

Modifications to Suspension of Deepwater Drilling Operations

Environmental Assessment and Finding of No Significant Impact

**U.S. Department of the Interior
Bureau of Ocean Energy Management,
Regulation and Enforcement**

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Modifications to Suspension of Deepwater Drilling Operations

On July 12, 2010 the Secretary of the Interior issued a decision memorandum imposing a suspension of drilling operations for wells that use a subsea blowout preventer (BOP) or a surface BOP on a floating drilling facility. This suspension of activities in the Gulf of Mexico and the Pacific Outer Continental Shelf (OCS) is effective until November 30, 2010. Three primary issues supported this temporary pause in drilling operations. First, the suspension allowed time for the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) to implement appropriate workplace and drilling safety measures. Second, the suspension was intended to provide the BOEMRE, the industry and others time to develop strategies and methods of containment of wild wells in deepwater. Finally, the suspension was necessary to ensure that appropriate and sufficient response resources would be available in the event of another major oil spill. The July 12 decision, however, made it clear that the suspension could be lifted sooner than November 30 if “the safety, containment and response issues that have created the need for the suspension have been resolved, if those three issues that have created the need for the suspension are addressed to a degree that can be determined upon further study to ensure an acceptable margin of safety.”

BOEMRE has addressed the three issues noted above through multiple venues. BOEMRE has collected a large amount of information through public hearings and other meetings held specifically on the Macondo blowout and oil spill, and through public comments on rulemaking efforts. The information collection, review and analysis efforts resulted in new and planned Notices to Lessees (NTLs), and BOEMRE rules that address drilling safety, oil spill response, and enhanced inspection procedures. These NTLs, regulations, and procedures were not in effect at the time of the Macondo well blowout, but will apply to all future applicable drilling activities. These include:

- NTL No. 2010-N05, “Increased Safety Measures for Energy Development”_effective June 8, 2010 (“Safety NTL”)
- NTL No. 2010-N06, “Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS” effective June 18, 2010 (“Plans NTL”)
- The Drilling Safety Rule, Interim Final Rule to Enhance Safety Measures for Energy Development on the Outer Continental Shelf (the “Drilling Safety Rule”). This rule strengthens requirements for safety equipment, well control systems, and blowout prevention practices on offshore oil and gas operations
- The Workplace Safety Rule on Safety and Environmental Management Systems (“SEMS Rule”). This rule requires operators to develop and implement a comprehensive Safety and Environmental Management System (“SEMS”) for identifying, addressing and managing operational safety hazards and impacts; promoting both human safety and environmental protection and improving workplace safety by reducing the risk of human error.
- Enhanced Inspection Procedures - BOEMRE is developing plans and schedules for conducting safety inspections of all deepwater drilling facilities that will be implemented upon the recommencement of deepwater drilling operations.

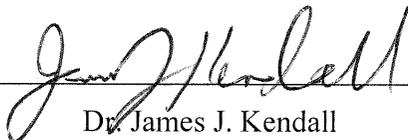
Further, response and containment resources dedicated to the Macondo spill are becoming available for other uses since the Macondo well was successfully “killed” on September 19, 2010, after a relief well successfully intersected and cemented the Macondo well nearly 18,000 feet below the water surface. The efforts to control and kill the Macondo well have resulted in improved technologies and procedures that are available for application now, that were not available when the blowout occurred.

BOEMRE proposes to shorten the duration of the July 12, 2010 suspension insofar as it applies to deepwater drilling operations. Deepwater drilling is defined as drilling operations using a subsea BOP or a surface BOP on a floating facility. The suspension of the drilling of deepwater wells would terminate on October 12, 2010. Concurrently therewith, BOEMRE would begin to review and potentially approve pending and future applications for permits to drill wells using a subsea BOP or a surface BOP on a floating facility.

The attached Environmental Assessment (EA) examines the effects on the environment that may result from a decision to shorten the duration of the suspension of deepwater drilling activities in the Gulf of Mexico prior to November 30, 2010. BOEMRE has evaluated this action to determine whether its implementation would result in significant impacts to the human, biological or physical environment. Significance considers both context and intensity per Council on Environmental Quality (CEQ) regulations (40 CFR 1508.27). The context of the proposed action is limited to ending suspensions approximately seven (7) weeks earlier than originally planned. While the intensity of potential impacts may be severe, the likelihood of adverse events is so low that significant effects are not expected to occur.

The EA incorporates analyses in existing National Environmental Policy Act (NEPA) documents associated with deepwater drilling operations in the Gulf of Mexico. The analyses in the EA show a variety of possible impacts that could result when the suspension ends, including those resulting from a catastrophic oil spill. The EA also notes that the measures identified above are intended to further reduce the already low risk of a catastrophic oil spill and will enhance response efforts. The EA also shows that the risks of a catastrophic oil spill occurring does not appreciably change, whether drilling operations begin after the expiration of the November 30 suspension or begin seven weeks earlier. Given these facts, significant impacts to the environment are not expected from shortening of the suspension of certain drilling activities in the Gulf of Mexico.

Based on these considerations, BOEMRE has concluded that the action would not have a significant impact on the environment; it has determined that an environmental impact statement is not required and it is issuing this Finding of No Significant Impact (FONSI).



