 jobs to Nuiqsut by the year 2000. Employment growth would not be constant, rather, peaks in employment would coincide with intensive Beaufort development activity, Borough capital improvements projects, and other major construction or development projects.

Overall, Statewide and regional, the proposal would add approximately 2 percent to all indicators of economic and employment growth and activity.

Enforcement of Federal stipulations 10 and 11, State stipulations 11 and 12, and Information to Lessees Items a, b, and 1 (State) will aid in providing an orderly manner in which to respond to these impacts.

D. Cumulative Sociological Impacts:

1. Cumulative Population Impacts: Population impacts were assessed beginning on page 250 of the FES.

a. Local: In assessing local population impacts the FES on pages 251 and following pages stated:

"Although the traditional communities of the North Slope will experience some growth in population and employment based on the maximum case, the added impacts on facilities and services will be minor because, in many cases, projected needs are already planned to be met by the North Slope Borough. The only significant exceptions are additional needs for housing and utilities in Barrow.

"In general, the following impacts on the traditional communities are anticipated in the maximum and intermediate cases. First, the number of people added in all three villages will be small. Some continued emigration to Barrow and outside the region will occur, but less than that in the non-OCS scenario. Second, Barrow's population is forecast to grow faster than that in the non-OCS case. Since rates of emigration from the smaller villages are expected to be lower, much of Barrow's new population can be expected to be non-Native. Third, borough revenues will be considerably above

those which could be realized in a non-OCS case. Thus, additional community facilities and services could probably be provided without financial hardship to the borough. Fourth, the major areas of "new" impact on the manmade environment of the traditional communities will be housing and utilities particularly in Barrow. Fifth, delay in petroleum development will tend to aggravate the deficit position expected for the borough in the early 1980's.

"By 2000 Barrow's population is projected to be a cumulative 226--a 5-percent increase over the estimated base case growth figures. Population is projected to grow at 2.25 percent through 1980 in both the development and the base cases. In the development case only population is estimated to grow at 2.5 percent after 1980.

"The most significant impact on Barrow will be housing. Given the existing poor conditions and overcrowding, Barrow will most likely have a housing renewal project, regardless of the present Beaufort development. With development, the need will be even more imperative. The estimate calls for 45 housing units to be developed over a 20-year period at an average of slightly more than 2 units per year. This estimate refers to impacts only and does not refer to needs existing in the base case.

"Increased demands for public utilities, fire protection, and health services will probably strain the present delivery system.

"Nuiqsut's population is forecast to grow at a faster rate than the other villages because of its close proximity to Prudhoe Bay.

"Currently, Nuiqsut does not have significant housing problems. The housing is 5-years old, and most is in good condition. Anticipated population impacts could probably be handled by the existing housing, although two to four new units would probably be constructed in the next 20 years in addition to base case increases.

"The present service infrastructures can probably handle any increases demands for services.

"Using an average annual growth rate of 1 percent through 1980 and 1.25 percent thereafter, Kaktovik's population is projected to be about 137 by 1980, 147 by 1985, 157 by 1990, 167 by 1995, and 177 by the year 2000.

"If development occurs, the housing impact in Kaktovik is not expected to be dramatic. Although housing is overcrowded and in poor condition, it is probably better than the housing in Barrow, but definitely inferior to the housing in Nuiqsut. Probably two to three new units would be needed to accommodate impacts from the proposal. As in Barrow, it is likely that regardless of the proposal, new housing will have to be provided to replace substandard and overcrowded stock.

"The present service infrastructure can probably handle any increased demands for services because of development."

Cumulative impacts will be of the same nature as those above. There will be a continuing increase in village population requiring more housing and a larger service infrastructure. At times this will stress the present systems and could result in a lower level of service and government. Estimates of amount of stress suggest a somewhat greater housing and infrastructure stress for Barrow and a moderate to low stress for Nuiqsut and Kaktovik.

b. Regional: In discussing regional population impacts the FES on pages 250 and 251 states:

"Total population in the region drops as low as 7,080 in the non-OCS scenario and increases at a reasonably consistent rate thereafter through the end of the century. Under the maximum case total regional population increases significantly from 1985 through 1988, peaking at 12,151 in the latter year. Some decline in population is experienced from 1989 through 1993, but steady growth is encountered thereafter.

"Certainly the bulk of this impact will be at Prudhoe Bay in the form of direct employment. Given the enclave nature of Prudhoe Bay, this should not result in a dramatic sociocultural impact. The most important impact will be to strengthen the borough's tax base as the \$1,500 per capita formula is applied."

The cumulative impacts will be a regional population growth. Precedent set in Prudhoe Bay of enclave type development will probably be retained throughout the region. There is a possibility, however, that a road connecting Nuiqsut to the haul road to Prudhoe Bay may be developed in conjunction with the Kuparuk field development. This will provide opportunities for further population increases there.

These population increases will probably not stress enclave infrastructure as the enclaves are planned and developed as needed and are a part of long term oil company planning efforts.

Enforcement of Federal stipulation 2, State stipulation 2, and Information to Lessees item e (Federal and State) will help reduce these cumulative impacts.

2. Cumulative Impacts on Lifestyle: After identifying types of and discussing impacts on North Slope native lifestyles the FES on page 254 summed it up as follows:

"Thus, a proposal, such as the Beaufort Sea lease sale, which might (or might not) threaten bowhead hunting is viewed by the Inupiat as one which might threaten their existence.

"A perspective on dysfunctional change can be gained from considering changes in traditional Inupiat values. The most important values include identification with the land, pursuit of subsistence food harvesting, self-sufficiency, and sharing. The total western, industrial influence on the North Slope tends to erode these values.

"The expected lifestyle impacts from the proposal will be the acceleration of the present changes toward western values and a reduction, in an unknown degree, of subsistence food gathering related lifestyle values. This is a significant impact."

The cumulative impact of other oil and gas related activities will be to increase the acceleration of the changes toward western values and a reduction of food gathering lifestyles. The rate of increasing acceleration is unknown and contains so many variables that any guess may be correct. Because Barrow is the focal point of North Slope government and local corporate organizations and is the largest and best interconnected to State and national levels of government and organizations a reduction of subsistence lifestyle activities and values, will be felt there first, most, and more steadily.

Enforcement of Federal stipulations 2 and 8, State stipulations 2, 4, 9, and 13, and Information to Lessee items a, b, e, f, h, i, j, and p (Federal), and a, c, e, f, h, k, l, m, and n (State) will help slow the rate of change to some degree. Federal stipulation 8, State stipulations 9 and 13, and the section in the Notice to Lessees regarding seismic permitting should prevent significant threats to bowhead hunting (also see discussion sec. III.D.3.).

3. Cumulative Impacts on Subsistence: After a discussion of impacts on subsistence the FES on page 259 concluded:

"Based on animal species impact analysis elsewhere in this section, the general impact of the proposal on a subsistence lifestyle may be to reduce the numbers of some species during some years so that there may be less wildlife resources available for food gathering. This will not happen to all species at the same time. Nor should it be beyond the species ability to recover, although hunting may need to be curtailed on some species for a time to allow for population recovery. Diving ducks, polar bears, and seals may be more affected than other species."

Caribou is another species that could be adversely impacted by the land activities associated with oil and gas production.

"Although natural population variations happen now and did before any development in the north and will continue, making subsistence a variable lifestyle, development will probably cause the quality and quantity of the variations to increase.

"Urban lifestyle throughout Alaska is not expected to be impacted. Lifestyle in traditional, North Slope communities is expected to be impacted in terms of the rate of social change towards western values, in pertinent cases, and a decrease in subsistence food gathering and the related cultural values. From testimony given at the hearings, it appears the Inupiat and western cultures are on a collision course."

Cumulative impacts were then discussed on page 259.

"This proposed sale, plus other State and Federal sale activity tentatively planned in the general region, must be considered in terms of cumulative impacts on affected areas.

"All of these proposed actions by both Federal and State governments would result in impacts similar to, but cumulatively greater than, the impacts discussed in section III of the FES. The most likely

effect will be a limiting of the subsistence lifestyle because of less availability of some species some years, and a slightly limited habitat to hunt and fish in. This could drastically impact the Inupiat social and physical well-being; however, the amount of this potential changes cannot be estimated."

The nature of the cumulative impacts will be a reduction of living species that are gathered by the natives at this time. An equilibrium will be established in the future but the level is unknown. It is also unknown if that level will support the needs and desires of the subsistence users.

Enforcement of Federal stipulations 2, 3, 4, 6, 7, 8, and 9, State stipulations 2, 4, 5, 6, 8, 9, 10, and 13, and Information to Lessee items b, c, d, e, f, g, h, i, j, k, m, o, and p (Federal), e, f, g, h, j, k, l, m, and n (State) help will slow the rate of change to some degree.

E. Cumulative Impacts on Cultural, Visual, Recreational, Tourism, and Wilderness Resources: Cultural resources in this section refers to paleontological and historical features. The other items are self explanatory.

1. Cumulative Impacts on Cultural Resources: The FES on pages 262, 263, and 264 concluded the discussions on impacts on cultural resources thus:

"Development resulting from the proposed lease sale could cause direct and indirect adverse effects on terrestrial archeologic and historic sites. Direct impacts to cultural sites could result from off-lease construction activities, and oil contamination of site materials. Indirect impacts could result from the siting of oil and gas facilities adjacent to cultural sites, oiling of the cultural environment, and through the processes of salvage archeology. A beneficial effect of the proposed action could result from site surveys and the systematic collection of specimens.

"It can be assumed that measures will be in effect which would serve to identify and protect onshore archeologic or historic sites before any onshore activities take place. Accordingly, the effect of this proposal on such sites from such activities is expected to be minimal.

"The effect of this proposal on submerged archeologic sites is expected to be minimal due to the improbable existence of such sites. Significant adverse effects could occur only if unidentified or undetected sites were affected by the siting of offshore facilities, the mining of sand and gravel resources, an increase in siltation from construction activities, and by an increase in marine traffic. Mitigating measures which approximates Issue 1, section IV.D of the FES, will serve to protect any such sites detected during operations. A beneficial effect of the proposed action could result from such detection and the systematic collection of cultural specimens.

"Impacts are expected to be minimal due to laws protecting such measures. Although unlikely, the loss of paleontologic specimens as a result of construction activities could significantly affect the

knowledge of paleoecologic conditions of the region. The systematic collection of cultural specimens could increase knowledge of paleoecologic conditions."

Cumulative impacts were identified on page 264 as follows.

"Additional oil and gas exploration and development in the future could jeopardize archeologic and paleontologic remains. Onshore activities related to the exploration, development and shipment of oil and gas could potentially increase the impacts to historic, archeologic and paleontologic remains important to the understanding of past cultures as well as the paleoecologic conditions which prevailed. However, effective mitigating measures are expected to keep impacts to a minimum.

"The continued use of predictive modeling, remote sensing techniques and the systematic collection of cultural remains conducted prior to future developments could advance scientific knowledge of past cultures."

The cumulative impacts of continuing land and sea based oil-and gas-related activities will be to find, excavate and preserve, cultural resources, thereby gaining further knowledge of the peoples of the North Slope area. There is always some danger that some historical sites may be damaged or even completely obliterated by this activity. However, the knowledge and experience already gained in discovery and salvage of sites along the TAPS route and in NPRA should reduce this chance to an absolute minimum.

Enforcement of Federal stipulations 1 and 2, State stipulations 1 and 2, and Information to Lessee items a and b (Federal and State) will ensure that cumulative impacts are at a minimum.

2. Cumulative Impacts on Visual, Recreational, Tourism, and Wilderness: The FES on pages 266 and 267 concluded discussions on these items as follows:

"Overall impact is expected to be low because of the very small number of people that frequent the general area and the distance of activities from areas of visual importance. However, for the few that do, areas of natural and historical importance will be significantly impacted by facilities when viewed from a distance of 1 mile or less. The significance of this impact will be greater when structure colors are lighter. Impacts to the visual environment will be less severe when structures are sited from a distance of 1 to 5 miles, and variations in color will not have as dramatic an effect as those produced at closer distances. Structures sited at distances greater than 10 miles will not significantly affect the visual environment surrounding important natural and historical areas. Development visible from Prudhoe Bay will not result in adverse impacts due to the extensive industrial infrastructures existing in the area.

"The proposed Beaufort Sea development will have no significant impact on recreation or tourism in or adjacent to the proposed lease sale.

"The intrinsic wilderness qualities of the Beaufort Sea nearshore area and adjacent coast could be significantly affected by the siting of oil and gas facilities within or immediately adjacent to undeveloped portions of the area. The presence of man-made structures would destroy the essence of wilderness values."

Cumulative impacts were discussed as follows on pages 266 and 267:

"Future developments occurring on Federal tracts further from shore are not likely to increase impacts to the visual environment due to the estimated distance of such activities from areas of visual importance. Increased activities related to the exploration, development and shipment of oil and gas in nearshore tracts and adjacent onshore areas would continue to degrade the visual environment. Although mitigating measures could decrease the magnitude of the effects, it is felt that potential adverse visual effects could not be totally eliminated.

"Future oil and gas development is not anticipated to significantly increase adverse effects on recreation or tourism in the area unless such activities were to result in the public use of the North Slope haul road.

"Future oil and gas activities conducted in nearshore waters or on the adjacent coastal areas will cause further degradation resulting in the loss of a significant, non-renewable resource."

The nature of the cumulative impacts is in erosion of visual and wilderness values because of development infrastructure. Recreation and tourism related to wilderness type activities could be reduced. However, recreation and tourism related to visiting the Prudhoe Bay area to see the development there could be increased. Overall benefits or losses cannot be assessed.

Enforcement of Federal stipulations 1 and 3; and State stipulations 1 and 3 will aid in reducing these cumulative impacts.

F. Cumulative Impacts on Land Use and Status: The discussions on land use and status concluded on page 268:

"Potential impacts to the existing industrial enclave adjacent to the proposed lease sale are estimated to be minimal. Significant impacts to subsistence use patterns could occur in areas away from existing industrial use.

"The proposed action will result in no significant impacts to current land status within or adjacent to the proposed Beaufort Sea lease area."

Cumulative impacts were identified on pages 268 and 269 as follows:

"Oil and gas activities resulting from potential future lease sales would not adversely effect existing industrial development but could continue to impact subsistence use patterns.

"It is anticipated that future oil and gas activities will not significantly affect land status."

Continuing development in the area should have little or no cumulative effect on land status. As development continues east, west, and north, land use will become more dedicated to oil and gas activities and less to other activities such as subsistence, and recreation. The rate of change will depend specifically upon the rate of development.

There are no stipulations directed toward mitigating effects on land status.

G. Cumulative Impacts on Regional Transportation Systems: The FES on page 272 concluded discussion on impacts on various transportation modes thus:

"The perceived transportation requirements of goods, materials, and people to the Beaufort Sea lease sale are expected to have minimal effects on the regional transportation systems. Some occasional impacts may occur to the highway mode in and around Fairbanks, (capacity impact) as well as increased maintenance requirements for the highway. However, it is anticipated that neither of these possibilities would alter the existing highway mode significantly. No significant impacts to the other modes of transportation are expected."

Cumulative impacts on page 272 were assessed to be:

"Additional oil and gas development in the future are not anticipated to have a significant effect on any transportation mode. However, in the event that several large projects occurred simultaneously, capacity impacts as well as facility degradation to the highway mode could result."

Increasing and/or continuing development will tend to increase the need for transport of goods, material, and people to the North Slope. Existing transportation modes will be expanded or retracted as needed. The nature of the cumulative impacts will be a lengthening of the period of use of the existing transportation modes rather than gross cumulative expansion of the modes.

There were no stipulations developed to reduce cumulative impacts on transportation.

H. Cumulative Impacts on Air Quality: The FES on page 277 concluded the discussion on air quality impacts thus:

"Any addition of air pollutants to the area as a result of new development, would decrease air quality; however, enforcement of State standards in areas within the State and new Federal regulations (sec. IV.C.1(3), in FES in areas within the OCS would prevent the significant deterioration of air quality in these areas. Under these conditions cited above, no significant impact on air quality is anticipated."

Cumulative effects of multiple energy related projected could reduce air quality in select areas of the North Slope. The areas affected would be close to structures related to the development. Stringent controls would keep the reduction of quality at a minimum but at the peak of activity there could be a noticeable lessening of air quality.

No special stipulations were developed to reduce these cumulative impacts because enforcement of regulations promulgated by the Clean Air Act as amended (42 U.S.C. 7401, et seq.) the 1980 DOI Geologic Surveys regulations on air quality (30 CFR 250; 45 FR 15128) and the State's Implementation Plan are sufficient to protect air quality.

I. Cumulative Impacts on Water Quality and Supplies: The FES on page 279 summed up the discussions on water quality and supplies as follows:

"These effects could be a significant decrease on water quality in the arctic environment without mitigating measures. Enforcement of State and Federal water quality standards will keep water quality at an acceptable level for conscious discharges. Water quality will be adversely affected because of accidental discharges of pollutants. The effect may be long or short term and may or may not cause secondary but severe impacts on the biota of the area, as discussed in prior sections.

Cumulative effects of expanded activities on water quality will probably be a reduction in quality in specific areas. Plant outfalls, areas that pollutant events sweep through and areas affected by chronic pollution will all suffer a loss of water quality. The ability of arctic waters to absorb and assimilate pollutants is unknown at this time. Extent of quality reduction is also unknown at this time.

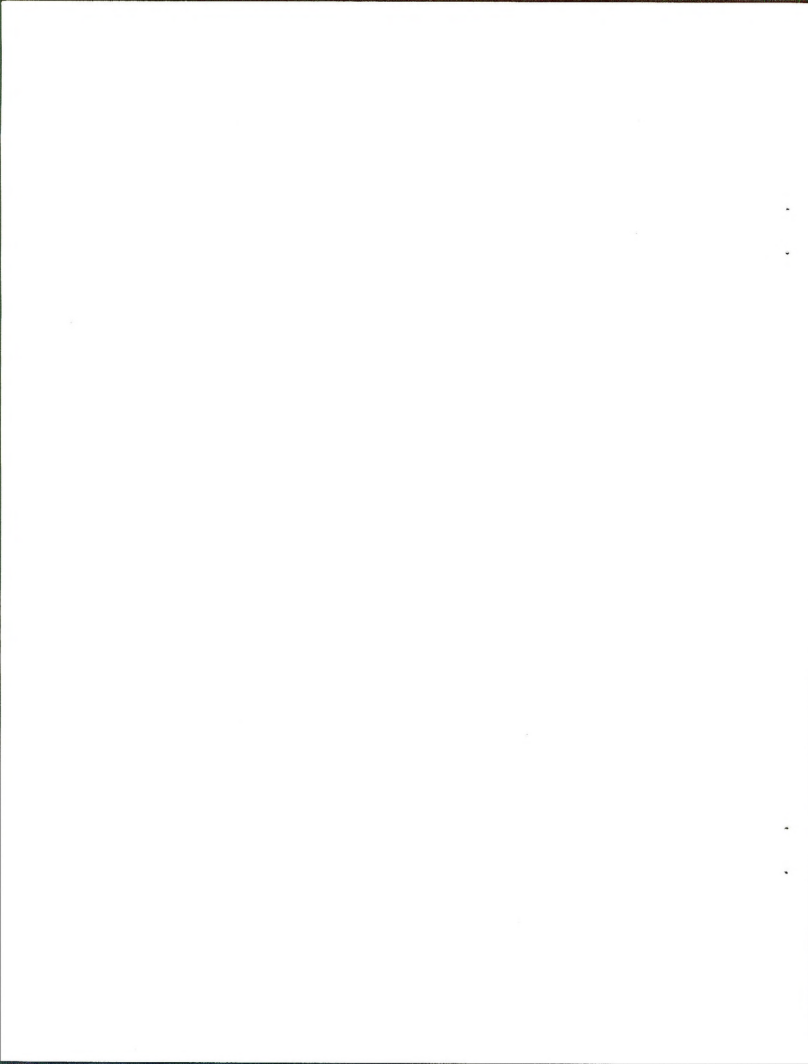
The FES on page 279 continued:

"Future oil and gas developments are not anticipated to be an impacting factor on water supplies, although several concurrent projects demanding large quantities of water could pose a threat to known supplies."

"Assuming the development of adequate reservoirs to maintain winter water supplies, adverse effects due to water depletion are not anticipated."

Stored fresh water supplies are known to be in short supply on the North Slope. This has been recognized by Federal and State officials and oil company planners. Plans have been or are being made to build reservoirs to supply specific needs, however, in the short-term there may be some cumulative effects (a reduction) in water surplus.

Enforcement of Federal stipulations 4, 5, 6, and 7, State stipulations 5, 6, 7, and 8, and Information to Lessees items d and f (Federal), and c and f (State) will lessen cumulative impacts on water quality and supplies.



IV. ALTERNATIVE MITIGATING MEASURES

This section addresses the comments of the Federal District Court with regard to alternative lease stipulations or other mitigating measures derived for this lease sale. Section IV.A. explains the development of lease stipulations and other mitigating measures during the planning process which preceded the December sale. This explanation is provided to familiarize the reader with the many aspects of this planning, including coordination with local governments, the State of Alaska, and other Federal agencies. Throughout this process, various alternative measures for addressing specific environmental problems were suggested, issues of concern were identified, and the more effective feasible alternatives were given further consideration. Section IV.B., beginning on page 43, provides an analysis of alternative stipulations and other measures available to mitigate the significant potential environmental impacts, with an explanation of why certain alternatives are considered preferable to others. Section IV.B. should be read in context with the extensive consideration of alternatives described in section IV.A.

A. Development of Mitigating Measures: The development of measures to mitigate possible adverse effects of oil and gas leasing activities began very early in the leasing process and continued throughout the process until the final Notice of Sale (Appendix 1) was published in the Federal Register.

1. Tentative Tract Selection: The first step in the development of mitigating measures was the analysis of information received in response to the Call for Nominations and Comments.

a. Preliminary Identification of Multiple-Use Conflicts: This analysis involved consideration of industry nominations as well as comments from various government agencies and private concerns, the location of possible geologic structures, and environmental factors. Thirteen oil companies nominated all 236 blocks offered, and twelve additional comments were received from other Federal and State agencies, local governments, Regional Native Corporations, and environmental groups. These comments ranged from objections to any leasing in the entire sale area to specific environmental concerns on regions within the Call area. Major concerns were for the fragile nature of the area, the presence of rare and endangered species, subsistence by the Inupiat people, lack of environmental data, and present lack of production technology for the area.

b. Deletion of Areas Exhibiting Over-Riding Environmental Conflicts: In accordance with the regulations in 43 CFR 3300 and the MOU described in section I.A., the blocks nominated were evaluated by the Alaska OCS Office, BLM; the Western Region Conservation Division, USGS; and the State of Alaska. In accordance with Secretarial Order 2974, the Fish and Wildlife Service and National Park Service participated in the tract selection meetings with BLM, USGS, and the State. Following joint field meetings conducted by the Alaska OCS Office in May 1978, the formal tract selection meeting was held in Washington, D.C. on June 13, 1978. In July 1978, it was decided to delete 50 blocks in the western portion of the sale area; the remaining 186 blocks were selected for further environmental study in the draft ES.

The blocks deleted were in the Simpson Lagoon, the barrier islands, and seaward of Simpson Lagoon, an area recommended for deletion by the North Slope Borough for environmental, cultural, and subsistence reasons. It was identified by the State Fish and Game Department as a critical habitat for some species, and is an integral part of the Colville River delta, which is the most important

bird habitat area on the Beaufort Sea coast. Because of the environmental conflicts and the multiple-use conflicts of this area, it was determined that it was unsuitable for oil and gas leasing at that time.

2. Environmental Assessment: Determination of potential impacts and multiple-use conflicts began during the tract selection process and continued through the researching and writing of the ES.

a. Identification of Potential Impacts and Multiple-Use Conflicts: Comments were requested from the public in the Call for Nominations and in hearings held after the release of the draft ES. Based on the information analyzed during the tract selection and ES processes, the following issues of special concern were identified:

1. Endangered Bowhead and Gray Whales
2. Caribou
3. Subsistence Lifestyle
4. Marine Sanctuaries
5. Ice Hazards
6. Geologic Hazards
7. Coastal Zone Management
8. Stefansson Sound Boulder Patch
9. Ten-Year Lease Term
10. Bidding Systems

(For a discussion of these issues see the joint Federal/State Issue Document October 16, 1979.)

b. Development of Alternatives and Mitigating Measures: The identification of these issues led to the development of corresponding mitigating measures. The Alaska OCS Office studied the possible impacts, looking to past ES's for similar issues and mitigating measures; it also drafted new measures. Additionally, the State of Alaska submitted a package of mitigating measures which had been developed for the proposed State sale at nearby Point Thomson. Revised later by the State and resubmitted, this package was used by the Alaska OCS Office in the drafting of a set of mitigating measures for the joint Federal/State Beaufort Sea sale.

This draft of mitigating measures was reviewed and reworked during Department of the Interior 2974 interagency meetings. (These Interior interagency coordination meetings are required by Secretarial Order 2974.)

After a thorough review by the Geological Survey of all available geological and geophysical data concerning geologic hazards in the subject area, no shallow geologic conditions were identified which would constitute a potential hazard to exploration and development operations. Analyses of high-resolution geophysical data and shallow core geotechnical data indicate stable bottom sediments and no shallow faulting. The extent of gas-charged sediments is unknown. Gas detected during shallow coring operations was of biogenic origin and poses no hazard to exploration and development activities. Normal precautions for shallow gas will be exercised during drilling operations. Ice bonded sediments (permafrost) are found under the entire lease area. Lease stipulations were judged to be unnecessary as the Oil and Gas Supervisor possesses full authority to ensure that exploration procedures suitable for permafrost areas will be employed.

The Geological Survey, therefore, recommended that no tracts be deleted for geologic hazards, and that no geologic hazard stipulations be applied to leases in the proposed sale area. This recommendation was accepted by the Secretary of the Interior.

These meetings involved the Bureau of Land Management (BLM), the National Park Service (NPS), the Fish and Wildlife Service (FWS), the U.S. Geological Survey (GS), the Heritage Conservation and Recreation Service (HCRS), and the Office of OCS Program Coordination. These meetings were held both at the field level and in Washington, D.C.

Further review and reworking of these mitigating measures was done by the Beaufort Sea Task Force, a committee of State and Federal interests called for in the MOU of March 3, 1978, between the State of Alaska and the Department of the Interior. This MOU addresses procedures affecting oil and gas leasing in the Beaufort Sea. The following agencies represented on the Task Force were the Bureau of Land Management (BLM/OCS Office), the Department of Natural Resources, the U.S. Fish and Wildlife Service, the Alaska Department of Fish and Game, and the U.S. Geological Survey. Alternate measures as well as existing regulations and orders were taken into consideration, and the Task Force members worked out what they felt were the clearest and most effective mitigating measures. Their final package was then sent to the Washington Office and the Office of the Governor of Alaska for further review.

Comments and recommendations from the North Slope Borough and other local groups also played an important role in the development of the Beaufort Sea mitigating measures. Their knowledge of the sensitive arctic environment, and their cultural and environmental concerns were taken into consideration in developing appropriate mitigating measures. Many comments from the local groups were received in response to the Call for Nominations and the draft ES. Additionally, a meeting was held on September 18, 1979, at which representatives from the North Slope Borough, Alaska OCS Office, and the Alaska Division of Minerals and Energy Management discussed issues in connection with the proposed lease sale. The North Slope Borough offered comments, concerns and suggestions for post-lease monitoring programs and studies.

Several of the alternatives considered (sec. VIII, final ES) formed the basis for several mitigating measures. For example, one alternative outlined in the ES was the deletion of blocks 130-133, 140-144, 153-157, and 168-171; this alternative was devised with the intent of protecting the sensitive environment of the area known as the boulder field.

Rather than drop these tracts, it was decided they could be offered for lease with a stipulation designed to allow some leasing activities in the area while providing for the protection of the biological habitat. Federal stipulation 7 (see the final Notice of Sale, 44 Federal Register 64751 (November 7, 1979)), provides that the lessee conduct environmental surveys (and possibly modify leasing activities as a result of the surveys) for the boulder field area as well as for any other biological habitat identified by the Supervisor as requiring additional protection. The boulder field tracts were further protected by Federal stipulation No. 3, which provides for the removal of all structures in areas of less than 10 meters (which includes the boulder field), and the restoration of the site to a condition approved by the Supervisor. Federal stipulation No. 9 also protected this area by prohibiting exploratory

drilling operations emplacement of structures, and the emplacement of pipelines on the disputed portion of block 700, the most sensitive area within the boulder field.

Another alternative discussed in the ES was the deletion of all blocks outside the barrier islands, mainly due to the potentially dangerous ice conditions in the area, and technical inexperience in dealing with such ice conditions. In deciding against the deletion of these tracts, several measures were developed to deal with the ice hazards. Bidders were advised in the Information to Lessees section of the final Notice of Sale that drilling from structures located beyond the barrier islands in water depths in excess of 13 meters would be prohibited until a test structure of the same type to be drilled from had been in existence in the area for a period of two winter seasons. Bidders were also advised in the Information to Lessees section of the final Notice of Sale that all structures erected on Federally-managed tracts would be subject to the requirements of the platform verification program as specified in OCS Order 8, and that particular attention would be given to structures in water depths of 13 meters or more. The area beyond 13 meters was given special attention on the basis of recent OCSEAP studies. These studies demonstrated that the 13-meter isobath should be considered the critical boundary between fast ice and grounded ridge ice in the sale area.

