

**RECORD OF DECISION
OF BRITISH PETROLEUM (ALASKA) INC.'S
NORTHSTAR DEVELOPMENT AND PRODUCTION PLAN**

A. PURPOSE: Pursuant to 40 CFR 1505.2, this Record of Decision (ROD)

- States the Minerals Management Service's (MMS's) decision.
- Identifies all alternatives considered by the MMS, specifying the alternative(s) that were considered to be environmentally preferable and discusses preferences among alternatives based on relevant factors.
- States whether all practicable means to avoid or minimize environmental harm have been adopted and if they have not, it explains why, and includes monitoring and enforcement program, where applicable.

The Corps of Engineers was the lead agency in preparing the Beaufort Sea Oil and Gas Development/Northstar Project Environmental Impact Statement (EIS). The MMS was a cooperating agency. The MMS adopted the Final EIS on July 8, 1999. The MMS also prepared a separate Environmental Assessment (EA) on the projected effects with the final Oil Discharge Prevention and Contingency Plan, issued on June 3, 1999. This ROD is based on the Final EIS and the EA. Additional public comments were submitted after the Final EIS was adopted, and they also have been considered in preparing the ROD.

This ROD also provides summaries of (1) recommendations from the Governor of the State of Alaska, pursuant to the OCS Lands Act; (2) consultations with the National Marine Fisheries Service (NMFS) and the Fish and Wildlife Service (FWS), pursuant to the Endangered Species Act (ESA) and the Magnuson-Stevens Fisheries Conservation and Management Act; and (3) consultations with tribal governments, pursuant to Presidential Memorandum on Government to *Government Relations with Native American Tribal Governments, dated April 29, 1994.*

B. AGENCY DECISION: The MMS approves the Northstar Development and Production Plan (DPP). Approval is necessary for BP Exploration (Alaska) Inc. (BPXA) to drill and produce wells that have bottom-hole locations in OCS leases overlying the Northstar reservoir. The MMS concludes that approval of the DPP would provide for expeditious and orderly development and conservation of OCS resources and would protect Federal royalty interest. Approval of the DPP does not authorize or otherwise approve other aspects of the development activities, including island or pipeline construction, that are located on State of Alaska lands and subject to the State and other permitting authorities.

Northstar is an oil and gas reservoir that underlies Federal OCS and State of Alaska submerged lands. BPXA proposes to develop the reservoir from a manmade gravel production island with subsea oil and utility pipelines. The island and pipelines will be located on State lands. BPXA

submitted a proposed DPP to the MMS in support for drilling wells into the OCS leases from the island. Approval of the DPP is required before drilling and producing wells that have a bottom-hole location in the OCS.

The MMS is requiring BPXA to comply with the following ten terms and conditions as practicable means to avoid or minimize environmental harm and in response to issues and concerns raised throughout the public review process.

1. Before production begins, BPXA must conduct a preproduction test and inspection of the production facilities similar to the provisions under 30 CFR 250.804(a)(11). The MMS must be notified in advance to allow for its participation. BPXA also must provide this office with a copy of a schematics of the production safety and electrical systems similar to the provisions under 30 CFR 250.802. The MMS also encourages BPXA to provide representatives from the North Slope Borough (NSB) and local and tribal governments with an orientation of the production facilities to familiarize them with the safety and pollution prevention systems and safety management programs that will be in place.
2. All wells drilled into the OCS must comply with the same terms and conditions adopted by the State of Alaska in its February 4, 1999, Coastal Consistency Determination and any subsequent additions or modifications.
3. Before OCS drilling activity begins, BPXA must clarify the presence or absence of hydrogen sulfide for the Northstar reservoir. BPXA has noted that the reservoir has "sweet" oil, which generally means hydrogen sulfide is not present. A final classification must be submitted with the first application for permit to drill for an OCS well, pursuant to 30 CFR 250.417(c).
4. Before drilling activity begins, BPXA must provide this office with the name and status of a drilling unit that would be used for relief-well drilling. BPXA must advise this office of changes in the availability of the relief-well rig or other equipment and supplies necessary for relief-well activity, as described in the Blowout Control/Relief Well Plan included in the Oil Discharge and Prevention and Contingency Plan (ODPCP), Section 1.6.3.
5. Before production begins, BPXA must provide this office with the contact (title or position) and description of the process through which claimants (particularly Native subsistence users) would file a claim for oil-spill removal costs and damages, pursuant to 30 CFR 253 Subpart F. This information must also be provided to the NSB, the Alaska Eskimo Whaling Commission (AEWC), and the Native villages and tribal governments of Kaktovik, Nuiqsut, Barrow, and the Inupiat Community of the Arctic Slope (ICAS).
6. BPXA must provide the MMS with results of the various monitoring programs and studies related to noise and whales that have been required by the Corps of Engineers, the State, and the NSB in their respective permit and approval actions. The MMS reserves the authority to take remedial action for activities under its jurisdiction, if monitoring or studies show that these

activities are having significant adverse effects. The MMS also requests that BPXA provide this office with copies of other project-specific monitoring and studies program results, such as for water quality and sedimentation and spectacled eiders, for our reference; this does not include standard permit compliance monitoring and reporting, such as for the National Pollutant Discharge Elimination System permit.

7. Within 30 days of this approval BPXA must provide this office with copies of the environmental training and orientation programs referenced in the DPP and which are being used to comply with State lease stipulation number 2. The MMS will review these programs and may require additions or modifications to these programs to address specific issues or concerns relative to OCS drilling activity.
8. Before production begins, BPXA must provide this office, the NSB, the AEWG, and the Native villages and tribal governments of Nuiqsut, Kaktovik, Barrow, and the ICAS with a plan for long-term coordination with local communities and subsistence users. At a minimum, BPXA must conduct an annual review of Northstar activities with these interests. BPXA must notify this office of changes to plans and of any unresolved issues identified during coordination efforts.
9. Before drilling the first OCS well, BPXA must provide this office with confirmation that the gravel island, as built, meets the design basis. BPXA must provide this office with an annual report that summarizes the integrity of the gravel island.
10. Before production begins, BPXA must provide this office and other agencies with a management plan for the leak-detection system (over ice, in trench, and in line), explaining the process to incorporate detection data into overall oil-spill identification, reporting, and response actions for the project.