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Date

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ACRONYMS LIST

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|--------|---|
| ABP | application to by-pass |
| APD | application for a permit to drill |
| AST | application to side track |
| BOEMRE | Bureau of Ocean Energy Management, Regulation and Enforcement |
| BOP | blowout preventer |
| BP | British Petroleum |
| CEQ | Council on Economic Quality |
| CFR | Code of Federal Regulations |
| CNL | cancel |
| DOCD | Development Operations Coordination Document |
| DOI | Department of the Interior |
| DPP | Drilling and Development Plan |
| EA | Environmental Assessment |
| EEZ | Exclusive Economic Zone |
| EIS | Environmental Impact Statement |
| EP | Exploration Plan |
| ESA | Endangered Species Act |
| FONSI | Finding of No Significant Impact |
| LMRP | Lower Marine Riser Package |
| MMS | Minerals Management Service |
| NEPA | National Environmental Policy Act |
| NOAA | National Oceanic and Atmospheric Administration |
| OCS | Outer Continental Shelf |
| OCSLA | Outer Continental Shelf Lands Act |
| NTL | Notice to Lessees |
| SEMS | Safety and Environmental Management System |
| TA | temporarily abandoned |
| USC | United States Code |

1.0 INTRODUCTION

Pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations implementing NEPA (40 Code of Federal Regulations (CFR) 1500 et seq.), and Department of the Interior (DOI) regulations implementing NEPA (43 CFR 46), the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) has prepared an environmental assessment (EA) to evaluate the potential environmental effects of modifying the scope or duration of the July 12, 2010 suspension of deepwater drilling operations.

Decisions regarding the modification of suspensions are informed by previous analysis that addressed broader decisions related to the overall federal offshore energy program. The following relevant documents NEPA documents are noted:

- Minerals Management Service (MMS), 2000. Gulf of Mexico Deepwater Operations and Activities Environmental Assessment. OCS EIS/EA MMS 2000-001. Available at <http://www.gomr.boemre.gov/PDFs/2000/2000-001.pdf>.
- MMS, 2007. OCS Oil & Gas Leasing Program 2007-2012 Final Environmental Impact Statement. Volumes 1-2. OCS EIS/EA MMS 2007-003. Available at <http://www.boemre.gov/5-year/2007-2012FEIS.htm>.
- MMS, 2007. Final Environmental Impact Statement for Gulf of Mexico OCS Oil and Gas Lease Sales: 2007-2012; Western Planning Area Sales 204, 207, 210, 215, and 218; Central Planning Area Sales 205, 206, 208, 213, 216, and 222. Volumes 1-2. OCS EIS/EA MMS 2007-018. Available at <http://www.gomr.boemre.gov/PDFs/2007/2007-018-Vol1.pdf> and <http://www.gomr.boemre.gov/PDFs/2007/2007-018-Vol2.pdf>
- MMS, 2007 Gulf of Mexico OCS Oil and Gas Lease Sale 224 Eastern Planning Area Final Supplemental Environmental Impact Statement, MMS 2007-060, OCS EIS/EA, Final October 2007. Available at <http://www.gomr.boemre.gov/PDFs/2007/2007-060.pdf>
- MMS, 2008. Supplemental Environmental Impact Statement for Proposed Central Planning Area OCS Oil and Gas Lease Sales 208, 213, 216, and 222, and Proposed Western Planning Area OCS Oil and Gas Lease Sales 210, 215, and 218. OCS EIS/EA MMS 2008-041. Available at <http://www.gomr.boemre.gov/PDFs/2008/2008-041.pdf>.

This EA incorporates by reference (40 CFR 1500.4(j) and 1502.21) this previous work and seeks to focus on the issue that is ripe for decision and the environmental issues that are truly significant to the action in question. Namely, the issue that is ripe for decision is whether the current suspensions set to expire on November 30, 2010 should be modified, and, in the wake of the Deepwater Horizon spill, the environmental issues of concern relate to the risk of a catastrophic spill resulting from drilling in an interim period before November 30, 2010.

1.1 Background and Overview

On April 20, the *Deepwater Horizon* facility lost control of the Macondo exploration well, located in nearly 5,000 feet of water in the Gulf of Mexico 52 miles from shore. The loss of well control resulted in a blowout that led to the explosion of the facility, human mortalities and injuries, and a major oil spill with significant impacts to marine, coastal and human environments over a broad geographic area of the Gulf of Mexico.

In the aftermath of the *Deepwater Horizon* event, the President directed the Secretary of the Interior (“Secretary”) to report within 30 days on what, if any, additional precautions, technologies and procedures should be required on the OCS to improve the safety of oil and gas development on the OCS. In response to this directive, the Department of the Interior produced a report on May 27, 2010 entitled, “Increased Safety Measures for Energy Development on the Outer Continental Shelf (the “Safety Report”).¹

On May 28, 2010, the Secretary directed the Minerals Management Service, now the Bureau of Ocean Energy Management, Regulation and Enforcement to exercise its authority under the Outer Continental Shelf Lands Act (OCSLA) to suspend certain drilling activities in water depths of 500 ft and deeper for a period of up to six months. The May 28 suspension was intended to provide sufficient time to:

1. Ensure that drilling operations similar to conditions that apply to the *Deepwater Horizon* operate in a safe manner when drilling resumes
2. Account for the expected timeline for killing the Macondo well, so that the extensive spill response resources directed toward the spill would start to become available for other spill events, and
3. Provide adequate time to obtain input from ongoing investigations of the accident and to develop and promulgate regulations that address issues described in the Safety Report.

The United States Federal District Court in the Eastern District of Louisiana, enjoined enforcement of the May 28 suspension on June 22, 2010.²

On July 12, 2010 the Secretary issued a decision memorandum rescinding the May 28 moratorium and imposing a second suspension of certain drilling operations in deepwater, which is effective until November 30, 2010. In particular, the July 12 suspension applied, with certain exceptions, to the drilling of wells using a subsea blowout preventer (BOP) or a surface BOP on a floating facility. Three primary issues supported this temporary pause in drilling operations. First, the suspension allowed time for BOEMRE to implement appropriate workplace and drilling safety measures. Second, the suspension was intended to provide BOEMRE, the industry and others time to develop strategies and methods of containment of wild wells in deepwater. Finally, the suspension was necessary to ensure that appropriate and sufficient response resources would be available in the event of another major oil spill.³

¹ <http://www.doi.gov/deepwaterhorizon/loader.cfm?csModule=security/getfile&PageID=33598>

² Hornbeck Offshore Services v. Salazar, No. 10-1663 CED.La.