Another alternative discussed in the final ES was to delay the sale for 10-12 months pending results of the "Project Whales Study," this study addresses the temporal and spatial distribution and abundance of whales in the lease area. The intent of this alternative was to increase our understanding of the bowhead and habits. Federal stipulation 7 allows the Supervisor to require environmental surveys to determine the extent and composition of biological populations or habitats, and on the basis of these surveys, to require special protective measures, including seasonal restrictions. This stipulation protects whales as well as other biological resources. Also, Federal stipulation 8 limits exploratory drilling and testing, and other downhole exploratory activity to the period November 1 through March 31, unless the Supervisor determines that continued operations are necessary to prevent a loss of well control or to ensure human safety.

State stipulation 9 limits exploratory drilling, testing, and other downhole exploratory activity from surface locations outside the barrier islands to the period November 1 through March 31, unless the Director, Division of Minerals and Energy Management, after consulting with the Oil and Gas Conservation Commission, determines that continued operations are necessary to prevent a loss of well control to ensure human safety. Inside the barrier islands, such activities will be limited to the period November 1 through March 31, except activities may continue until May 15 if the lessee demonstrates the ability to operate safely and ice conditions justify or operations leading to shutdown may be continued if necessary to prevent loss of well control or to ensure human safety. Restricting these periods removes the possibility of an oil-spill occurring when the whales may be in the area.

These stipulations are to remain in effect for 2 years. At the end of this period, for the Federally managed tracts, lessees will be advised as to what, if any, restrictions on operations will be necessary to be consistent with the Endangered Species Act. This determination will be made by the Secretary of Interior in consultation with the National Marine Fisheries Service. Additionally, this restriction limits any possible oilspill to the winter months when it would be easier to contain on ice rather than in moving water.

Another alternative discussed in the ES was to delay the sale for 1 year pending a decision on the marine sanctuaries proposal in the Beaufort Sea. The intent of this alternative was to retain the area in its present state until the Department of Commerce has had time to consider the Beaufort nomination and until any restrictions that might be placed on the area, if accepted as a marine sanctuary, became known. However, the area is not on the list of active candidates. Consideration of the area for sanctuary status after it is placed on that list may take more than one year. Several mitigating measures were adopted to protect the resources of the area. Examples are Federal stipulations 1-9, inclusive, and State stipulations 1-10, inclusive (as outlined in the final Notice of Sale), as well as many of the mitigating measures in the "Information to Lessees" section of the final Notice of Sale.

3. Options for Decisions At the Time of Sale: The options for decision for sale BF, as outlined in the Secretarial Issue Document (SID) (August 10, 1979) are the result of careful consideration of all the information gathered and analyzed from localized studies, hearings, 2974 meetings, task force meetings, etc., from the time of the Call for Nominations (October 1977), through the issuance of the final Joint Federal/State Issue Document (October 16, 1979). Thus, nearly 2 years' study and effort went into the development of the following alternatives (as outlined in the Final Issue Document:

a. Identification and Evaluation of Options Prior to Publication of Proposed Notice of Sale.

(1) Proceed with the sale. The following unavoidable adverse impacts were identified in analyzing the proceed with the sale option.

Implementation of this proposal will increase the chance of unavoidable adverse impacts happening. There will be an increase of pollutants in the water and there will be a decrease of habitat because of facility siting, and human disturbance factors. Habitat loss will be comparably small when considering total habitat of the proposed lease and adjacent areas, but unavoidable.

The toxicity of petroleum hydrocarbons and simultaneous depletion of oxygen in the overwintering areas would eventually kill most of the fish overwintering in the polluted areas. Oil or other pollutants reaching these areas the unavoidable impact would be a reduction of fish numbers. Population recovery may take 1 to 5 years.

Oil slicks may enter ice leads or drift into shallow lagoons. Some consequences will probably be the oiling and subsequent death of seals or large flocks of birds that swim or dive through the slick if the event occurs when they are present. Numbers of both these groups of animals (ringed seals, oldsquaw, and other ducks) would be unavoidably reduced. Polar bear populations may also be reduced.

Principal adverse impacts on birds in the proposed lease area will be in the result of acute and chronic oilspills. A spill hitting any large concentration of birds would result in high mortality. Chronic oil pollution will occur, increasing environmental stresses. The magnitude of these impacts would vary by species, time of the year, amount and type of oil spilled, and location of the spill. In addition to displacement by direct human intervention, more tolerant avian species could become dominant at the expense of those that are less adaptable.

Unavoidable effects can result in a general reduction of wildlife as a result of increased development and disturbance.

It is presently impossible to identify unavoidable effects of oil and gas development on the endangered species of bowhead and gray whales.

Reduction of subsistence species populations will affect the amount available to the natives. Should this happen an unavoidable effect would be a further erosion of the subsistence lifestyle.

It is most important to remember that any comments on effects is highly subjective and ethnocentric. The only rational way to deal with effects from a sociological perspective is to determine the social group impacted by particular event and then determine the perspective of the particular group.

The apparently overwhelming perspective of the Inupiat, as expressed via hearings and written testimony, is that the proposal will generally threaten their cherished lifestyle and particularly erode their abilities to engage in subsistence activities. They perceive this as an adverse impact, and see little offsetting benefits of the proposal.

In contrast, response from urban areas indicated a mixed but largely positive perspective towards the impacts of the proposal.

It is also important to remember that no consensus can ever be reached on adverse impacts. During the process of public discussion, the perspectives of various groups may possibly converge somewhat. Nevertheless, there will always be a wide diversity of opinions on which effects are adverse and which are not.

Since the probability of the existence of offshore historic sites is low, and since onshore areas must be surveyed prior to any construction, the degree of unavoidable adverse impact is expected to be low on archeological sites.

No adverse effects on land use are anticipated except as they pertain to wildlife habitat and subsistence use loss.

Degradation to the wilderness qualities within and adjacent to the lease area are unavoidable should the proposal be implemented.

Areas of natural and historical importance will be adversely affected by the development of oil and gas exploration and production facilities when such facilities are sited at distances of one mile or less.

There will be some localized degradation of air quality, but the regional aggregate impact on air quality will be small.

Water quality in the Beaufort Sea will degrade to a degree dependent upon many variables, such as, type of oil, location, season, duration, and volume of the spill.

(2) Cancel the sale.

Cancelling the Beaufort Sea sale would reduce environmental impacts associated with oil and gas activities upon the proposed sale area if at least until the scheduled State sales takes place in 1983 and 1984 and Federal sale 71 takes place in 1983 as presently scheduled. The area would continue in its present condition as further modified by natural processes and the continuation of all existing activity and uses. Withdrawal of this proposed sale would eliminate some possible conflicts in the preservation of the area as a development-free marine sanctuary and safe habitat for endangered whales in that all Federally-managed tracts would be deleted. Alternate energy sources as identified in the FES would need to be used.

- (3) Delay the sale.
 - (a) Pending completion of environmental studies.

The impacts of a delay alternative would largely be the same as described in section III of the FES, but they would occur later on in time. If delay was for the purpose of awaiting new information from the whale studies and sale action was held up until it was available, it is presumable that such information could result in improved environmental controls which might marginally lessen the environmental impacts on whales if applied. However, the scope of the possible information, its importance and what controls might be devised is presently unknown and can only be speculated. The possible environmental effect of following this alternative can only be roughly gauged as approximately the same as that from the proposed action, with some possibility of less impacts on whales if the proposal could be protectively altered on the basis of the new information.

The marginal difference in impacts between this alternative and the proposed action is unknown. This alternative is viable if, because of uncontrollable reasons (weather, equipment failure, etc.) the spring and fall 1979 studies are not completed or if NMFS concludes after analyzing the data from the complete studies that it is not sufficient to make the necessary determination in accordance with section 7 of the ESA. If this happens, it may be necessary to extend the seasonal restriction stipulation devised for this sale.

- (b) Pending marine sanctuary consideration.

In the short-term because of the stringent and adequate controls in place or proposed for this action, nothing should happen to affect Marine Sanctuary management options. In the long-term, oil and gas development under this proposed lease could constrain the sanctuaries management options and area to an unknown degree.

Adoption of this alternative would retain the area in its present state for future marine sanctuary consideration, without risking or incurring any of the potential impacts associated with proceeding with the sale. Also see section V.A. for more discussion on marine sanctuaries.

- (c) Pending approval of the mid-Beaufort Coastal District Program.

There will undoubtedly be more impact on development of Beaufort Sea oil and gas resources by the North Slope Borough Coastal Management Program (NSBCMP) than vice versa, depending on the interpretation of how consistency will

apply. This is because the Borough's CZM Plan will consider and make decisions about, among other things, energy production and development. The Borough's Plan will influence exploration, development, and production activities and facilities which might result from this proposal. However, any onshore facilities which support exploration resulting from this proposal are anticipated to be sited within the existing Prudhoe Bay enclave. Any facilities eventually needed outside the Prudhoe Bay enclave to support development and production from this proposal are some years in the future. As stated previously, the NSBCMP cannot arbitrarily preclude energy facilities, but a primary function would be to influence the siting of such facilities. In that regard, given the long lead time involved, it can be assumed that a NSBCMP would be in effect long before the activities, facilities, and locations it would influence have been identified. Delaying the lease sale until approval of the NSBCMP would provide little marginal benefit since the lease sale itself poses no immediate impact, and the post-lease activities it might generate are far enough in the future to come under an eventually approved NSBCMP.

(4) Modify the sale by deleting all tracts beyond 13 meters of water depth which cannot be reached by directional drilling from tracts within this demarcation line.

The impacts of this alternative would be similar to those identified in section III. of the FES for those areas beyond 13 meters of water depth. For those areas outside this depth it would remove the threat of pollutant events with a resultant reduction of impacts. Because of reduced probabilities of oil spills, the area inside the 13 meter depth would also receive some benefits from this alternative. The spill trajectory analysis, however, demonstrates that these benefits would not be large because a pollutant in the water outside the 13 meter depth tends to remain there rather than move inshore. Bowhead whales, polar bears, some sea birds, seals, and saltwater fish would receive the major benefits of this alternative. The impact to the majority of water fowl, fish, and seals would remain almost the same.

The impact of this lease alternative would primarily be to protect the living resources of the offshore (beyond the 13 meter depth) by reducing the likelihood of accidental spills. It should be noted that if this alternative were adopted by the Secretary it would not prevent all drilling beyond the 13-meter line, because there are a number of undisputed State tracts beyond this line which have no similar restriction.

It should be noted that the options for decision available to the Secretary at this point in time are somewhat different than those described above, because the lease sale has already been held and bids submitted. For a more detailed description of the options now available, see sections I.C. and IV.C.

b. Identification of Mitigating Measures Based on Comments From the Proposed Notice of Sale and Published in the Final Notice of Sale: Following the SID the proposed Notice of Sale was published on August 23, 1979. In accordance with 43 CFR 3315.1(c), a copy of the proposed Notice was sent to the Governor of Alaska. The State offered no formal comments on the proposed Notice of Sale pursuant to 43 CFR 3315.2(a) since the proposed sale was a joint one. The Alaska Division of Policy Development and Planning did submit comments, dated October 26, 1979, regarding consistency of the proposed Notice with the Alaska Coastal Management Program. The following is an outline of their comments, along with a discussion of any applicable changes from the Proposed Notice to the Final Notice:

1. Drilling, testing, and other downhole activities should be limited during the exploration phase to winter months, effective at least 2 years after issuance of leases, and to be continued or modified at the end of the first 2 years.

Discussion: This suggestion was incorporated into Federal stipulation 8 (State stipulation 9) in the final Notice of Sale. Also, bidders were advised in the Information to Lessees section of the final Notice of Sale that after the initial 2-year seasonal restriction, they would be advised as to any further restrictions on operations found to be necessary to comply with the Endangered Species Act after consultation with NOAA.

2. Separate stipulations should be included in the final Notice of Sale to deal with discharge of drilling muds and with disposal of produced water (examples of such stipulations were also given).

Discussion: Two separate provisions were included in one stipulation in the final Notice of Sale which adopts the language as suggested by the State (see Federal and State stipulations 6).

3. Aircraft disturbance should be seasonally restricted over Cross Island, the Canning River Delta, and over two onshore areas (examples of such stipulations also given).

Discussion: This suggestion was incorporated into the Information to Lessees section of the final Notice of Sale, using the language offered by the State. Additionally, State stipulation 4 was developed which prohibits surface entry on Cross Island and Pole Island from May 15 to August 15.

4. Construction of unnecessary structures should be discouraged and the use of borrow material to construct artificial islands should be minimized.

Discussion: No change was made in the final Notice of Sale in relation to this comment; however, the Information to Lessees section in the proposed Notice of Sale concerning the prohibition of borrow extraction from the barrier islands, lagoons, and nearshore areas was included in the final Notice of Sale.

5. Each structure to be used beyond the 13-meter isobath should be tested for 1 or 2 years prior to downhole drilling, and the North Slope Borough should be allowed to participate in the design and monitoring of such test structures.

Discussion: This suggestion was incorporated into the Information to Lessees section of the final Notice of Sale, imposing the 2-year test structure requirement. See Information to Lessees item k for Federal tracts and the introductory section for State tracts regarding this measure.

6. Seismic activities should be seasonally restricted to avoid undue disturbance to the local habitat especially that of the ring seal.

Discussion: This suggestion was incorporated into State stipulation 13 and in the Federal portion of the Information to Lessees section of the final Notice of Sale. In addition, permits are required by the DOI Geologic Survey before

a non lessee can conduct seismic work on Federally-managed leases and item m of the Federal Information to Lessees advises that particular attention will be given to the ring seal pupping season in approving seismic permits. Seasonal restrictions regarding protection of seals can be a part of these permits. With regard to lease activities no specific Federal stipulation was needed since the GS oil and gas Supervisor retains sufficient authority to restrict timing of seismic testing by lessees. Bidders were advised on December 6, 1979 (44 FR 70238) that they must notify the Geologic Survey oil and gas Supervisor before conducting such activities on Beaufort Sea leases.

7. Bidders should be advised that activities are subject to all valid coastal zone plans and ordinances.

Discussion: This suggestion was incorporated into State stipulation 14 of the final Notice of Sale a Federal stipulation was not required since Federal lessees are subject to all Federal laws, including the Coastal Zone Management Act, when applicable.

The North Slope Borough also submitted comments to the State on the proposed Notice of Sale. A copy of their comments, dated October 1, 1979, was sent to the Manager of the Alaska OCS Office. These comments were submitted to the State pursuant to 43 CFR 3315.2(a). The following is an outline of their comments, along with a discussion of any applicable changes from the proposed Notice to the final Notice:

1. The joint Federal/State Beaufort Sea lease sale should be cancelled until Arctic onshore reserves are depleted, and in the meantime, the OCS Environmental Assessment Program should develop a program to test drilling structures in ice dynamic structures of the Beaufort and Chukchi Seas.

Discussion: Although this entire suggestion was not adopted the Information to Lessees sections (both Federal and State) of the final Notice of Sale do prohibit drilling from structures located beyond the Barrier Islands in water depths in excess of 13 meters until a test structure has been in place for two-winter seasons and the structure has been verified pursuant to the USGS Platform Verification Program after consultation with the North Slope Borough (NSB) and the Regional Technical Working Group of the OCS Advisory Board.

2. The lease sale should be delayed pending negotiations of the North Slope Borough's mid-Beaufort Coastal Management District plan.

Discussion: This suggestion was not adopted, and the borough's plan was subsequently withdrawn. See discussions in IV.A.3.a. and V.B.

3. All tracts seaward of the 12-meter isobath should be deleted; surface entry within a mile of Cross and Pole Islands should be prohibited; and surface entry in the boulder field area should be restricted.

Discussion: Tracts seaward of the 12-meter isobath were not deleted; however, the final Notice of Sale does have several provisions relating to surface entry on the two islands. State stipulation 4 prohibits surface entry on Cross and Pole Islands from May 15 to August 15, and provides that surface entry at other times may be permitted by the Director, Division of Minerals

and Energy Management. Also, State stipulation 5 and Federal stipulation 7 specifically apply to the boulder field area, and provide that the lessees provide an environmental survey of the area, from which the Director or Supervisor will determine any modifications of operations necessary to preserve the habitat (this stipulation was also included in the proposed Notice of Sale). Additionally, the Information to Lessees sections (both Federal and State) provides that surface use will be controlled, as necessary, to prevent unreasonable conflicts with local subsistence harvests. Also, State stipulation 10 and Federal stipulation 9 provide that placement of structures or pipelines, and exploratory drilling activities are prohibited on lease block 700, which is the most sensitive area in the boulder field. It should be noted that the borough specifically discussed site-specific biological surveys, and the no access to tract 700 option. These were outlined in their report on tract deletion and surface entry restrictions, which was attached to their comments to the State. Finally, the Information to Lessees section for Federally managed tracts provides that structures will be subject to the requirements of the platform verification program as specified in OCS Order No. 8, that a test period (2 years) will be required for structures proposed for water depths of 13 meters or more before they can be used for hydrocarbon activities, and that the Supervisor will consult with representatives of the North Slope Borough in determining the adequacy of the test structure.

4. Drilling activities should be restricted to the period November 1 to March 31.

Discussion: This suggestion was incorporated into the final Notice of Sale in Federal stipulation 8 and State stipulation 9. On Federally-managed tracts, the Supervisor can extend the drilling period only if he determines that continued operations are necessary to prevent a loss of well control or to ensure human safety. The same restriction applies to State-managed tracts outside the barrier islands. On State-managed tracts inside the barrier islands, the period can be extended up to May 15 if the lessee demonstrates the ability to operate safely and ice conditions justify. This latter extension can be granted by the Director only after consultation with the Biological Task Force. These stipulations will remain in effect for 2 years.

5. Low-level aviation should be seasonally restricted.

Discussion: This suggestion was incorporated in the Information to Lessees sections (both Federal and State) which prohibit aircraft at altitudes of less than 1,500 feet over Cross and Pole Islands and the Canning River Delta from May 20 to August 1; and which prohibit aircraft at altitudes of less than 1,500 feet over the onshore areas between the Kuparuk and Sakonowak Rivers and between the Sagavanirktok and Canning Rivers from May 15 to June 25.

6. All leases should stipulate that valid North Slope Borough Coastal Zone Management regulations will apply to leasing activities.

Discussion: State stipulation 14 of the final Notice of Sale provides that the lessees will be subject to "all valid coastal zone plans and ordinances." However, since the final Notice was published, the North Slope Borough withdrew its coastal zone plan. (See discussion at 2 above.) With regard to Federal lessees, the requirements of the Coastal Zone Management Act are enumerated in that statute, and a lease stipulation is not necessary to impose those requirements.

c. Secretary of Interior/Governor of Alaska Decisions Meeting:
On October 26, 1979, the Secretary of the Interior met with the Governor of Alaska to make a final decision on whether to proceed with the sale and, if so, on the provisions to be included in the final Notice of Sale. The following options were under consideration at that time (the following list is taken from an October 19, 1979, memorandum from the Assistant Secretary, Policy, Budget and Administration, to the Secretary concerning the decision on the final Notice of Sale).

Option A: Proceed with the sale as proposed.

Option B: Modify the sale.

B-1: Delete tracts beyond 13 meters water depth seaward of the Barrier Islands.

B-2: Advise lessees of possibility of test structures.

Option C: Delay the Sale.

C-1: Delay pending further information.

C-2: Delay pending marine sanctuary designation.

C-3: Delay pending implementation of the mid-Beaufort Coastal Zone District Program of the North Slope Borough.

Option D: Cancel the sale.

Option E: Protection of endangered whales.

E-1: No seasonal restriction; rely on biological stipulation and overall regulatory authority, including suspension and cancellation of operations.

E-2: May 31 to November 1 inside the Barrier Islands operational shutdown. March 31 to November 1 outside the Barrier Islands operational shutdown.

E-4: March 31 to November 1 operational shutdown.

Option F: Protection of Biological Resources.

F-1: Rely on stipulation 7, Protection of Biological Resources.

F-2: Impose a seasonal restriction on drilling and related activities from November 1 to May 31.

F-3: Impose a seasonal restriction on drilling and related activities from November 1 to May 15 inside the Barrier Islands; November 1 to March 31 outside the Barrier Islands.

F-4: Impose a seasonal restriction on drilling and related activities from November 1 to March 31.

Option G: Grant a primary term of lease greater than 5 years.

G-1: Adopt an initial lease term of 8 years for all tracts.

G-2: Adopt an initial lease term of 10 years for all tracts.

Option H: Adopt staff recommendation on bidding system (cash bonus bid/sliding scale royalty system).

The Secretary was not limited to the options presented in the SID but could take any course of action he chose based upon the discussion of issues in the EIS.

d. Decision to Proceed with the Action and Conditions/Terms to be Included in the Lease: At the October 26 meeting, the Interim Agreement pursuant to Section 7 of the Outer Continental Shelf Lands Act was signed, as was the Agreement Regarding Unitization. Additionally, the Secretary and the Governor agreed upon the following:

(1) A 2-year requirement restricting drilling and other downhole activity to the period November 1 to March 31 for all tracts outside the barrier islands. On Federally managed tracts this restriction applies inside the barrier islands as well. This stipulation has been developed to provide a high degree of protection for the gray and bowhead whales, while studies are being done on possible effects on them and their habitat from offshore activities.

(2) A requirement that each type of structure or platform to be used beyond the barrier islands in water depths greater than 13 meters be put in place and tested for two-winter seasons before drilling operations may proceed from that type of structure or platform. This addresses a concern raised by the North Slope borough and other Native organizations over the adequacy of technology in an area subject to stress by pack ice.

All leases will include a 10-year primary term. All disputed and Federal tracts will be offered under a cash bonus/sliding scale royalty system. During the week following the October 26 meeting, the Secretary and the Governor agreed to make the March 31 cutoff date applicable to tracts inside and outside the barrier islands, with a possible extension of activities within the barrier islands until May 15, to be determined on a case-by-case basis by the USGS Oil and Gas Supervisor or the Director, Division of Minerals and Energy Management, after consultation with the Biological Task Force. On Federally managed tracts the cutoff date can be extended only if necessary to prevent a loss of well control or to ensure human safety. On State-managed tracts activities may continue until May 15 if the lessee demonstrates the ability to operate safely and if ice conditions justify it.

B. Identification and Evaluation of Mitigating Measures:

1. Procedures Used, i.e., Environmental Assessment, SO 2974, Secretarial Issue Document: Section 102(2)(C) and 102(e) of the National Environmental Policy Act (NEPA) 43 U.S.C. 4332(2)(C)(e), requires that environmental impact statements analyze all reasonable alternatives to a proposed Federal action. The Council on Environmental Quality (CEQ) has established guidelines to regulate and promulgate an environmental assessment (42 C.F.R. 1500.8(a)(4)).

The formulation of measures for mitigating possible adverse effects of oil and gas leasing on the environmental, cultural, or social values are based on issues identified at tract selection and throughout the EIS process. Public comments offered during the public hearing and comment period and through the proposed Notice of Sale are considered in the refinement of the mitigating measures. Discussion and re-evaluation of issues established early in the process were continually reviewed at the field and headquarters level.

Some mitigating measures provide specific environmental or human protection, and can be selected by the Secretary to be imposed on the lessee through a lease stipulation or by notification in the Information to Lessees section of the Notice of Sale. Other mitigating measures include OCS Operating Orders, and the regulations of the USGS. In addition, the Secretary of Interior has the authority, under the OCS Lands Act, as amended, to suspend or cancel a lease, or any operations on the leasehold, at any time in the enforcement of safety, environmental, and conservation laws and regulations, or in the national interest.

The BLM Alaska OCS Office, the Beaufort Sea Task Force and Steering Committee, and various Federal and State agencies coordinated to develop mitigating measures for the Beaufort Sea. After weighing and evaluating a number of alternatives for each mitigating measure, these proposed mitigating measures were further reviewed at the field level through the SO 2974 coordination procedure. This procedure involved extensive discussion of various alternative stipulations and proposals by an interdisciplinary, interagency field level committee composed of members from BLM, USGS, the National Park Service, and the U.S. Fish & Wildlife Service. Unresolved issues at the field level were referred for resolution to the Directorate and Assistant Secretarial headquarters level.

In addition, the consideration of alternative mitigating measures for the Beaufort Sea involved exhaustive analysis and discussion with representatives of the State of Alaska, including the Alaska Department of Natural Resources, Division of Minerals and Energy Management (DMEM); Alaska Department of Fish and Game; Alaska Department of Environmental Conservation, Oil & Gas Conservation Commission; and the Alaska Department of Law. In turn, DMEM was coordinating with the State Ad Hoc Advisory Committee on Leasing. The State of Alaska had earlier developed proposed stipulations for its proposed Pt. Thomson oil and gas sale. These stipulations were jointly reviewed by Federal and State working groups and revised to reflect current studies information to meet the special environmental, biological, cultural, technological, and subsistence concerns identified by the North Slope Borough, various environmental groups, and the oil and gas industry (Alaska Oil & Gas Association) expressed during the public hearing process and comments on the proposed Notice of Sale published in August 1979. In assessing alternatives to the sale, issues and options were identified, thoroughly evaluated, and appropriate mitigating measures recommended. Ongoing attention was given to the latest technology and studies data available throughout the course of the entire pre-leasing process. Issues decided early on were re-evaluated throughout the process (i.e., the issue of oilspill occurrence vs. ice hazards vs. state-of-the-art technology to contain these oilspills). Those issues not resolved among the professionals of the various disciplines at the field level were elevated for resolution by the Secretary and the Governor.

Set out below are the major issues, alternatives, and potential mitigating measures, and a discussion evaluating the reasonableness and effectiveness of each.

2. Identification of Issues: Through the procedures described in detail in sections IV.A. and B. above, an extensive range of issues, alternatives, and potential mitigating measures were identified throughout the pre-leasing process by the BLM Alaska OCS Office in coordination with various Federal and State agencies, environmental groups, and the North Slope Borough. The following issues of special concern were identified, adverse impacts thoroughly analyzed, and potential mitigating measures developed. As a result the major issues listed below were determined to require additional protective measures:

- a. Protection of special biological resources (boulder field).
- b. Protection of subsistence lifestyle and local harvest activities.
- c. Platform technology in ice-infested waters.
- d. Protection of caribou from oil and gas activities.
- e. Protection of endangered species (bowhead and gray whales).
- f. Protection of marine environment (discharges of solid wastes, drilling muds, and produced waters).
- g. Protection of barrier islands, lagoons, and nearshore areas.
- h. Protection of environmental, social, and cultural resources.
- i. Protection and preservation of historic and archaeological sites.

A detailed discussion of each issue; development of potential measures to mitigate possible adverse effects of oil and gas development upon each issue of special concern, and an evaluation of effectiveness of these potential mitigating measures follows in section IV.B.3.

3. Evaluation of Mitigating Measures, Including Alternatives to the Proposed Action:

a. Issue: Protection of Special Biological Resources (Boulder Field): Certain unique marine biological resources that could be severely damaged by unrestricted activities occurring within their vicinity exist in the lease area. Environmental studies conducted by NOAA under the OCSEAP program for BLM identified a discontinuous hard or rocky bottom area on the seafloor which supports an abundant assemblage of marine organisms (including kelp, bryozoans, sponges, and coral). This area, known as the Steffansson Sound Boulder Field, was identified by the Alaska OCS Office and the Alaska Department of Fish and Game during tract selection as a highly sensitive and productive area of the Beaufort Sea, but the exact extent or configuration of this boulder field area has not yet been defined.

The Boulder Field represents an unusual environment which supports a biological community which differs from the rest of the sale area and warrants special protection.

During the NOAA scientific synthesis meetings conducted in Fairbanks in July 1979, just prior to the proposed Notice of Sale being published, the need for additional special protective measures for block 700 to protect the kelp beds and other biota on this block was emphasized. Specifically, NOAA recommended that no operations on block 700 be permitted, and that operations on adjacent blocks be controlled to protect the kelp beds and biota on block 700.

Potential Mitigating Measures: In order to protect these highly productive areas, several alternatives were considered: (a) deletion of the boulder field area from the proposal (blocks 130-133, 140-144, 153-157, and 168-171); (b) allow exploratory activities within the area but require biological surveys to be completed prior to any exploratory activities in these blocks; (c) restrict exploratory activities to only certain blocks; (d) require shunting of discharges; (e) require directional drilling for certain blocks; (f) provide surface entry restrictions; (g) require a seasonal drilling restriction; and (h) prohibit dredging or filling in the boulder field area.

Evaluation of Effectiveness: Because of the discontinuous nature of the boulder field area, it was determined that the special biological resources could be protected without deleting these tracts from the sale area. Federal stipulation 7 was designed to allow some leasing activities to occur which also provides protection of the biological habitats. This stipulation was developed, in coordination with the Fish & Wildlife Service and the Alaska Department of Fish and Game, and requires that the lessees conduct environmental surveys in the boulder field area, as well as any other biological habitats identified by the Supervisor, USGS, as requiring additional protection in advance of any activities, and allows controlled operations in sensitive areas. Requiring site surveys provides for identification of specific areas within the boulder fields which must be avoided in locating bottom-founded equipment and facilities and provides guidelines on operational techniques necessary to minimize disruption of the biotic community.