C. AUTHORITIES: The MMS has authority for the review and approval of a Development and Production Plan under Sections 11 and 25 of the OCS Lands Act (43 U.S.C 1334 et seq.), and the implementing regulations at 30 CFR 250.204. The ROD is prepared under the authorities of the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) and implementing regulations at 40 CFR 1505.2.

D. PROJECT DESCRIPTION: The Northstar oil and gas development project is located on a joint Federal and State management reservoir in the Beaufort Sea offshore the Alaskan arctic coast. A manmade gravel production island, all production facilities and subsea pipelines connecting the island to shore will be located on State of Alaska submerged lands. Up to seven wells (producing, injectors, and a disposal well), could be drilled from the island surface location on State submerged lands to bottom-hole locations into the Federal OCS. Drilling these wells into OCS lands requires an Application for Permit to Drill (APD) and any APD must conform to activities described in an approved OCS DPP (30 CFR 250.204(t)).

BPXA plans to develop the reservoir beginning with the reconstruction of an existing gravel island (Seal Island). This gravel island would be constructed over the remains of Seal Island, which was built by Shell Oil Company to conduct exploratory activities during the 1980s. The main facilities required include a gravel island for drilling and oil production, drilling equipment and processing facilities, and two pipelines connecting into existing facilities onshore. A personnel camp and supporting infrastructure also will be located on the island. All production facilities and pipelines are located on State lands. Pipelines will transport oil to the Trans-Alaska Pipeline System (TAPS). Gas will be reinjected into the Northstar reservoir.

The life of the proposed Northstar development project is approximately 15 years. Northstar reserves are estimated at 158 million barrels of high-quality crude oil that underlie both State and Federal OCS lands.

E ALTERNATIVES CONSIDERED: The Northstar Final EIS considered multiple alternatives and conducted a full analysis of five proposed alternatives, including BPXA's proposed action, a no-action alternative as required by NEPA, and three additional action alternatives. Principal project components, including the redevelopment of Seal Island, installation of buried subsea pipelines, onshore construction using vertical support members, etc., are the same or similar among the four action alternatives considered for the Northstar development project. The principal differences between these action alternatives are pipeline routes and shore crossings. The MMS responsibilities and authorities for drilling wells into the OCS are not directly affected by the action alternatives. Under the no-action alternative, MMS would disapprove the DPP; this is discussed in more detail below.

The Northstar Final EIS includes a comparison of project alternatives and their impacts (Table 11-1, Chapter 11-3). This table reflects that for most resources, action alternatives 2, 3, 4, and 5 each would have comparable impacts; thus, there is no obvious significant environmental benefit of one of these action alternatives over the other. There are incremental tradeoffs. The no-action alternative (Alternative 1) would not contribute any incremental increase to the cumulative impact of other actions. However, none of the cumulative impacts identified would be avoided by selection of Alternative 1. (See Chapter 11-1 through 11-8 for a complete comparison of alternatives and impacts from the action alternatives, including cumulative impacts.) A summary comparison of effects from the proposal and alternatives is included in Table ES-14 in the Final EIS.

The Final EIS concluded that unavoidable adverse effects, the relationship between local short-term uses and long-term productivity, and irreversible and irretrievable commitments of resource issues are essentially the same among all the action alternatives. Significant adverse impacts could result from oil spills and noise generation. Other direct and unavoidable impacts would result from the dredge and fill activities, air emissions, and discharges (Final EIS, Chapter 11.8.12, pp. 11-23). See Chapters 3 and 4 and Table II-1 of the Final EIS for a more detailed discussion and comparison of each of the alternatives.

Following is an overview of the five alternatives.

Alternative 1 - No Action: This alternative eliminates all project-related environmental impacts. It does not accomplish the objective of producing oil from the Northstar Unit.

Alternative 2 - Point Storkersen Landfall/BPXA Proposal: This alternative represents the shortest pipeline option with the lowest range of costs. Principal concerns involve a subsea pipeline in arctic waters, issues related to a trenched shoreline crossing through the permafrost transition zone, and a 9.55-mile overland pipe installation through undeveloped tundra.

Alternative 3 - Point Storkersen/West Dock Staging Pad Pipeline Route: This alternative is identical to the BPXA proposal from Seal Island to the Point Storkersen landfall. The onshore pipeline route is directed eastward approximately 3.6 miles across undeveloped tundra before reaching an existing pipeline corridor, which it then follows to the West Dock Staging Pad and on to the Central Compressor Plant and Pump Station No. 1. Approximately 3.1 miles of undeveloped tundra are crossed near the southern end of the alignment. This alternative maximizes the use of existing pipeline and roadway corridors within the Prudhoe Bay industrial complex while maintaining the Point Storkersen landfall.

Alternative 4 - Point McIntyre/West Dock Staging Pad Pipeline Route: Compared to Alternatives 2 or 3, Alternative 4 involves a longer offshore pipeline route to a new trenched shoreline landfall near Point McIntyre. This landfall is adjacent to the existing Prudhoe Bay area pipelines and roadways, and most of the onshore pipeline is routed along existing disturbed corridors. Approximately 3.1 miles of corridor extend through undeveloped tundra near the southern end of the alignment.

Alternative 5 - West Dock Causeway Landfall: This alternative includes nearly the same offshore pipeline route as Alternative 4 but avoids the shoreline permafrost transition zone by routing the pipeline to the West Dock causeway. The causeway would be widened from the landfall location to the shoreline to accommodate the pipelines. Most of the onshore pipeline route is located along existing Prudhoe Bay area pipeline corridors and roadways, identical to Alternative 4 from the West Dock Staging Pad to the Central Compressor Plant and Pump Station No. 1. Approximately 3.1 miles of corridor extend through undeveloped tundra near the southern end of the alignment.