³ <http://www.doi.gov/deepwaterhorizon/loader.cfm?csModule=security/getfile&PageID=38375>

The July 12 decision, however, made it clear that the suspension could be lifted sooner than November 30 if “the safety, containment and response issues that have created the need for the suspension have been resolved, if those three issues that have created the need for the suspension are addressed to a degree that can be determined upon further study to ensure an acceptable margin of safety.”

Significant developments have occurred since the imposition of the July 12, 2010 suspension. BOEMRE has collected a large amount of information through public hearings and other meetings held specifically on the Macondo blowout and oil spill, and through public comments received on The Drilling Safety Rule: “An Interim Final Rule to Enhance Safety Measures for Energy Development on the Outer Continental Shelf” (the ‘Drilling Safety Rule’). The efforts to control and kill the Macondo well have resulted in improved technologies and procedures that are available for application now, that were not available when the blowout occurred. Reports and analyses have been published that shed light on the causes of the Macondo blowout and on the technological and procedural changes needed to accomplish improvements in well control safety and spill containment. In addition, response and containment resources dedicated to the Macondo spill are becoming available for other uses since the Macondo well was successfully “killed” on September 19, 2010, after a relief well successfully intersected and cemented the Macondo well nearly 18,000 feet below the water surface. Additional information about these topics is presented in Section 4.1 under the “Reduction of the Risk of Effects” heading.

This Environmental Assessment considers the environmental effects of several options for further modifications to the suspension or for letting the suspension expire on November 30, 2010.

2.0 PROPOSED ACTION

2.1 Purpose and Need

The purpose and need for this proposed action are derived from application of BOEMRE suspension regulations following the BP oil spill, described more in the Background section of this EA and summarized below. The EA is prepared under the authority of the Council on Environmental Quality (CEQ) NEPA regulations allowing for the preparation of an environmental assessment “on any action at any time in order to assist agency planning and decisionmaking” (40 CFR 1501.3(b)).

The OCSLA authorizes the Secretary to prescribe regulations for the “suspension or temporary prohibition of any operation or activity, including production, pursuant to any lease or permit ... if there is a threat of serious, irreparable, or immediate harm or damage to life (including fish and other aquatic life), to property, to any mineral deposits... or to the marine, coastal or human environment” (43 U.S.C.1334 (a)(1)).

BOEMRE regulations provide that the bureau may order suspensions of operations when activities “pose a threat of serious, irreparable, or immediate harm or damage” to human or animal life, property, any mineral deposit or the marine, coastal or human environment when

necessary for the installation of safety or environmental protection equipment (30 CFR 250.172). The bureau may terminate any suspension when it determines the circumstances that justified the suspension no longer exist (30 CFR 250.170).

The July 12, 2010 suspension prohibited deepwater drilling in the Gulf of Mexico and Pacific regions using a subsea BOP or a surface BOP on a floating facility, where deepwater drilling was defined as drilling using subsea or surface blowout preventers from floating facilities and it is applicable to both exploration and development wells.

The Secretary calculated the duration of the suspension based upon the estimated time needed to ascertain what was necessary to improve the safety of operations in the OCS and to ensure adequate containment and response capabilities are available in the event of another significant spill. The Secretary established the expiration date (November 30, 2010) to provide enough time for the acquisition and development of additional information on the risks of deepwater drilling operations and to ensure the availability of the needed equipment and procedures to reduce those risks to an acceptable level.

In section VI of his Decision Memorandum, the Secretary noted that the suspension could be shortened if the safety, containment and response issues that created the need for a suspension were resolved or if those issues were addressed to a degree that could ensure an acceptable margin of safety. The Secretary also noted the possibility of extending the duration of the suspensions.

This EA addresses the environmental considerations associated with modifying the scope and/or duration of the deepwater drilling suspension. This review complements the submission of the report directed to be submitted no later than October 31, 2010 by the Secretary's July 12 Decision Memorandum. The purpose and need of the action is to allow appropriate offshore energy development to proceed under OCSLA in proper balance with environmental protection and natural resource conservation, including evaluating the current levels of threats of serious, irreparable, or immediate harm to life, property, any mineral deposits, or to the marine, coastal, or human environments, and, in light of that information, determining whether a modification of the duration of the suspension is warranted.

2.2 Description of the Proposed Action

BOEMRE proposes to reduce the duration of the July 12, 2010 suspension insofar as it applies to deepwater development drilling operations. Deepwater drilling is defined as drilling operations using a subsea BOP or a surface BOP on a floating facility. Under the proposed action, the suspension on the drilling of deepwater development wells would end on October 12, 2010. If this occurs, BOEMRE would begin to review and potentially approve pending and future applications for permits to drill deepwater development wells using a subsea BOP or a surface BOP on a floating facility. The October 12 termination of the suspension would not apply to deepwater exploratory wells, which would remain suspended until November 30, 2010.

Currently, no previously approved drilling is suspended in the Pacific Region, since all drilling platforms used in that region are bottom-founded, as opposed to floating. No new deepwater

development plans or applications for permits to drill are reasonably expected in the Pacific Region in the intervening seven weeks prior to November 30, 2010, since all existing platforms in that region are bottom-founded. Therefore, any consideration of the resumption of deepwater development drilling activities, as well as pending and future approvals of applications for permits to drill deepwater development wells, are effectively limited to the Gulf of Mexico Region.