Consideration was given to requiring shunting of discharges to avoid sensitive areas. This was not considered a viable alternative because of the unique biological community supported by the murky bottom seafloor of the boulder field area. Dilution and dispersion of drilling fluids into the marine ecosystem results in changes in the chemical composition of surrounding sediments and resultant smothering and burial of organisms, causes excessive water turbidity, disrupts normal sediment transport pathways, and removes the habitat from availability to the organisms. For these reasons, potential mitigating measure (d) was rejected.

In order to mitigate adverse impacts and protect the concerns expressed by NOAA, a special stipulation was designed to protect the kelp beds located on block 700. Federal stipulation 9 prohibits any exploratory drilling operations, or placement of any structures, platforms, seafloor wellheads, or pipelines on block 700, the most sensitive area within the boulder field. This restriction provides complete protection to block 700 because no disturbance occurs.

Federal stipulation 3, which requires the removal of all structures in areas of less than 10 meters (including the boulder field), and restoration of the site to a condition approved by the Supervisor, provides added protection to the boulder field.

Federal stipulation 6 provides protection to the entire sale area by prohibiting discharges into marine waters. Federal stipulation 8, restricting exploratory activities to the winter season, although primarily designed to prevent oil-spills during ice breakup and movement, provides additional protection to the blocks located within the boulder field.

By imposing mitigating measures b, c, e, f, g, and h upon those blocks within the Steffansson Sound Boulder Field, the unique organisms and habitats of these areas are adequately protected, while allowing the lessee to locate uninhabited areas for the placement of drilling structures which are compatible to the area. Therefore the adverse impacts identified throughout the pre-lease process for this issue are believed to be adequately mitigated.

b. Issue: Protection of Subsistence Lifestyle and Local Harvest Activities: The taking of marine and other mammals and birds to meet subsistence needs has always been part of the unique lifestyle and culture of the Eskimo people of the North Slope. Traditional dependence upon a subsistence lifestyle still remains, for cultural and nutritional reasons, an element in their lifestyle. Because the traditional Inupiat lifestyle continues to be threatened by basic changes, symbols of the past, such as whale hunting, are seen as increasing in importance. Because of this importance, the Inupiat view the exploration and development of the Beaufort Sea outer continental shelf as a threat to subsistence hunting and fishing and to their cultural needs and values expressed in these traditional pursuits, as well as a critical part of their food supply.

A major issue discussed in the DEIS and raised throughout the public review process was the question of adequate protection of the Inupiat lifestyle. Deterioration of the subsistence lifestyle was the major concern among the Natives in the villages of Nuiqsut and Kaktovik. Caribou comprise a high proportion of the local diet near the proposed sale area (at least 50%). Therefore, disruption of caribou populations would have a significant effect on the subsistence diet. (See related issue d, section IV.B.3.d.) Fears expressed included acceleration of a cash economy into the villages, deterioration of the close community and family ties, animals avoiding the area due to drilling and aircraft noise, and the fear that an oilspill or blowout will harm the marine wildlife and pollute the environment.

The people of the Slope and the Borough continually stressed that drilling in important harvest areas and the intensive aircraft and vessel support activities associated with offshore oil development would have significant effects upon subsistence hunting and fishing activities by: driving animals which are sensitive to disturbance (including bowhead whales, caribou, and snow geese) out of traditional hunting and fishing areas, making them unavailable to subsistence hunters and fishermen; destroying fishing nets and traps; and by endangering the safety of subsistence hunters in small boats.

During the limited periods when fish and game resources are available to local subsistence harvesters, air and surface traffic could be routed around migrational routes or harvest areas. While portions of the lease area may not be

intensively used for subsistence, there are areas such as Kaktovik's whaling activities between Flaxman Island and Demarcation Point and subsistence fishing in Flaxman Island Lagoon which could be affected. Bowhead whales are known to be sensitive to boat traffic, and barge convoys coming west from the MacKenzie River could be restricted from using the nearshore area during the traditional harvest period to avoid frightening the whales out of the area. Surface entry on Cross and Pole Islands during bird nesting periods could produce adverse impacts through disturbance resulting in loss of young and unavailability of hunting.

Potential Mitigating Measures: The following measures were considered in mitigating effects upon subsistence lifestyle and local harvest activities: (a) reducing boat and aircraft disturbances by surface entry restrictions; (b) routing of vessel traffic around migrational routes in harvest areas to allow free passage for fish, birds, and mammals; (c) requiring training of the oil field workers to inform and sensitize them to customs and lifestyle of Inupiat culture; (d) impose seasonal drilling restrictions to avoid possible oilspill from drilling and related activities when endangered whales may be in the area; (e) delay development activities until technology for dealing with severe ice conditions is developed and adequately tested; and (f) protection of barrier islands.

Evaluation of effectiveness: Several mitigating measures were developed to reduce impacts on marine mammals, birds, and fish which are traditionally used by the Inupiat on the North Slope for subsistence harvesting. In formulating these mitigating measures, the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service reviewed and recommended specific measures to mitigate adverse environmental impacts, particularly during critical nesting and calving seasons. The imposition of surface use restrictions; the requirement that all lease activities be scheduled and designed to allow free movement and safe passage to fish and mammals, both on and offshore; and the seasonal aircraft restrictions to prevent disturbances within biologically sensitive areas should effectively minimize activities related to oil and gas exploration within the lease area during the traditional harvest period and adequately protect subsistence uses. The seasonal drilling stipulation prohibits all drilling and related activities during migration of whale and other mammals, thereby preventing any potential adverse impacts. The information to lessees in the Notice of Sale specifically requires that surface uses be controlled to prevent unreasonable conflicts with local subsistence harvests.

The proposed lease area is located within migration routes of large numbers of fish, birds, and mammals. Any structures which block access to lagoon systems or to overwintering streams would severely impact fish populations. Towers erected along migration routes and in nesting or feeding areas could effect birds when low visibility forces birds to fly low. Gathering lines and pipelines carrying oil to processing facilities onshore can act as fences, denying caribou access to traditional coastal calving areas. Federal stipulations 3, 5, 7, and 8 were developed to protect migrating fish and wildlife populations from these migrational barriers through the prohibition and/or requirement for removal of any structures which block access to lagoon systems, migration routes, nesting or feeding areas, and onshore migration routes. State stipulation 4 provides additional protection by restricting surface entry during certain periods.

Federal stipulation 2 requiring an orientation training program to inform workers about the Inupiat culture is expected to reduce disruptive cultural impacts that might occur due to increasing incoming populations. A similar orientation program was very successfully used for the Cook Inlet, Alaska lease sale. Because onshore support facilities are expected to be concentrated at Prudhoe Bay, thus reducing population influx into village communities, resultant disruptions in lifestyle of the local communities are considerably reduced.

It is important to note that the State of Alaska has primary jurisdiction in regulating and enforcing fish and game and subsistence laws. Therefore, the State has imposed stringent stipulations to protect migration routes of fish, birds, and mammals, imposed surface and aircraft seasonal restrictions, as well as seasonal drilling restrictions on its lessees; and prohibits winter removal of fresh water or snow cover from rivers and lakes supporting overwintering fish. The Department, where appropriate, has imposed similar requirements on its lessees through the information to lessees.

The Department believes that all the stipulations and mitigating measures, other than the few dealing with financial matters, as imposed upon lessees and listed in the Notice of Sale, are designed not only to protect the environment and biological resources of the area, but also to protect and perpetuate the subsistence lifestyle of the local communities.

c. Issue: Platform Technology in Ice-Infested Waters: The large amount of hard, thick, moving ice found in the Beaufort Sea most of the year is the most significant environmental and technological concern. The ice problem varies by location, by year, and by depth of water. There are three major ice conditions of varying yearly location within the sale area. Ice found in shallow areas between shore and the barrier islands is generally stable and annual. A second zone of landfast ice occurs seaward of the barrier islands between 13 and 20 meters. This ice is also annual. A third zone of ice may exist at times in the 13 to 20 meter depths seaward of the Barrier Islands. This ice is ridged new ice or multiyear ice of considerable strength and mobility. This third condition of ice is stressed by being occasionally under pressure from the multiyear pack ice of the deeper Beaufort Sea.

Sea ice represents the most severe natural hazard to oil and gas exploration and development activities in the Beaufort Sea. Ice dynamics in the sale area, particularly in the region outside the Barrier Islands, requires special consideration for mitigation by advanced engineering technology. The most severe zone for dynamic ice movement is the outermost part of the sale area beyond the Barrier Islands where water depths generally exceed 20 meters. If the advanced technology is not available to conduct exploratory operations within this zone, the resources can still be developed from approved locations in water depths between 13-20 meters, where ice conditions are less severe and present technology is largely proven.

The North Slope Borough has expressed concern about leasing tracts where new unproven technology will be required based on risks of a major oil spill in these extreme ice and climatic conditions, and recommended that the sale be cancelled until Arctic onshore reserves are depleted. They suggest that, in the meantime, the OCS Environmental Assessment Program develop a program to test drilling structures in water depths in excess of 13 meters. In the alternative, the North Slope Borough has recommended that all tracts beyond the Barrier Islands be deleted from the sale.

The Environmental Protection Agency, after reviewing the impact statement and proposed Notice of Sale, advised the Department on September 17, 1979, it believed tracts seaward of the Barrier Islands should be deleted since this area has been identified as one of extremely high risk for polluting events due to ice movement and limited drilling experience.

In an October 15, 1979, letter from NOAA, NOAA recommended that, as a prerequisite to approving design of structures to be sited in water depths exceeding 13 meters, test structures be required for at least 2 years prior to drilling and that lessees be required to monitor ice conditions under standardized procedures.

Potential Mitigating Measures: Because of the concern that technology is not presently available to withstand the severe ice movements in the Beaufort Sea, the following options for mitigation were considered: (a) Cancel the sale; (b) delete all tracts outside the barrier islands; (c) prohibit exploratory activities in depths greater than 13 meters beyond the barrier islands until technology to withstand severe ice conditions has been developed; (d) require directional drilling from tracts in 13 meters or less; (e) prohibit exploratory drilling in depths greater than 20 meters; (f) require a drilling structure to be developed for testing the ability of such structures to withstand severe ice movements prior to any activity on the leasehold; (g) delete all tracts beyond 13 meters and institute additional studies of the area for at least 2 years; (h) delete tracts pending further development of oilspill cleanup equipment for under-ice cleanup; and (i) require a Platform Verification Program.

Evaluation of Effectiveness: Although drilling structures have been successfully tested in the Canadian Beaufort in areas less than 13 meters, no test structures have been constructed in ice-infested water beyond 13 meters. Data obtained from OCSEAP ice studies demonstrates that the 13 meter isobath should be considered the critical boundary between fast ice and grounded ridge ice in the Beaufort sale area. Therefore, all tracts in the sale area beyond 13 meters were given special attention in the development of mitigating measures.

Option b concerning deletion of all blocks outside the barrier islands (beyond 13 meters) was seriously considered due to the severe and potentially dangerous ice conditions and untested technology in dealing with these ice conditions. In deciding against deletion of these blocks, it was believed that industry capability and state-of-the-art technology could be advanced by offering these tracts, imposing stringent stipulations, and requiring test structures to be developed to adequately withstand severe ice conditions and protect the environment from potential oilspills caused by inadequate drilling structures prior to allowing any activities to occur on these tracts. For the same reasons, option (e) of prohibiting drilling beyond 20 meters of water depth was not deemed necessary.

The Department, in coordination with the State of Alaska, NOAA, EPA, Fish and Wildlife Service, and the North Slope Borough, developed a stipulation prohibiting exploratory drilling in areas beyond the barrier islands in excess of 13 meters until a test structure of a type to be drilled from had been developed and tested for 2 winter seasons and has been determined to be adequate by the Geological Survey oil and gas Supervisor in consultation with designated representatives of the North Slope Borough. Requiring this mitigating measure

allows exploratory activities to be conducted in areas less than 13 meters, yet allows for directional drilling from these blocks to areas in excess of 13 meters. The alternative of requiring this test structure included a 1-year and 5-year test option. However, the Department determined that a 2-year test structure would provide an adequate test of the ability of such structures to withstand severe ice movements and would coincide with the 2-year seasonal drilling restriction already imposed upon the lease area during completion of the whale study. Bidders were also advised in the information to lessees in the Notice of Sale that all structures erected on Federally-managed tracts were subject to the requirements of OCS Operating Order 8, the platform verification program. Particular attention would be given to structures in depths greater than 13 meters.

In addition, it was felt that the Secretary's authority to suspend or cancel a lease at any time affords additional mitigation to adverse impacts of a potential oilspill occurring in ice-infested waters in tracts beyond the barrier islands, and that adequate protection of the environment was provided without the need to impose options (a), (b), (d), (e), (g), and (h).

d. Issue: Protection of Caribou From Oil and Gas Activities: The drainages of the Kuparuk and Sagavanirktok Rivers (approximate onshore boundaries of the western third of the lease sale) are important migratory corridors through which the caribou move north toward the coast from the mountains during summer months. The coastal deltas of the Sagavanirktok and Kuparuk Rivers provide caribou calving habitat and, because of the coastal breezes, serve as insect relief areas for caribou. During insect season, caribou enter shallow coastal areas in large numbers (100's-1,000's) to avoid insect bites. Consequently, coastal waters represent an important caribou habitat.

Two generic sale-related factors could impact caribou. These include disturbance caused by (1) air transportation activities; and (2) activities related to the construction and operation of onshore facilities, including roads, pipelines, and other structures.

The North Slope Borough and the villages of Nuiqsut and Kaktovik expressed great concern over noise and physical disturbances to caribou migration and disruption due to air transportation support of leasing activities and resultant impacts on subsistence use of caribou. (See IV.B.3.b.) The State of Alaska recommended protective measures to reduce disturbance to caribou.

Although the FES lacked definitive information regarding the potential effects of noise and human disturbance on the caribou, additional data and a high degree of State involvement subsequent to issuance of the FES and the Joint Issue Document provided more current and definitive assessment of risks to the caribou resulting from noise and human disturbance and the estimated effectiveness of mitigating measures.

In order to protect present arctic caribou populations and human harvest levels, oil and gas development activities and other types of development must be sited and conducted away from critical habitats in coastal areas.

Potential Mitigating Measures: To reduce impacts on caribou and related subsistence use, the following alternatives were considered:

(a) restrictions on aircraft and surface transportation routes; (b) restrictions on onshore facility siting and construction periods; (c) surface entry restrictions based on geographical and seasonal distribution and activities of caribou; (d) interim zoning ordinances; (e) North Slope Borough Coastal Zone Management Program restrictions; (f) protection of subsistence harvest activities; (g) free movement and safe passage to caribou; (h) recommendations of biological task force; and (i) protection of Native allotment.

Evaluation of Effectiveness: The impacts on caribou can be minimized by placing limitations on aircraft and surface transportation routes and onshore facility siting restrictions (including pipelines) to reflect the geographical and seasonal distribution of caribou. The effect would be reduced disturbance to caribou during the most sensitive period the caribou yearly cycle. This should also reduce risk and population loss to some extent. Options (a), (b), (c), (f), and (g) were also considered to provide effective mitigation to caribou; therefore, the information to lessees section of the final Notice of Sale requires that all lease activities be scheduled or designed to allow for free movement and safe passage for fish and mammals, both on and offshore; requires that surface use be controlled to prevent unreasonable conflicts with subsistence harvest activities; and imposes seasonal restrictions on aircraft operations, particularly during caribou calving and post-calving seasons in the traditional calving areas of the coast between the Kuparuk and Sagavanirktok Rivers, and inland of the coast between Sagavanirktok and Canning Rivers. To further mitigate impacts on caribou, the State has imposed similar restrictions on leases under their jurisdiction.

Additional mitigating measures for protection of caribou could have been provided by either the North Slope Borough Coastal Management Program for the Mid-Beaufort area or by interim zoning ordinances which the Borough is considering under its municipal zoning authority. However, because of the uncertainty and timing of implementation of provision in these programs, the Department did not consider options d and e as an effective mitigating measures in the assessment of risks to the caribou. In addition, the North Slope Borough has subsequently withdrawn its proposed CZM plan for the Mid-Beaufort Sea (see section V).

As a further mitigating measure developed for environmental protection of the entire lease area, a biological task force was established and will remain in existence throughout the life of the field. The biological task force is established as an inter-agency coordinating committee with a diversity of inter-disciplinary expertise designed to further define protection of the environment within established lease stipulations and other mitigating measures and on the administration of the biological and environmental aspects of these stipulations. This task force advises the Supervisor, USGS, and the Director, Division of Minerals and Energy Management, in the enforcement of certain stipulations designed to protect the environment.

The State requires that its lessees submit a plan of operation for approval prior to conduct of any operations on the leasehold, and that any proposed activities under such plan of operations must not diminish the use and enjoyment of a Native allotment. This State requirement providing for protection of Native allotment (option i) insures additional mitigation for the caribou.

These protective measures have been coordinated with affected State and Federal agencies, the BF Task Force and Steering Committee, the North Slope Borough, and other Ad Hoc groups.

e. Issue: Protection of Endangered Species (Bowhead and Gray Whales): The bowhead and gray whales, both endangered species, migrate through a portion of the lease area, moving during the spring and summer from the Bering Sea into the Canadian Beaufort, and again in the fall moving westward out of the Beaufort Sea. By law, these endangered species require a high standard of care and protection. Potential effects on the whales from oil and gas exploration activity in the Beaufort Sea include disruption of their migration patterns due to disturbance related to the presence of gravel islands and associated human activity. Also, noise disturbance from seismic operations, supply boats, aircraft, drilling rigs, and other sources may cause whales to abandon areas presently utilized. Additional adverse effects could be caused through contamination from large scale oil spills or other discharges such as muds and cuttings, formation waters, and/or solid wastes disposed into the marine environment. Such perturbations could cause the whales to avoid certain areas or physically affect the food organisms on which they feed or physically affect their eyes, skin, or baleen. Reduction in whale population levels and/or loss of valuable habitat could result from such impact, particularly for the bowhead.

As required by Section 7 of the Endangered Species Act, BLM initiated formal consultation in March 1978 with the National Marine Fisheries Service (NMFS) regarding impacts of the proposed Beaufort sale on the endangered bowhead and gray whales. In August 1978, NMFS provided BLM with a threshold examination regarding additional data required before NMFS could make a determination of effects of the Beaufort Sea lease sale and oil and gas exploration activities.

Whale studies were conducted during the fall of 1978 and spring and summer of 1979. In August 1979, an interagency workshop was held to review BLM's whale research in the Beaufort Sea and to develop a multiyear bowhead research plan for the Beaufort Sea. A plan was drafted and the NMFS personnel attending the meeting indicated that it would meet the August 1978 recommendation for studies. In October 1979, BLM asked for NMFS's formal endorsement of the plan.

Because NMFS believed there was inadequate information to render a biological opinion prior to the sale regarding all activities likely to result from the sale, special stipulations were considered which NMFS believed would provide protection for the whales until such time as a biological opinion covering all activities likely to result from the sale could be prepared. A proposed stipulation included in the proposed Notice of Sale provided for a restriction of drilling and related activities to the period November 1 to March 31 for the 2-year period following lease issuance. The March 31 cutoff date was based on advice from the National Oceanic and Atmospheric Administration, (NOAA), which intended it to provide a safety margin before spring breakup for drilling of a relief well and for cleanup in the event of an oilspill or blowout at the end of the drilling season. The 2-year duration was based on BLM's assessment of how much time was needed to collect sufficient information for a biological opinion covering all activities likely to result from the sale. Originally, no time restriction was included.

NOAA advised the Department of the Interior that the proposal to limit exploratory drilling to the period from November 1 to March 31 is particularly important to NOAA and it opposed an extension of the cutoff date to May 31. The State of Alaska recommended a shutdown of May 31, with the possibility of an earlier shutdown if special protective measures are warranted, since the endangered whales have a very low chance of being in the area until late summer or early fall. NOAA also believed that no assurance can be given that the information developed by the researchers during the 2-year period will be sufficient to determine that future oil and gas operations in the Beaufort Sea will not jeopardize the continued existence of the bowhead whale or adversely affect its critical habitat. NOAA believed that a seasonal restriction must be retained until Interior, in consultation with NMFS, can determine that such a measure is no longer required to ensure that the continued existence of the bowhead whale is not likely to be jeopardized.

The North Slope Borough recommended that all tracts outside the barrier islands be deleted from the sale area to protect the bowhead whales. Another alternative considered in the delay the sale option for protection of endangered species (bowhead and gray whales) was to delay the sale for ten to twelve months pending results from the "Project Whales" study funded by BLM. The purpose of the study was to monitor bowhead whale activity in order to evaluate pre-sale whale behavior patterns, to determine if the bowheads feed within or adjacent to the sale area; to study the impact of vessel traffic and noise disturbance upon the whales; to determine preferred vessel movement patterns into and out of the lease area; and to relate known bowhead distribution and migration patterns to the observed vessel movement patterns and other types of human activity.

Potential Mitigating Measures: The following mitigating measures were considered by the Secretary of the Interior and the Governor of Alaska concerning a seasonal drilling restriction for the protection of the endangered whales.

(a) Delay the sale pending completion of Project Whales Study; (b) delete all tracts outside the barrier islands; (c) require no seasonal restriction; (d) impose a seasonal drilling restriction over the life of the field; (e) impose a May 31 to November 1 operational shutdown; (f) impose a May 15 to November 1 operational shutdown inside the barrier islands, and a March 31 to November 1 operational shutdown outside the barrier islands; (g) impose a March 31 to November 1 operational shutdown (as included in proposed Notice of Sale); (h) prohibit platforms or structures in depths in excess of 13 meters until requirement for structures to withstand ice conditions tested for 2 winter seasons; (i) require a platform verification program, in accordance with OCS Order No. 8, until technology for structures in ice transition zone is demonstrated; (j) restrict seismic operations during certain seasons; (k) restrict activities to allow free movement and passage to fish and mammals; and (l) prohibit construction of continuous solid fill causeways.

Evaluation of Effectiveness: In order to determine the extent and nature of adverse impacts of oil and gas development upon the endangered whales, BLM and NMFS developed a multi-year bowhead whale research plan known as the "Project Whales" study.

The option (a) of delaying the sale until completion of this study was intended to increase the understanding of the bowhead and its migration and feeding habits while avoiding all impacts likely to result from the sale. In consultations with NMFS, alternative measures to the delay the sale option were considered. The no seasonal drilling restriction option would have relied upon the biological survey stipulation and the Secretary's overall regulatory authority, including suspension and/or cancellation of operations, to make and impose site-specific determinations on operations on a case-by-case basis. However, the no seasonal drilling restriction, option (c), was not deemed to provide adequate protection and was deleted from further consideration and various seasonal drilling restriction measures were considered. These measures included options d, e, f, and g.

The imposition of a seasonal drilling restriction on exploratory drilling, testing and other downhole exploratory activities, limited to the period November 1 through March 31 (option g), is designed to reduce the risk of interference with the whales by noise, major oilspills, and other disturbance which may be associated with exploration activities during the first 2 years after leases are issued. At the end of this 2-year period, the Project Whales studies information will be completed and evaluated to determine whether restrictions on operations should be continued over the life of the field, the extent of such restrictions, whether no restrictions are required, or some other protective measures required. An alternative to this option was that of imposing a seasonal drilling restriction over the life of the field (option d).

A reasonable drilling restriction over the life of the field would have substantially increased the economic burden on the lessee in the development of the lease, while the amount of protection afforded the whales is unknown at this time. NMFS felt that, because of the lack of definitive information, it was necessary to impose the most protective measures for at least the first 2 years until results of the whale study were evaluated and a determination as to what additional restrictions, if any, would be required. Therefore, option d was not required since results of the whale study would be available after 2 years. In addition, the Secretary has the authority to impose additional seasonal restrictions, if needed, at any time during the term of the lease.

In considering option (b), delete all tracts outside the barrier islands, as recommended by the North Slope Borough, the Department felt that the same rationale applied as for option (d) discussed above. The option of deleting tracts beyond the barrier islands for other reasons has been discussed earlier in this section (see IV.B.c.c.). In addition, the need for development and testing of drilling structures in water depths beyond 13 meters (outside the barriers) in the ice transition zone was recognized. The Department believed it preferable to conduct testing and development of technology capable of operating safely beyond the barriers prior to expanded operations that may take place as a result of future sales in the area.

It was believed that discontinuing drilling, testing, and other downhole activities by March 31 would substantially reduce the probability of noise disturbing the whales and reduce the risk of a significant impact to the population. This cutoff would occur before any ice leads open east of Barrow. The March 31 shutdown of activities also allows some time for a relief well to be drilled, if needed, prior to breakup should a spill occur at the end of the

winter drilling season, although the risk of an oilspill is very small. Recent surveys suggest that most of the spring migration occurs in offshore leads as animals travel from the Point Barrow area eastward; thus, contact with oil during spring migration may be particularly unlikely. Although options (e) and (f), with later cutoff periods for suspending operations, would probably have provided adequate protection, the Department believes that Federal stipulation 8, limiting activity in Federally-managed tracts to the period November 1 through March 31, provides the most protection to the whales. At the end of the 2-year seasonal restriction, lessees will be advised as to what, if any, restrictions on operations will be required to be consistent with the Endangered Species Act.

Further protection is provided to the endangered whales by prohibiting drilling from platforms and structures located beyond the barrier islands (option h), until a suitable test structure of the type to be drilled from has been in existence in the sale area at a depth in excess of 13 meters for two winter seasons. Verification of this test structure will be required by USGS under OCS Operating Order 8, the platform verification program (option i), after technology for structures in the transition zones is demonstrated. The Supervisor is required to determine the adequacy of this test structure after consultation with designated representatives of the North Slope Borough and the Regional Technical Working Group of the National Outer Continental Shelf Advisory Board. Although drilling structures have been successfully tested in the Canadian Beaufort in areas less than 13 meters, no test structures have been constructed in ice-infested waters deeper than 13 meters. This mitigating measure is designed to reduce the risk of interference to the whales from oilspills or blowouts which might result from using unproven technology in platform design and placement, while at the same time providing a mechanism for developing and testing these advances in technology to withstand conditions in the severe ice zones.

State stipulation 9 limits exploratory drilling, testing, and other downhole activity from surface locations outside the barrier islands to the period November 1 through March 31, unless continued operations are necessary to prevent loss of well control or to ensure human safety, at the discretion of the Director, DMEM. Inside the barrier islands, such activities will be limited to the period November 1 through March 31, except that activities may continue until May 15 if the lessee demonstrates the ability to operate safely and if ice conditions justify. Restricting these periods removes the possibility of an oilspill occurring when the whales may be in the area. State stipulation 9 will also remain in effect for 2 years.

In addition, State stipulation 13 prohibits seismic activity from March 20 until the break-up of sea ice, except that the Director, DMEM, may allow seismic activity after March 20 on a case-by-case basis, and in consultation with the biological task force. On Federally-managed tracts, seismic activity (option j) is controlled by the Oil and Gas Supervisor. Such activity by non-lessees requires a permit under 30 CFR Part 251, in accordance with the OCS Lands Act. Lessees can conduct seismic activities on their own leases only after notifying the Geological Survey Oil and Gas Supervisor. In both cases, the Supervisor can restrict the timing and location of activities. Therefore, no additional Federal mitigation regarding conduct of seismic activities is required.

The State prohibition of construction of any continuous fill causeways, as referenced in the Federal information to lessees (option 1), eliminates environmental concerns resulting from construction of solid fill causeways, which deny access to productive habitats.

f. Issue: Protection of Marine Environment Through Prohibition of Discharges of Solid Wastes, Drilling Muds, and Produced Waters: Little is known of the effects of drilling fluids and produced waters on Arctic marine organisms under conditions of low water circulation in combination with reduced dissolved oxygen levels, increased salinity, and other physical stresses.

Sufficient concentrations of various components of drilling muds and produced waters have been identified as toxic to aquatic life. These materials are reduced to a relatively low toxicity when adequately dispersed in the marine environment. However, their toxicity is uncertain in low energy, poorly flushed areas where they could potentially accumulate to toxic concentrations; for example, under nearshore winter sea ice in the Beaufort Sea. In addition, quantities of solid wastes, if allowed to permanently accumulate on offshore barrier or artificial islands during or after drilling operations, are subject to being introduced into the marine environment as an abandoned island or pad erodes through time. Categories of wastes include but are not limited to fabric from sandbags, toxic drilling mud components, drilling mud from mudpits, equipment, and other debris. Accumulation of these wastes may create navigational and environmental hazards, as well as degrading the esthetics of the area.

Potential Mitigating Measures: (a) Prohibit disposal of solid wastes in the entire lease area; (b) prohibit discharges of drilling muds and produced waters into marine waters; (c) require barging of drilling muds; (d) consultation with biological task force; and (e) prohibit disposal of solid wastes in waters with less than 10 meter water depth with certain exceptions.