1. **No-Action Alternative:** Under the no-action alternative, employment and Federal and State revenue would not be realized. This alternative would also mean that Northstar reserves would not be available to offset declining North Slope production, which is necessary to keep the TAPS operating. Northstar production is important to maintaining domestic production and reducing dependence on imports. North Slope production accounts for about 20% of domestic oil production.

Under the no-action alternative MMS would disapprove the DPP. The MMS concluded that this is not appropriate. The MMS action on the DPP is not necessary or required for the development

project to proceed. Development and production can proceed on State lands without MMS approval of the DPP. Disapproval of the DPP (which cannot and would not stop the project) would only restrict drilling of OCS wells. If the Federal wells proposed under the DPP were not drilled, Federal reserves would either be partially drained through production from the wells on State lands or would not be produced at all. In either case, Federal reserves would not be efficiently produced, resulting in lost conservation of resources and lost royalty on that portion of the reserves under OCS leases.

The State of Alaska receives 27% of all bonuses, rentals, and royalties for leased OCS lands that fall within 3-6 miles offshore the State of Alaska (the "8g" zone). Both of the leases overlying the Northstar reservoir are 8g leases. Royalties from Northstar development also will contribute to funding the Land and Water Conservation Fund and the Historic Preservation Fund; these funds are distributed to the States for local government grants. In addition, Alaska Native groups receive funds through the National Park Service Tribal Preservation Program, which is funded in part from OCS revenues. The State would not receive its share of the Federal revenue, and other funds would not benefit from the revenue generated by the OCS portion of the Northstar development if the DPP was not approved.

2. Environmentally Preferred Alternative(s): In the Final EIS, MMS identified Alternatives 2 and 3 to be environmentally preferred alternatives. This is based predominantly on the offshore segment of the pipeline and associated oil-spill risks. Alternatives 2 and 3 have the shortest segment of offshore pipeline among all the alternatives. This reduces the probability of an offshore oil spill and associated impacts to marine resources, including the endangered bowhead whale and associated subsistence hunting. Alternatives 2 and 3 have the smallest estimated spill volume from the offshore pipeline compared to other alternatives. Alternative 2 also has the smallest estimated oil-spill volume for both the onshore and offshore pipeline segments compared to all the alternatives. Given that the Final EIS identifies oil spills as a source of potential significant effects, the MMS believes that the alternative(s) that reduce the probability of a spill and potential spill volumes and avoid areas closer to the migration route of the endangered bowhead whale, would be an environmentally preferred alternative.

Alternative 2 also minimizes volumes of dredge and fill material associated with the project, which would reduce the potential direct and unavoidable impacts of activities on water quality. The MMS concludes that the alternative that reduces direct and unavoidable impacts would be environmentally preferable.

Alternative 5 was identified as the environmentally preferred alternative in the Final EIS by the Corps of Engineers and other Federal cooperating agencies (FWS, the Environmental Protection Agency (USEPA), and the National Marine Fisheries Service (NMFS)). The Final EIS, and the Corps of Engineers in its Record of Decision dated May 3, 1999, summarize the basis for these agencies identifying Alternative 5 as the environmentally preferred alternative.

The State of Alaska and the NSB identified Alternative 2 as an environmentally preferred alternative. Both noted that Alternative 2 had the shortest offshore pipeline segment, which reduced potential offshore oil spills. In additional comments to the Assistant Secretary of the Army dated April 21, 1999, the Governor of Alaska noted that the State also had analyzed different pipeline routes and concluded that Alternative 2 is the safest pipeline route and would have the least likely impacts to biological resources.

3. The MMS Preference And Relevant Factors: The MMS's jurisdiction for the selected alternative is limited to drilling and producing wells into the OCS and oil-spill response plans. These authorities are not directly affected by the action alternatives analyzed in the Final EIS.

- In the Final EIS, the MMS concluded that Alternative 2 was the agency preferred alternative. The MMS based this on relevant factors, including economic and technical considerations and statutory mission. The State of Alaska, the NSB, ICAS, the AEW, and the general public repeatedly commented on the difficulties of containing and cleaning up oil spills in the offshore, particularly in broken-ice conditions. The MMS agrees that offshore oil spills are more problematic than onshore oil spills. In this respect, reducing potential oil spills in the offshore environment is a primary consideration. Alternatives 2 and 3 have the shortest segment of offshore pipeline and the smallest estimated offshore spill volumes.
- The majority of the offshore pipeline segment under Alternatives 2 and 3 is within the Barrier islands, where stable, landfast ice persists for longer periods of time than outside the barrier islands. The MMS believes this enhances oil-spill response capability. This also reduces the potential for oil spills occurring in the more dynamic broken-ice conditions beyond the barrier islands, where it is more difficult to clean up, and transportation and spreading could increase risks to offshore resources, including the endangered bowhead whale and spectacled eider.
- The NSB and the public have repeatedly commented on the uniqueness of a subsea pipeline in the Arctic. Ice gouging, strudel scour, and permafrost are among the unique arctic conditions that the public is concerned about. All three are critical to pipeline design and have been addressed in the Northstar design. Given the extensive experience in designing and engineering for permafrost thaw settlement, which is only present for a portion of the Northstar pipeline route, compared to ice-gouging events, which can occur along the length of the pipeline route, the MMS concluded that Alternatives 2 and 3 minimize the exposure of the pipeline to potential ice-gouging events.
- Any of the other action alternatives would require a new engineering design of the pipeline and other facilities, additional field surveys to support design, and resubmission of a new right-of-way application and coastal consistency review, which could cause further project construction delays. The MMS estimates that it would be up to a year, and possibly 2 years, for new fieldwork and a technical review of the right-of-way by the State Pipeline Coordinator's Office (SPCO). The Governor's comments to the Secretary of the Interior echoed this potential delay.