The proposed action and the alternatives to the proposed action are described in more detail in Chapter 4.

3.0 AFFECTED ENVIRONMENT

All of the alternative actions considered in this EA affect the environment in the Gulf of Mexico. The July 12, 2010 suspension on deepwater drilling applies to both the Gulf of Mexico and to the Pacific Region, but, as mentioned in Section 4.0, the types of drilling facilities from which drilling is suspended are not used in the Pacific Region. Therefore, this description of the affected environment focuses on the Gulf of Mexico include the following resources:

Biologic

- Marine Mammals
- Marine and Coastal Birds
- Fish Resources and Essential Fish Habitat
- Marine Turtles
- Coastal Habitats
- Seafloor Habitats

Physical

- Air Quality
- Water Quality

Socioeconomic

- Areas of Special Concern
- Population, Employment, and Regional Income
- Tourism and Recreation
- Commercial and Recreational Fisheries

Sociocultural

- Environmental Justice
- Archeological Resources
- Subsistence

The environment of the Gulf of Mexico prior to the *Deepwater Horizon* event has been described in previous Environmental Impact Statements (EISs), including:

- Minerals Management Service (MMS), 2000. Gulf of Mexico Deepwater Operations and Activities Environmental Assessment. OCS EIS/EA MMS 2000-001. Available at <http://www.gomr.boemre.gov/PDFs/2000/2000-001.pdf>.
- MMS, 2007. OCS Oil & Gas Leasing Program 2007-2012 Final Environmental Impact Statement. Volumes 1-2. OCS EIS/EA MMS 2007-003. Available at <http://www.boemre.gov/5-year/2007-2012FEIS.htm>.
- MMS, 2007. Final Environmental Impact Statement for Gulf of Mexico OCS Oil and Gas Lease Sales: 2007-2012; Western Planning Area Sales 204, 207, 210, 215, and 218; Central Planning Area Sales 205, 206, 208, 213, 216, and 222. Volumes 1-2. OCS EIS/EA MMS 2007-018. Available at <http://www.gomr.boemre.gov/PDFs/2007/2007-018-Vol1.pdf> and <http://www.gomr.boemre.gov/PDFs/2007/2007-018-Vol2.pdf>
- MMS, 2007 Gulf of Mexico OCS Oil and Gas Lease Sale 224 Eastern Planning Area Final Supplemental Environmental Impact Statement, MMS 2007-060, OCS EIS/EA, Final October 2007. Available at <http://www.gomr.boemre.gov/PDFs/2007/2007-060.pdf>
- MMS, 2008. Supplemental Environmental Impact Statement for Proposed Central Planning Area OCS Oil and Gas Lease Sales 208, 213, 216, and 222, and Proposed Western Planning Area OCS Oil and Gas Lease Sales 210, 215, and 218. OCS EIS/EA MMS 2008-041. Available at <http://www.gomr.boemre.gov/PDFs/2008/2008-041.pdf>.

These documents include discussions and analyses of various aspects of risks of and impacts from oil spills. The “Programmatic EIS” (2007-2012 FEIS) evaluates potential impacts to the physical, biologic, and social environmental resources listed in the previous table from leasing in program areas to identify areas and issues that will need further investigation, study, or potential mitigation when development actually occurs. The EISs prepared for lease sales include analyses of the risks of different size oil spills occurring from different sources. They also include oil spill trajectory analysis and modeling that identify the likelihood that environmental resources would be contacted by a spill, should it occur. The Deepwater Operations EA included an analysis of a catastrophic oil spill.

Baseline environmental conditions in the Gulf of Mexico have been substantially affected from the impacts of the *Deepwater Horizon* oil spill. Consensus information on the magnitudes of these impacts, the length of time needed for baseline conditions to be restored to conditions existing prior to the *Deepwater Horizon* spill, and the magnitude of impacts that would be expected if another catastrophic spill occurred while baseline conditions are still recovering from the *Deepwater Horizon* is largely unavailable at this time although progress is underway toward answering these questions. The changes to the baseline conditions for each of these aspects of the human environment are summarized below. The following summary of available information on the effects of the spill and the spill response efforts on baseline environmental conditions in the Gulf of Mexico is taken from the document entitled “Increased Safety Measures for Energy Development on the Outer Continental Shelf, for 30 CFR Part 250 Environmental Assessment and Finding of No Significant Impact” (BOEMRE, 2010). This is the EA for the Drilling Safety Rule.

Biological Resources: Unlike impacts from smaller spills that have occurred in the Gulf of Mexico whose effects are localized and short-term, the *Deepwater Horizon* spill has demonstrated that a high-volume, extended-duration spill resulting from a blowout has the potential to result in impacts that could affect the long-term population status of biological resources over extended areas, as detailed below. In addition, multiple federally and state-listed, threatened and endangered species have been impacted.⁴

Marine Mammals: Marine mammals have been observed swimming in oil after spills.⁵ Therefore, it cannot be assumed they would avoid the impacted area. The oil could harm marine mammals through several ways, including, but not limited to, the breathing of fumes from the oil (and possibly dispersants), persistence on their skin, and the consumption of oiled food sources. In addition, the large number of response vessels could place marine mammals at a greater risk of vessel collisions, which could cause fatal injuries.

Sea Turtles: The majority of the sea turtles impacted by the *Deepwater Horizon* event have been Kemp's ridleys, listed as endangered under the Endangered Species Act (ESA).⁶ Shoreline oiling and efforts may affect future population levels and reproduction.⁷ Nests could also be disturbed or destroyed by cleanup efforts. Further, sea turtles take many years to reach sexual maturity. Deaths of sub-adult and adult sea turtles may also significantly reduce the future population numbers and viability.