Evaluation of Effectiveness: In order to protect the marine organisms and barrier islands in the lease area from pollution of the marine environment, Federal stipulations 4 and 6, prohibiting disposal of solid wastes on artificial islands or in marine waters and disposal of drilling muds and produced waters into marine waters, were imposed upon the leaseholder. State stipulation 8 also prohibits solid waste disposal on natural or artificial islands.

These mitigation measures will be effective in eliminating any adverse environmental, navigational, or social effects which may result from the disposal of solid waste on unapproved sites in the lease area. The State of Alaska approves and permits solid waste dumping sites onshore. In areas of water depths greater than 10 meters, however, the total volume of the receiving waters and the more active currents permit some latitude in handling waste discharges if sufficient dilution can be obtained. In prohibiting the disposal of drilling muds and produced waters (Federal stipulation 6), the Supervisor, USGS, was given the authority to approve discharges in depths greater than 10 meters on a case-by-case basis and in less than 10 meters on a case-by-case basis if effluents are shown to be nontoxic and that they can be adequately dispersed.

The alternative of not permitting any discharge of solid wastes by requiring barging of muds and cuttings (option c) would have prevented any pollution into marine waters. However, because of the physical limitations of the area, d State permit requirements.

namely severe weather conditions, moving ice, and limited open water season in which barging could be conducted, and because of the additional economic burden upon the lessee, this was not considered to be a viable alternative. In addition, in order to allow authority for approval of discharges beyond 10 meters with sufficient dilution and dispersion, Federal stipulation 6 was determined to be the most effective alternative.

Federal stipulation 3, dealing with restoration of a site after exploratory drilling phase, provides further mitigation of adverse environmental, navigational, and social effects, by requiring removal of all structures in areas in depths of less than 10 meters.

In addition, in the enforcement of Federal stipulations 3, 6, and 7, the Supervisor, USGS, must receive recommendations from a biological task force composed of representatives of BLM, the Fish and Wildlife Service, the National Marine Fisheries Service, the Environmental Protection Agency, and the Alaska Departments of Fish and Game, Environmental Conservation, and Natural Resources concerning the administration of all biological and environmental aspects of these stipulations.

g. Protection of Barrier Islands, Lagoons, and Nearshore

Areas: The need to limit aircraft and noise disturbance and surface entry in biologically sensitive areas to protect waterfowl and seabirds which utilize the barrier islands, particularly Cross and Pole Islands, during nesting seasons was identified. These islands were identified during tract selection by the Alaska OCS Office and the Alaska Department of Fish and Game as critical nesting areas. Waterfowl and seabirds commonly abandon their nests in fright when aircraft pass in close proximity, often resulting in increased predation on eggs and permanent abandonment of nest sites. These birds are frequently used for subsistence purposes.

The barrier islands found in the lease area are known to be relics from an earlier shoreline and have no present source of sediment for replacement of eroded material. Use of these islands as material sources, or any activities which would accelerate the present erosional rate, would rapidly destroy the islands and the lagoonal ecosystems they support and protect, and could have significant long-term impacts because depleted material would not be replaced by natural processes, thus creating a net loss in habitat.

Dredging can produce adverse impacts to marine biota through destruction of habitat, turbidity, siltation, oxygen depletion, and changes in circulation, salinity, or erosion patterns. It also creates physical disturbances which can drive sensitive organisms from the area.

Marine dredging or some aspects of dredging require a number of State and Federal permits, including but not limited to, Corps of Engineers dredge and fill permits, EPA/NPDES permits, and Department of Natural Resources tidelands and multiple land use permits. None of these agencies have specific regulations restricting use of marine gravel. However, the State's coastal management regulations specifically prohibit the use of subtidal sources of gravel if upland sources exist in the area.

Potential Mitigating Measures: (a) Impose a seasonal restriction on drilling activities within the barrier islands; (b) impose seasonal aircraft limitations; (c) provide surface entry restrictions; (d) prohibit gravel extraction within the barrier islands; (e) State coastal zone management regulations; and (f) rely on existing Federal and State permit requirements.

Evaluation of Effectiveness: Several measures were considered for protection of Barrier Islands, particularly Cross and Pole Islands. It has been shown that aircraft flying at low levels and noise disturbs wildlife. To mitigate these disturbances, particularly during nesting seasons, lessees were advised by both the State and the Department of Interior in the information to lessees and final Notice of Sale, that aircraft and helicopters utilized in development activities shall not fly over certain areas at altitudes of less than 1,500 feet from May to August. Existing State and Federal law prohibiting harassment to wildlife also mitigates aircraft disturbances.

State Stipulation 4 provides additional mitigation to wildlife which utilize these islands by prohibiting surface entry on Cross and Pole Islands during the period May 15-August 15. Surface entry during other time periods may be allowed provided any structures, equipment, personnel, or supplies are removed by May 15.

To mitigate adverse effects caused by any gravel extraction and associated loss in lagoon habitat, the State information to lessees prohibits borrow removal from the barrier islands, lagoons, and nearshore areas unless, in the case of lagoons and nearshore areas, it can be shown that such removal from these areas will not adversely affect the environment and that no alternative sources are available. The Federal information to lessees informs lessees of this State requirement. No additional protection is required because the State of Alaska has jurisdiction for and has adequately protected borrow removal on barrier islands and nearshore areas. This State prohibition of borrow removal from the barrier islands should be highly effective in protecting the biological resources on the barrier islands, reasonably allows extraction of gravel from lagoons or nearshore areas if the contractor provides substantial evidence that extraction will not have any adverse effect on the marine resources, but totally prohibits use of material from the nonrenewable barrier islands, thus ensuring the continued integrity of the lagoon systems by reducing the rate of erosion and providing some degree of protection over time to the biological habitat.

These measures were reviewed by the Beaufort Sea Task Force and the Steering Committee, and Federal and State agencies as required by SO 2974 coordination procedures, and by the State Ad Hoc Leasing Advisory committee. The State of Alaska has also adopted these stipulations to be imposed on blocks under State jurisdiction.

h. Issue: Protection of Environmental, Social, and Cultural Resources: Damage to biological resources or the environment could be caused by uninformed workers and subcontractors of lessees operating in the Beaufort Sea area. Social or cultural problems could also be created by a lack of understanding or sensitivity to community values, customs, and lifestyles in the Arctic areas, since many of these workers may be non-Alaskans and would have little or no knowledge of the biological resources of the area and of local culture and social concern. The North Slope Borough expressed particular concern over this issue.

Potential Mitigating Measures: (a) Provide environmental orientation program for oil field workers, (b) hire only Alaskan and/or Native workers, and (c) provide no specific mitigation.

Evaluation of Effectiveness: The need to inform contractors and subcontractors operating in the area of the customs and lifestyles of local inhabitants contributed to the development of an environmental training program stipulation (Federal stipulation 2). This stipulation requires the lessee to include an environmental training program for all personnel involved in exploratory and/or development activities, including contractors and subcontractors, and is designed to inform workers of the environmental, social, and cultural concerns of the area which relate to their jobs.

Although this alternative provides no direct prohibitions of activities which may have cultural or social impacts on the area, it provides a positive mitigating effect by making workers aware of the unique environmental, social, and cultural values of the local residents and Arctic environment. This orientation program will promote an understanding of and appreciation for local community values, customs, and lifestyle of Arctic inhabitants without creating undue economic costs to the lessee.

A similar orientation program stipulation was imposed on Federal OCS leases in the lower Cook Inlet, Alaska, and for the Trans-Alaska Pipeline, which resulted in excellent orientation programs being developed.

The alternative of hiring only Alaskans or Native workers was not a viable alternative. Such a requirement would impose an unreasonable burden upon the lessee. Exploratory activities require specially trained skilled and semi-skilled workers, for the most part, and it is inconceivable to expect that the workforce could be comprised of only Alaskan hired personnel. In addition, the "Alaska hire" law instituted during TAPS construction was struck down by the Supreme Court as unconstitutional.

1. Issue: Protection and Preservation of Historic & Archeologic Sites: Many terrestrial archaeological and historic sites are known as a result of investigations conducted on Alaska's North Slope. However, few sites of significant antiquity have been identified on the barrier islands within the lease area or on the coast immediately adjacent to the proposed lease area. This scarcity of sites along the Beaufort Sea coast could have been caused by persistent beach erosion which has occurred along the coast. Most archaeological investigations adjacent to the lease area have revealed late prehistoric to historic sites with affinities to Eskimo culture. Most of the recorded sites are related to the hunter/gatherer subsistence economy of the Eskimo people.

Through various studies, many of these sites have been determined to be eligible for inclusion in the National Register of Historic Places. Based on these studies, three areas were recently nominated for inclusion in the National Register of Historic Places as historic districts. They are Cross Island, Flaxman Island/Brownlow Point, and Tigvariak Island. Another area of historic significance is the cabin site of arctic explorer Ernest de Koven Leffingwell which he used while mapping the arctic coast of Alaska. The site, located on Flaxman Island immediately adjacent to the lease area, is listed on the National Register of Historic Places.

A study to determine the probability of archaeological site occurrence on the Beaufort Sea Outer Continental Shelf (OCS) has been completed from Point Barrow to Demarcation Point by the University of Alaska Museum under contract to the BLM/Alaska OCS Office. The study involved the postulation of major sea level stillstands, based primarily on data obtained from the western Gulf of Alaska. A reconstruction of probable paleoecological conditions and faunal distributions was then developed and mapped for each of the stillstands identified. Using this information, along with archaeological research of adjacent terrestrial regions and reconstruction of hunter/gatherer subsistence economies, the study area was ranked for regions of high, medium, and low probability of archaeological site occurrence and survival.

Three areas--one area within and two areas immediately adjacent to the lease area--have been identified which exhibit suitable characteristics for prehistoric subsistence economy. Accordingly, these areas have been portrayed as areas of medium probability of archaeological site occurrence, and involve either all or portions of tracts BF-1, -2, and -47.

The inadvertent loss or destruction of historic or archaeological sites, structures, or objects resulting from operations conducted on a lease could constitute a significant loss of scientific knowledge regarding the historic and prehistoric people of the North American Arctic. In addition, the siting of drilling platforms and related structures adjacent to properties included in or eligible for inclusion in the National Register of Historic Places could have adverse effects on such properties. The siting of onshore facilities prior to an adequate survey and identification of historic and archaeological sites could result in damage to or destruction of significant cultural materials. Of additional concern to both Federal and State agencies is the issue of uninformed workers operating in the Beaufort Sea who could unknowingly destroy or damage cultural materials inadvertently discovered during lease operations.

Potential Mitigating Measures: Several potential mitigating measures were reviewed throughout the pre-leasing process. These mitigating measures included (a) a cultural stipulation requiring remote sensing surveys which has been incorporated in several OCS lease sales. (This stipulation is the result of a Memorandum of Agreement between the Bureau of Land Management and the Geological Survey.) Other measures included: (b) a variation on the cultural stipulation by requiring removal of platforms which could affect historic sites and protection of cultural materials found during lease activities; (c) require an environmental orientation program; and (d) require an inventory of onshore historic and archaeological sites, both on and off lease; (e) onshore facilities siting requirements as proposed by the North Slope Borough Mid-Beaufort District Coastal Management Program.

Evaluation of Effectiveness: Based on the Beaufort Sea Cultural Resource Study, the probability of site occurrence on the OCS was relatively low; therefore imposition of remote sensing surveys prior to the conduct of lease-related activities was considered too costly and unwarranted. However, protection of cultural and archaeological resources is provided by Federal stipulation 1 which requires that the contractor, during any activities on the leasehold, report any findings to the Supervisor in the event any site or object of historic or archaeological significance should be discovered. The contractor is also required to make every reasonable effort to preserve and protect such site or object from damage until the Supervisor makes a determination

on its preservation. The added requirement of removing platforms and associated structures, upon abandonment, which intrude on the historic scene was developed through consultation with the Advisory Council on Historic Preservation. This requirement is important for the protection of the historic integrity of a property included in the National Register of Historic Places, as well as the three sites which are potentially eligible for inclusion in the Register.

The orientation program Federal stipulation 2, includes language which requires that workers be informed of the historic and archaeological sites and materials which could be discovered during the conduct of lease-related activities. The orientation program also provides information regarding the proper handling of such materials.

In order to protect sites located on onshore leases as well as onshore areas adjacent to the lease area, additional protection is provided by the provision for historic and archaeological surveys. This provision was developed in coordination with several Federal agencies, the State of Alaska, and the North Slope Borough.

Through the imposition of these stipulations and compliance with applicable Federal and State laws regarding cultural resources, and adherence with rules, regulations, policies of the Alaska Coastal Management Program, the North Slope Borough District Program, when approved, and the Intergovernmental Planning Program for OCS Oil and Gas Leasing, Transportation, and related Facilities, the protection and preservation of cultural resources is assured.

C. Options for Decision: As noted above, the options now open to the Secretary are similar to, but not identical to those described in section IV.A.3. (For a discussion of the litigation surrounding the sale and the present status of the tracts offered on December 11, 1979, see sec. I.C. and I.D.) The options for decision at this time are as follows.

1. Proceed With Issuance of Leases as Planned: The adverse impacts associated with this option are described in section IV.A.3.a.(1) above. A decision to proceed with the issuance of leases means that the terms and conditions of the sale, including lease stipulations and specific mitigating measures described in the final Notice of Sale (44 Fed. Reg. 64752, November 7, 1979), will apply to the leases issued as a result of this decision. As described earlier, extensive analysis of the many details of the sale, especially lease stipulations and other mitigating measures, was conducted in the planning of this project. Many decisions were necessarily made at various levels below that of the Secretary. In reaching a decision now on whether to proceed with issuance of leases, a major factor for consideration must be the adequacy of these decisions, i.e. whether the lease stipulations and other mitigating measures chosen for this sale are sufficient to address the potential adverse effects of the proposed action, as described in the FES and this SES, and to satisfy the requirements of the OCS Lands Act and other applicable law.

In considering this option, the continuing authority of the Federal Government to regulate activities on these leases should be taken into account. Independent of the lease stipulations specific to this sale, the Secretary retains extensive continuing authority through the OCS Lands Act, including provisions

for suspension and cancellation of leases, and through USGS regulations and OCS operating orders. Prior approval by the USGS is required for numerous lease activities, the most significant being the approval of a detailed exploration plan before any exploratory drilling activities can take place and the approval of a development and production plan before commercial production can commence. The Secretary could, at any time in the future, use his regulatory control to impose additional requirements on leases, if it was deemed necessary. For example, as discussed in the Information to Lessees section of the Notice of Sale, the seasonal drilling restriction (Federal stipulation 8) could be extended beyond its two-year duration if ongoing whale research demonstrates a further need for such a restriction.

Additional Federal review and approval is necessary before gravel islands or drilling pads can be constructed. Permits are required from the Corps of Engineers, and the applications for such permits are subject to review and comment by other Federal agencies. If an endangered species may be affected by issuance of the permit, the Corps must consult with the agency having jurisdiction over the species to assure that its action is not likely to jeopardize the continued existence of the endangered species involved.

2. **Modify the Sale by Issuing Leases Only On Certain Tracts and Rejecting the Bids on Other Tracts:** Because no leases have been issued on any Federally-managed tracts, the tract deletion options now open to the Secretary are basically the same as those considered at the time of the Notice of Sale.

a. **Modify the Sale by Rejecting Bids on All Tracts Beyond 13 Meters of Water Depth Which Cannot Be Reached by Directional Drilling From Within This Demarcation Line:** The impacts of this alternative are described in Section IV.A.3.a.(4).

b. **Modify the Sale by Rejecting Bids on All Tracts Beyond the Barrier Islands:** The impacts of this alternative are described in Section IV.A.3.a.(4).

3. **Return All Bids and Reschedule the Sale at a Later Date:** This option would have the same effect as the option of delaying the sale which was considered at the time of the Notice of Sale. However, since bids have already been submitted and bidders' interests and position exposed, rescheduling the sale now would have an additional adverse effect on the integrity of the sealed bidding process.

This option is the option which must be chosen if it is determined that the lease stipulations of the November 7 Notice of Sale are inadequate and cannot be remedied through the Secretary's continuing authority, as discussed in option 1 above. This option would provide the opportunity to develop a new set of lease stipulations for these tracts.

Therefore, the option of returning all bids and rescheduling the sale includes any combination of the following.

a. **Reschedule After Completion of Environmental Studies:** The impacts of this option are described in Section IV.A.3.a.(3).

b. Reschedule After a Decision is Made Regarding Marine Sanctuary Designation: The impacts of this option are described in Section IV.A.3.a.(3), V.A.2., and V.A.3.

c. Reschedule After Approval or Disapproval of the Mid-Beaufort Coastal District Program: The impacts of this option are described in Section IV.B.4.(3).

d. Reschedule After Development of a New Set of Lease Stipulations: The impacts of adopting alternatives to each lease stipulations are discussed in Section IV.B.3.

4. Cancel the Sale by Rejecting All Bids and Not Rescheduling the Sale: The impacts of this option are discussed in Section IV.A.3.a.(2).

V. ALTERNATIVE MANAGEMENT SCHEMES

A. Marine Sanctuary Proposal:

1. Proposal and Present Status: A formal nomination for a marine sanctuary, which included the entire lease area, was submitted to the National Oceanic and Atmospheric Administration (NOAA) by the Friends of the Earth, Inc. and the Fairbanks Environmental Center in March 1978 (Fig. V.-1). The nomination ranges along the coastline from Point Franklin eastward to Banks Island, Canada, and extends 100 miles offshore. In response to this nomination, NOAA included the nominated area on its List of Recommended Areas published in the Federal Register October 31, 1979.

NOAA has not developed a schedule for consideration of this sanctuary proposal and it is unlikely that a formal public workshop will be conducted before the publication of this document. In commenting on this sale, NOAA recommended that the lease sale and any subsequent exploratory and development activities be conducted in a manner that ensures maximum protection of living marine resources and habitats, including the bowhead whale. NOAA has no plans to do further work on any Alaskan sanctuary proposals this year.

The purposes of the nomination were for habitat preservation, species preservation, and research. Protection of the bowhead whale was emphasized, but other species, such as beluga whales, ringed and bearded seals, polar bears, arctic fox, caribou, waterfowl and shorebirds, fish, and food chain organisms were also mentioned. Various research data deficiencies exist and are also given as reasons for creation of a marine sanctuary.

There are now 70 areas on NOAA's List of Recommended Areas including the Beaufort Sea, but only seven areas are on the List of Active Candidates. The Beaufort Sea area is not one of these active candidates. In March 1980, a management plan for the Key Largo Coral Reef Marine Sanctuary was established after 5 years in development. At this time, this is the only marine sanctuary established to protect a living resource. In addition, in Volume 44 of the Federal Register October 31, 1979, NOAA announced the removal of all of the Georges Bank area, including the OCS oil and gas lease sale 42 area from the List of Active Candidates, because safeguards had been jointly developed with interior to address environmental risks to the Georges Bank.

Locations which NOAA places on a List of Recommended Areas are screened by considering the following factors before becoming active candidates.

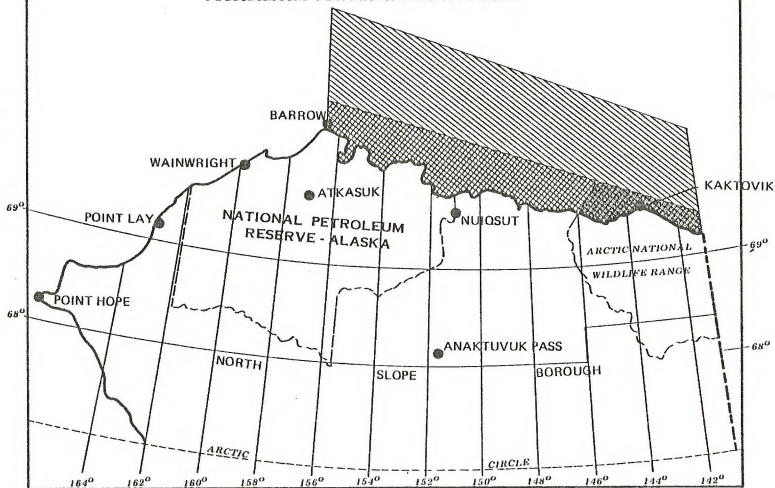
(a) The severity and imminence of existing or potential threats to the resources, including the cumulative effect of various human activities that individually may be insignificant.

(b) The ability of existing regulatory mechanisms to protect the value of the sanctuary and the likelihood that sufficient effort will be devoted to accomplishing those objectives without creating a sanctuary.

(c) The significance of the area to research opportunities on a particular type of ecosystem or on marine biological and physical processes.

(d) The value of the area in complementing other areas of significance to public or private programs with similar objectives, including approved Coastal Zone Management programs.

FIGURE V - 1
 POSSIBILITIES FOR MARINE SANCTUARIES



Possible boundary line to 20 meter isobath offshore, from Point Barrow to Demarcation Point.



Possible boundary line to 20 meter isobath offshore, from Arctic National Wildlife Range.



Possible boundary line for 100 miles seaward, from Point Barrow to Demarcation Point.

SOURCE: BLM/ALASKA OCS OFFICE, 1979

ONE (1) INCH = 90 MILES.

(e) The aesthetic qualities of the area.

(f) The type and estimated economic value of other resources and human uses within the area which may be foregone as a result of marine sanctuary designation. This takes into account the economic significance to the nation of such additional resources and uses and the probable impact on them of regulations designed to achieve the purposes of sanctuary designation.

Thus, the appearance of a site on the list of recommended areas does not necessarily indicate its assurance of becoming an active candidate.

Assuming a recommended site achieves the status of an active candidate, interested Federal, State, and local agencies are then consulted. The decision to recommend an active candidate as a marine sanctuary rests with the Secretary of Commerce. The decision to designate an area as a sanctuary rests with the President.

2. Alternatives: No work has been done by NOAA to define alternatives to the present proposal except the outlining of the two smaller areas within the gross nomination area (fig. V.-1). However, based on past actions by NOAA (primarily in the Georges Bank area) the following alternatives could be considered should the Beaufort Sea area ever be placed on the List of Active Candidates.

a. No Marine Sanctuary Designation: No marine sanctuary would be designated for the Beaufort Sea area. This option maintains the status quo. In developing the lease sale proposal, the Secretary of the Interior and other responsible officials and agencies acted, under their respective statutory authorizations, to protect marine resources and the environment (sec. IV) to the extent they will not be unnecessarily jeopardized. Existing regulatory measures and lease stipulations provide an adequate amount of protection to resources and the environment.

b. Designate Discrete Areas as Marine Sanctuaries: A marine sanctuary could be designated which would include a discrete area of the Beaufort Sea focusing upon the resources of that particular geographic area. Two such areas have been suggested (fig. V-1), but no decision has been made or further action planned. Other areas may be identified as the consultation process continues.

(1) The major sanctuary proposal (largest) could provide complete protection to the bowhead whales from oil and gas activities in the U.S. Beaufort Sea area. It would also offer partial protection to the boulder field, and the lagoon areas. Because oil and/or gas development activities will probably go on in State waters already leased, parts or all of lagoons and the boulder field would still be affected. The mitigating measures included in this sale as stipulations (sec. IV) plus the other regulatory authorities the Secretary of Interior has, provide an adequate amount of protection to the resources and the environment.

(2) Making a marine sanctuary of the area from Point Barrow to Demarcation Point and out to the 20 meter isobath offshore would offer sanctuary protection to known fall bowhead migratory areas and a portion of the known spring migration routes. It would also provide partial protection to the lagoon and

boulder field areas. The same reasons for partial protection and adequacy of protection from the sale mitigating measures included in the sale apply in this option.

(3) The establishment of a marine sanctuary offshore of the Arctic National Wildlife Range and out to the 20 meter isobath would provide sanctuary protection for some of the bowhead fall migration route and the lagoons within this area. It could guarantee protection to the area. However, until plans to lease the area for oil and gas are developed, neither the need for nor extent of protection which could be provided is ascertainable.

c. Designate the Beaufort Sea Area as a Marine Sanctuary: The Beaufort Sea area of Alaska has been nominated as a marine sanctuary as discussed in this section, and should the area actually become a marine sanctuary, alternatives which could be considered concerning oil and gas are summarized below:

(1) Allow Oil and Gas Development with Additional Regulations: Oil and gas exploration and development activities could be permitted in the marine sanctuary areas with additional regulations agreed to by NOAA to protect the living marine resources in the sanctuary. Implementation of all sections of existing Arctic OCS Operating Orders and mitigating measures made available to the Secretary of Interior in the Notice of Sale gives the Secretary the authority to develop additional regulations if needed to protect the environment.

The formal Nomination of the Beaufort Sea International Marine Sanctuary listed three primary purposes for the selection of this area. They were: preservation of habitat, species uses, and research area. It also listed a number of species that exist within the area that this type of protection was sought for and listed a number of data gaps. The proposal, however, contained no management or enforcement suggestions.

A management system for such a sanctuary could include NOAA regulations which would establish additional conditions for oil and gas development in the area. A further variation is the designation of a sanctuary with NOAA regulations defining certain core areas where no oil and gas activity could proceed and regulating such activity in buffer zones in the sanctuary as necessary.

Oil and gas exploration and development could be allowed to proceed in the area currently leased in lease sale BF with additional regulations approved by NOAA. Oil and gas activity may not be allowed in areas or seasons of known bowhead whale activities and/or sensitive habitats for other species (polar bear and seal pupping area).

(2) Prohibit Oil and Gas Activities: Oil and gas exploration and development, as well as any other activity which poses any significant risk to the protected resource and environment, would be prohibited. This would guarantee protection of resources while they are in the area and protect the environment. However, existing regulatory measures provide an adequate amount of protection to resources and the environment.

(3) Allow Oil and Gas Development under Present Regulations: The stringent environmental controls developed for this sale are designed to provide adequate protection for the resources any sanctuary would be established to protect, at least through the exploratory phase. See analysis of effectiveness of existing mitigating measures in section IV.

3. Options for Decision: The "marine sanctuary" issue is delineated in the opinion of the Court of Appeals in Commonwealth v. Andrus (D. Mass. Nos. 78-1036 and 78-1037) as follows:

...While under the Marine Sanctuaries Act, the land-use options of the Secretary of Commerce are much the same as those of the Secretary of the Interior under the Outer Continental Shelf Lands Act, the management objectives are different. It is thus possible that different environmental hazards would result depending on which program was invoked.

Under the latter Act, the emphasis is upon exploitation of oil, gas, and other minerals, with, to be sure, all necessary protective control. Under the Sanctuaries Act, the prime management objectives are conservation, recreation, or ecological or aesthetic values (16 U.S.C. Sec. 1432). Drilling and mining may be allowed, but the primary emphasis remains upon the other objects. The marked differences in priorities could lead to different administrative decisions as to whether particular parcels are suitable for oil and gas operations. At least the question seems worth exploring.

However, only in a subjective sense should management, under the Marine Sanctuaries Act (MSA), result in different administrative decisions concerning OCS oil and gas development than management under the OCS Lands Act, as amended (OCSLA). The Court of Appeals, in the preceding case, describes how the Secretary of the Interior must "harmonize the interests of the various resources wherever they impinge upon one another," and that the "concept of balance rules out a policy based on sacrificing one interest to the other." More specifically, the court indicates how the Secretary must balance the probability and magnitude of multiple-use conflicts associated with oil and gas development with the burden of mitigating measures. The OCSLA establishes this goal of balancing the benefits of expedited oil and gas development with protection of the marine, human, and coastal environment.

There is no reason to believe that the test described by the Court of Appeals and applied by the Secretary of the Interior for balancing conflicting uses of an area would be different from that applied by Commerce in making a decision on whether to allow oil and gas development should the area be designated as a Marine Sanctuary.

The OCSLA imposes on the Secretary of the Interior the duty to balance the benefits of expedited development of oil and gas resources with the other goals of the Act, including the need to protect the human, coastal, and marine environment. In many cases, the OCSLA, as well as other legislation, provides equity considerations when interference occurs with resources other programs are designed to protect.

At the present time, the Secretary of Interior retains a number of options for decision regarding the marine sanctuary proposal. They are:

(a) Return the bids and reschedule the sale for a date after a decision has been made regarding the marine sanctuary issues. Adoption of this option would retain much of the area in an oil-development free state for future marine sanctuary consideration. Oil and gas related development of the State of Alaska tidelands and areas offshore to the 3-mile limit will continue during the delay period. Orderly and efficient development of oil and/or gas structures found near the Federal/State boundaries may require sales in Federal waters. This could make the delay decision untenable.

(b) Cancel the sale and return all bids. Adoption of this option would have the same results as described above. In addition, the orderly and efficient development of the area and efficient use of the existing infrastructure would be restrained.

(c) Proceed with issuance of leases as planned pending decision regarding the marine sanctuary proposal.

Under the OCSLA, the Secretary of Interior must balance, the benefits of oil and gas development with the other goals of the act.

More specifically, the Secretary must address the probability and magnitude of environmental costs and conflicts associated with oil and gas development through mitigating measures. The OCSLA mirrors this in its goal of balancing the benefits of expedited oil and gas development with protection of the marine, human, and coastal environment. Through the Secretary's mandate of balancing orderly resource development with environmental protection, as well as compliance with the Endangered Species Act and the Marine Mammal Protection Act and consistency provisions of the Coastal Zone Management Act, the exploration, development, and production of oil and gas will not preclude the possible future decision of creating a marine sanctuary in the Beaufort Sea. The marine sanctuary value of resources will not be unnecessarily jeopardized, because mitigating measures are adequate to protect them (see sec. IV).