Substantial public comments were directed at the employment benefits of the project. The Final EIS concluded that 730 jobs would be created, which would generate approximately \$52 million in Alaskan wages during the construction phase alone. An estimated 100 annual jobs and a payroll of \$225 million would be delayed, if an alternative other than BPXA's proposal were adopted.

4. **Departmental Considerations:** In its March 10, 1999, comments on the Final EIS, the Department of the Interior recommended to the Corps of Engineers that Alternative 5 provided the greatest protection to the nearshore and coastal areas, citing that the coastal lagoons are highly significant feeding grounds and migration routes for fish, shorebirds, and waterfowl. The Department recognized that the likelihood of a spill was very small but remained concerned of impacts to fish and wildlife resources, if a spill did occur. The Department also recognized that species of importance also existed outside the barrier island. These included protected species—the endangered bowhead whale and threatened Steller's and spectacled eiders, and marine mammals—polar bears and ringed seals. The Department noted that Alternative 2 may result in unacceptable impacts to aquatic resources of national importance. On April 5, 1999, the Department elevated the Corps of Engineers' Notice of Intent to issue its 404 permit for BPXA's proposed pipeline route (Alternative 2) to the Department of the Army. The elevation was conducted in accordance with the procedures and criteria established under a Section 404(q) Memorandum of Agreement between the Departments of the Interior and the Army. The Department of the Army denied the Department of the Interior's recommendation to permit an alternative pipeline route, and the Corps of Engineers issued a 404 permit for the Alternative 2 route, which included 24 specific measures.

F. PRACTICABLE MEANS TO AVOID OR MINIMIZE ENVIRONMENTAL HARM: The MMS jurisdiction for the selected alternative is limited to drilling and producing from wells drilled into the OCS and oil-spill response plans. The MMS believes all practicable means to avoid or minimize environmental harm from these aspects of the project (OCS drilling and production and oil-spill response plans) have been adopted. All OCS wells must comply with applicable MMS safety and pollution prevention regulatory requirements under 30 CFR 250 and applicable OCS lease sale stipulations for leases OCS Y-0179 and 0181. BPXA also has incorporated numerous forms of mitigation in its project design and operations. The oil-spill response plan must comply with MMS regulations of 30 CFR 254. The MMS is requiring BPXA to comply with 10 specific additional conditions as outlined in the sections below.

1. **Drilling and Production:** Regarding the drilling and production activity directly under MMS jurisdiction, the MMS notes that BPXA has adopted many features into the project design and operation to minimize or avoid environmental harm. In particular, BPXA has agreed to restrict certain drilling operations during defined broken ice-conditions to minimize the potential for oil spills during this period. Drilling and production operations into the OCS will be subject to stringent MMS safety and pollution prevention requirements and MMS inspection and oversight. State requirements will apply to drilling and production activity on State lands. The MMS will

coordinate with the State in implementing and enforcing our respective regulatory responsibilities for the project.

To provide for additional level of safety and protection, the MMS is requiring BPXA to comply with the following conditions related to drilling and production operations:

- Before production begins, BPXA must conduct a preproduction test and inspection of the production facilities similar to the provisions under 30 CFR 250.804(a)(11). The MMS must be notified in advance to allow for its participation. BPXA also must provide this office with a copy of a schematics of the production safety and electrical systems similar to the provisions under 30 CFR 250.802. The MMS also encourages BPXA to provide representatives from the North Slope Borough (NSB), and local and tribal governments with an orientation of the production facilities to familiarize them with the safety and pollution prevention systems and safety management programs that will be in place.
- All wells drilled into the OCS must comply with the same terms and conditions adopted by the State of Alaska in its February 4, 1999, Coastal Consistency Determination and any subsequent additions or modifications.
- Before drilling activity begins, BPXA must clarify the presence or absence of hydrogen sulfide for the Northstar reservoir. BPXA has noted that the reservoir has "sweet" oil, which generally means hydrogen sulfide is not present. A final classification must be submitted with the first application for permit to drill for an OCS well, pursuant to 30 CFR 250.417(c).
- Before drilling activity begins, BPXA must provide this office with the name and status of a drilling unit that would be used for relief-well drilling. BPXA must advise this office of changes in the availability of the relief-well rig or other equipment and supplies necessary for relief-well activity, as described in the Blowout Control/Relief Well Plan included in the Oil Discharge and Prevention and Contingency Plan (ODPCP), Section 1.6.3.
- Before drilling the first OCS well, BPXA must provide this office with confirmation that the gravel island, as built, meets the design basis. BPXA must provide this office with an annual report that summarizes the integrity of the gravel island.

Additional potential mitigation directly related to MMS authority over drilling and production was considered but not adopted by the MMS.

a. **Drilling Prohibitions During Broken Ice:** The MMS believes that the risk of a major oil spill from a development well blowout is low. Less than a total of 1,000 barrels of oil due to blowouts have been spilled between 1971-1997 from over 24,000 U.S. OCS exploration and development wells. Stringent regulatory requirements, including blowout prevention equipment, subsurface safety valves, and redundant safety systems contribute to this safety record. Six exploratory wells have been drilled into the Northstar reservoir, which provide substantial

knowledge of geologic conditions to enhance safe well design and operation.