Coastal Habitats: During the spill, over 500 miles of shoreline were impacted, varying from light to moderate to heaving oiling. The majority of the Gulf coast is sensitive shoreline types (i.e., sheltered tidal flats; vegetated low banks; salt/brackish-water marshes; freshwater marshes/swamps; scrub-shrub wetlands) that tend to accumulate oil and are difficult to clean, causing oil to persist in coastal and estuarine areas.⁸ Loss of vegetation could lead to erosion and permanent land loss.

Coastal and Marine Birds: The Gulf coastal habitats are essential to the annual cycles of many species of breeding, wintering and migrating waterfowl, wading birds, shorebirds, and songbirds. The spill and response activities could interfere with migration. The worst impacts to oiled birds, or those which have ingested oil with their prey, would be if the oil spill occurs during the nesting season. An oil spill could result in the loss of entire colonies of breeding birds on barrier islands surrounded by oil, along with the loss of all eggs and nestlings.

Fisheries: A catastrophic spill has the potential to cause the loss of a year class (fish in a stock born in the same year), affecting future stock populations. In addition to impacts of oil in coastal

⁴ <http://www.fws.gov/home/dhoilspill/pdfs/NewWildlifeOfGulf.pdf>;
<http://www.fws.gov/home/dhoilspill/pdfs/FedListedBirdsGulf.pdf>

⁵ http://mmc.gov/oil_spill/welcome.html

⁶ <http://www.nmfs.noaa.gov/pr/health/oilspill.htm>

⁷ http://www.nps.gov/archive/features/oilspillresponse/FactSheets/NPS_Turtles_Web.pdf

⁸ <http://www.BOEMRE.gov/5-year/PDFs/PRP2007-2012.pdf>

waters on shellfish, oyster beds have been damaged by freshwater diversions that released tens of thousands of cubic feet of freshwater per second for months in an effort to keep oil out of the marshes. These actions were taken by the State of Louisiana to protect against perceived greater coastal oil spill impacts that would occur without the freshwater release. These oyster beds could take 2-5 years to recover.⁹

Terrestrial Mammals: Critical habitat is defined as specific geographic areas that are essential for the conservation of a threatened or endangered species. With the oiling over 500 miles of shoreline, it is foreseeable that an entire critical habitat for a species with a relatively small critical habitat could have been completely oiled. For example, the endangered Alabama beach mouse (*Peromyscus polionotus ammobates*) only has 1,211 acres of frontal dunes covering just ten miles of shoreline designated as critical habitat.¹⁰

Economics: It is estimated that the economic consequences of the *Deepwater Horizon* event will lead to a net loss of just under \$20 billion for the U.S. economy in 2010, which will reduce U.S. economic growth in 2010 by roughly 0.1 percent and will reduce economic growth in the most-affected Gulf States. For example, the fishing industry, including seafood processing and related wholesale and retail businesses, supports over 200,000 jobs, with related economic activity of \$5.5 billion.¹¹ Other immediate economic impacts include a decline in tourism. Jobs related to cleanup activities would not fully mitigate job losses in the fishing, tourism, and oil and gas industries.

Commercial and Recreational Fishing: While various (and varied) tests have shown no detectable oil or dispersant odors or flavors in fish and shellfish caught in the Gulf of Mexico during the *Deepwater Horizon* event, and the results of sensitive chemical analyses have shown concentrations well below the levels of concern (i.e. background levels), the NOAA Fisheries Service closed large portions of the Gulf of Mexico during the spill as a precautionary measure to ensure public safety and to assure consumer confidence in Gulf seafood.^{12,13} Up to 36.6 percent of the Gulf of Mexico Exclusive Economic Zone (EEZ) was closed to recreational and commercial fishing at one time.¹⁴ This could represent 50 to 75 percent of the Gulf seafood production.¹⁵ Portions of the Gulf state waters were also closed to commercial and recreational fishing.

⁹http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/07/widespread_oyster_deaths_found.html;
<http://www.wvltv.com/news/gulf-oil-spill/Concerns-Raised-About-Health-Of-Oyster-Beds-Impacted-By-Fresh-Water-Diversions-98867889.html>

¹⁰ <http://www.fws.gov/daphne/abm/pdf/ABM-FactSheet-finalCH-1-30-07.pdf>

¹¹ <http://www.fas.org/sgp/crs/misc/R41262.pdf>

¹² http://www.noaanews.noaa.gov/stories2010/20100722_reopening.html

¹³ <http://sero.nmfs.noaa.gov/ClosureSizeandPercentCoverage.htm>

¹⁴ http://sero.nmfs.noaa.gov/sf/deepwater_horizon/FB_Closure%20info_Eng.pdf

¹⁵ <http://www.foodsafetynews.com/2010/05/noaa-closes-spill-area-to-fishing/>

4.0 ALTERNATIVES CONSIDERED AND ENVIRONMENTAL EFFECTS

The alternatives considered in this EA are:

1. The proposed action to shorten the duration of the suspension of deepwater development drilling operations
2. No modification to the scope or duration of the suspension
3. Shorten the duration of the suspension of deepwater exploration drilling operations and deepwater development drilling operations
4. Continue the suspension until the completion of the investigations into the root causes of the *Deepwater Horizon* event; and
5. Continue the suspension for a period of time necessary for compliance with new safety requirements or further advances in well containment equipment.

These alternatives provide three timing options affecting the suspension; either to shorten it (Alternatives 1 and 3), extend it (Alternatives 4 and 5), or let it expire according to schedule (Alternative 2).