It is not presently known what configuration or regulatory controls would pertain to a DOC proposed marine sanctuary. The actual areas involved could be significantly different from those depicted in figure V.-1. The policy, objective, and goals of such a sanctuary are also largely unknown because they have not been formulated. However, bowhead whale migration routes, the boulder field in Steffanson Sound, and the lagoon areas have been identified as important habitats in the sale area. These habitats can be protected in a variety of ways, from permitting no oil and/or gas development activities to the enforcement of existing regulations such as the Geological Survey's Arctic Operating Orders and the mitigating measures developed for this sale especially Federal stipulations 2, 3, 4, 5, 6, 7, 8, and 9, State stipulations 2, 3, 4, 5, 6, 7, 8, 9, 10, and 13, and all of the items listed in the Information to Lessee section of the Notice of sale.

Mitigating measures developed specifically for this lease area are stringent. The OCSLA requires compliance with all other applicable laws such as the Marine Mammal Protection Act and the Endangered Species Act. It is not expected, therefore, that Marine Sanctuary restrictions would need to be more strict.

The result of this option is that adequate protection will be given to the area through the many authorities of the Secretary of Interior and that the orderly and efficient development of the area may also be pursued without significant harm to the natural resources of the area and the environment.

4. Conclusion: In the short term, because of the adequacy of controls in place or proposed for this action, little if anything should happen to affect Marine Sanctuary management options. In the long-term, oil and gas development under this proposed lease could constrain the sanctuary's management options and area to an unknown degree.

B. Coastal Zone Management:

1. Federal Coastal Zone Management Act: The Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1451-1464) (CZMA), is administered by the National Oceanic and Atmospheric Administration of the Department of Commerce. The CZMA establishes a voluntary procedure for each coastal state to develop a management program for the management of resources within the State's coastal zone. The act provides Federal grants for both development and implementation of these programs. In order to be implemented each program must be approved by the Secretary of Commerce. The act also creates a grants and loans program for participating states that must deal with the coastal zone impacts of OCS oil and gas leasing and other energy development. Section 307 of the CZMA provides for Federal consistency to the maximum extent practical with approved States' coastal zone management program.

Section 307(c)(1) requires Federal agencies conducting or supporting activities directly affecting the coastal zone of a state to be consistent to the maximum extent practical with a state's approved coastal program. This requirement applies to pre-lease activities which lead up to the actual lease sale. Pursuant to NOAA's Federal consistency regulations (15 CFR Part 930), prior to a lease sale, the Department must either notify the State that no consistency determination is required (make a "negative determination") or prepare a consistency determination and submit it to the State.

Section 307(c)(3)(A) prohibits Federal agencies from issuing a license or permit for any activity that affects a land use or water use in the State's coastal zone (if the State has an approved coastal zone management program) until the State has concurred that the activity subject to the license or permit is consistent with the approved program or the Secretary of Commerce has overridden the State's objections to the activity.

Section 307(c)(3)(B) of the CZMA consistency provisions is very important to OCS resource development. This provision requires that no Federal license or permit for an activity described in detail in an OCS exploration plan or development and production plan which affects a land use or water use in the coastal zone may be approved until a State with a approved coastal zone management plan has concurred (or concurrence can be presumed) in the consistency determination made by the lessee or the Secretary of Commerce has overridden the State's objections.

Finally, under Section 307(d), Federal agencies may not provide Federal assistance for proposed projects that affect the coastal zone and are inconsistent with a state's coastal management program except upon certain findings by the Secretary of Commerce.

These Section 307 provisions will have important implications for any exploration, development, and production of OCS oil and gas resources and associated onshore development.

2. Alaska Coastal Management Program: Alaska's coastal program was approved by the Secretary of Commerce on July 6, 1979. The ACMP is based on the Alaska Coastal Management Act (ACMA) of 1977, which created a guiding policy group--the Alaska Coastal Policy Council--composed of nine local government representatives and seven State agency representatives. This council has basic rulemaking powers and adopts guiding standards that are used for two purposes: 1) To govern coastal development generally by applying the standards through existing State and Federal permit systems; and 2) to act as a base set of standards for local CZM program development. The Council adopted its Guidelines and Standards which took effect July 18, 1978. The standards were amended April 29, 1979, to include new standards specifically applicable to energy facility development within the State's coastal zone.

The Council is also responsible for approving local government (district) coastal programs, which were mandated by the ACMA. These district programs will be key components of the ACMP, and generally all district coastal governments which exercise planning and zoning powers must prepare comprehensive coastal management programs for their areas. These programs are outgrowths of traditional community planning and zoning activities, but embrace other additional considerations.

The ACMP regulations, which provide guidance for coastal development activities, as well as habitat and resource protection, will influence OCS post-lease activities. The regulations state that development activities shall maintain or enhance the characteristics of habitats which support living coastal resources. Recognizing the consistency provisions under the CZMA, the State ACMP regulations could influence the entire range of OCS onshore activities from borrow removal and water requirements to waste disposal and facility siting. The ACMP regulations can be thought of as mitigating measures for environmental impacts that may occur because of onshore oil and gas activities.

A prerequisite of approval of the ACMP by the Department of Commerce is that the national interest has been recognized in Alaska's coastal zone by including provisions for uses and facilities that are of national significance (16 U.S.C. 1456(c)(8); 15 CFR 923.52). The ACMP requires that land and water uses of state concern cannot be unreasonably or arbitrarily restricted or excluded from the coastal zone by District CZM programs (AS 46.40.060). Included in this definition are resources and facilities that contribute to meeting national energy needs, including OCS exploration development activities and facilities.

As outlined in section I.D.8. of the FES on the Beaufort Sea Lease Sale, Federal actions including OCS pre-lease activities, which would "directly affect" the coastal zone, have to be consistent to the maximum extent practicable with the approved ACMP. The Federal consistency regulations (15 CFR Part 930) also require that exploration, development, and production activities associated with offshore energy production which require a Federal license or permit be consistent if they affect any land use or water use in the coastal zone. Since the ACMP is broad, comprehensive, and process-oriented with land use specifics not identified, and since the specific effects on the

coastal zone of subsequent lease activities are undetermined, the exact relationship or degree of impact or potential conflicts between the two processes cannot be determined at this time. On October 24, 1979, a letter containing a negative consistency determination was sent to the State of Alaska. The determination was based on a DOI Solicitor's ruling and stated that no part of the Final Sale Notice except stipulation 4 affected the coastal zone of the State of Alaska. It also explained the findings regarding stipulation 4.

Based on a percentage of ownership within the sale area, the joint Federal/State Beaufort Sea lease proposal is largely a State of Alaska action. The Alaska Department of Natural Resources made a consistency determination under the State's approved coastal zone management program for the States' portion of the offshore leasing proposal (Alaska DNR, 1979).

3. North Slope Borough Program: Under the CZMA, local governments which participate in implementation of a State CZM program are obligated to solicit the views of State and Federal agencies, as well as the view of other resource users in their coastal jurisdiction area and attempt to accommodate them in their programs (42 U.S.C. 1456(c)(1)). The North Slope Borough (NSB) prepared and conceptually approved a District Coastal Management Program (CMP) for the mid-Beaufort coastal zone in October 1979 (fig. V-2). The Borough desires to use the consistency review provisions available under the Federal Coastal Zone Management Act (16 USC 1456) in order to protect resources valuable to the Inupiat native culture.

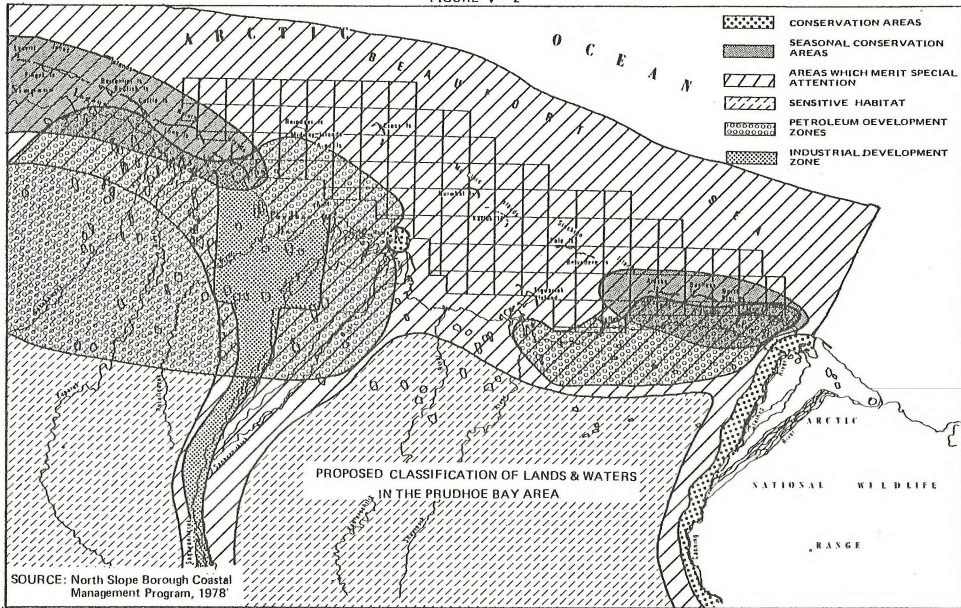
The Borough's CMP emphasizes protection of subsistence land and water uses over all other uses of the mid-Beaufort coastal zone, including oil and gas development. Accompanying the Borough's CMP is a proposed zoning ordinance which would strictly regulate onshore oil and gas exploration development activity. The Borough withdrew its CMP and ordinance from consideration for approval by the State Coastal Policy Council in January 1980 because of an informal determination by the council that the program would be officially disapproved as submitted.

The Borough has decided to redraft its CMP during 1980 to respond to criticisms of the Coastal Policy Council, the Alaska Office of Coastal Management, and others who commented on the program. The new CMP effort will cover the entire coastal zone within the jurisdiction of the Borough. For the interim period, before the new CMP is prepared, the Borough has adopted under its local planning and zoning authority its original CMP for the mid-Beaufort coastal zone. An interim ordinance has also been adopted by the Borough, but this has not received State or Federal approval and the consistency review authority under Section 307 of the CZMA does not apply.

Some discussion of the Borough's interim CMP is appropriate for both a) indicating the probable direction of the redrafted CMP, and b) describing the enacted policies and regulations of the locally adopted CMP.

The NSB program for the mid-Beaufort Coastal Zone includes the coastal area between the Colville River to the west and the Canning River to the east. It extends seaward to the 3-mile limit of the State's jurisdiction and inland to the 200-foot contour. Upon creation of the NSB as a political subdivision of the State, the Alaska Legislature conferred upon the Borough police power over State waters off its coastal boundaries.

FIGURE V-2



An objective of the Borough's CZM program, from the perspective of the NSB, is to safeguard its interests as much as possible. Of primary interest to the Borough are the fish and game resources on which the residents depend for subsistence. To ensure that development occurs with the least possible impact on fish and wildlife, all lands and waters in the mid-Beaufort coastal zone have been put into one of six proposed classifications. The areas considered suitable for preservation include "Conservation Areas," "Seasonal Conservation Areas," "Areas that Merit Special Attention," and "Sensitive Habitat." The areas considered suitable for development include an "Industrial Development Zone" and a "Petroleum Development Zone." These proposed classifications are depicted in figure V.-2.

Conservation areas are of particular environmental importance in which development, except pipeline crossings and activities of overriding national interest, would be considered inappropriate. However, stream clearing and wildlife enhancement activities would be encouraged in these areas. Within the Prudhoe Bay coastal area, those lands and waters proposed as conservation areas include the entire reach of the Colville and Canning Rivers and their associated delta systems, and Howe Island at the mouth of the Sagavanirktok River.

Seasonal conservation areas are used by migratory fish and wildlife within the Prudhoe Bay coastal area. Primary among these habitats are the complexes comprised of the nearshore barrier islands, their associated lagoons, and the adjacent mainland coastal wetlands. The program has recommended that during critical times of the year no development should be allowed in these areas.

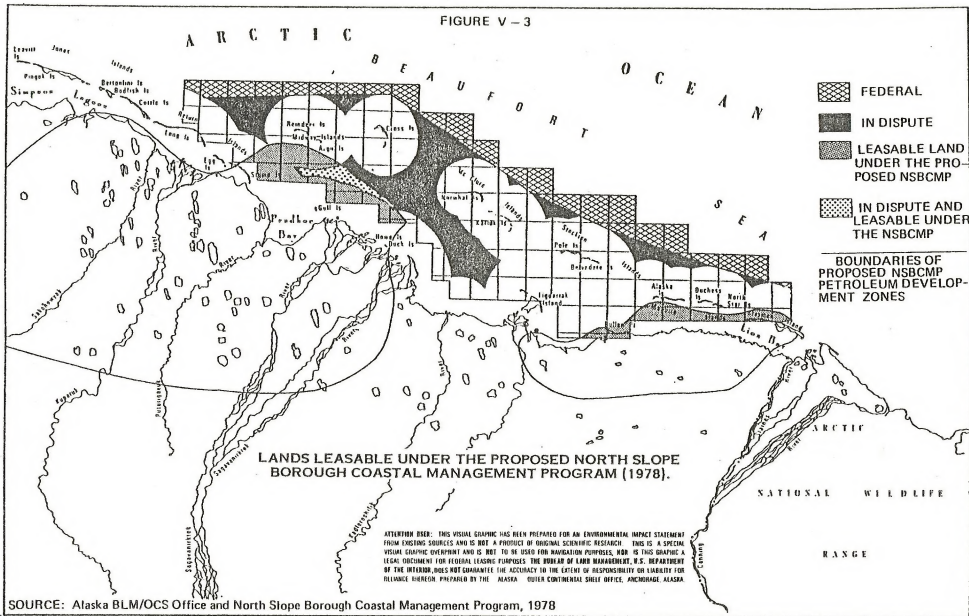
Although fish and game habitats are most sensitive in the conservation and seasonal conservation areas, river drainages, coastal wetlands, nearshore waters, and the barrier islands throughout the Prudhoe Bay coastal area provide important nutrient input and thus are considered "areas which merit special attention." Within these designated areas, it has been recommended that utmost concern for habitat protection should be exercised and that historic or culturally significant areas be protected from development on a site-specific basis.

The NSB program designated sensitive habitats of resident populations of coastal plains animals which spend much of the year in the northern foothills of the Brooks Range. However, these areas are currently not highly productive of fish and game nor are they heavily used for subsistence hunting and fishing. Human activity is likely to have less of an impact on fish and game and traditional land use in this area than in any other Prudhoe Bay coastal area.

The NSB program zone of preferred development has been chosen on the basis of its compatibility with fish and wildlife resources, subsistence land use, the location of existing oil and gas development, and anticipated demands for facilities and services. The zone of preferred development includes two subzones: The Industrial Development Zone, which includes the present Prudhoe Bay/Deadhorse complex and the Pipeline/Haul Road Utility Corridor; and Petroleum Development Zones, which are areas for accommodating temporary petroleum activities in which no permanent development will be allowed other than essential structures.

If this program had been adopted, the Borough would have had a considerable role in the location and regulation of OCS onshore support activities that could result from the proposed action. Figure V.-3 shows lands considered

FIGURE V-3



leasable under that plan. Some view the Borough's proposed CMP zoning ordinance as a mechanism to provide local authority over oil and gas leasing and permitting operations which are presently exercised by the State of Alaska and U.S. Geological Survey.

4. Options for Decision: The ACMP and the North Slope Borough Coastal Management Program (NSBCMP) for the Mid-Beaufort Coastal Zone area represent a planning process and a proposed coastal land and water use plan, respectively, that designate uses and activities that are considered proper and improper for various identified portions of the Prudhoe Bay area (see sec. I.D.8. and III.A.3.h. of the Beaufort Sea FES). The Alaska Coastal Management Program (ACMP) has been approved by the Department of Commerce (DOC). The NSBCMP is currently being developed and remains to be adopted by the State and officially recognized under the Federal CZMA.

A prerequisite of approval of the ACMP by the DOC is that the national interest has been adequately considered in the development of the program. In Alaska's coastal zone uses and facilities that are of national significance are included in the definition of "uses of State concern." Uses of State concern cannot be unreasonably or arbitrarily restricted or excluded. Included in this definition are resources and facilities that contribute to meeting national energy needs.

The Federal Coastal Zone Management Act and implementing regulations provide that all Federal lease and permit activities described in detail in OCS plans and which affect any land use or water use in the coastal zone must be conducted in a manner consistent with approved CZM programs. Post-lease activities can be expected to affect Alaska's coastal zone, and may be influenced by the North Slope Borough's district program.

The joint Federal/State Beaufort Sea lease sale was largely (based on a percentage of ownership within the sale area) a State of Alaska action. It would seem likely, therefore, that the proposal is not in conflict with the State's approved coastal management program, which is broad, comprehensive, and process oriented. However, when the NSB's district program (which may designate certain uses and activities) is approved, it would become part of the ACMP and complement the basic ACMP regulations, procedures, and philosophies. The State cannot approve a district program which is not in basic conformance with the State program policies in that program. One of the criteria for approval is that the district program should not unreasonably or arbitrarily restrict or exclude uses of State concern, which include the use of resources and the siting of facilities for energy production in the coastal zone.

Since the specifics of the borough's program are not yet determined, it is not possible to project the specific degree of impact or conflict between such program and the activities which might result from this proposal. Post-leasing activities that require Federal licenses or permits will have to be consistent when permitted if they affect any land use or water use in Alaska's coastal zone. Although provisions must be made for national interest in general, including energy needs, the NSBCMP when and if incorporated into the ACMP may impose significant constraints on the lessees activities.

At the present time, the Secretary of Interior has the following options regarding the proposed coastal management program of the North Slope Borough:

- Return the bid deposits and reschedule the sale after the NSB's new CMP has been approved and formally incorporated into the ACMP.

The North Slope Borough had stated that a delay in the proposed lease sale would allow continued consultation/negotiation among industry, Borough, State, and Federal representatives, which the borough feels would result in a more refined CMP. Although further refinements could be beneficial, it appears that many questions, such as the program amendment process, adequate consideration for "uses of State concern," and the Borough's planning and zoning authority, may be resolved only through litigation to reconcile conflicts between the Borough's interest and State and National interests. Additionally, the controls in the NSBCMP will apply to post-lease activities, once it is incorporated into the ACMP. There is no evidence to indicate that NSBCMP approval subsequent to the sale will hinder the Borough's opportunity to comment and review post-lease activities.

- Cancel the sale: The orderly and efficient development of the area and efficient use of existing infrastructure would be restrained. Adoption of this option would also result in the same losses described in earlier sections with regard to cancelling the sale.
- Proceed with issuance of leases as planned pending approval of the new NSB program. The mitigating measures and restrictions placed on post-sale operation should adequately protect the environment and should not adversely affect the planning process nor implementation of a CMP devised by the NSB.

The Borough has indicated that it is willing to consult/negotiate with industry, State, and Federal representatives to devise a more refined program. Post-sale activities should have little or no effect on this consultation/negotiation.

There undoubtedly will be more impact on developing the Beaufort Sea oil and gas resources from the ACMP than vice versa, depending on the interpretation of how consistency will apply. This is because the ACMP is a comprehensive coastal land and water use program that provides for consideration of and decisionmaking about, among other things, energy production and development. The ACMP recognizes that mineral extraction has to occur where the resource is found, but it will influence the exploration, development and production activities, and facilities which might result from this proposal.

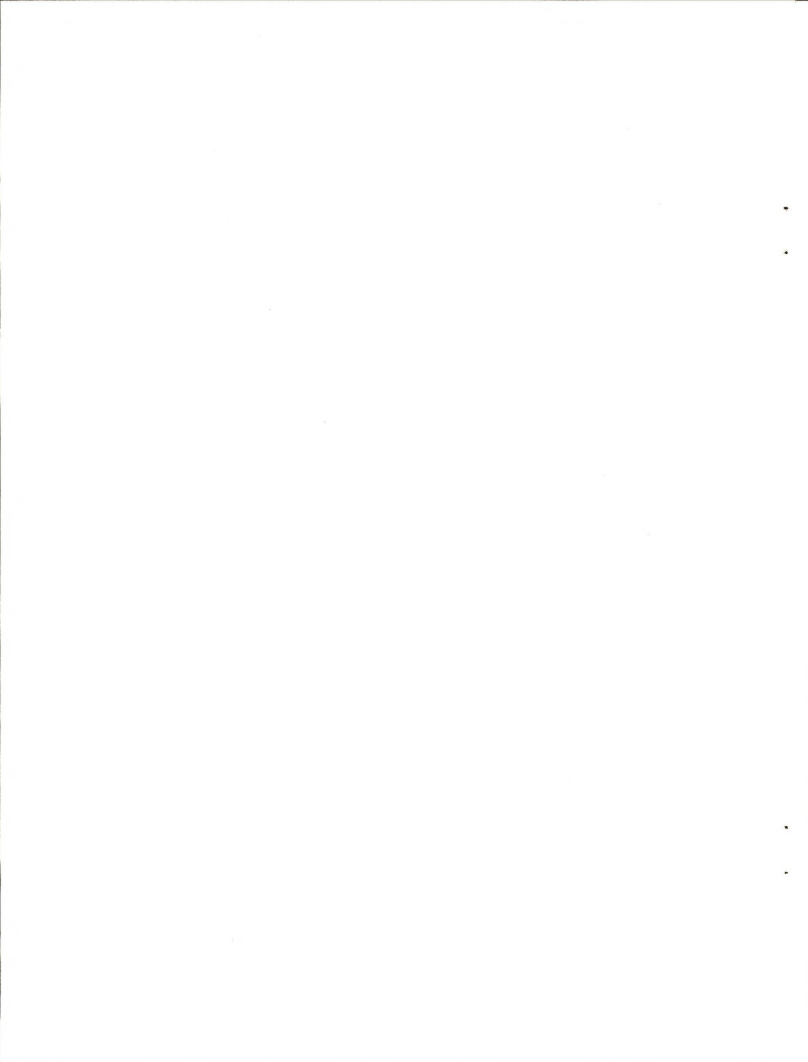
- Proceed with issuance of leases but delete tracts on which lessee activities might conflict with provisions of the interim NSBCMP for the Mid-Beaufort Coastal Zone.

Under this option, leases would be awarded for Federally managed tracts on which future lease activities would not be likely to conflict with the policies and regulations of the interim CMP for the Mid-Beaufort Coastal Zone. Federally managed tracts which are situated partially or entirely within the Borough's recommended "Deferred Development" or "Geophysical Hazard" areas would be deleted from the proposed sale. Figure V-3 schematically identifies the number of tracts involved.

All wholly owned Federal tracts would be deleted from the sale under the Borough's Plan. In addition, approximately 92 percent of all disputed tract acreage (about 32800 hectares out of 39760) would be deleted.

The deletion of tracts under this option does not imply a judgment of the merits of the NSB Coastal Management policies nor their consistency with the policies of the ACOMP, the Federal CZMA, or the OCSLA. It should be noted that the Alaska Office of Coastal Management (OCM) recommended deletion of those two proposed regulatory districts from the NABCMP in its formal finding and conclusion on the adequacy of the NSB District CMP for the Mid-Beaufort Coastal Zone. The OCM findings were based upon a) the test structure drilling stipulations and presence of USGS Operating Orders affecting certain Federal tracts satisfactorily mitigating potential geophysical hazards of OCS oil and gas operations, b) the proposed CMP Districts would unreasonably restrict or exclude uses of State concerns (this would be a violation of AS 46.40.070(c)), and c) the Borough had not demonstrated that alternative methods of developing the subsurface hydrocarbon resources within the proposed districts were feasible.

4. Conclusion: There will also be substantial impact on development of Beaufort Sea oil and gas resources by the NSBCMP because the NSBCMP may influence the exploration, development and production activities, and facilities. However, any onshore facilities which support exploration resulting from this proposal are anticipated to be sited within the existing Prudhoe Bay enclave. Any facilities eventually needed outside the Prudhoe Bay enclave to support development and production from this proposal are some years in the future. In this regard, given the long lead time involved, it can be assumed that a NSBCMP will be in effect long before the activities, facilities, and locations it will influence have been identified, let alone developed. Delaying the lease sale until approval of the NSBCMP would provide little marginal benefit since the award of leases poses no immediate impact, and most post-lease activities are far enough in the future to come under an eventually approved NSBCMP.



VI. DINKUM SANDS

A. Description of Proposal

1. Area: The disputed portion of the sale area referred to as the Dinkum Sands area ("Zone B" in the Interim Agreement of October 26, 1979) includes the area within a three mile geographical radius of a geographic point at latitude 70° 25' 26" north and longitude 145° 47' 47" west, but more than three miles from Narwhal Island to the east and Cross Island to the west (fig. VI.-1). The area includes all of tracts BF-64, BF-70, BF-71, and BF-116 as described in the final Notice of Sale.

The State of Alaska has issued leases to the high bidder on each of the four tracts, but those lessees have been enjoined from conducting activities on those leases (see discussion of the litigation at I.C., above.)

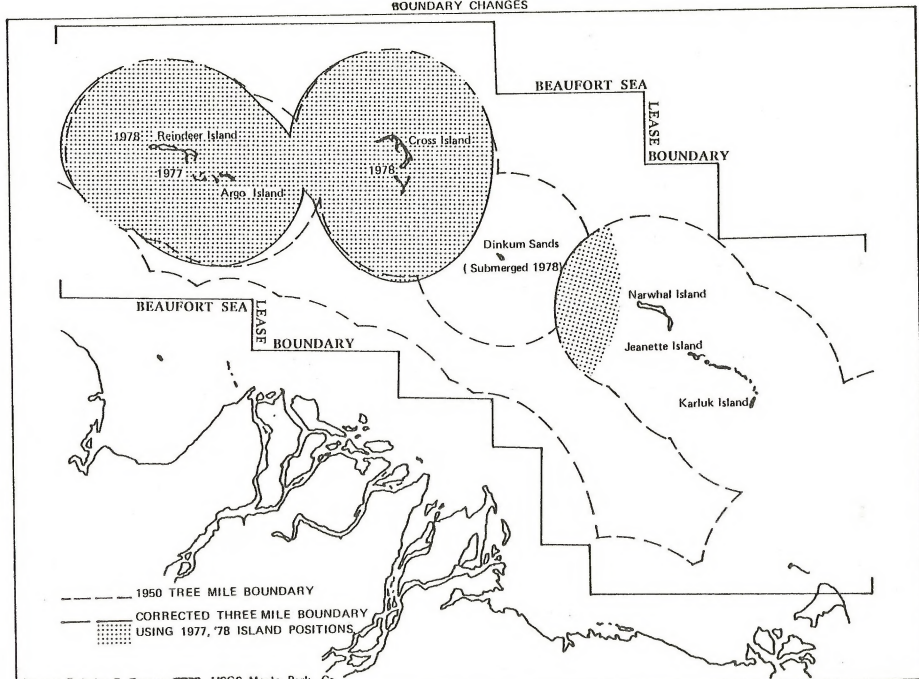
2. Origin Of and Reasons For Proposal: The origins of the dispute between the Federal government and the State of Alaska concerning the Federally-managed tracts is described in the FES at pages 2-4. The agreement providing that the Federal Government would lease these tracts, pending the outcome of the boundary litigation in the Supreme Court, was the result of several years of negotiation.

On May 8, 1979, the Alaska OCS Office (BLM) first became aware that the feature known as Dinkum Sands may have eroded to the extent that it should no longer be considered an island or high tide elevation. After further investigation, the BLM informed the State of Alaska on June 21, 1979, that it intended to eliminate the Dinkum Sands salient points from its computation of split (Federal/State) block diagrams for the sale area, i.e. BLM proposed to add the Dinkum Sands area to the disputed portion of the sale area. Negotiations ensued at which the State of Alaska refused to allow the Dinkum Sands area to be added to the Federally-managed disputed tracts. A compromise was reached whereby the four Dinkum Sands tracts would be leased and managed by the State in the same manner as the other 23 disputed tracts would be leased and managed by the United States. Monies from all 27 of the disputed tracts would be placed in escrow pending the outcome of the boundary litigation in the Supreme Court. This agreement was embodied in the Interim Agreement of October 26, 1979 (App. 2).

The Federal court orders of January 22, 1980 and February 1, 1980 (see sec. I.C. above), held that the Secretary, in signing the Interim Agreement providing for State management of the Dinkum Sands tracts, had failed to ascertain whether his action with regard to Dinkum Sands was in compliance with NEPA. Therefore, this section of the SES examines the impacts of State management of the four Dinkum Sands tracts, so that the decision to provide for State management can be re-examined.

3. Comparison of Federal and State Management Schemes: section IV of this document outlines and describes in detail the mitigating measures assigned to Federal/State and disputed tracts. Section IV.B. gives a detailed evaluation of these measures. In summary of that section, it can be said that while management schemes for Federal and State tracts reflect differences in philosophy in some areas; these differences were reduced as much as possible during the development of these mitigating measures.