The MMS notes that as an additional precaution, BPXA already has adopted a voluntary 3-tier seasonal drilling restriction as part of its oil-spill contingency plan (BPXA letter to the ADEC dated Aug. 14, 1998). The ADEC adopted BPXA's voluntary 3-tier seasonal drilling restriction as a condition of its ODPCP approval and identified the Northstar broken-ice periods in the seasonal drilling restriction (see ADEC's approval letter dated Feb. 9, 1999), which states:

- (a) Restrict drilling the first development well into the targeted hydrocarbon formation(s) during the defined broken ice periods for the site location;
- (b) Restrict drilling of subsequent development wells into previously untested hydrocarbon formations during the defined broken ice period conditions under (d) below;
- (c) Further drilling restrictions will be evaluated and may be imposed on a case-by-case basis by a State of Alaska agency/commission with direct authority over subsurface drilling activities; and
- (d) Unless a more specific broken ice monitoring program is approved by the ADEC, the Northstar broken ice periods are defined as follows: i) spring period shall commence 15 days prior to the reported early break-up date of June 28 and proceed until the ice concentration remains at less than 30% for a period of 48 continuous hours and for a distance of 0.5 miles as viewed in all directions adjacent to Northstar production facility during break-up; and ii) the fall period shall commence on the earliest date after September 25 when the ice concentration remains at 30% or more for a period of 48 continuous hours and for a distance of 0.5 miles as viewed in all directions adjacent to Northstar production facility and proceed until the ice is aggregated and contiguous with shore based ice with an ice thickness of 18 inches or more in each of the four cardinal compass directions adjacent to Northstar production facility.

The MMS concludes that the low probability of a spill combined with the precautionary measures adopted by BPXA, and as required by the MMS and the State, makes additional restrictions unnecessary.

b. Shut in or Reduce Flow in the Pipeline During Periods of Broken Ice to Minimize Oil-Spill Risk: The MMS believes that the probability of a spill from the pipeline is small. The MMS notes that the SPCO, which is the principle permitting authority for the pipeline, has completed its 3-year technical review of the proposed Northstar pipelines, and the State's memorandum dated June 18, 1999, on the Northstar Development Pipelines Engineering Review concluded that, "...the proposed pipelines connecting Seal Island to existing onshore facilities can be safely constructed and operated."

The FEIS notes that safety features incorporated into the project should reduce the chance of oil spills occurring. For the pipeline, these features include:

- extra thick pipe;
- specially formulated steel;
- state-of-the-art leak-detection systems;
- scheduled in-line monitoring program using "smart pigs";
- remotely controlled automatic shutdown valves at the island and at the shore crossing;
- cathodic protection;
- corrosion inhibitors;
- epoxy coating on the outside of the pipe; and
- all weld design to avoid flanges, valves or other fittings in the sub-sea portion of the pipeline.

Shutdown or reduced flow in the pipeline also will require shutdown or curtailment of the production facilities. The MMS believes that cyclical startup and shutdown of a production facility will cause unnecessary wear on equipment. Cyclical temperature and pressure changes on equipment, seals, etc., can increase the risk of equipment failure as compared with continuous operations. Cyclic production also can affect reservoir performance and total recoverable reserves and associated revenue and project economics

The MMS also notes that mitigation has been adopted to minimize oil-spill risks, including during periods of broken ice. These include expanded over-ice sampling programs during the solid-ice season to detect smaller potential spill volumes before broken ice conditions, and the installation of a prototype leak-detection system external to the carrier pipe to detect small, chronic leaks in the pipeline. The Corps of Engineers, in its 404-permit approval, imposed these requirements. The MMS also reaffirmed these conditions in its approval of the ODPCP.

The MMS believes that the pipeline design and planned inspection and monitoring programs make the probability of a spill low. Given the additional mitigation already imposed to enhance spill detection and the operational considerations of cyclic shutin or reduced flow during limited times of the year, the MMS concludes that additional restrictions on the pipeline are not necessary or practicable.

c. Onsite Relief-Well Capability: BPXA has developed well-control procedures to minimize the risk of a blowout during drilling operations. In addition, to prepare a well for production a subsurface safety valve is require in the well tubing to prevent an uncontrolled flow to the surface. As noted earlier, the MMS believes that the probability of an oil spill from a well on the OCS is low.

If a blowout were to occur, the operator would initially conduct surface control techniques to reestablish control of the well. If surface access to the original well is lost due to fire or the ground

surface is unfavorably affected (cratering), then a relief well may be necessary to regain control of the well. BPXA has developed a relief-well plan (see ODPCP, Sec. 1.6.3, Blowout Control/Relief Well Plan) that details the time and process to be used to construct a relief-well pad and to mobilize a relief-well rig. The MMS believes that this plan is appropriate and reasonable for relief-well planning purposes.

The availability of a second drilling rig at the production site to provide this service has been suggested. The MMS examined this option and does not consider it appropriate. In the event of a fire on the island or other unsafe condition, such as damage to the island, it may not be possible to access this second rig. In addition, the appropriate location for the relief well may not be on the island. Logistical consideration could make mobilization of the rig from a shore location more advantageous than moving a rig from the island.

2. Oil-Spill Response Capability: The MMS approved the Northstar Oil Discharge Prevention and Response Contingency Plan (ODPCP) on June 18, 1999. The ODPCP demonstrates BPXA's capability to respond to a worst-case oil spill to the maximum extent practicable, pursuant to 30 CFR 254.

The Northstar ODPCP includes specific strategies, tactics, equipment, and resources for responding to an oil spill in broken-ice conditions. This includes an expanded inventory of vessels and a three-barge-based response system for broken-ice periods. Four 42-foot Bayliner vessels were specifically designed and constructed to operate in the Beaufort Sea. The barges will be used to maintain open water channels from West Dock to the Northstar island during the latter portion of the fall freezeup season to enhance late fall response capabilities. These equipment inventories and response strategies were developed through the North Slope Spill Response Project Team (NSSRPT), which was sponsored by the State of Alaska. Members included the ADEC, the NSB, the U.S. Coast Guard, the Environmental Protection Agency (USEPA), the MMS, and industry (Alaska Clean Seas [ACS] ARCO, BPXA, Alyeska, and Exxon). The results of the NSSRPT efforts and resulting guidelines for criteria for developing oil spill response plans are detailed in the ACS technical manuals. The ADEC, Division of Spill Prevention and Response, Commissioner's Response to Comments and Decision Document dated January 7, 1999, for BPXA's Northstar development project spill-response plan can be found as Attachment C of the State's Division of Governmental Coordination (ADGC) Final Consistency Determination dated February 4, 1999, for the Northstar development project.