Three important factors can be used to evaluate differences among the alternatives. These are:

- The magnitude of impacts to and the time for recovery of baseline environmental conditions in the Gulf.
- The amount of improvement in well control safety and spill containment up to now and whether it is ‘safe’ to resume drilling operations, and
- The continuation of ongoing economic and social impacts that will occur and accumulate as long as the suspension continues,

Baseline environmental conditions in the Gulf of Mexico have been substantially affected, due to the impacts of the *Deepwater Horizon* oil spill. Consensus information is still emerging on the magnitudes of these impacts and the length of time needed for baseline conditions to return to pre-spill conditions. Without this information, it will be difficult to understand and assess the impacts that would occur if another catastrophic spill occurred while baseline conditions were still recovering from the *Deepwater Horizon* spill. On the other hand, it may take a relatively long period of time (several years) to develop the state of knowledge to adequately answer these questions.

The current state of well control reliability and spill containment and response capabilities is considered to have improved since the issuance of the suspension. Government and industry accomplishments have resulted in regulatory, technical, and procedural improvements affecting well control reliability, spill containment and response. Section 4.1 describes the accomplishments that have been made since the issuance of the suspension. These accomplishments support the assumption that safer OCS drilling, spill containment and spill response conditions exist now compared to conditions existing at the time of the *Deepwater Horizon* spill.

While the actual amount of increased well control safety cannot be quantified at this time, it is reasonable to expect a substantial improvement. For example, although the causes of the Macondo blowout are not fully known at this time, preliminary information suggests failure to follow best cementing and casing practice was a factor in the blowout. The new Interim Drilling Safety Rule modifies regulations that existed at the time of the Macondo blowout. This rule now mandates adherence to established industry and government well control best practices and requires submission of independent certification that the practices are being implemented.

Economic impacts, including loss of jobs and reductions in flow of capital through the regional economy, occurred immediately upon initiation of the suspension. Economic and social impacts continue to accumulate as the suspension continues. Reduced employment and income affect the traditional South Louisiana culture by reducing local job opportunities that ultimately could lead to significant and irreversible impacts to the cohesion of the local culture through outmigration. In addition, at some time in the future, the continuance of a suspension could lead to movement of industry interest away from the Gulf of Mexico, which could result in an escalation of economic and social effects.

4.1 Alternative 1 — Shorten the Duration of the Suspension of Deepwater Development Drilling Operations (Proposed Action)

Under this alternative, BOEMRE would shorten the duration of the suspension of deepwater drilling operations for development wells, by terminating the suspension for those operations on October 12, 2010. Higher risk deepwater exploration operations involving the drilling of exploration wells that utilize a subsea BOP or a surface BOP on a floating facility in the Gulf of Mexico Region would remain suspended until November 30, 2010.

No deepwater exploration operations involving the drilling of exploration wells that utilize a subsea or a surface BOP on a floating facility are currently suspended in the Pacific Region, because the activities in the Pacific Region do not use floating facilities.

The proposed action opens the possibility that drilling could resume on previously-approved, but suspended drilling operations for development wells and allows for the review and potential approval of pending and future applications for permits to drill development wells in early October 12, 2010, up to approximately seven weeks earlier than the planned expiration on November 30, 2010.

No new deepwater development plans or applications for permits to drill are reasonably expected in the Pacific Region in the intervening seven weeks, since all existing drilling platforms in that region are bottom-founded as opposed to floating. Therefore, any consideration of the resumption of deepwater development drilling activities, as well as pending and future approvals of applications for permits to drill deepwater development wells, are effectively limited to the Gulf of Mexico Region.

Previously-approved drilling is currently suspended at least five development wells in the Gulf of Mexico (See Table 1). The previously approved application for a permit to drill (APD) for drilling at one additional well has been canceled. Drilling is currently suspended in the

Mississippi Canyon, Green Canyon, and Alaminos Canyon, as shown in the leasing/protraction diagram areas of the Central and Western Planning Areas (See Figure 1) (Areas are listed from east to west). The relative water depths of the suspended operations range from approximately 3,000 to 6,500 feet. Of these wells, two have been approved under a permit to drill or permit to modify and three have been approved under an application to sidetrack (*i.e.*, drilling a new wellbore as a sidetrack of an existing well).

Prior to resuming or beginning the drilling of development wells, the operators must comply with the following safety requirements:

- NTL No. 2010-N05, “Increased Safety Measures for Energy Development” effective June 8, 2010 (“Safety NTL”)
- NTL No. 2010-N06, “Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS” effective June 18, 2010 (“Plans NTL”)
- The Drilling Safety Rule, “Interim Final Rule to Enhance Safety Measures for Energy Development on the Outer Continental Shelf” (the ‘Safety Rule’)
- The Workplace Safety Rule on Safety and Environmental Management Systems (SEMS).

These new safety requirements are further described on page 25.

Impact Analysis

Under this alternative, the risks associated with drilling of development wells are no different than those that would exist when drilling operations for development wells resume after the end of the existing suspension. The only change is that the risks would begin approximately seven weeks earlier. The discussion below evaluates the risk of a catastrophic spill occurring and the possible effects of such a spill.

