

DISCLAIMER

The Redoubt Shoal Unit Development Project Environmental Assessment (EA) was prepared based on information supplied by the project proponent and applicant, Forest Oil Corporation. The U.S. Environmental Protection Agency (EPA) and its environmental contractor did not independently validate all of the data supplied by Forest Oil; their primary focus was on water and air quality. However, EPA and its environmental contractor did independently evaluate all of the data pertaining to EPA's authority (i.e., air and water quality). For other environmental issue areas, they conducted thorough reviews and provided comments, requested clarification regarding conclusions, and requested additional data. Data reviewed and used in the preparation of this EA is based on the following documents:

- The original and revised Environmental Information Document (EID), dated April 14, 1999, October 1, 1999, and January 2001.
- Original and revised National Pollutant Discharge Elimination System (NPDES) permit applications dated October 12, 1999 and February 29, 2000.
- EPA comments on the original EID-May 28, 1999.
- EPA comments on the revised EID-December 22,1999.
- Forest Oil responses and additional information provided on February 29, 2000.
- EPA environmental contractor review of the revised EID and associated documents and request for additional information – November 16, 2000.
- Additional information provided by Forest Oil on November 16, 2000.

Independent investigation and analysis of marine biological resources and impacts on threatened and endangered species was performed for this EA by EPA's environmental contractor. Other sources were consulted as appropriate to facilitate an independent assessment of potential environmental impacts of the proposed project and alternatives.

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EXECUTIVE SUMMARY

This environmental assessment (EA) addresses potential environmental consequences associated with the development of the Redoubt Shoal Unit in central Cook Inlet. Forest Oil's Osprey Platform is located in 45 feet of water and 1.8 miles southeast of the tip of the West Foreland in central Cook Inlet (Figure 1-1). The platform presently is designed to support exploratory drilling operations. Undeveloped oil and gas reservoirs, known collectively as the Redoubt Shoal Unit, are located within drilling reach of the Osprey Platform. The purpose of the proposed action is to convert the Osprey Platform from an exploratory drilling unit to production drilling operations to extract oil and gas resources from the Redoubt Shoal Unit.

The proposed project anticipates production of up to 25,000 barrels of crude oil per day and 4.3 million cubic feet per day of natural gas (NCG 2001). The crude oil will be sent via pipeline to the Trading Bay Production Facility (which is jointly owned by Unocal and Forest Oil) where it will be tied into the existing Cook Inlet Pipe Line Company system, and then transported to the Drift River Facility. The proposed project will increase currently declining Cook Inlet crude oil production (currently just below 30,000 barrels per day) by approximately 90 percent.

The Redoubt Shoal Unit Development Project, as proposed, includes the following components:

- Conversion of the Osprey Platform from a manned exploratory platform to a minimally-manned production platform.
- Production drilling operations using freshwater-based and oil-based drilling fluids. Drilling muds and cuttings will be disposed of with on-platform grind and injection facilities.
- Construction of a new oil production facility located near Kustatan on the West Foreland for oil separation, platform power generation, and produced water treatment for reinjection offshore.
- Transportation of crude oil and natural gas from the Redoubt Shoal Unit to the new oil production facility via a 1.8-mile onshore pipeline and a 1.8-mile offshore pipeline. An access road will be constructed along the route of the onshore pipeline.

The proposed project is identified in this EA as Alternative 1. Three additional alternatives were identified and evaluated:

- Alternative 2: Includes conversion of the Osprey Platform to production operations, construction of an onshore production facility, and construction of a 3.3-mile underwater pipeline from the Osprey Platform to the proposed Kustatan Production Facility. No onshore pipeline or access road would be constructed.
- Alternative 3: Includes conversion of the Osprey Platform to production operations, and construction of a 10.5-mile underwater pipeline from the Osprey Platform to the Trading Bay Production Facility. No onshore production facility or onshore pipeline would be constructed in the West Foreland area; a 0.1-mile onshore pipeline would be constructed at Trading Bay.
- Alternative 4: No action.

Potential environmental impacts were evaluated for each of the alternatives. Most potential environmental impacts identified during the EA (see Section 4) are negligible to minor. Areas with moderate to major or permanent potential impacts include the following:

- Minor to moderate short-term impacts on water quality and wetlands if a spill were to occur. Spills could consist of oil, gas, diesel fuel, or produced water from the Osprey Platform, onshore or underwater pipelines, or Kustatan Production Facility. The level of impact would depend on the size and location of the spill.
- Potentially significant and long-term adverse impacts on migratory birds if a major oil spill from the Osprey Platform, onshore or underwater pipeline, or Kustatan Production Facility were to occur. Impacts from smaller spills on birds may be minor to moderate and long-term, depending on size, location, and timing of the spill.
- Potentially significant long-term adverse impacts on the Cook Inlet beluga whale population if a major oil spill from the Osprey Platform or underwater pipeline were to occur. Impacts from smaller spills on the beluga population may be minor to moderate and long-term, depending on size, location, and timing of the spill.
- Potentially significant impacts on subsistence harvesting if a major oil spill from the Osprey Platform or underwater pipeline were to occur, including loss of access to key subsistence food items and subsistence habitats over the short to medium-term. The community of Tyonek would be most likely to be impacted.
- Moderate short-term impacts to the visual and recreational environment if a major oil spill from the Osprey Platform or offshore pipeline were to occur.
- Increased exposure of historical, cultural, and archaeological resources due to construction of the access road in a previously undisturbed area. Increased access could result in permanent and illegal damage to resources by trespassing and vandalism.