Several additional mitigating measures were adopted by the MMS and the State of Alaska in approving the ODPCP and by the Corps of Engineers in their approval of the 404 permit for the project. This mitigation was directed at reducing the probability of a spill and improving response capabilities. These included improved monitoring for leak detection from the pipeline, expanded equipment inventories, prestaging equipment at one of the natural islands closer to the pipeline, developing additional response strategies, participating in additional research efforts, and conducting demonstration exercises. These are described in more detail below.

The State's approval of the Northstar ODPCP included the following eight conditions addressed as follows:

- Spill Response Barge requirements;
- Continued Research and Development, through participation in the Mechanical Recovery of Oil in Ice Infested Waters (MORICE) project;
- Drills and Exercises to be Performed, such as conducting field tests of equipment to confirm performance under broken ice conditions;
- ACS Technical Manuals;
- Limited Seasonal Drilling Restrictions
- Response Personnel Training Requirements
- Response Planning Standard; and
- Notice of Changed Relationship with Response Contractor. The MMS reaffirmed these conditions in its approval of the ODPCP.

The MMS also notes that the U.S. Department of the Army permit N-950372, Beaufort Sea 441, issued by the Corps of Engineers included additional terms and conditions directed at improved spill-response capability. These terms also were reaffirmed in MMS's letter approving the OSPCP for the Northstar project, to require:

- Designing, installing, and maintaining of a prototype oil-spill leak-detection system, external to the carrier pipeline, to detect a chronic oil spill below the current threshold of 97.5 barrels per day. The system is required to be able to detect a leak rate of 32.5 barrels per day.
- Prepositioning of oil-spill response equipment on Stump Island (subject to landowner permission) and near the Point Storkersen pipeline landfall;
- Identifying potential containment sites within Gwydyr Bay;
- Developing a detailed map of currents in Gwydyr Bay from the western edge of the Kuparuk River Delta to West Dock;
- Developing detailed bathymetry for Gwydyr Bay from the western edge of the Kuparuk River Delta to West Dock;
- Developing a specific tactical plan for oil-spill response inside the barrier islands of Gwydyr Bay (western edge of the Kuparuk River Delta to West Dock); and
- Developing a through-ice sampling program to detect an oil spill under stable, solid ice (~December 1 to May 1), through temporal and spatial sampling to ensure at least a 70% probability of detecting a 32.5-barrel-per day chronic leak.

The MMS is also requiring BPXA to comply with the following condition as an additional measure to avoid or minimize harm:

- Before production begins, BPXA must provide this office and other agencies with a management plan for the leak-detection system (over ice, in trench, and in line), explaining the process to incorporate detection data into overall oil-spill identification, reporting, and response actions for the project.

One additional form of oil-spill response mitigation was considered by the MMS but not adopted. During public comment, a recommendation was made to form a Regional Citizen's Advisory Committee (RCAC) to oversee North Slope response-planning activities. The MMS concluded that it does not have the authority to require formation of a RCAC but believes that other mechanisms are available to ensure continued community involvement in oil-spill response-planning activities. These include the North Slope Sub-Area Contingency Plan and the North Slope Spill Response Program Committee. The MMS is also committed to keeping local and tribal governments informed of oil-spill response activities, including related response drills and research.

3. Other Considerations: The MMS is requiring BPXA to comply with the following conditions, which provide a practicable means to avoid or minimize environmental harm resulting from long-term operation of the Northstar project and continued coordination with Native and tribal interests and concerns.

- Before production begins, BPXA must provide this office with the contact (title or position) and description of the process through which claimants (particularly Native subsistence users) would file a claim for oil-spill removal costs and damages, pursuant to 30 CFR 253 Subpart F. This information must also be provided to the NSB, the Alaska Eskimo Whaling Commission (AEWC), and the Native villages and tribal governments of Kaktovik, Nuiqsut, Barrow, and the Inupiat Community of the Arctic Slope (ICAS).
- *BPXA must provide the MMS with results of the various monitoring programs and studies related to noise and whales that have been required by the Corps of Engineers, the State, and the NSB in their respective permit and approval actions. The MMS reserves the authority to take remedial action for activities under its jurisdiction, if monitoring or studies show that these activities are having significant adverse effects. The MMS also requests that BPXA provide this office with copies of other project-specific monitoring and studies program results, such as for water quality and sedimentation and spectacled eiders, for our reference; this does not include standard permit compliance monitoring and reporting, such as for the National Pollutant Discharge Elimination System permit.*
- Within 30 days of this approval, BPXA must provide this office with copies of the environmental training and orientation programs referenced in the DPP and which are being used to comply with State lease stipulation number 2. The MMS will review these programs and may require additions or modifications to these programs to address specific issues or concerns relative to OCS drilling activity.
- Before production begins, BPXA must provide this office, the NSB, the AEWC, and the Native villages and tribal governments of Nuiqsut, Kaktovik, Barrow, and the ICAS with a plan for long-term coordination with local communities and subsistence users. At a minimum, BPXA

- must conduct an annual review of Northstar activities with these interests. BPXA must notify this office of changes to plans and of any unresolved issues identified during coordination efforts.

Additional practical means to avoid or minimize environmental harm to other aspects of the project under the direct authorities of other Federal, State, and local authorities have been adopted. The following permit and approval actions have been taken and include additional terms and conditions.

- The Corps of Engineers (see their Record of Decision and permit authorization dated May 3, 1999, which includes 24 special conditions required by the Corps);
- The USEPA (see their decision and permit approval dated May 21, 1999, for the National Pollutant Discharge Elimination System permit for the Northstar facility, which became effective June 20, 1999).
- The ADGC and the ADEC (see the ADGC's conclusive coastal zone consistency concurrence letter dated Feb. 4, 1999, which contains 146 stipulations, and the ADEC Certificate of Reasonable Assurance for Alternative 2 dated Feb. 17, 1999, which includes one condition on sediment chemistry monitoring);
- The NSB (see their Assembly's approval and rezoning authorization dated Dec. 1, 1998, for the Borough's master plan). The rezoning of the NSB's master plan included conditions that addressed drilling restrictions and monitoring program requirements.