Catastrophic Oil Spill Impacts from Deepwater Development Drilling

Although it is a very low probability, a catastrophic oil spill, characterized by atypical volume and duration, may occur during deepwater development drilling. Such an accidental, very low probability spill would cause larger-scale and longer-term adverse effects on the environment and/or result in more loss of human life. Across the range of accidents where loss of well control may occur, the most serious risk, in terms of catastrophic effects and human injury, are posed by blowouts, ensuing spills, and containment and response activities. Effects from individual spills depend on many factors, including time of year, location relative to land and sensitive resources, winds and currents, reservoir volumes and pressures, and hydrocarbon characteristics. However, as the *Deepwater Horizon* event illustrates, a catastrophic oil spill resulting from loss of well control can significantly affect physical, biological, socioeconomic, and sociocultural resources over vast coastal and marine areas. Potential impacts on physical, biological, and social resources resulting from a catastrophic spill are summarized below. The proposed action would allow drilling activities that pose very low risks of triggering those impacts.

Table 1: Directed Suspension Orders of Deepwater Drilling Operations in the Gulf of Mexico

| Planning Area | Well Name | Well Type | Drilling Approval Status | Lease | Lease Area | Block | Water Depth (ft) |
|--|-------------|-------------|--------------------------|--------|--------------------|-------|------------------|
| <i>Currently Suspended Deepwater Drilling Operations</i> | | | | | | | |
| Western | HA002 | Development | AST | G10380 | Alaminos Canyon | 25 | 4804 |
| Central | 006 | Development | CNL | G11043 | Green Canyon | 244 | 2950 |
| Central | A008 | Development | AST DSI (Canceled) | G21790 | Green Canyon | 338 | 3325 |
| Central | SB201 | Development | APD DSI | G20084 | Green Canyon | 653 | 4234 |
| Central | MA001 | Development | AST | G08803 | Mississippi Canyon | 211 | 4317 |
| Central | 002 | Development | APD TA | G27278 | Mississippi Canyon | 519 | 6500 |
| Western | 001 | Exploration | APD | G31199 | Alaminos Canyon | 810 | 7134 |
| Western | TA001 | Exploration | AST | G20871 | Alaminos Canyon | 859 | 9627 |
| Central | 002 | Exploration | AST | G08037 | Atwater Valley | 617 | 6171 |
| Western | 014 | Exploration | AST | G14205 | East Breaks | 602 | 3681 |
| Western | 009 | Exploration | APD | G20725 | East Breaks | 646 | 4010 |
| Western | 010 | Exploration | APD | G20725 | East Breaks | 646 | 4010 |
| Central | 001 | Exploration | APD | G27982 | Ewing Bank | 834 | 1100 |
| Central | 002 | Exploration | APD TA | G27982 | Ewing Bank | 834 | 1100 |
| Central | 001 | Exploration | APD | G30876 | Garden Banks | 959 | 4334 |
| Central | 001 | Exploration | ABP DSI | G25153 | Green Canyon | 469 | 3350 |
| Central | 001 | Exploration | APD | G21813 | Green Canyon | 723 | 5040 |
| Central | 001ST01 | Exploration | AST DSI | G21813 | Green Canyon | 723 | 5,040 |
| Western | 001 | Exploration | AST | G19545 | Keathley Canyon | 291 | 5765 |
| Western | 001 | Exploration | APD | G22353 | Keathley Canyon | 384 | 6320 |
| Western | 001 | Exploration | APD DSI | G22367 | Keathley Canyon | 736 | 6750 |
| Western | 001 | Exploration | APD DSI | G25806 | Keathley Canyon | 785 | 6590 |
| Western | 002 | Exploration | APD TA | G21444 | Keathley Canyon | 875 | 6840 |
| Western | 002ST00BP01 | Exploration | AST | G21444 | Keathley Canyon | 875 | 6840 |
| Western | 003 | Exploration | APD | G21447 | Keathley Canyon | 919 | 6941 |
| Central | SS002ST1 | Exploration | AST TA | G19935 | Mississippi Canyon | 305 | 6997 |

| Planning Area | Well Name | Well Type | Drilling Approval Status | Lease | Lease Area | Block | Water Depth (ft) |
|--|-----------|-------------|--------------------------|--------|----------------------|-------|------------------|
| Central | SS002ST2 | Exploration | AST | G19935 | Mississippi Canyon | 305 | 7001 |
| Central | 001 | Exploration | APD DSI | G26265 | Mississippi Canyon | 540 | 2036 |
| Central | 002 | Exploration | APD DSI | G16644 | Mississippi Canyon | 728 | 5376 |
| Central | 003 | Exploration | APD | G28030 | Mississippi Canyon | 948 | 6060 |
| Central | 001 | Exploration | AST TA | G22919 | Mississippi Canyon | 984 | 4038 |
| Central | 001 | Exploration | APD TA | G24134 | Mississippi Canyon | 993 | 6266 |
| Central | 001 | Exploration | APD | G31418 | South Timbalier Area | 311 | 440 |
| Central | 006 | Exploration | APD | G13064 | Viosca Knoll | 862 | 1055 |
| Western | 007 | Exploration | APD | G13064 | Viosca Knoll | 862 | 1055 |
| Central | 001 | Exploration | APD | G26419 | Walker Ridge | 969 | 7813 |
| <i>Pending Approvals for Deepwater Drilling Operations under Approved Plans (See Alternative 3 for more detail)</i> | | | | | | | |
| Eastern | 001 | Exploration | Not Approved | G23488 | DeSoto Canyon | 134 | 6325 |
| Central | 001 | Exploration | Not Approved | G16786 | Green Canyon | 738 | 4468 |
| Central | WI001 | Exploration | Not Approved | G20085 | Green Canyon | 654 | 4383 |
| Central | WI002 | Exploration | Not Approved | G20085 | Green Canyon | 654 | 4355 |
| Central | 001 | Exploration | Not Approved | G22968 | Green Canyon | 504 | 3600 |
| Central | 002 | Exploration | Not Approved | G24197 | Green Canyon | 903 | 5259 |
| Central | 002 | Exploration | Not Approved | G25142 | Green Canyon | 385 | 3500 |
| Central | 001 | Exploration | Not Approved | G32534 | Green Canyon | 814 | 5837 |
| Central | 001 | Exploration | Not Approved | G31834 | Lloyd Ridge | 317 | 9252 |
| Central | 001 | Exploration | Not Approved | G27318 | Mississippi Canyon | 950 | 6144 |
| Central | 001 | Exploration | Not Approved | G21849 | Walker Ridge | 143 | 5495 |
| Central | 001 | Exploration | Not Approved | G31943 | Walker Ridge | 95 | 5847 |