Figure VI - I
BOUNDARY CHANGES



Source: Reimnitz & Barnes, 1979, USGS Menlo Park, Ca.

The final Notice of Sale and the leases associated with this sale contain specific Federal and State stipulations regarding management of the lease to mitigate possible adverse impacts as identified in the FES.

There are 12 Federal stipulations, one that is specific to significant historic sites (1); one that deals specifically with orienting oil company or related personnel to environmental, social, and cultural concern of the area (2); six that deal with mitigating specific biological problems or to stop the biological problems from starting (3, 4, 6, 7, 8, and 9); one that specifically deals with pipeline safety and siting which will mitigate or prevent possible biological and cultural impacts (5); two that deal with the financial restrictions or regulations relating to the sale (10,11); and one that informs the lessee that the lease is subject to an Unitization Agreement between the Federal and State Governments (12). In addition to this, item 15 of the FNS informs the lessee that "Operations on all Federally managed leases covered by this notice will be conducted in accordance with the provisions of applicable Arctic Area OCS Orders, as of their effective date, and any other applicable OCS Order as it becomes effective."

These operating orders give the Geological Survey's Oil and Gas Supervisor a large degree of control, and authority to regulate actions on the leases.

State stipulations 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, and 12 are similar in scope and intent to Federal stipulations 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, and 12. Federal stipulations deal with royalty rates on wholly-owned Federal tracts and State stipulations provide environmental protection for certain wholly-owned State tracts.

In addition, State stipulation 13 deals with conduct of seismic activity. This activity is controlled by the Federal Oil and Gas Supervisor by a permit system set up by 30 CFR Part 251 with the Outer Continental Shelf (OCS) Lands Act, as amended, 43 U.S.C. 1331, et seq.

State stipulations 14 and 15 informs the lessee that "During the conduct of all activities related to this lease, the lessee will be subject to the provisions of all valid coastal zone plans and ordinances," on both State owned (14) and managed (15) tracts.

An "Agreement Between the United States and the State of Alaska Pursuant to Section 7 of the OCS Lands Act and Alaska Statutes 38.08.137 (app. 2)" was entered into by the Federal and State Government on October 26, 1979. One of the effects of this agreement is to make State and Federal management schemes more alike.

In addition, appendix B of the Agreement (app. 2) states in section D, Enforcement:

"a. State of Alaska officials will be responsible for inspections on State managed leased and all inspections will be scheduled and conducted by them. Federal officials will be responsible for inspections on Federally managed leases and all inspections will be scheduled and conducted by them.

b. Inspection procedures for the entire sale area will be made as uniform as possible (emphasis added) and coordinated by the affected State and Federal agency representatives.

c. Enforcement of environmental and operating requirements, the monitoring of environmental programs, and the review of data and reports will be accomplished by the appropriate State or Federal agencies and coordinated through the Committee. If problems arise from inconsistent enforcement or monitoring procedures, such problems will be resolved through the Committee."

4. Extent of Retained Federal Authority: In addition to the commitment to making the mitigating measures, inspection programs, and enforcement efforts, etc., as uniform as possible, the Federal Government also retains a marked degree of control on activities in this area. In addition to authorities listed in 3 above, the following are also individual Federal controls.

As a mitigating measure developed for environmental protection of the entire lease area, a biological task force was established and will remain in existence throughout the life of the field. The biological task force established an inter-agency coordinating committee with a diversity of inter-disciplinary expertise designed to further define ways of protecting the environment within established lease stipulations and other mitigating measures and the administration of the biological and environmental aspects of these stipulations. This task force advises the Supervisor, USGS, and the Director, Division of Mineral and Energy Management, in the enforcement of certain stipulations designed to protect the environment. On Dinkum Sands tracts, as on all State-managed tracts, the Director, DMEEM, must consult with the task force in the enforcement of State stipulations 2, 3, 4, 5, 6, 7, 9, and 13. The task force is composed of designated representatives of the Bureau of Land Management, the Fish and Wildlife Service, the Geological Survey, the National Marine Fisheries Service, the Environmental Protection Agency, and the State Departments of Fish and Game, Environmental Conservation, and Natural Resources. It is intended that the task force will remain in existence throughout the operating life of the field.

The OCS Lands Act provides authority to the Secretary of the Army to prevent obstruction to navigation in U.S. navigable waters, and to prevent obstructions caused by structures located on the OCS. Section 10 of the Rivers and Harbors Act of 1899 (30 Stat. 1151) requires that permits be issued for all offshore construction, including pipelines, in U.S. navigable waters.

Permits must also be issued for onshore facilities in which dredging and filling of U.S. navigable waters are involved. Structure permits for exploration drilling vessels and for fixed and mobile platforms are issued by the Corps. Permits for structures in State waters must consider environmental requirements before the issuance pursuant to Section 404 of the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977. Section 404 also delegates regulatory authority to the Secretary of the Army for discharge of dredged or fill material in wetlands.

The OCS Lands Act grants authority to the Coast Guard to promulgate and enforce regulations covering lighting and warning devices, safety equipment, and other safety-related matters pertaining to life and property on fixed OCS platforms

and drilling vessels. Through the Coast Guard, the Department of Transportation advises the Corps of Engineers on the issuance of permits and the placement of offshore structures. Under the Port and Tanker Safety Act of 1978, the Coast Guard has the authority to establish shipping safety fairways and other ship routing systems in which offshore structures may be prohibited.

Under the Federal Water Pollution Control Act, the U.S. Coast Guard approves the procedures to be followed and the equipment used for the transfer of oil from vessel to vessel and between onshore and offshore facilities and vessels. The Coast Guard also conducts pollution surveillance patrols to detect oil discharges within territorial and contiguous waters and has enforcement authority over violations. The Coast Guard also has strike team responsibilities should an oilspill occur.

The Materials Transportation Bureau is responsible for establishing and enforcing design, construction, operation, and maintenance regulations for pipelines. An MOU has been entered into between the Department of the Interior and the Department of Transportation on this matter.

The Department of Interior's Fish and Wildlife Service and the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) have responsibility for protection of fish and wildlife resources and their habitats and provide recommendations for this protection to permitting agencies such as the Corps of Engineers. The Department of Commerce's responsibility and authorities related to OCS development include the Fishery Conservation and Management Act of 1976, the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, the Fur Seal Act of 1966, Title II of the Marine Protection, Research, and Sanctuaries Act of 1972 ("Comprehensive Research on Ocean Dumping"), and the National Ocean Pollution Research and Development and Monitoring Act of 1978.

NOAA, under the authority granted in the Coastal Zone Management Act (CZMA) of 1972, as amended (16 U.S.C. 1451-1464), administers the provisions of that Act, which provides grants-in-aid to States for development and implementation of management programs to control land and water uses within the coastal zone (see sec. V.B).

Under the Marine Protection, Research, and Sanctuary Act of 1972, (16 U.S.C. 1431-1434), the Secretary of Commerce is empowered to recommend to the President areas as marine sanctuaries "as necessary for the purpose of preserving or restoring such areas for their conservation, recreation, ecological, or aesthetic values," following consultation with the Secretaries of State, Defense, Interior, and Transportation, the Administrator of EPA, and with other interested agencies (see sec. V.A.).

The Federal Energy Regulatory Commission (FERC), within DOE, has the authority under the Natural Gas Act to issue certificates of public convenience and necessity for proposed projects involving the transportation or sale of natural gas in interstate commerce. All natural gas produced from the OCS is considered to be interstate and, therefore, is subject to FERC jurisdiction. The Natural Gas Act, the National Environmental Policy Act, and OCS Lands Act Amendments of 1978 all grant authority for or require that the FERC investigate the environmental effects of a proposed offshore project, as well as the potential gas reserves, the need for this gas, and the availability of capital to develop

this resource. Also, the FERC is primarily responsible for administering and enforcing the Natural Gas Policy Act (NGPA) of 1978 (92 Stat. 3350). As applied to OCS matters, the NGPA provides new wellhead pricing controls for certain natural gas produced from the OCS.

Under the Federal Water Pollution Control Act (FWPCA) Amendments of 1972, (86 Stat. 816), a National Pollution Discharge Elimination System (NPDES) was created and applies to discharges into the territorial seas, waters of the contiguous zone, and the oceans. The NPDES applies to fixed platforms and drill ships, and any discharges from these sources would require a permit issued by the Environmental Protection Agency (EPA). Discharges of pollutants without the necessary permits from EPA are unlawful. Such an NPDES permit does not apply to discharge of pollutants from any vessels or floating craft, or subsurface injection wells for production purposes. Subsurface injection is subject to USGS regulations and operating orders.

The Clean Water Act (91 Stat. 1566 1977), which amended the FWPCA, also applies to offshore operations and provides that lessees or operators may be held financially liable for damages due to oilspills. It provides for a liability up to \$50 million for actual costs of oil removal and cleanup (except where without fault of operator or owner), as well as replacement or restoration costs of natural resources damaged or destroyed by a spill.

Under the Clean Air Act, as amended (42 U.S.C. 7401, et seq.), EPA is authorized to prescribe regulations for the attainment and maintenance of national ambient air quality standards for any air pollutant determined to have an adverse effect on public health and welfare and to prevent significant air quality deterioration. Air quality must be assured within an entire geographic area comprising each state. Under the Act, states have the primary responsibility for attaining and maintaining the national ambient air quality standards by adopting a State Implementation Plan (SIP).

The OCS Lands Act Amendments of 1978 require the Secretary of Interior to promulgate regulations for the control of certain sources of air pollution, and to ensure that the attainment or maintenance of ambient air quality standards of an onshore area is not jeopardized by pollutants from operations occurring on the OCS. Such regulations which are in final form would apply if it were determined that a proposed OCS activity would significantly affect the ambient air quality of a state.

EPA is also primarily responsible for facilities not related to transportation, such as terminal and storage facilities, and permits for any discharges would be issued by EPA or designated States according to established effluent guidelines. Provisions of the Clean Water Act also apply to onshore facilities related to OCS activities.

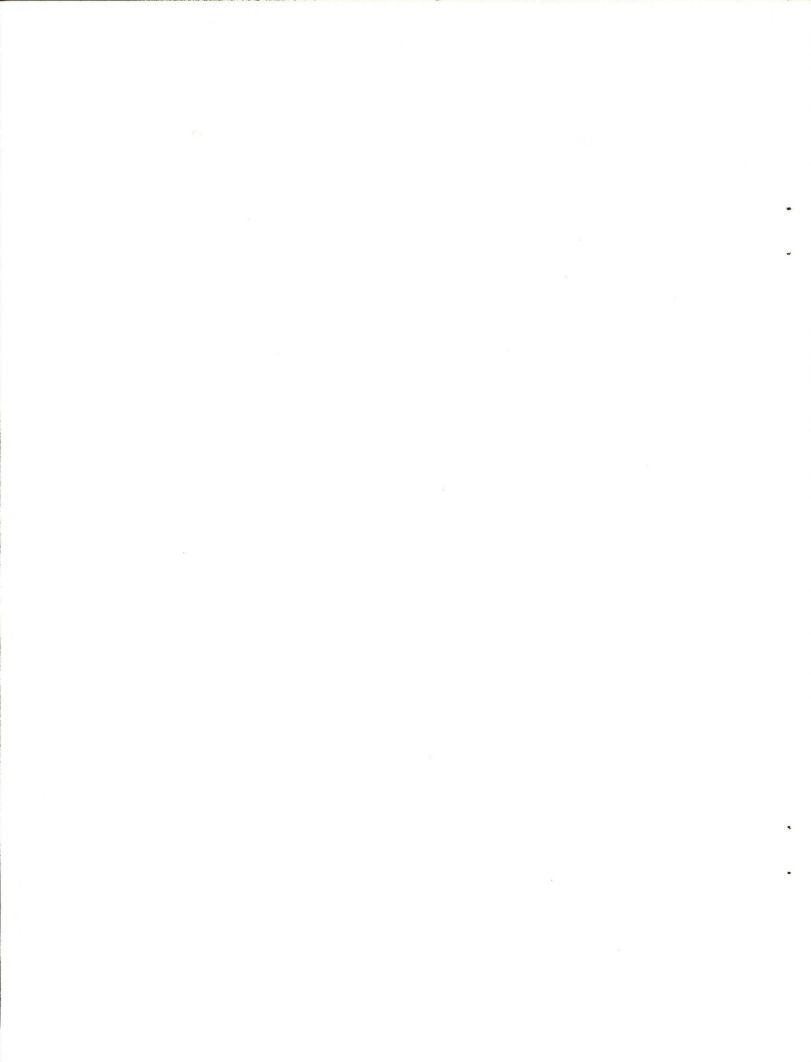
5. Conclusion: Impacts assessed to this joint oil and gas lease sale (FES) should not be significantly different under State or Federal management of any of the disputed tracts. Considerable attention was directed at developing parallel regulatory regimes through similar mitigating measures, Memorandums of Agreement, and the Management Agreement. In addition, the control other Federal agencies have over activities on the Dinkum Sands area, ensures a similarity of impacts.

B. Options for Decision: The options now open to the secretary with regard to Dinkum Sands include the following.

1. Take No Action Other Than That Contemplated by the Interim Agreement: This course of action can be chosen if the Secretary determines, after examining this SES and the FES, that the arrangement for leasing the Dinkum Sands tracts as provided in the Interim Agreement is in compliance with NEPA. This option would maintain the status quo of the leases having been issued by the State with the Federal Government maintaining a certain degree of control through the coordinating mechanisms of the joint Management Plan (Interim Agreement, app. B), the advisory authority of the biological task force, and the permitting authority of the Corps of Engineers.

2. Attempt to Renegotiate the Dinkum Sands Portion of the Interim Agreement: This option may be taken if the Secretary determines that the Interim Agreement did not provide for retained Federal control with regard to the Dinkum Sands tracts that is sufficient to comply with NEPA. Renegotiation is the option best suited to persuading the State of Alaska to impose more stringent requirements on the Dinkum Sands lessees, such as a firmer March 31 cutoff date for exploratory drilling. However, it is doubtful that an attempt to renegotiate the agreement would be successful, since the leases have already been issued with specific contract terms (Lease stipulations) in place and lease rights have vested.

3. Void the Dinkum Sands Portion of the Interim Agreement: Under the court order of February 1, 1980, which is currently being appealed (see I.C. above), this option must be chosen if the Secretary determines that the Interim Agreement fails to provide appropriate powers to comply with NEPA (as to Dinkum Sands), and an attempt to exercise option 2 fails. This option risks sacrificing the benefits of the joint control mechanisms established for all tracts in the sale area, such as the biological task force. Without the Dinkum Sands portion of the agreement, the four Dinkum Sands leases will be contracts strictly between the State and the lessees. The claim of the United States to the Dinkum Sands area will be adequately protected by the boundary litigation in the Supreme Court, but, in the interim, the Federal Government will have no more control over the management of these four tracts than it has over other State leases not issued under a Federal/State joint sale proposal.

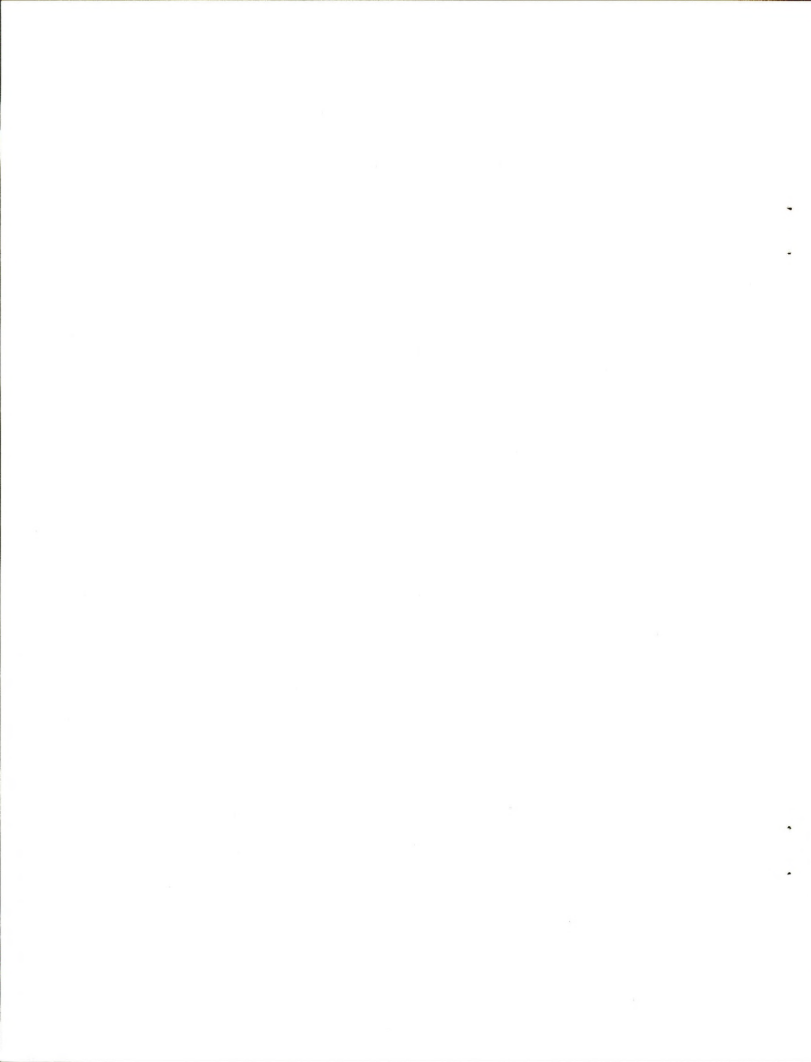


APPENDIX 1

Final Notice of Sale
Federal/State Joint
Beaufort Sea Oil and Gas
Lease Sale BF

Pages 2 through 17 contain
information regarding bidding
and the block list and
are not included.

Item 14 - Information to Lessees
has had letters added to individual
information items for easy
reference.



UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

FEDERAL/STATE JOINT
BEAUFORT SEA OIL AND GAS
LEASE SALE BF

This is the final notice of sale for the proposed joint Federal/ State Beaufort Sea lease sale in the offshore waters of the Beaufort Sea off northern Alaska. The principles and conditions under which the United States and the State of Alaska will jointly conduct the proposed sale are specified in the Memorandum of Understanding (MOU) of March 1978, and the Interim Agreement of October 26, 1979, and its accompanying documents. This notice applies to those tracts (leasing units) under Federal jurisdiction; those tracts the jurisdictional status of which is in dispute between the State of Alaska and the United States; and those tracts under State jurisdiction. The disputed tracts, with the exception of the area surrounding the feature known as Dinkum Sands,* will be leased and managed by the Federal Government. The State of Alaska will lease and manage those tracts in the Dinkum Sands area, namely, tracts BF-64, BF-70, BF-71, and BF-116. The term "Federally managed tracts" as used hereafter in this notice will always include all undisputed Federal tracts and all disputed tracts except those disputed tracts in the Dinkum Sands area. The term "State managed tracts" as used hereafter in this notice will always include all undisputed State tracts and those disputed tracts in the Dinkum Sands area. The jurisdictional status of all disputed tracts will be determined by the United States Supreme Court. Bidding procedures and requirements for these tracts will be shown under the Federal or State procedures described below.

1. Authority. This notice is published pursuant to the Outer Continental Shelf Lands Act of 1953 (43 U.S.C. 1331-1343), as amended, and the regulations issued thereunder (43 CFR Part 3300); and Alaska Statutes 38.05.020, 38.05.137, 38.05.180.

2. Filing of Bids.

a. Federally managed tracts: Sealed bids for Federally managed tracts will be received by the Manager, Alaska Outer Continental Shelf (OCS) Office, Bureau of Land Management, P.O. Box 1159, Anchorage, Alaska 99510. The street address is 620 East 10th Avenue, Anchorage, Alaska. Bids may be delivered either by mail or in person, to the above address until 4:00 p.m., Alaska Standard Time, December 7, 1979; or by personal delivery to the Traveler's Inn, Chena Room, 813 Noble Street,

* This area includes those tracts within a 3 geographical mile radius of a geographic point at latitude 70°25'26" north and longitude 147°47'47" west but outside the 3 mile boundaries of Narwhal Island to the east and Cross Island to the west.

13. Lease Terms and Stipulations.

a. Federally managed tracts: All leases on Federally managed tracts will be for an initial term of 10 years. Leases issued as a result of this sale will be on Form 3300-1 (September, 1978), as revised, and supplemented in accordance with Federal Stipulation Nos. 11 and 12. This form is available from the Manager, Alaska Outer Continental Shelf Office, at the address listed in paragraph 2.a. Section 6 of the lease form will be amended as follows:

Sec. 6 Royalty on Production. (a) The lessee agrees to pay the lessor a royalty of that percent in amount or value of production saved, removed, or sold from the leased area as determined by the sliding scale royalty formula as follows. When the quarterly value of production, adjusted for inflation, is less than or equal to \$13.236229 million, a royalty of 16.66667 percent in amount or value of production saved, removed, or sold will be due on the unadjusted value or amount of production. When the adjusted quarterly value of production is equal to or greater than \$13.236230 million, but less than or equal to \$1662.854082 million, the royalty percent due on the unadjusted value or amount of production is given by

$$R_j = b[\text{Ln}(V_j/S)]$$

where

R_j = the percent royalty that is due and payable on the unadjusted amount or value of all production saved, removed, or sold in quarter j

$$b = 10.0$$

Ln = natural logarithm

V_j = the value of production in quarter j , adjusted for inflation, in millions of dollars

$$S = 2.5$$

When the adjusted quarterly value of production is equal to or greater than \$1662.854083 million, a royalty of 65.00000 percent in amount or value of production saved, removed, or sold will be due on the unadjusted quarterly value of production. Thus, in no instance will the quarterly royalty due exceed 65.00000 percent in amount or value of quarterly production saved, removed, or sold.

In determining the quarterly percent royalty due, R_j , the calculation will be rounded to five decimal places (for example, 22.52109 percent). This calculation will incorporate the

adjusted quarterly value of production, V_j , in millions of dollars, rounded to the sixth digit, i.e., to the nearest dollar (for example, 41.738629 millions of dollars). Gas of all kinds (except Helium) is subject to royalty. The lessor shall determine whether production royalty shall be paid in amount or value.

Except as otherwise noted, the following stipulations will be included in each lease issued on Federally managed tracts. In the following stipulations, the term Supervisor refers to the Alaska Area Oil and Gas Supervisor of the Geological Survey and the term Manager refers to the Manager of the Alaska OCS Office of the Bureau of Land Management.

Federal Stipulation No. 1

In the event any site, structure, or object of historic or archaeological significance should be discovered during the conduct of any operations on the leased area, the lessee shall report immediately such findings to the Supervisor, and make every reasonable effort to preserve and protect such site, structure, or object from damage until the Supervisor has given directions as to its preservation.

Upon abandonment of the drilling platform or related facilities, such facilities will be removed to the extent that they no longer intrude on the historic or cultural scene or could otherwise adversely affect an archaeological, or historic site or area included in or eligible for inclusion in the National Register of Historic Places.

Federal Stipulation No. 2

The lessee shall include in any exploration and/or development plans a proposed environmental training program for all personnel involved in exploration or development activities (including personnel of the lessee's contractors and subcontractors) for review and approval by the Supervisor. The program shall be designed to inform each person working on the project of specific types of environmental, social, and cultural concerns which relate to the individual's job. The program shall be formulated and implemented by qualified instructors experienced in each pertinent field of study and shall employ effective methods to insure that personnel understand and use techniques necessary to preserve archaeological, geological, and biological resources. The program shall also be designed to increase the sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which such personnel will be operating.

The lessee shall also submit for review and approval a continuing technical environmental briefing program for supervisory and managerial personnel of the lessee and its agents, contractors, and subcontractors.

Federal Stipulation No. 3

(To be included only in the leases resulting from this sale for tracts (leasing units) BF-25, BF-26, BF-34, BF-35, BF-36, BF-37, BF-38, BF-39, BF-40, BF-41, BF-42, BF-43, and BF-44.)

In areas of less than 10 meters of water depth, after completion of the exploratory drilling phase, all structures will be removed from the lease area and the lessee will restore the site to a condition approved by the Supervisor unless said structure or site will be used in the production phase or for additional exploratory drilling or unless it is not in the best interest of the public or the environment to require removal or restoration. Authorization to leave said structure in place must be obtained from the Supervisor.

Federal Stipulation No. 4

Solid waste disposal on artificial islands or in marine waters within the lease area is prohibited.

Federal Stipulation No. 5

1. Pipelines will be required (a) if pipeline rights-of-way can be determined and obtained; (b) if laying such pipelines is technically feasible and environmentally preferable; and (c) if, in the opinion of the lessor, pipelines can be laid without net social loss, taking into account any incremental costs of pipelines over alternative methods of transportation and any incremental benefits in the form of increased environmental protection or reduced multiple use conflicts. The lessor specifically reserves the right to require that any pipeline used for transporting production to shore be placed in certain designated management areas. In selecting the means of transportation, consideration will be given to any recommendation of any intergovernmental coordinating committee. All pipelines, including both flow lines and gathering lines for oil and gas, shall be designed and constructed to provide for adequate protection from water currents, storm and ice scouring, subfreezing conditions, and other hazards as determined on a case-by-case basis.
2. Following the development of sufficient pipeline capacity, no crude oil will be transported by surface vessel from offshore production sites, except in the case of emergency. Determinations as to emergency conditions and appropriate responses to these conditions will be made by the Supervisor.
3. Where the three criteria set forth in the first sentence of this stipulation are not met and surface transportation must be employed, all vessels used for carrying hydrocarbons to shore from the leased

area will conform with all standards established for such vessels, pursuant to the Ports and Waterways Safety Act of 1972 (46 U.S.C. 391 (a), as amended.)

Federal Stipulation No. 6

1. Discharge of produced waters into marine waters is prohibited, except that the Supervisor may approve discharges in tracts greater than 10 meters of water on a case-by-case basis.
2. Discharge of drilling muds and cuttings into marine waters is prohibited, except that the Supervisor may approve discharge (a) in tracts greater than 10 meters of water on a case-by-case basis and (b) in tracts of less than 10 meters of water on a case-by-case basis if effluents are shown to be non-toxic and can be adequately dispersed.

Federal Stipulation No. 7

If biological populations or habitats which may require additional protection are identified by the Supervisor on any tracts in the leasing area, the Supervisor will require the lessee to conduct environmental surveys, as approved by the Supervisor, to determine the extent and composition of biological populations or habitats, and the effects of proposed or existing operations on the populations or habitats which might require additional protective measures. The Supervisor shall provide written notice to the lessee of his decision to require such surveys. Such surveys will be required for the area known as the Boulder Patch, which applies to the following tracts: BF-36, BF-37, BF-38, BF-39, BF-40, BF-41, and BF-43. For all other tracts within the lease area, the nature and extent of any surveys will be determined by the Supervisor on a case-by-case basis.

Based on any surveys which the Supervisor may require of the lessee, or other information available to the Supervisor on special biological resources, the Supervisor may require the lessee to: 1) locate the site of such operation so as not to adversely affect the resource identified; 2) establish to the satisfaction of the Supervisor, on the basis of a site-specific survey, either that such operation will not have a significant adverse effect upon the resource identified or that a special biological resource does not exist; 3) operate during those periods of time that do not adversely affect the biological resources as established by the Supervisor; and/or 4) modify operations in such a way as not to affect adversely the significant biological populations or habitats deserving protection.

The lessee agrees that, if any area of biological significance should be discovered during the conduct of any operations on the leased area, he shall immediately report such findings to the Supervisor, and make every reasonable effort to preserve and protect the biological resource from damage until the Supervisor has given the lessee directions with respect to its protection.

The lessee shall submit all data obtained in the course of such surveys to the Supervisor, with the locational information for drilling or other activity. The lessee may take no action that might result in any effect on the biologic populations or habitats surveyed, until the Supervisor provides written directions to the lessee, with regard to permissible actions.

Known special biological resources and their habitats include hard and rocky bottoms with kelp, bryozoans, sponges, coral, or other epibenthic communities.

Federal Stipulation No. 8

Exploratory drilling and testing, and other downhole exploratory activities will be limited to the period November 1 through March 31, unless the Supervisor determines that continued operations are necessary to prevent a loss of well control or to ensure human safety. This stipulation will remain in effect for two years following issuance of the lease.

Federal Stipulation No. 9

(To be included only in the lease resulting from this sale for tract (leasing unit) BF-40).

Exploratory drilling operations, emplacement of structures (platforms), or seafloor wellheads for production or storage of oil or gas, and the emplacement of pipelines will not be allowed on the disputed portion of lease block 700. All exploration for and development of oil or gas must be performed from locations outside of the disputed portion of lease block 700.

Federal Stipulation No. 10

The royalty rate on production saved, removed, or sold from this lease is subject to consideration for reduction under the same authority that applies to all other oil and gas leases on the Outer Continental Shelf (30 CFR 250.12 (e)). The Director, U.S. Geological Survey, may grant a reduction for only one year at a time. Reduction of royalty rates will not be approved unless production has been underway for one year or more. On disputed tracts, the United States must obtain the express written permission of the State before granting a reduction in the royalty rate.