Alternatives 1, 2, and 3 would all have similar potential impacts on the marine environment associated with offshore activities (e.g., Osprey Platform and underwater pipelines) if a major oil spill were to occur. Alternative 2 (offshore pipeline to Kustatan) and Alternative 3 (offshore pipeline to Trading Bay) have a somewhat higher likelihood of a pipeline rupture due to the increased length of the underwater pipeline. Based on statistics from an industry-sponsored risk assessment for Cook Inlet operations (PLG 1990), the predicted number of spills from the underwater pipeline over an assumed 30-year project life is 0.04 for Alternative 1 (proposed project), 0.09 for Alternative 2 (offshore pipeline to Kustatan), and 0.3 for Alternative 3 (offshore pipeline to Trading Bay) (NCG 2001). Therefore, Alternative 1 (proposed project) is expected to have the lowest level of adverse impacts resulting from activities in Cook Inlet. While mitigating measures can be employed to minimize the probability of a major spill, smaller spills are likely to occur and the risk of a major spill cannot be eliminated. Alternative 2, in addition to a higher pipeline rupture/leak probability, would require construction of the underwater pipeline across a boulder field and may not be technically feasible. A proposed routing for Alternative 3 (offshore pipeline to Trading Bay) has not been defined; the technical feasibility of constructing a 10.5-mile pipeline from the Osprey Platform to Trading Bay is uncertain.

Onshore impacts, including impacts on water quality, are highest for Alternative 1 (proposed project) because of potential impacts from construction of the nearshore and onshore pipeline and access road and the Kustatan Production Facility. The access road would result in some minor wetlands destruction and would have the potential to impact historical, cultural, or archaeological resources. Leaks and spills from the onshore pipeline could impact terrestrial biota. Alternative 2 (offshore pipeline to Kustatan) involves construction of a short (i.e., less than 1,000 foot) onshore pipeline, and therefore would have lower terrestrial impacts. Alternative 3 (offshore pipeline to Trading Bay) would not involve onshore impacts to the West Foreland area because no access road or onshore production facility would be constructed. A

short (0.1-mile) road would be constructed in a previously developed area at Trading Bay. Most of the onshore impacts associated with the proposed project can be mitigated by: 1) minimizing wetland crossings and conducting wetlands mitigation and restoration activities as specified by a Corps of Engineers Wetlands Permit; and 2) avoiding locations known to contain cultural resources and conducting mitigation as specified in a Programmatic Agreement between Forest Oil, EPA, and the Alaska SHPO.

Based on the analysis of impacts presented in Section 4 and summarized in Table 5-1, Alternative 1 (proposed project) is judged to be the environmentally-preferred alternative. With proper mitigation and under the permit authority of other federal or state agencies, onshore impacts of the proposed project can be effectively mitigated and environmental impacts are not expected to be significant. Offshore impacts are lowest for the proposed project. While the potential for a major oil spill cannot be eliminated, the proposed project minimizes the underwater pipeline length and employs a variety of mitigation measures as described in Section 4. Therefore, potential adverse impacts on water quality and the marine environment are not expected to be significant.

ABBREVIATIONS AND ACRONYMS

AAC	Alaska Administrative Code
ACHP	Advisory Council on Historic Preservation
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AMSA	Area Meriting Special Attention
ANILCA	Alaska National Interest Lands Conservation Act
ANS	Alaska North Slope
ANSCA	Alaska Native Claims Settlement Act
AOGCC	Alaska Oil and Gas Conservation Commission
BA	Biological Assessment
bbl	barrel (one barrel equals 42 gallons)
Bbbl	billion barrels
BCF	billion cubic feet
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIRCAC	Cook Inlet Regional Citizens Advisory Council
CISPRI	Cook Inlet Spill Prevention and Response, Inc.
CMP	Coastal Management Program
CO	carbon monoxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DOT	U.S. Department of Transportation
EA	Environmental Assessment
EFH	Essential Fish Habitat
EID	Environmental Information Document
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EVOS	<i>Exxon Valdez</i> Oil Spill
FC	fecal coliform bacteria
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impact
FR	Federal Register
FRP	Facility Response Plan
gpd	gallons per day
gpm	gallons per minute
H ₂ S	hydrogen sulfide
HPC	Habitat of Particular Concern
KPB	Kenai Peninsula Borough
KV	kilovolts
KW	kilowatts
LMW	low molecular weight

ABBREVIATIONS AND ACRONYMS (Continued)

LNG	liquefied natural gas
MBPD	thousand barrels per day
MLLW	mean lower low water
MMB	million barrels
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
MMSCFD	million standard cubic feet per day
mph	miles per hour
MSA	Magnuson-Stevens Act
MSN	marine sanitation device
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGL	natural gas liquid
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O ₃	ozone
OCS	Outer Continental Shelf
ODCE	Ocean Discharge Criteria Evaluation
OSRO	Oil Spill Removal Organization
PM	Particulate Matter
ppm	parts per million
ppt	parts per thousand
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
SCADA	Signal Conditioning and Data Acquisition
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO _x	sulfur oxides
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
T&E	threatened and endangered
TAHC	total aliphatic hydrocarbons
TPAH	total polycyclic aromatic hydrocarbons
TSP	total suspended particulates
TSS	total suspended solids
tpy	tons per year
ug/kg	micrograms per kilogram
UIC	Underground Injection Control
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound