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APPENDIX B
ASSUMED MITIGATION MEASURES

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APPENDIX B

ASSUMED MITIGATION MEASURES

All Bureau of Ocean Energy Management (BOEM) sale proposals include rules and regulations prescribing environmental controls to be imposed on lease operators. Lease stipulations, outer continental shelf (OCS) regulations, and other measures provide a regulatory base for implementing environmental protection on leases issued as a result of a sale. The BOEM Environmental Studies Program and the analyses and monitoring of activities in a sale area provide information used in formulating the agency's regulatory control over the activities that occur during the life of the leases.

The Bureau of Safety and Environmental Enforcement (BSEE) has broad permitting and monitoring authority to ensure safe operations and environmental protection. Use of the best available and safest technologies during exploration, development, and production, as well as the adopted stipulations, are just a few of the measures designed to prevent environmental damage. The BSEE also monitors operations after drilling has begun and carries out periodic inspections of facilities (in certain instances, in conjunction with other Federal agencies such as the U.S. Environmental Protection Agency) to ensure safe and clean operations over the life of the leases.

The analyses in the environmental impact statement assume the implementation of all mitigation measures required by statute or regulation. In addition, the impact analysis assumes that sale-specific stipulations that were commonly adopted in past lease sales are in effect. The following is a brief description of the sale-specific stipulations or other mitigations assumed in the analysis of potential effects of the proposed action. Because over 100 individual mitigations can be applied to exploration and development activities in the Gulf of Mexico region, only lease stipulations are described individually. Both the lease stipulations and other protective environmental measures issued through Information to Lessees (ITL) in Alaska are described.

B.1 GULF OF MEXICO REGION

B.1.1 Lease Stipulations

B.1.1.1 Topographic Features

This stipulation designates a "No Activity Zone" around several underwater topographic features commonly called "banks" whose crests may contain biological communities including corals. The No Activity Zone is designed to protect the biota of these features from adverse effects of routine offshore oil and gas activities by preventing the emplacement of platforms, or the anchoring of service vessels or mobile drilling units, directly on the banks and requiring that drilling discharges be shunted in such a manner that they do not settle on the biota.

1 **B.1.1.2 Live Bottom (Pinnacle Trend)**
2

3 This stipulation is intended to protect the pinnacle trend area and the associated
4 hard-bottom communities from damage from oil and gas activities. If the required live bottom
5 survey report determines that the live bottom may be adversely impacted by the proposed
6 activity, certain measures, such as relocation or monitoring, may be required.
7

8
9 **B.1.1.3 Live Bottom (Low Relief)**
10

11 This stipulation is intended to protect hard-bottom communities not associated with
12 bathymetric features on the sea bottom. Biological communities such as seagrass beds, sponges,
13 and corals may occur on smooth topography. If the required live bottom survey report
14 determines that the live bottom may be adversely impacted by the proposed activity, certain
15 measures, such as relocation or monitoring, may be required.
16

17
18 **B.1.1.4 Oil-Spill Response (Eastern Gulf of Mexico)**
19

20 This stipulation is intended to minimize the risk of oil spills reaching Florida State waters
21 by requiring the staging of state-of-the-art mechanical oil-spill response equipment within
22 specified timeframes and by requiring that oil dispersant chemicals and equipment be maintained
23 in a state of readiness.
24

25
26 **B.1.1.5 Military Areas**
27

28 This stipulation has three sections: hold harmless, electromagnetic emissions, and
29 operational. The hold harmless section serves to protect the U.S. Government from liability in
30 the event of an accident involving a lessee and military activities. The electromagnetic
31 emissions section requires the lessee and its agents to reduce and curtail the use of equipment
32 emitting electromagnetic energy in certain areas. This reduces the impact of offshore oil and gas
33 activities on military communications and missile testing. The operational section requires prior
34 notification of the military when offshore oil and gas activities are scheduled within a military
35 use area to assist in scheduling activities and to prevent potential conflicts.
36

37 A second stipulation requires the evacuation, upon the receipt of a directive from the
38 BSEE Regional Director, of all personnel from all structures on the lease and the shutting in and
39 securing of all wells and other equipment, including pipelines, on the lease.
40

41 Two additional stipulations are applied to leases in the Eastern Gulf of Mexico Planning
42 Area only. In cooperation with the U.S. Air Force, “drilling windows” are established for
43 6-month periods during which exploratory operations or workover operations may be conducted
44 on leases. This time-sharing arrangement allows military operations to proceed in areas
45 containing leases without being disrupted by oil and gas activities, and without undue
46 disturbance to the exploratory activity and workover operations.

1 An additional stipulation has been included for the Western Gulf of Mexico Planning
2 Area only. The Naval Mine Warfare Stipulation is intended to eliminate potential impacts from
3 multiple-use conflicts in the Western Planning Area, Mustang Island Area East Addition,
4 Blocks 732, 733, and 734. The U.S. Department of the Navy has identified these blocks as
5 needed for testing equipment and for training mine warfare personnel.
6
7

8 **B.1.2 Other Mitigations Categories**

9

10 **B.1.2.1 Air Quality**

11 This category includes eight mitigations that apply to offshore exploration, development,
12 and pipeline activities.
13
14

15 **B.1.2.2 Archaeology**

16

17 There are 18 mitigations describing procedures for conducting archaeological surveys
18 before bottom-disturbing activities can occur on a lease; the procedures operators must follow
19 these to avoid impacts on potential prehistoric and shipwreck sites.
20
21
22

23 **B.1.2.3 Artificial Reefs**

24

25 Five mitigations exist to avoid impacts on artificial reef sites and permit areas.
26
27
28

29 **B.1.2.4 Chemosynthetic Communities**

30

31 There are five mitigations to avoid impacts on chemosynthetic communities in deepwater
32 areas of the Gulf of Mexico.
33
34

35 **B.1.2.5 Coastal Zone Management**

36

37 Five mitigations describe the conditions of approval in each of the Gulf Coast States.
38
39

40 **B.1.2.6 Topographic Features, Live Bottoms, and the Flower Garden Banks**

41

42 There are 13 mitigations to protect the health and stability of these benthic features.
43
44
45

1 **B.1.2.7 Miscellaneous Mitigations**
2

3 These apply to space-use conflicts, oil spill preparedness, remote operating vehicle
4 surveys in deep water, essential fish habitat, hydrogen sulfide, and other issues.
5

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7 **B.2 ALASKA REGION**
8

9
10 **B.2.1 Lease Stipulations**
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12
13 **B.2.1.1 Orientation Program**
14

15 This stipulation is designed to provide an increased understanding of, and appreciation
16 for, local community values, customs, and lifestyles of Alaska Native communities. The
17 required orientation program must be designed in sufficient detail to inform individuals working
18 on OCS projects of specific types of environmental, social, and cultural concerns in the area.
19 The orientation program must provide information to industry employees on protected species,
20 biological resources used for commercial and subsistence purposes, archaeological resources of
21 the area and appropriate ways to protect them, and reducing industrial noise and disturbance
22 effects on marine mammals and marine and coastal birds. The program must also include
23 information about avoiding conflicts with subsistence activities.
24

25
26 **B.2.1.2 Protection of Biological Resources**
27

28 This stipulation provides for identifying and protecting previously unknown important or
29 unique biological populations or habitats that may occur in a lease area. If previously unknown
30 sensitive biological resources are identified during the conduct of lease activities under an
31 approved Plan of Exploration or Development and Production Plan, the lessee will be required to
32 modify operations, if necessary, to minimize adverse impacts on those biological populations or
33 habitats.
34

35
36 **B.2.1.3 Protection of Fisheries (Cook Inlet Planning Area)**
37

38 This stipulation is designed to minimize spatial conflicts between OCS activities and
39 commercial, sport, and subsistence fishing activities. Lease-related uses will be restricted, if
40 determined necessary by the BOEM Alaska Regional Supervisor for Field Operations, to prevent
41 unreasonable conflicts with fishing operations. The stipulation requires the lessee to review
42 planned exploration and development activities (including plans for seismic surveys, drilling rig
43 transportation, or other vessel traffic) with potentially affected fishing organizations, subsistence
44 communities, and port authorities to prevent unreasonable fishing gear conflicts.
45

1 **B.2.1.4 Transportation of Hydrocarbons**
2

3 This stipulation informs lessees that (1) BOEM reserves the right to require the
4 placement of pipelines in certain designated management areas, (2) pipelines must be designed
5 and constructed to withstand the hazardous conditions that may be encountered in the sale area,
6 and (3) pipeline construction and associated activities must comply with regulations. This
7 stipulation requires the use of pipelines if (1) pipeline rights-of-way can be determined and
8 obtained; (2) laying such pipelines is technologically feasible and environmentally preferable;
9 and (3) in the opinion of the lessor, pipelines can be laid without net social loss, taking into
10 account any incremental costs of pipelines over alternative methods of transportation and any
11 incremental benefits in the form of increased environmental protection or reduced multiple-use
12 conflicts.
13

14
15 **B.2.1.5 Industry Site-Specific Monitoring Program for Marine Mammal**
16 **Subsistence Resources (Arctic Planning Areas)**
17