The following actions are pending and may include additional mitigation as determined necessary by the authorizing agency.

- Underground Injection Control (UIC) permit for the proposed Class I industrial waste disposal wells, which may be used for disposal of nonhazardous, nonexempt fluids. The USEPA expects to complete its UIC review and issue the UIC permit by late fall 1999.
- Pipeline Right-of-Way for construction of the pipeline. The State of Alaska Pipeline Coordinator's Office issued a Commissioner's Analysis and Proposed Decision dated July 6, 1999, for the Northstar Oil and Gas Pipelines Right-of-Way Application. A final Right of Way is expected this fall.

G. RECOMMENDATIONS FROM THE ALASKA STATE GOVERNOR AND COASTAL CONSISTENCY: The MMS is required to adopt recommendations from the Governor that provide for reasonable balance between national interest and the well-being of the citizens of the affected state. The State of Alaska, ADGC, was the contact point for the Governor's office during review of the Northstar DPP. The ADGC coordinated State and local comments on the Northstar project, including the Draft EIS and State and Federal permit proposals, including the DPP, through the State Coastal Zone Management Program. On February 4, 1999, the State of

Alaska issued its Final Consistency Determination (CD), as required by the Alaska Coastal Management Program (ACMP) [6 AAC 80.040-6 AAC 80.150] and concurred with BPXA's certification that the project is consistent with the ACMP. The State's approval of the Northstar development project included 146 project-specific stipulations attached to the State's CD (Attachment A of the CD). In a letter to MMS dated March 2, 1999, the ADGC, on behalf of the Governor, recommended that the MMS require that wells drilled into the OCS be subject to all of the same stipulations and conditions as State wells. Because all of the wells will be drilled from State waters, MMS agreed that all of the stipulations identified in the State's CD would apply to the entire project, including the wells targeting the OCS portion of the reservoir.

The Governor of Alaska submitted two letters to the Secretary of the Interior dated March 19 and March 30, 1999. The Governor supported BPXA's proposal, noting that BPXA's proposal was the safest and incorporated the views and traditional knowledge of the Native community. The Governor also noted that all of the Northstar facilities are on State lands, and that the State had conducted a thorough technical review of the project, including the proposed subsea pipeline.

The Governor also submitted a letter to the Corps of Engineers dated April 21, 1999. The Governor outlined the State's position on Northstar, reiterating the State's support of Alternative 2 as the safest alternative, and outlining the exhaustive technical permit review conducted by various State agencies, including the ADEC water quality, ADGC coastal zone management, and SPCO pipeline engineering design.

H. ENDANGERED SPECIES AND ESSENTIAL FISH HABITAT CONSULTATIONS:

The Corps of Engineers conducted consultations under Section 7 of the Endangered Species Act (ESA) as lead agency during preparation of the EIS. The NMFS issued a nonjeopardy biological opinion on March 4, 1999, which included five conservation recommendations for the Bering Sea stock of bowhead whales. The FWS issued a nonjeopardy biological opinion on March 11, 1999, which included: (1) six terms and conditions implementing mandatory reasonable and prudent measures for spectacled and Steller's eiders; (2) three recommended conservation measures; and (3) three terms and conditions implementing mandatory reasonable and prudent measures for transportation corridor (tanker vessels from Valdez).

The five conservation recommendations in the NMFS' biological opinion addressed the following:

1. Minimize vessel and helicopter activities after August 31 to reduce potential harassment of migrating bowhead whales.
2. Use agitation techniques for placement of sheetpiling.
3. Develop and conduct an acoustic monitoring study.
4. Conduct or support studies to describe impact of the Northstar facility on the migration path of the bowhead whale.
5. Restrict oil-spill vessel ice-maintenance activity until after October 15 of each year.

Except for Measure 5, the MMS has no direct regulatory authority over these activities. In its March 1, 1999, comments to the Corps of Engineers on the Final EIS, the BPXA noted that Measures 1, 2, and 5—as noted in the NMFS biological opinion—already are incorporated in BPXA's proposal, and that BPXA would comply with them. BPXA also noted it would comply with Measures 3 and 4, and the Corps of Engineers included these terms in its 404 permit approval. No additional requirement is necessary for approval of the DPP.

The Corps of Engineers adopted terms and conditions in its 404 permit approval dated May 3, 1999, which would require BPXA to comply with all of the mandatory terms and conditions implementing the reasonable and prudent measures in the FWS biological opinion. No further action by the MMS would be necessary to comply with these measures. Of these mandatory provisions, two addressed oil-spill response-planning considerations, which would fall within the responsibility and authority of the MMS. These provisions included an increased over-ice sampling program to detect under-ice oil spills and the purchase of additional specific buoys to scare eiders from an oil spill. The MMS reaffirmed these requirements in its June 14, 1999, letter approving the ODPCP. Another measure addressed development of a survey and/or radio tracking study to identify areas in the Beaufort that are important to spectacled and Steller's eiders. This study will be developed cooperatively between the FWS, the U.S. Geological Survey's Biological Resources Division, and the MMS; no additional requirement is necessary for approval of the DPP.

The FWS recommended three conservation measures that addressed the following:

1. Minimize the number of helicopter routes during construction and operation of the Northstar project between May 15 and September 15;
2. Comply with State regulations governing storage and disposal of refuse; and
3. Monitor refuse storage to determine if foxes, ravens, or gulls gain access to food.

These recommendations are outside the authority of the MMS to regulate; however, they were addressed in the Corps of Engineers' 404 permit action, and in BPXA's March 18, 1999, comments. BPXA agreed to comply with the measures. No additional requirement is necessary for approval of the DPP.