Although the royalty rate specified in Sec. 6(a) of this lease or as subsequently modified in accordance with applicable regulations and stipulations is applicable to all production under this lease, not more than $16 \frac{2}{3}$ percent of the production saved, removed, or sold from the lease area may be taken as royalty in amount (in kind), except as provided in Sec. 15(d) of this lease; the royalty on any portion of the production saved, removed, or sold from the lease in excess of $16 \frac{2}{3}$ percent may only be taken in value of the production saved, removed, or sold from the lease area. On disputed tracts, the United States must obtain the express written permission of the State before agreeing to take any royalties in amount (in kind) rather than in value.

Federal Stipulation No. 11

(To be included in all leases on disputed lands)

This lease is subject to the "Agreement Between the United States and State of Alaska Pursuant to Section 7 of the Outer Continental Shelf Lands Act, and Alaska Statutes 38.05.137" (signed on October 26, 1979, and commonly referred to as the "Interim Agreement"), and the lessee hereby consents to every term of that agreement.

Any loss incurred or sustained by the lessee as a result of obtaining validation and recognition of this lease pursuant to the "Interim Agreement," and in particular any loss incurred or sustained by the lessee as a result of conforming this lease with any and all provisions of all applicable laws of the party prevailing in United States of America v. State of Alaska, United States Supreme Court No. 84, Original, shall be borne exclusively by the lessee.

No taxes payable to the State of Alaska will be required to be paid with respect to this lease until such time as ownership of or jurisdiction over the lands subject to this lease is resolved. In the event that the lands subject to this lease, or any portion of them, are judicially determined to be State lands, the lessee shall pay to the State a sum equivalent to the State taxes which would have been imposed under Alaska law if the lands, or portion thereof determined to be State lands, had been undisputed State lands from the date the lease was executed, plus interest at the rate of 10% per year accruing from the date the taxes would have become due under Alaska law. Such payment shall be in lieu of, and in satisfaction of the actual State taxes.

Federal Stipulation No. 12

This lease is subject to the "Agreement Regarding Unitization for the Proposed Joint Federal/State Beaufort Sea Lease Sale" executed by the United States and State of Alaska on October 26, 1979, and the lessee is bound by the terms of that agreement.

b. State managed tracts: All State leases will be for a primary term of 10 years. State managed leases issued as a result of this sale will be on Form DMEM-1-79, supplemented in accordance with State Stipulation Nos. 11 and 12, which is available from the Director, Division of Minerals and Energy Management, 703 W. Northern Lights Blvd., Anchorage, Alaska 99503.

All leases issued on State managed tracts on which the net profit share is the bid variable will include a work commitment as a term of the lease. See the information to lessees section of this notice for further information with respect to the work commitment and a listing of the State leasing units to which they will apply.

The royalty rate on production saved, removed, or sold from leases on leasing units leased on a cash bonus bid-sliding scale royalty basis is subject to consideration for reduction under the same authority that applies to all other oil and gas leases. On leasing units BF-64, BF-70, BF-71, and BF-116, the State must obtain the express written permission of the United States before granting a reduction in the royalty rate.

Although the royalty rate specified in leases on State tracts leased on a cash bonus bid-sliding scale royalty basis, or as subsequently modified in accordance with applicable regulations and stipulations, is applicable to all production under such leases, not more than 20 percent of the production saved, removed, or sold from the lease area may be taken as royalty in amount (in kind); the royalty on any portion of the production saved, removed, or sold from the lease in excess of 20 percent may only be taken in value of the production saved, removed, or sold from the lease area.

Although the royalty rate specified in leases on leasing units BF-64, BF-70, BF-71, and BF-116, or as subsequently modified in accordance with applicable regulations and stipulations, is applicable to all production under these leases, not more than 16 2/3 percent of the production saved, removed, or sold from the lease area may be taken in kind; the royalty on any portion of the production saved, removed, or sold from the lease in excess of 16 2/3 percent may only be taken in value of the production saved, removed, or sold from the lease area. The State of Alaska must obtain the express written permission of the United States before agreeing to take any royalties in amount (in kind) rather than in value.

Except as otherwise noted, the following stipulations will be included in each lease issued on State managed tracts.

State Stipulation No. 1

In the event any site, structure, or object of historic or archaeological significance should be discovered during the conduct of any operations on the leased area, the lessee shall report immediately such findings to the Director, Division of Minerals and Energy Management, and make every reasonable effort to preserve and protect such site, structure, or object from damage until the Director has given directions as to its preservation.

Upon abandonment of the drilling platform or related facilities, such facilities will be removed to the extent that they no longer intrude on the historic or cultural scene or could otherwise adversely affect an archaeological, or historic site or area included in or eligible for inclusion in the National Register of Historic Places.

State Stipulation No. 2

The lessee shall include in any exploration and/or development plans a proposed environmental training program for all personnel involved in exploration or development activities (including personnel of the lessee's contractors and subcontractors) for review and approval by the Director, Division of Minerals and Energy Management. The program shall be designed to inform each person working on the project of specific types of environmental, social, and cultural concerns which relate to the individual's job. The program shall be formulated and implemented by qualified instructors experienced in each pertinent field of study and shall employ effective methods to insure that personnel understand and use techniques necessary to preserve archaeological, geological, and biological resources. The program shall also be designed to increase the sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which such personnel will be operating.

The lessee shall also submit for review and approval a continuing technical environmental briefing program for supervisory and managerial personnel of the lessee and its agents, contractors, and subcontractors.

State Stipulation No. 3

After completion of the exploratory drilling phase, all structures will be removed from the lease and the lessee will restore the site to its original condition unless the structure or site will be used in the production phase or for additional exploratory drilling or unless it is not in the best interest of the public or the environment to require removal or restoration. Authorization to leave the structure in place must be obtained from the Director, Division of Minerals and Energy Management, after consultation with the Department of Fish and Game and the Department of Environmental Conservation.

State Stipulation No. 4

(To be included in all leases on State leasing units BF-54, BF-62, BF-91, and BF-92.)

Surface entry by the lessee or subcontractors will be prohibited on Cross Island (State leasing units BF-54 and BF-62) and Pole Island (State leasing units BF-91 and BF-92) during the period May 15 to August 15. Surface entry during other periods may be permitted by the Director, Division of Minerals and Energy Management, provided any structures, equipment, personnel, or supplies are removed before May 15.

State Stipulation No. 5

If biological populations or habitats which may require additional protection are identified by the Director, Division of Minerals and Energy Management, on any tracts in the leasing area, the Director will require the lessee to conduct environmental surveys, as approved by the Director, to determine the extent and composition of biological populations or habitats, and the effects of proposed or existing operations on the populations or habitats which might require additional protective measures. The Director shall provide written notice to the lessee of his decision to require such surveys. Such surveys will be required for the area known as the Boulder Patch, which applies to the following leasing units: BF-62, BF-70, BF-71, BF-76, BF-77, BF-78, BF-79, BF-82, BF-83, BF-98, and BF-116. For all other tracts within the lease area, the nature and extent of any surveys will be determined by the Director on a case-by-case basis.

Based on any surveys which the Director may require of the lessee, or other information available to the Director on special biological resources, the Director may require the lessee to: (1) locate the site of such operation so as not to adversely affect the resource identified; (2) establish to the satisfaction of the Director, on the basis of a site-specific survey, either that such operation will not have a significant adverse effect upon the resource identified or that a special biological resource does not exist; (3) operate during those periods of time that do not adversely affect the biological resources as established by the Director; and (4) modify operations in such a way as not to affect adversely the significant biological populations or habitats deserving protection.

The lessee agrees that, if any area of biological significance should be discovered during the conduct of any operations on the leased area, he shall immediately report such findings to the Director, and make every reasonable effort to preserve and protect the biological resource from damage until the Director has given the lessee directions with respect to its protection.

The lessee shall submit all data obtained in the course of such surveys to the Director, with the locational information for drilling or other activity. The lessee may take no action that might result in any effect on the biologic populations or habitats surveyed, until the Director provides written directions to the lessee, with regard to permissible actions.

Known special biological resources and their habitats include hard and rocky bottoms with kelp, bryozoans, sponges, coral, or other epibenthic communities.

State Stipulation No. 6

1. Discharge of produced waters into marine waters is prohibited, except that the Commissioner of the Department of Environmental Conservation may approve discharges in tracts greater than 10 meters of water on a case-by-case basis.
2. Discharge of drilling muds and cuttings into marine waters is prohibited, except that the Commissioner of the Department of Environmental Conservation may approve discharges (a) in tracts greater than 10 meters of water on a case-by-case basis and (b) in tracts of less than 10 meters of water on a case-by-case basis if effluents are shown to be non-toxic and can be adequately dispersed.

State Stipulation No. 7

1. Pipelines will be required (a) if pipeline rights-of-way can be determined and obtained; (b) if laying such pipelines is technically feasible and environmentally preferable; and (c) if, in the opinion of the lessor, pipelines can be laid without net social loss, taking into account any incremental costs of pipelines over alternative methods of transportation and any incremental benefits in the form of increased environmental protection or reduced multiple use conflicts. The lessor specifically reserves the right to require that any pipeline used for transporting production to shore be placed in certain designated management areas. In selecting the means of transportation, consideration will be given to any recommendation of the Beaufort Sea Coordination Committee. Where feasible, and environmentally preferable, all pipelines, including both flow lines and gathering lines for oil and gas, shall be designed and constructed to provide for adequate protection from water currents, storm and ice scouring, subfreezing conditions, and other hazards as determined on a case-by-case basis.
2. Following the completion of pipeline installation of sufficient capacity, no crude oil production will be transported by surface vessel from offshore production sites, except in the case of emergency. Determinations as to emergency conditions and appropriate responses to these conditions will be made by the Director, Division of Minerals and Energy Management.

3. Where the three criteria set forth in the first sentence of this stipulation are not met and surface transportation must be employed, all vessels used for carrying hydrocarbons to shore from the leased area will conform with all standards established for such vessels, pursuant to the Ports and Waterways Safety Act of 1972 (46 U.S.C. 391(a)).

State Stipulation No. 8

Solid waste disposal on natural or artificial islands or in marine waters within the lease area is prohibited.

State Stipulation No. 9

Exploratory drilling and testing, and other downhole exploratory activities from surface locations outside the barrier islands will be limited to the period November 1 through March 31, unless the Director, Division of Minerals and Energy Management, after consulting with the Oil and Gas Conservation Commission, determines that continued operations are necessary to prevent a loss of well control or to ensure human safety. This stipulation will remain in effect for two years following issuance of the lease.

Exploratory drilling and testing, and other downhole exploratory activities from surface locations inside the Barrier Islands will be limited to the period November 1 through March 31, except the Director, Division of Minerals and Energy Management after consultation with the Biological Task Force may allow drilling and downhole activities to continue no later than May 15 if the lessee demonstrates the ability to operate safely and ice conditions justify; provided, however, that the Director, Division of Minerals and Energy Management, after consultation with the Oil and Gas Conservation Commission may allow continued operations leading to shut down which are necessary to prevent loss of well control or to insure human safety. This stipulation will remain in effect two years following issuance of the lease.

State Stipulation No. 10

(To be included in the leases on leasing unit BF-78)

Exploratory drilling operations, emplacement of structures (platforms) or seafloor wellheads for production or storage of oil or gas, and the emplacement of pipelines will not be allowed on the State-owned portion of lease block 700. All exploration for and development of oil and gas must be performed from locations outside of the State owned portion of lease block 700.

State Stipulation No. 11

(To be included in all leases on leasing units BF-64, BF-70, BF-71, and BF-116.)

This lease is subject to the "Agreement Between the United States and State of Alaska pursuant to Section 7 of the Outer Continental Shelf Lands Act, and Alaska Statutes 38.05.137" (signed on October 26, 1979, and commonly referred to as the "Interim Agreement"), and the lessee hereby consents to every term of that agreement.

Any loss incurred or sustained by the lessee as a result of obtaining validation and recognition of this lease pursuant to the "Interim Agreement," and in particular any loss incurred or sustained by the lessee as a result of conforming this lease with any and all provisions of all applicable laws of the party prevailing in United States of America v. State of Alaska, United States Supreme Court No. 84, Original, shall be borne exclusively by the lessee.

No taxes payable to the State of Alaska will be required to be paid with respect to this lease until such time as ownership of or jurisdiction over the lands subject to this lease is resolved. In the event that the lands subject to this lease, or any portion of them, are judicially determined to be State lands, the lessee shall pay to the State a sum equivalent to the State taxes which would have been imposed under Alaska law if the lands, or portion thereof determined to be State lands, had been undisputed State lands from the date the lease was executed, plus interest at the rate of 10 percent per year accruing from the date the taxes would have become due under Alaska law. Such payment shall be in lieu of and in satisfaction of the actual State taxes.

State Stipulation No. 12

This lease is subject to the "Agreement Regarding Unitization for the Proposed Joint Federal/State Beaufort Sea Lease Sale" executed by the United States and State of Alaska on October 26, 1979, and the lessee is bound by the terms of that agreement.

State Stipulation No. 13

Seismic activity will be prohibited during the period March 20 until the breakup of sea ice, except that the Director, Division of Minerals and Energy Management, after consulting with the biological task force, may allow seismic activity to occur after March 20 on a case-by-case basis.

State Stipulation No. 14

(To be included in leases on all State leasing units except BF-64, BF-70, BF-71, and BF-116.)

During the conduct of all activities related to this lease, the lessee will be subject to the provisions of all valid coastal zone plans and ordinances.

State Stipulation No. 15

(To be included in leases on State leasing units BF-64, BF-70, BF-71, and BF-116.)

If the state is ultimately determined to be the owner of lands on which this lease is located, conduct of all activities on this lease will thereafter be subject to the provisions of all valid coastal zone plans and ordinances.

14. Information to Lessees.

-a- Federally managed tracts: Bidders are advised that the following applies to all Federally managed tracts within the area.

All disputed tracts will be leased subject to an "Interim Agreement" between the State of Alaska and the United States, entered into under the authority of Section 7 of the Outer Continental Shelf Lands Act, 43 U.S.C. 1336, and Alaska Statute 38.05.137. The agreement provides, among other things, that all sums payable to the United States or State of Alaska resulting from a lease in the disputed area shall be paid into a special interest-bearing escrow account established by the U.S. Treasury Department until the jurisdictional dispute is resolved. The agreement further provides that each lease in the disputed area will contain a stipulation which requires the lessee to pay an amount equal to accrued State taxes, plus interest, in the event that the land subject to the lease is later determined to belong to the State. See Federal Stipulation No. 11.

The United States and the State of Alaska have entered into an agreement which provides that unitization of leases overlying a common reservoir may be required prior to production, and voluntary unitization may be authorized during exploration. See Federal Stipulation No. 12.

Corps of Engineers permits are required for construction of any artificial islands, installations and other devices permanently or temporarily attached to the seabed located on the Outer Continental Shelf in accordance with section 4(e) of the Outer Continental Shelf Lands Act as amended 43 U.S.C. 1333.

On all Federally managed tracts, the Departments of the Interior and Transportation have entered into a Memorandum of Understanding, dated May 6, 1976, concerning the design, installation, operation and maintenance of offshore pipelines. Bidders should consult both Departments for regulations applicable to offshore pipelines.

- a. For all onshore leases resulting from this sale and for all onshore off-lease areas under state jurisdiction the following will be required by State or Federal laws and State or Federal regulations:

Prior to the construction or placement of any onshore structure, road, or facility resulting from exploration, development, and/or production activities, an inventory shall be conducted of archaeological or historical sites within the area affected by a proposed activity.

Such inventory shall consider literature provided by the North Slope Borough and local residents; documentation of oral history regarding historic and prehistoric uses of such sites, evidence of consultation with the Alaska Heritage Resources Survey and the National Register of Historic Places, and site surveys. The inventory shall also include a detailed analysis of the potential effects estimated to result from the proposed activity. The inventory shall be submitted to the Director, Division of Minerals and Energy Management, for distribution to the Director of the Division of Parks, and the North Slope Borough for purposes of review and comment. The Director of the Division of Parks and the North Slope Borough may request that the Director require salvage of archaeological and historic sites or relocation of proposed facilities.

In the event that an archaeological or historical site or area is adversely affected by an activity, documentation of such effects shall be submitted to the Director. The Director shall, after consultation with the Director of the Division of Parks and the North Slope Borough, direct the operator as to what course of action will be necessary to mitigate the adverse effect.

- b. All lease activities and structures shall be scheduled and/or designed to allow free movement and safe passage to fish and mammals, both onshore and offshore.
- c. Continuous fill causeways will be prohibited. Non-continuous fill causeways may be permitted when demonstrated to the satisfaction of the Supervisor (and the Director, Division of Minerals and Energy Management, when State managed tracts are involved) that the causeway is necessary for the development of the field and no other feasible and prudent alternative exists.
- d. Winter removal of fresh water or snow cover from rivers and natural lakes which support overwintering fish is prohibited by State laws, regulations, and policies. Therefore, the lessee will be responsible for ensuring that an adequate supply of water is available for winter use through development of such means as storage reservoirs and snow melting.
- e. Surface use will be controlled, as necessary, to prevent unreasonable conflicts with local subsistence harvests.
- f. The State requires a buffer zone up to 1500 feet to separate fresh water supplies or fish-producing streams, lakes, and marine areas from adjacent onshore sewage ponds or oil storage facilities. In cases where it can be demonstrated that a 1500-foot buffer is not physically feasible or prudent, or that no alternative sites are available, exceptions may be granted by the appropriate State official. In all cases, the maximum possible separation will be required but will not be greater than 1500 feet.
- g. Borrow extraction from barrier islands is prohibited by the State. Borrow extraction from lagoons and nearshore areas will also be prohibited by the State unless substantial evidence is provided indicating that borrow extraction in these areas will not adversely affect the environment, particularly the maintenance of the lagoon/barrier island complex, and that no alternative sources exist.

h. Bidders are advised that during the conduct of all activities related to leases issued as a result of this lease sale, the lessee and its agents, contractors and subcontractors will be subject to the provisions of the Marine Mammal Protection Act of 1972 and International Treaties. The lessee should contact the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service, as appropriate, regarding potential impacts of lease activities with regard to these laws. Federal Stipulation No. 7 may be imposed on a case-by-case basis.

i. In the enforcement of Stipulation Nos. 3, 6, and 7, the Supervisor will receive recommendations from a biological task force composed of designated representatives of the Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Geological Survey, the National Marine Fisheries Service, the Environmental Protection Agency, and the State Departments of Fish and Game, Environmental Conservation, and Natural Resources.* It is intended that this task force will remain in existence throughout the operating life of the field. The Supervisor will consult with the task force on the conduct of the biological surveys by lessees, the appropriate course of action after the surveys have been conducted, and on the administration of the biological/environmental aspects of the above-mentioned Federal Stipulations.

j. The lessee and its agents, contractors and subcontractors shall ensure that fixed wing aircraft and helicopters involved in the development of their lease, do not fly over the following areas at altitudes of less than 1500 feet:

1. During the period of May 20 through August 1: Cross Island, Pole Island and the Canning River Delta.
2. During the period of May 15 through June 25: The onshore area within 15 miles inland of the coast between the Kuparuk and Sakonowak Rivers, and the onshore area within 15 miles inland of the coast between Sagavanirktok and Canning Rivers.

Human safety will take precedence over the provisions of these restrictions.

k. Drilling from platforms or structures located beyond the barrier islands in water depths in excess of 13 meters will be prohibited until such time as a test platform or structure of the same type to be drilled from has been in existence in the sale area at a depth in excess of 13 meters for a period of two winter seasons. Verification of the test structure will be required in accordance with the Geological Survey Platform Verification Program. The Supervisor will determine the adequacy of the test structure after consultation with designated representatives of the North Slope Borough and the Regional Technical Working Group of the National Outer Continental Shelf Advisory Board prior to approving drilling operations from the test structure or from platforms or structures of the same type in water depths in excess of 13 meters.

* Plans of Operations are received and approved by Division of Minerals and Energy Management after review and comment by the Departments of Fish and Game (ADF&G) and Environmental Conservation (ADEC), and the Division of Forest, Land, and Water Management (DFL&WM).

- l. All structures erected on Federally managed tracts for the purpose of oil and gas exploration and production will be subject to the requirements of the platform verification program as specified in OCS Order No. 8. Because technology for structures in the transition (ice) zone has not been demonstrated in U.S. waters, particular attention will be given to structures proposed for water depths of 13 meters or more.
- m. In reaching decisions on approval of permits to conduct seismic operations in the lease sale area, the Supervisor will give particular attention to the safe conduct of operations during the period from March 20 to sea ice breakup when ringed seal pupping is occurring.
- n. In addition to other ongoing environmental assessments, the Department of the Interior will prepare a developmental phase Environmental Impact Statement (EIS) pursuant to Section 25(e) of the Outer Continental Shelf Lands Act as amended, 43 U.S.C. 1336.
- o. As required by section 7 of the Endangered Species Act, BLM has initiated consultation with the National Marine Fisheries Service (NMFS) on the endangered bowhead and gray whales. NMFS has advised BLM that there is insufficient information to render a biological opinion before the proposed sale date, and has identified the information which it believes must be obtained before such an opinion can be provided. A two-year whale research program has been developed by BLM in order to acquire the information identified by NMFS as necessary for an assessment of the effects of the proposed sale on these two endangered whales. The BLM research program has been designed to meet the objective of having sufficient information available in two years to allow a biological opinion to be prepared.
- p. Federal Stipulation No. 8 has been developed to provide interim protection for the endangered whales during this 2-year period. At the end of this period, lessees will be advised as to what, if any, restrictions on operations will be necessary to be consistent with the Endangered Species Act. This determination will be made by the Secretary of the Interior in consultation with NMFS. The National Oceanic and Atmospheric Administration has advised the Department of the Interior that it can give it no assurance that sufficient information will be available in two years for DOI to determine that oil and gas operations in the Beaufort Sea will not jeopardize the continued existence of the bowhead whale or adversely modify its critical habitat.
- q. For all Federally managed tracts, the lessee will be required to submit either an exploration plan or a general statement of exploration intentions within four years. This information is provided in accordance with 30 CFR 250.34-1(a)(3).
 - b. State managed tracts: All disputed tracts will be leased subject to an "Interim Agreement" between the State of Alaska and the United States, entered into under the authority of Section 7 of the Outer Continental Shelf Lands Act, 43 U.S.C. 1336, and Alaska Statute 38.05.137. The agreement provides, among other things, that all sums payable to the United States or State of Alaska resulting from a lease in the disputed area shall be paid into a special interest-bearing escrow

account established by the U.S. Treasury Department until the jurisdictional dispute is resolved. The agreement further provides that each lease in the disputed area will contain a stipulation which requires the lessee to pay an amount equal to accrued state taxes, plus interest, in the event that the land subject to the lease is later determined to belong to the State. See State Stipulation No. 11.

The United States and the State of Alaska have entered into an agreement which provides that unitization of leases overlying a common reservoir may be required prior to production, and voluntary unitization may be authorized during exploration. See State Stipulation No. 12.

With respect to State Stipulation No. 9, bidders are advised that certain salient points on the barrier islands will be used for determining surface locations which are located inside or outside the barrier islands. A list of the salient points is available in the Alaska BLM OCS Office, 620 East 10th Avenue, Anchorage, Alaska 99510, and the Division of Minerals and Energy Management, 703 West Northern Lights Boulevard, Anchorage, Alaska 99503. Further with respect to State Stipulation No. 9, bidders are advised that the lessee will be subject to a State Plan of Operations which may include a continued or modified seasonal drilling restriction for the purpose of protecting Arctic fish and wildlife habitat at the end of the two-year stipulation period.

Drilling from platforms or structures located beyond the barrier islands in water depths in excess of 13 meters will be prohibited until such time as a test platform or structure of the same type to be drilled from has been in existence in the sale area at a depth in excess of 13 meters for a period of two winter seasons. Certification of the test structure by an independent engineering firm will be required prior to approving drilling operations from the structure. The Director will determine the adequacy of the test structure after consultation with designated representatives of the North Slope Borough and the Regional Technical Working Group of the National Outer Continental Shelf Advisory Board prior to approving drilling operations from the test structure or from platforms or structures of the same type in water depths in excess of 13 meters.

Bidders are advised that a term of the lease requires the lessee to submit a separate plan of operations for the exploratory and development phases for approval before conducting lease operations. The following requirements will be imposed on lessees of all State managed tracts within the lease area as a condition of approval of plans of operations.

(a) For all onshore leases resulting from this sale and for all onshore off-lease areas under State jurisdiction the following will be required by State or Federal laws and State or Federal regulations:

Prior to the construction or placement of any onshore structure, road, or facility resulting from exploration, development, and/or production activities, an inventory shall be conducted of archaeological and historical sites within the area affected by a proposed activity. Such inventory shall consider literature provided by the North Slope Borough and local residents, documentation of oral history regarding historic and prehistoric uses of such sites, evidence of

consultation with the Alaska Heritage Resources Survey and the National Register of Historic Places, and site surveys. The inventory shall also include a detailed analysis of the potential effects estimated to result from the proposed activity. The inventory shall be submitted to the Director, Division of Minerals and Energy Management, for distribution to the Director of the Division of Parks, and the North Slope Borough for purposes of review and comment. The Director of the Division of Parks and North Slope Borough may request that the Director require salvage of archaeological and historic sites or relocation of proposed facilities. In the event that an archaeological or historical site or area is adversely affected by an activity, documentation of such effects shall be submitted to the Director. The Director shall, after consultation with the Director of the Division of Parks and the North Slope Borough, direct the operator as to what course of action will be necessary to mitigate the adverse effect.

(b) The lessee will provide the following information where applicable:

1. Amounts of borrow required;
2. Amounts of fresh water required, and provision for storage or alternative fresh water sources to provide adequate fresh water supplies for winter domestic and industrial use;
3. Transportation requirements, including the type, frequency, and routes of travel for vessels, aircraft, and vehicles (including air cushion and rolligon);
4. Activities to be conducted directly on the tundra surface.

(c) The lessee will be responsible for ensuring that an adequate supply of water is available for winter use through development of such means as storage reservoirs and snow melting. Winter removal of fresh water or snow cover from rivers and natural lakes which support overwintering fish is prohibited.

(d) A Spill Prevention, Control, and Countermeasure (SPCC) Plan must be prepared as exemplified by 40 CFR 112.3 et seq. An Oil Spill Contingency Plan must be prepared for each drill site and for onshore and offshore activities involving the handling or storage of oil or hazardous substances. The Plan must include:

1. operational procedures, communication networks, detection and monitoring devices, equipment inventories, disposal sites, and other contingency provisions as required by 18 AAC 75.310;
2. provisions for contingencies for all oceanographic and meteorological conditions present in the vicinity of the drill site, which may include open water, landfast ice, mobile one-year ice, and polar pack ice;
3. provisions for encircling the drilling structure with a containment barrier of a size adequate to contain a major spill, and provisions to rapidly

force or move under-ice oil to the ice surface for recovery and cleanup during the period of nearshore ice cover; the containment barriers are only required if oil could escape from around the conductor pipe to water under the ice;

4. methods for controlling blowouts and/or the procedures to be followed for various blowout contingencies;
5. identification of a suitable alternate drilling rig or rigs*, the location of an alternate relief well drilling site, location of the nearest emergency supply of gravel, and the time required to obtain equipment, mobilize, rig up and commence drilling of a relief well, if the drilling of a relief well should be required.

(e) Surface use will be restricted, as necessary, to prevent unreasonable conflicts with local subsistence harvests.

(f) A buffer zone up to 1500 feet will be required to separate fresh water supplies or fish-producing streams, lakes, and marine areas from adjacent sewage ponds or oil storage facilities. In cases where it can be demonstrated that a buffer zone of up to 1500 feet is not physically feasible or prudent, exceptions may be granted by the Director, Division of Minerals and Energy Management. In all cases, the maximum possible separation will be required, but will not be greater than 1500 feet.

(g) Borrow extraction from barrier islands is prohibited. Borrow extraction from lagoons and nearshore areas will be prohibited unless substantial evidence is provided indicating that borrow extraction in these areas will not adversely affect the environment and/or that no alternative sources exist.

(h) All lease activities and structures shall be scheduled and/or designed to allow free movement and safe passage to fish and mammals, both onshore and offshore.

(i) Corps of Engineers permits are required for construction of any artificial islands, installations and other devices permanently or temporarily attached to the seabed located on the Outer Continental Shelf in accordance with Section 4(e) of the Outer Continental Shelf Lands Act, as amended, 43 U.S.C. 1333.

(j) Continuous fill causeways will be prohibited. Non-continuous fill causeways may be permitted when demonstrated to the satisfaction of the Director, Division of Minerals and Energy Management (and the Supervisor, where leases on Federally managed tracts are involved) that the causeway is necessary for the development of the field and no other feasible and prudent alternative exists.

* Alternate drilling rig can be another rig in the area, a standby rig, or planned transportation of an available rig from another area.

(k) The lessees shall ensure that fixed wing aircraft and helicopters involved in the development of their lease, or under contract to them, do not fly over the following areas at altitudes of less than 1500 feet:

1. during the period May 20 through August 1: Cross Island, Pole Island, and the Canning River Delta;
2. during the period May 15 through June 25: onshore areas within 15 miles inland of the coast between the Kuparuk and Sakonowak Rivers, and the onshore area within 15 miles inland of the coast between the Sagavanirktok and Canning Rivers.