18 This stipulation requires industry to conduct a site-specific monitoring program to
19 determine when marine mammals are present in the vicinity of exploration operations, including
20 ancillary seismic surveys, during periods of subsistence use. The monitoring program and
21 review process required for Marine Mammal Protection Act authorization will satisfy the
22 requirements of this stipulation. The monitoring plan must provide for reports on marine
23 mammal sightings and the extent of observed behavioral effects because of lease activities. It
24 also provides a formal mechanism for the oil and gas industry to coordinate logistics activities
25 with the BOEM Bowhead Whale Aerial Survey Program. The stipulation provides for an
26 opportunity for recognized co-management organizations to review and comment on the
27 proposed monitoring plan before BOEM approval. The stipulation requires the lessee to fund an
28 independent peer review of the proposed monitoring plan and the draft reports on the results of
29 the monitoring program. No monitoring program will be required if the BOEM Alaska Regional
30 Supervisor for Field Operations, in consultation with the appropriate agencies and
31 co-management organizations, determines that a monitoring program is not necessary based on
32 the size, timing, duration, and scope of the proposed operations.
33

34
35 **B.2.1.6 Conflict Avoidance Mechanisms to Protect Subsistence Whaling and Other**
36 **Marine Mammal Subsistence Activities (Arctic Planning Areas)**
37

38 This stipulation is designed to reduce disturbance effects on Alaska Native subsistence
39 practices from OCS oil and gas industry activities by requiring industry to make reasonable
40 efforts to conduct all aspects of their operations in a manner that recognizes Alaska Native
41 subsistence requirements and avoids conflict with local subsistence harvest activities. The
42 stipulation applies to both on-lease operations and to support activities, such as vessel and
43 aircraft traffic. The stipulation also requires industry to consult with directly affected subsistence
44 communities, the North Slope Borough, and the recognized co-management organizations to
45 discuss possible siting and timing conflicts and to assure that exploration, development, and
46 production activities do not result in unreasonable conflicts with subsistence whaling and other

1 subsistence harvests. The stipulation also provides a mechanism to address unresolved conflicts
2 between the oil and gas industry and subsistence activities.
3

4 5 **B.2.1.7 Measures to Minimize Effects on Spectacled and Steller's Eiders During** 6 **Exploration Activities (Arctic Planning Areas)** 7

8 This stipulation is designed to minimize the likelihood that spectacled or Steller's eiders
9 will strike drilling structures or vessels. The stipulation requires specific lighting protocols for
10 structures and vessels, a plan for recording and reporting bird strikes, and avoidance of specified
11 blocks by OCS-related vessels.
12

13 14 **B.3 INFORMATION TO LESSEE** 15

16 Several ITLs have been developed to notify lessees and operators about environmental,
17 social, and cultural concerns.
18

19 Past ITLs have provided lessees information or advisories on the following:
20

- 21 • Community participation in operations planning;
- 22
- 23 • Bird and marine mammal protection laws;
- 24
- 25 • Endangered, threatened, and candidate species and designated critical habitat
26 under the Endangered Species Act;
- 27
- 28 • Consideration in Oil Spill Response Plans of river deltas of the Beaufort Sea
29 coastal plain that have been identified by the U.S. Fish and Wildlife Service as
30 special habitats for bird nesting, fish overwintering, or for other species' use;
- 31
- 32 • Possible prohibition of shore-based facilities in river deltas that have been
33 identified as special habitats;
- 34
- 35 • Potential effects of seismic surveys on marine mammals and subsistence
36 activities;
- 37
- 38 • Requirements on the availability of bowhead whales for subsistence whaling;
- 39
- 40 • The BOEM bowhead whale aerial monitoring program;
- 41
- 42 • The possibility that BOEM may limit or modify operations if they could result
43 in significant effects on the availability of bowhead whales for subsistence
44 use;
- 45

- 1 • Requirements for protection of polar bears and to limit potential encounters
2 and interactions between lease operations and polar bears;
3
- 4 • Requirements for archaeological and shallow geologic hazards reports in
5 support of exploration and development plans;
6
- 7 • Navigational safety;
8
- 9 • Requirements for air quality permits;
10
- 11 • Designated Class I air quality areas;
12
- 13 • Requirements for National Pollutant Discharge Elimination System permits
14 for discharge of produced water, drilling fluids, and cuttings;
15
- 16 • Sensitive areas to be considered when developing oil-spill contingency plans;
17
- 18 • Requirements for BSEE approval of Oil Spill Responses Plans;
19
- 20 • Requirements for establishing and maintaining oil-spill financial
21 responsibility;
22
- 23 • BOEM encouragement of the use of existing pads and islands wherever
24 feasible;
25
- 26 • The importance of the area around Cross Island for Nuiqsut subsistence
27 whaling activities;
28
- 29 • Requirements for mitigation of unreasonable conflicts with subsistence
30 activities; and
31
- 32 • BOEM encouragement of industry to establish of a Good Neighbor Policy to
33 provide an immediate compensation system to minimize disruption to
34 subsistence activities and provide resources to relocate subsistence hunters to
35 alternate hunting areas or provide temporary food supplies in the event an
36 accidental oil spill adversely affects the harvest of marine subsistence
37 resources.
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