The Corps of Engineers, as the lead agency, consulted with the NMFS under the provisions of the interim final rule implementing the Magnuson-Stevens Fishery Conservation and Management Act requirements for Essential Fish Habitat (EFH), dated December 19, 1997. In its March 5, 1999, letter on the Final EIS, the NMFS concurred with the Corps that there would be no adverse effects to the EFH or for the anadromous fisheries present in the Northstar project area as a result of the action being considered. It was identified that in the event of a large oil spill anadromous, marine,

and estuarine fishery resources could be adversely affected due to the toxic effects of the oil and cleanup efforts impacting coastal vegetation and shorelines.

The NMFS identified nine conservation recommendations (numbered as 6-14 in their March 5 letter):

6. Increase over-ice sampling program for under-ice oil spill detection.
7. Schedule construction activity to minimize effects to whales.
8. Prestage oil-spill response equipment.
9. Reduce pipeline flow during certain periods.
10. Prohibit drilling of the first development well into the target formation during broken-ice conditions.
11. Prohibit drilling of exploration wells into untested formations during broken-ice conditions.
12. Establish a monitoring program to track disposal material from trench excavation.
13. Conduct monitoring program on bioaccumulation, concentration, and persistence of discharge contaminants.
14. Monitor effluent discharges.

In a separate letter to the NMFS dated April 2, 1999, the MMS responded to each of the EFH conservation recommendations. The MMS noted that the original planned schedule of activities should minimize effects to resources consistent with Measure 7, and that BPXA had agreed to comply with Measures 10 and 11 (BPXA letter dated Mar. 18, 1999). Measure 6 is consistent with FWS' mandatory reasonable and prudent measures and subsequent to the EFH consultation and was incorporated into the Corps of Engineers' 404 permit approval and reaffirmed in the MMS approval of the OSCP. Measure 8 also was incorporated into the Corps of Engineers' 404 permit approval and reaffirmed in the MMS approval of the OSCP. Measures 12, 13, and 14 address dredge and fill and effluent discharges under the direct authorities of the Corps of Engineers and EPA, respectively. The Corps of Engineers and the EPA have included provisions for monitoring in their respective permit actions.

Measure 9 would require reducing the flow rate through the pipeline during certain periods to reduce the potential for undetected oil spills; the MMS concluded that with the leak-detection and pipeline monitoring programs in place and the low probability of a leak, reducing pipeline flow was unnecessary. Subsequent to the EFH consultation, additional provisions adopted by the Corps in its 404 permit approval require installation of a prototype leak-detection system external to the pipeline to aid in detecting spills, and that would make reductions in pipeline flow unnecessary.

In conclusion, consultations resulted in nonjeopardy biological opinions from the FWS and NMFS for endangered species and concurrence with the Corps of Engineers' EFH assessment of no adverse effects. Mandatory reasonable and prudent measures have been adopted. With the exception of the NMFS' EFH conservation recommendation for reduced pipe flow, the applicant or various permitting authorities have addressed ESA and EFH recommendations made by the

NMFS and FWS. The MMS concluded that reduced pipe flow was unnecessary. No additional requirement is necessary for approval of the DPP.

I. CONSULTATION WITH TRIBAL GOVERNMENTS AND ENVIRONMENTAL JUSTICE:

1. Consultations: Government to government consultations was conducted with federally recognized tribes on the North Slope during preparation of the EIS. After adoption of the Final EIS, the MMS conducted additional consultations specifically related to the DPP in meetings with the ICAS and Native villages of Barrow and Nuiqsut. The principle concerns raised were oil-spill response capabilities, compensation in the event of an oil spill, the adequacy of environmental baseline, pipeline burial depth and repair, and inspection and oversight.

The MMS believes that these concerns are addressed through the Federal, State, and Northstar specific oil-spill response-planning requirements (including the North Slope Sub-Area Contingency Plan and the Northstar ODPCP); the State of Alaska's review of BPXA's pipeline right-of-way application; and environmental monitoring and studies to be conducted by BPXA, as required by permits and approvals issued by the Corps of Engineers, the State, and the NSB. The MMS is committed to continued coordination with the tribal governments throughout the Northstar project, including oil-spill response planning and associated drills and exercises and inspection and oversight activities conducted by the MMS. The MMS also has committed to arrange followup meetings with the Tribes to review entitlements and procedures for damage assessment and compensation in the event of an oil spill. The MMS is requiring BPXA to provide a contact and process for making claims in the event of a spill and to update plans for coordination with local and tribal governments during the life of the project.

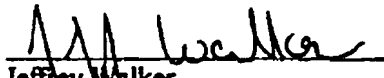
2. Environmental Justice: In 1994, President Clinton signed Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and an accompanying Presidential Memorandum. The Executive Order requires Federal Agencies to address environmental justice issues when implementing their respective programs. The Final EIS addressed Federal Agency compliance with Executive Order 12898 regarding environmental justice in the issuance of permits and approvals.

The Final EIS (Chapter 7.10, Environmental Justice Considerations) concluded that the potential effects of Northstar development on North Slope Inupiat are not, on balance, disproportionately high. The potential adverse effects described in the Final EIS have a low likelihood of occurrence, have largely been mitigated by project design and operations, and will be further mitigated by conditions on construction and operation activities placed by agencies on project authorizations.

J. DECISION: The MMS approves the Northstar Development and Production Plan (DPP). Approval is necessary to drill and produce wells that have bottom-hole locations in OCS leases overlying the Northstar reservoir. The MMS concludes that approval of the DPP is necessary for expeditious and orderly development and conservation of OCS resources and would protect Federal royalty interest. The MMS concludes that the 10 specific conditions that MMS is requiring in approval of the DPP, in conjunction with the existing applicable regulatory requirements and lease

stipulations, provide all the practicable means to avoid or minimize environmental harm from the OCS drilling and production activities under MMS jurisdiction. Approval of the DPP does not authorize or otherwise approve other aspects of the development activity, including island or pipeline construction, that are located on State of Alaska lands and subject to the State and other permitting authorities.

Dated: 9/3/99


Jeffrey Walker
Regional Supervisor, Field Operations