Human safety will take precedence over the provisions of these restrictions.

(1) The proposed activities under a plan of operations must not diminish the use and enjoyment of a native allotment.

m. Bidders are advised that in the enforcement of State Stipulations Nos. 2, 3, 4, 5, 6, 7, 9, and 13, the Director will receive recommendations from a biological task force composed of designated representatives of the Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Geological Survey, the National Marine Fisheries Service, the Environmental Protection Agency, and the State Departments of Fish and Game, and Environmental Conservation. Plans of Operations are received and approved by the Division of Minerals and Energy Management after review and comment by the State Departments of Fish and Game, Environmental Conservation, and the Division of Forest, Land, and Water Management. It is intended that this task force will remain in existence throughout the operating life of the field. The Director will consult with the task force on the conduct of the biological surveys by lessees, the appropriate course of action after the surveys have been conducted, and on the administration of the biological/environmental aspects of the above-mentioned stipulations.

n. Bidders are advised that during the conduct of all activities related to leases issued as a result of this lease sale, the lessee and its agents, contractors and subcontractors will be subject to the provisions of the Marine Mammal Protection Act of 1972 and International Treaties. The lessee shall contact the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service, as appropriate, regarding potential impacts of lease activities with regard to these laws. State Stipulation No. 5 may be imposed on a case-by-case basis.

o. Bidders are advised that the following work commitment will be included in leases issued on State leasing units BF-59, BF-60, BF-61, BF-62, BF-66, BF-67, BF-68, BF-69, BF-75, BF-76, BF-82: the lessee must commence to drill a well by the end of the fifth year of the lease, or commit the lease to an approved exploratory unit approved by the Commissioner of National Resources. If a well has not been drilled or the lease has not been committed to an approved unit by that time, the lessee will relinquish the lease to the State.

p. Bidders are advised that the following work commitment will be included in leases issued on State leasing units BF-46, BF-47, BF-48, BF-49, BF-50, BF-51, BF-52, BF-53, BF-54, BF-55, BF-56, BF-57, BF-58, BF-113, BF-114: the lessee must commence to drill a well by the end of the seventh year of the lease, or commit the lease to an approved exploratory unit approved by the Commissioner of Natural Resources. If a well has not been drilled or the lease has not been committed to an approved unit by that time, the lessee will relinquish the lease to the State.

15. Federal OCS Orders. Operations on all Federally managed leases covered by this notice will be conducted in accordance with the provisions of applicable Arctic Area OCS Orders, as of their effective date, and any other applicable OCS Order as it becomes effective.

STATE OF ALASKA

UNITED STATES

Robert E. Roche

Commissioner, Department of
Natural Resources

Frank Gregg

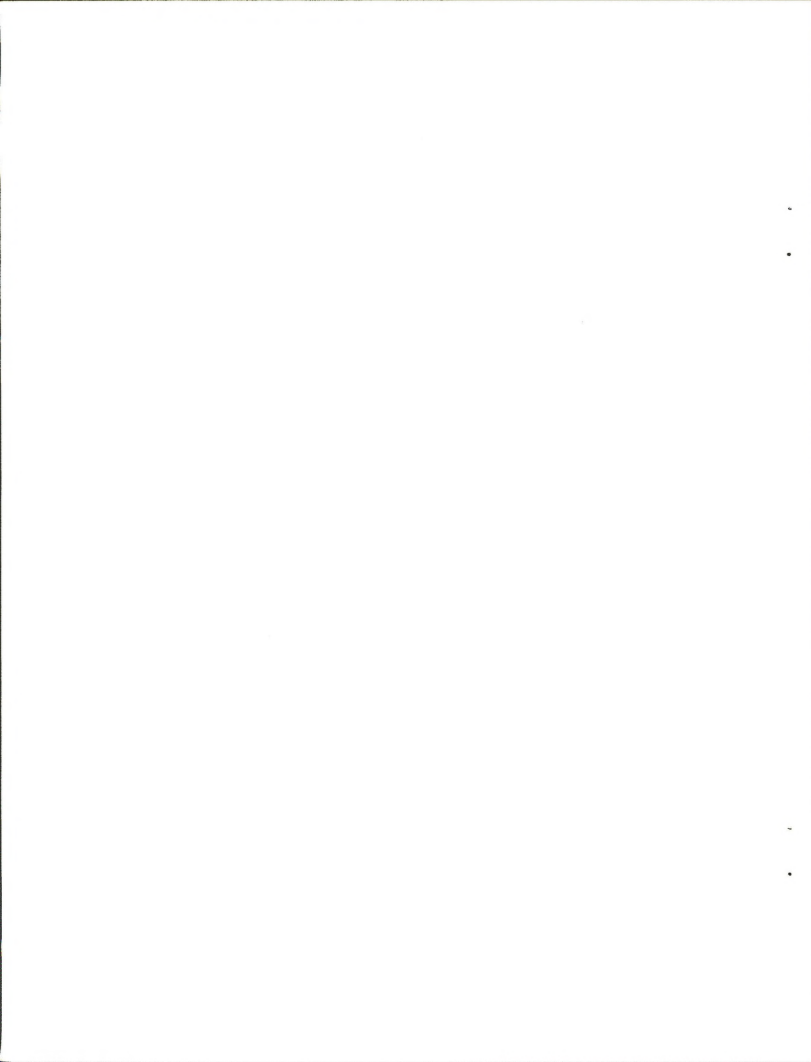
Director, Bureau of Land Management

Date: 29 October 1979

APPROVED:

Date: Nov 2, 1979

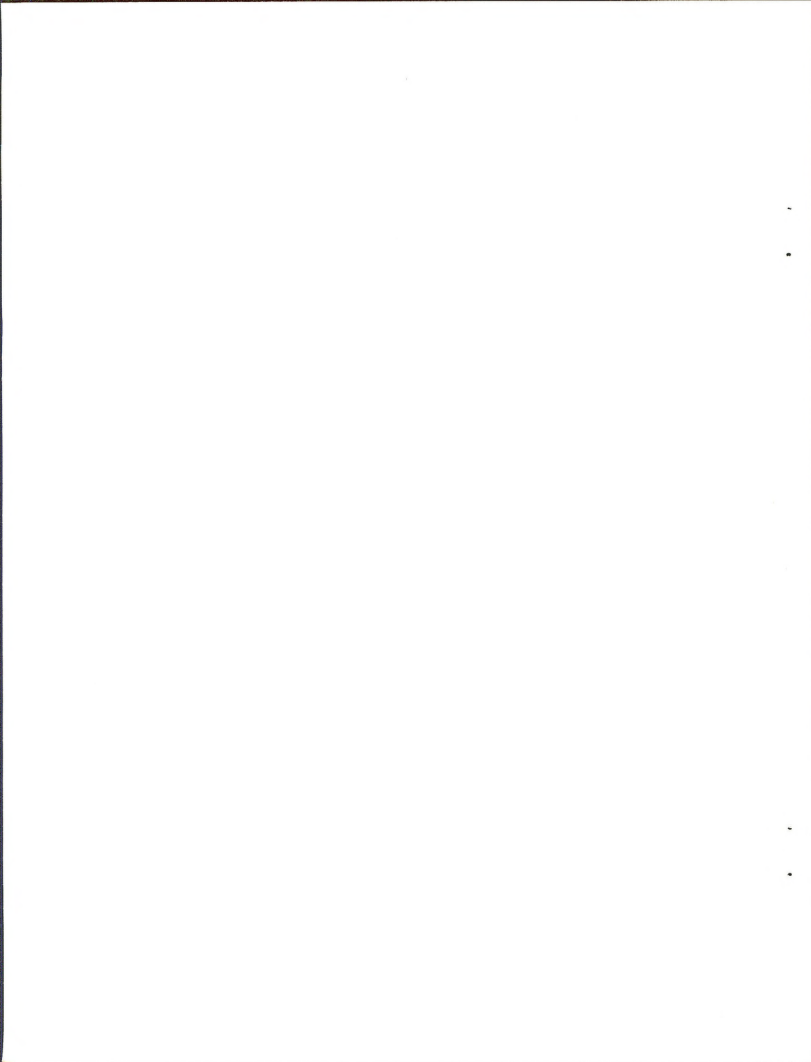
Leslie D. Andrews
Secretary of the Interior



APPENDIX 2

Agreement Between the United States
of America and the State of Alaska
Pursuant to Section 7 of the
Outer Continental Shelf Lands Act and
Alaska Statutes 38.05.137

Appendix A of this Agree-
ment contains maps and
block diagrams are not
included.



AGREEMENT BETWEEN
THE UNITED STATES OF AMERICA AND THE STATE OF ALASKA
PURSUANT TO SECTION 7
OF THE OUTER CONTINENTAL SHELF LANDS ACT,
AND ALASKA STATUTES 38.05.137

WHEREAS, there is a controversy between the United States of America, hereafter referred to as "United States", and the State of Alaska, hereafter referred to as "State", concerning the authority of the State or the United States to develop the natural resources of the seabed and subsoil of certain submerged lands located in the Beaufort Sea in the vicinity of Prudhoe Bay; and

WHEREAS, this dispute is evidenced by the action entitled United States v. State of Alaska, Supreme Court No. 84, Original, hereafter referred to as United States v. Alaska;

WHEREAS, Section 7 of the Outer Continental Shelf Lands Act of August 7, 1953, 43 U.S.C. §1336, (1970) hereafter referred to as the "Act", authorizes the Secretary of the Interior with concurrence of the Attorney General of the United States to negotiate and enter into agreements with the States respecting the issuance or non-issuance of mineral leases pending the settlement or adjudication of a controversy over the applicability of the provisions of the Act, 43 U.S.C. §1331 et seq. (1970); and

WHEREAS, the State by AS 38.05.020 and AS 38.05.137 confers authority on the Commissioner of Natural Resources to negotiate and enter into agreements with the United States on behalf of the State respecting mineral leasing development on lands which are the subject of a title dispute between the State and the United States; and

WHEREAS, the United States and the State agree that the best interest of each party will be served by a mineral lease sale in the Beaufort Sea in the vicinity of Prudhoe Bay at an early date and further agree that the interests of each party will be served best by inclusion in the mineral lease sale of the submerged lands authority over which is disputed; and

WHEREAS, the United States and the State desire to provide for the safe-keeping of bonuses, rentals, royalties, and other sums payable under any mineral leases issued for the submerged lands over which there is a dispute prior to a final determination or settlement of the action United States v. Alaska;

NOW THEREFORE, the United States, by and through the Secretary of the Interior, and with the concurrence of the Attorney General of the United States, and the State, by and through the Commissioner of Natural Resources of the State of Alaska, agree as follows:

I.

The parties agree that it is their explicit intention that no definition, agreement, provision hereof, or lease issued in accordance with any provision of this agreement, shall be construed to waive or prejudice in any way any right, interest, claim, or demand which either party now has or may be determined to have to any of the disputed area as defined in section II and that neither party shall use in any manner any provision of this agreement as a basis for questioning, prejudicing, or waiving any right, interest, claim, or demand of either party in the judicial proceeding, United States v. Alaska, now pending, except that either party may use this agreement, or any provision of it, as a basis for questioning, prejudicing, or waiving any right, interest, claim, or demand of either party in a proceeding involving a dispute over this agreement or an interpretation of this agreement or any of its terms.

II.

For the purposes of this agreement, the disputed area is defined as:

All submerged lands located more than three geographic miles from the low-water line or closing lines across the mouths of inland water bodies which the United States claims as the baseline from which to delimit its territorial sea, constructed by the method of arcs of circles; and, located inside a line three miles seaward of a series of straight lines following the outermost points on the fringe of islands located in the vicinity of Prudhoe Bay and which the State claims as the baseline from which to delimit the territorial sea.

This disputed area is shown on the maps and supplemental block diagrams attached to this agreement as Appendix A, which maps and diagrams are hereby expressly incorporated into and made a part of this agreement. The parties state that the lines shown on the maps and diagrams in Appendix A as delimiting State lands, federal lands, and disputed lands are based on a consistent application of the principles which each party endorses in the action United States v. Alaska.

III.

The parties agree that, with two exceptions described below, the low-water line shown on the maps and diagrams in Appendix A is taken to be the low-water line for all relevant periods in the past and through the date of a final judicial determination in United States v. Alaska. The exceptions referred to are the extension added in 1976 to the artificial structure known as the "Arco pier" or "West dock," and the natural formation known as "Dinkum Sands." The parties agree that the maps and diagrams in Appendix A accurately depict the location of the Arco pier extension and Dinkum Sands, but do not agree on whether these features are part of the Alaska coast and will submit those questions for adjudication in United States v. Alaska.

IV.

The parties covenant that no mineral leases have been granted by either party in the disputed area. Each party agrees that as long

as this agreement remains in effect no mineral lease will be issued for any portion of the disputed area except in accordance with this agreement. Each party agrees to indemnify and hold harmless the other party for any loss or damage sustained by the other party as a result of the issuance of any lease in the disputed area other than according to the terms of this agreement.

V.

The United States and the State hereby consent to the issuance of mineral leases and the granting of rights-of-way for pipeline construction and other lease development facilities in the disputed area and to the drilling and development thereof during the period this agreement remains in effect. For purposes of this Section V, and Sections VIII, and IX, the disputed area shall be divided into two subparts to be labeled Zone A and Zone B. Zone A shall consist of all of the disputed area as defined in section II above, except the area within Zone B. Zone B shall consist of all lands within three geographic miles of the natural formation known as Dinkum Sands, and not within three geographical miles of any other island or the mainland, as shown in Appendix A. Leasing and related activities by either party in the disputed area shall be carried out only in accordance with the following:

(a) Leasing and management of lands within Zone A shall be accomplished by the U.S. Department of the Interior in accordance with the provisions of this agreement, and with the guidelines set out in Appendix B, which is hereby incorporated into and made a part of this

agreement. The law, including rules and regulations, of the United States shall apply to leases within Zone A except where this agreement expressly provides otherwise. The United States agrees to obtain the express written permission of the State before agreeing to reduce by any means rentals or royalties payable under any lease within Zone A, or before agreeing to take payment of such royalties in amount (in kind) rather than in value.

(b) Subject to Section V(a), the United States may:

(1) Offer such Zone A tracts for lease as it may select, provided that any tract offered for lease shall not exceed the acreage allowed by state and federal law and shall correspond to a leasing unit as shown in Appendix A;

(2) Determine the bidding system under which tracts in Zone A will be offered for lease, subject to the concurrence of the State;

(3) Administer all proceedings with respect to nominations, tract selections, bid invitations, bid openings, and lease sales in Zone A, provided that State officials are allowed to participate;

(4) Accept or reject bids on Zone A tracts, but failure to achieve concurrence with the State concerning the adequacy of a bid on a disputed tract will result in rejection of the bid;

(5) Execute leases, permits, and other necessary instruments with respect to Zone A tracts, provided such instruments are made expressly subject to this agreement.

(c) Leasing and management of lands within Zone B shall be accomplished by the State Department of Natural Resources in accordance with the provisions of this agreement, and with the guidelines set out in Appendix B, which is hereby incorporated into and made a part of this agreement. The law, including rules and regulations, of the State shall apply to leases within Zone B except where this agreement expressly provides otherwise. The State agrees to obtain the express written permission of the United States before agreeing to reduce by any means rentals or royalties payable under any lease within Zone B, or before agreeing to take payment of such royalties in amount (in kind) rather than in value. Until such time as the rights to revenues from Zone B leases are determined or settled, the State agrees to obtain the express written permission of the United States before allowing exploration incentive credits pursuant to AS 38.05.180(i) to be applied against rentals and royalties payable under any lease within Zone B.

(d) Subject to Section V(c), the State may:

(1) Offer such Zone B tracts for lease as it may select, provided that any tract offered for lease shall not exceed the acreage allowed by state and federal law and shall correspond to a leasing unit as shown in Appendix A;

(2) Determine the bidding system under which tracts in Zone B will be offered for lease, subject to the concurrence of the United States;

(3) Administer all proceedings with respect to nominations, tract selections, bid invitations, bid openings, and lease sales in Zone B, provided that federal officials are allowed to participate;

(4) Accept or reject bids on Zone B tracts, but failure to achieve concurrence with the United States concerning the adequacy of a bid on a disputed tract will result in rejection of the bid;

(5) Execute leases, permits, and other necessary instruments with respect to Zone B tracts, provided such instruments are made expressly subject to this agreement.

(e) All payments by lessees attributable to lands within the disputed area, including but not limited to, all bonuses, rentals, and royalties, shall be paid into the escrow account created by Section VI of this agreement. The State and the United States each shall receive a monthly statement of all funds paid into the escrow account. The monthly statement shall be provided by the last day of the month following the month in which the reported funds are paid.

(f) Each lease issued pursuant to this agreement shall provide that the lessee consents to every term of this agreement.

(g) No state taxes will be required to be paid on those lands within the disputed area during the pendency of United States v. Alaska. However, any lease issued pursuant to this agreement shall expressly provide that in the event the State is determined to own the lands subject to the lease or any portion of such lands, the lessee shall pay to the State a sum equivalent to the taxes which would have been imposed under Alaska law if the lands or portion thereof determined to be State lands had been undisputed State lands from the date the lease was executed, plus interest at the rate of 10% a year accruing from the date that the taxes would have become due under Alaska law. Such payment shall be in lieu of and in satisfaction of the actual state taxes.

(h) Unitization of leases overlying a common reservoir may be required prior to the commencement of commercial production, and voluntary unitization may be authorized during exploration, as provided in the AGREEMENT REGARDING UNITIZATION FOR THE PROPOSED JOINT FEDERAL/STATE BEAUFORT SEA LEASE executed on or about this date.

VI.

The escrow account provided for in Section V(e) of this Agreement will be established in the U.S. Department of the Treasury as a Deposit Fund Account. The funds deposited in such account shall be invested at the direction of the Department of the Interior only in special non-marketable U.S. Treasury securities purchased at prevailing market rates. The Department of the Interior will obtain the approval of the State Department of Revenue before directing the U.S. Department of the Treasury with regard to investment of funds in the escrow account.

VII.

The parties agree that the rights of either party to any sums received under Zone A leases issued pursuant to this agreement shall be controlled solely by, and dependent upon, the final judicial determination in United States v. Alaska of the authority to develop the natural resources of the seabed and subsea soil in Zone A. The parties further agree that after final judicial determination the provisions of Section VIII shall control the rights of the parties to the money attributable to Zone A leases in the escrow account.

VIII.

For each lease which contains lands in Zone A described in Section V of this Agreement, distribution of the funds paid into escrow on account of such lease shall be as follows:

- (a) If the final decision of the Court be that the State is the owner of the submerged lands subject to the lease, then all funds paid into escrow on account of such lease, plus interest earned from the time such funds are invested in accordance with Section VI, shall be paid to the State.
- (b) If the final decision of the Court be that the United States has jurisdiction over the submerged lands subject to the lease, then all funds paid into escrow on account of such lease, plus interest earned from the time such funds are invested in accordance with Section VI, shall be paid to the United States.

(c) If the final decision of the Court be that the United States and the State each owns or has jurisdiction over a portion of the submerged lands subject to the lease, then the funds paid into escrow on account of such lease shall be distributed as follows:

(1) Bonuses and rentals paid into escrow, plus interest earned from the time such funds are invested in accordance with Section VI, shall be apportioned and paid to the State and to the United States in the same ratio as the ratio of the acreage of State land bears to the acreage of federal land within the lease area.

(2) Royalties paid into escrow, plus interest earned from the time such funds are invested in accordance with Section VI, shall be apportioned and paid to the State and the United States in a fair and equitable manner solely on the basis of estimated volumes of recoverable oil or gas, or both, originally in place under the portion of the submerged lands determined to be owned by or under the jurisdiction of each party.

(d) Payment from the escrow account of sums due to either party under this section shall be made as soon as possible after the final judicial determination in United States v. Alaska, but in no event more than 180 days after the final judicial determination.

(e) "Final judicial determination" shall mean the final decree issued by the Court with regard to the ownership or jurisdictional status of the submerged lands subject to the lease. The decree shall not be considered final until the time for rehearing has expired.

IX.

For each lease which contains lands in Zone B as described in Section V of this agreement, the funds paid into escrow on account of such lease shall be distributed in accordance with the stipulation of the parties concerning Zone B funds in United States v. Alaska. If no stipulation can be agreed upon by April 1, 1980, the funds shall be distributed in the same manner as funds from Zone A leases pursuant to Section VIII of this agreement.

X.

(a) Upon the final judicial determination in United States v. Alaska as to any area affected by a lease or portion thereof to which this agreement is applicable, the successful party, upon receipt of the funds due it, shall validate and give recognition to such lease or portion thereof, and shall grant to the lessee all the rights authorized or provided for by the laws of the successful party. If the State is the owner of the disputed area to which the lease is applicable, the ratification and validation of the lease by the State shall be subject to the full compliance thereafter by the lessee with all applicable State laws and regulations. If the United States has jurisdiction over the disputed area to which the lease is applicable, the lessee shall within ninety (90) days after the mailing of notice by the United States comply with the requirements of the Outer Continental Shelf Lands Act, 43 U.S.C. §1331 et seq. (1970), as amended, and regulations promulgated thereunder, and thereupon the provisions of that Act shall govern such lease. The validation and

recognition provisions of this paragraph are not applicable if the lease was originally issued and administered by the successful party.

(b) Any loss incurred or sustained by any lessee as a result of obtaining validation and recognition of any lease issued pursuant to this agreement, and in particular any loss incurred or sustained as a result of conforming any lease with any and all provisions of all applicable laws of the party prevailing in United States v. Alaska, shall be borne exclusively by the lessee and each lease issued pursuant to this agreement must so stipulate.

XI.

(a) Any sums paid or released by the escrow agent in accordance with this agreement shall be made without reference to, limitation by, or effect as to any claim against, or liability or obligation of the other party not arising under this agreement. Nothing contained in this agreement shall limit any right either party may have to assert separately any other claims which it may have against the other party or any third party.

(b) Upon payment of all sums due and payable in accordance with the provisions of sections VIII and IX and in compliance with the validation and ratification requirements set forth in section X, this agreement shall terminate.

XII.

This agreement, or any provision of it, may be amended at any time by written instrument signed by the parties.

XIII.

The parties agree that this agreement may be incorporated into an appropriate judicial order by the Court in United States v. Alaska.

XIV.

This agreement shall become effective when signed by the Commissioner of Natural Resources on behalf of the State and the Secretary of the Interior and Attorney General of the United States on behalf of the United States and shall remain in effect until terminated pursuant to Section XI or by mutual written agreement of the parties.

THUS MADE AND EXECUTED this 26 day of Oct, 1979

STATE OF ALASKA

UNITED STATES OF AMERICA

By:

By:

Commissioner of Natural Resources

Secretary of the Interior

Governor of Alaska

CONCURRED IN BY:

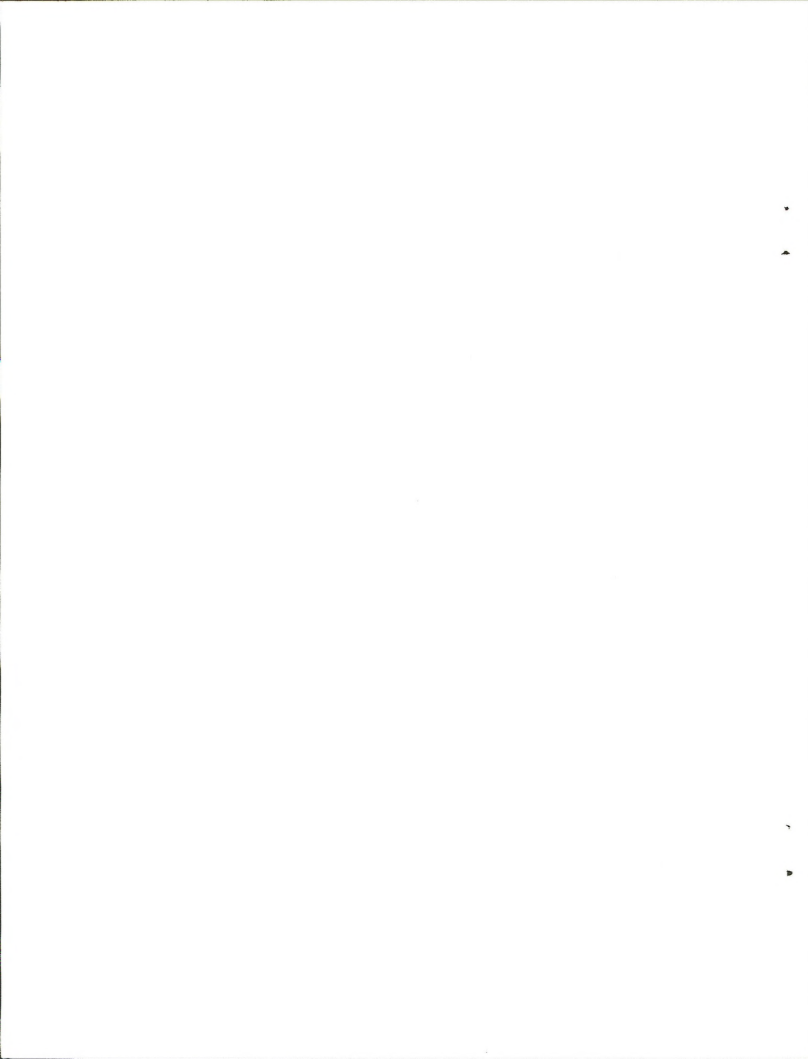
Attorney General of the United States

Concurred in with regard to Sections V(e), VI, and VIII(d) by:

Fiscal Assistant Secretary
U.S. Department of the Treasury

AGREEMENT BETWEEN
THE UNITED STATES OF AMERICA AND THE STATE OF ALASKA
PURSUANT TO SECTION 7
OF THE OUTER CONTINENTAL SHELF LANDS ACT,
AND ALASKA STATUTES 38.05.137

APPENDIX B



MANAGEMENT OF BEAUFORT SEA LEASES

The principal element of this plan for the management and administration of leases in the Beaufort Sea sale area is a management committee that will coordinate State and Federal activities. The Coordination Committee, hereinafter referred to as the Committee, will be an outgrowth of the present Steering Committee. It will not be a full time, independent entity and redundant staffing will not be required.

The Committee will be comprised of the principal State and Federal agencies having Beaufort Sea regulatory authority. These agencies are the U. S. Geological Survey, Bureau of Land Management, Alaska Oil and Gas Conservation Commission, and Alaska Department of Natural Resources (Division of Energy and Minerals Management). The Committee will consult with the following agencies to insure a coordinated lease management program: EPA, the Corps of Engineers, NOAA, the Coast Guard, the Department of Environmental Conservation (State), Fish and Wildlife Service, Alaska Department of Fish and Game, and the Department of Labor (State).

The following are proposed management principles for the sale area:

A. Standards and Legal Requirements

State standards and legal requirements will apply to those leasing units on undisputed state lands and to those leasing units on disputed lands in Zone B as described in the Interim Agreement (Agreement

between the United States of America and the State of Alaska Pursuant to Section 7 of the Outer Continental Shelf Lands Act, and Alaska statutes 38.05.137.) Federal standards and legal requirements will apply to those leasing units on undisputed Federal lands and to those leasing units on disputed lands in Zone A as described in the Interim Agreement.

B. Jurisdiction

Leasing units containing undisputed State lands and leasing units containing disputed lands in Zone B will be leased and managed by the State. All others will be leased and managed by the Federal Government. All activities in the sale area will be coordinated by the Committee.

The Committee will be responsible for the consistency of operations throughout the duration of the dispute. Federal officials will consult with appropriate State officials in the administration of disputed lands in Zone A. State officials will consult with appropriate federal officials in the administration of disputed lands in Zone B.

C. Application and Review Procedures

1. Applications pertaining to leases managed by the State will be made to the State agency normally receiving that type of application. Applications pertaining to leases managed by the Federal Government will be submitted to the Federal agency normally receiving that type of application.

2. Applications pertaining to Federally managed leases will be distributed to the state agencies comprising the Committee for review and coordination purposes. This provision does not constitute a waiver of the requirements of 30 CFR 250.34 and 30 CFR 252. Applications pertaining to State managed leases will be distributed to the Federal agencies comprising the Committee in a similar manner for review and coordination purposes.

3. Specific time frames will be set for accomplishing each task in the review process. If possible, whenever environmental assessments or impact statements are necessary, one document will be prepared, coordinated, and directed through the Committee to fulfill the needs of all agencies party to this agreement.

D. Enforcement

1. State of Alaska officials will be responsible for inspections on State managed leases and all inspections will be scheduled and conducted by them. Federal officials will be responsible for inspections on Federally managed leases and all inspections will be scheduled and conducted by them.

2. Inspection procedures for the entire sale area will be made as uniform as possible and coordinated by the affected State and Federal agency representatives.

3. Enforcement of environmental and operating requirements, the monitoring of environmental programs, and the review of data and reports will be accomplished by the appropriate State or Federal agencies and coordinated through the Committee. If problems arise from inconsistent enforcement or monitoring procedures, such problems will be resolved through the Committee.

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