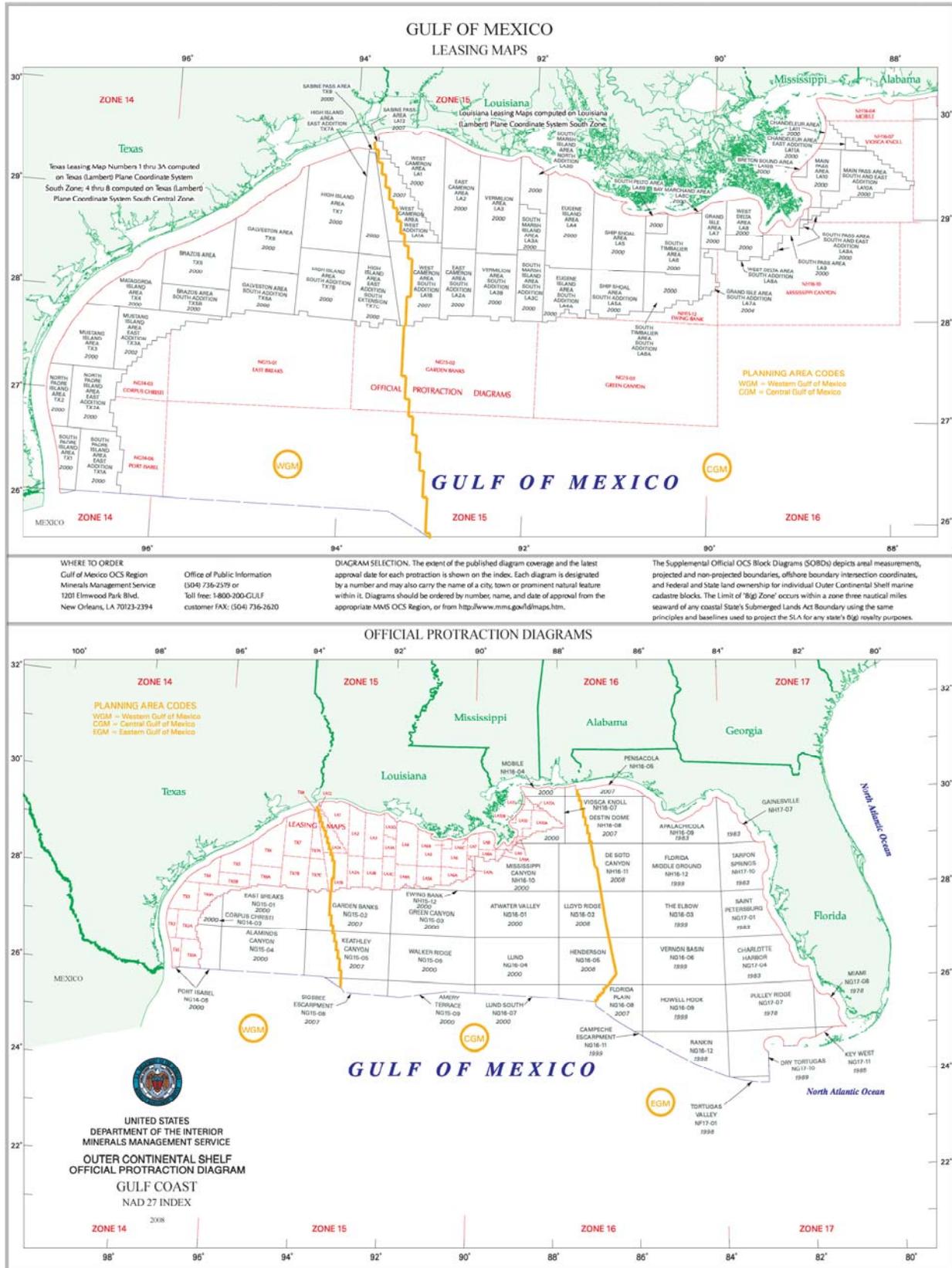


Figure 1. Leasing Areas and Protraction Diagrams of the Eastern, Central and Western Planning

Areas

Physical Resources

A catastrophic oil spill, containment, and response activities may significantly impact air quality, water quality, and sediment/benthic quality in the Gulf of Mexico. The severity and duration of impact to physical resources depends critically on the location of the spill, as well as the spatial and temporal variability in meteorology and oceanography.

Loss of well control, associated fires, and/or any controlled burning and flaring would emit large volumes of criteria pollutants, methane, polycyclic aromatic hydrocarbons, and other gases in the vicinity of the well. These substances are hazardous to human and wildlife health. Fine particulate matter in plumes of smoke could temporarily degrade visibility, especially in sensitive areas. As oil is dispersed and transported by ocean currents, evaporating oil could result in locally-higher concentrations of volatile organic compounds, which affect human health and may also lead to temporary increases in ozone. Odor-causing pollutants associated with hydrocarbons may be found at low to moderate levels in coastal areas and could cause minor health problems. Serious human health hazards can generally be avoided by the use of protective gear during response activities and by monitoring and relocation or suspension of response activities when warranted. While some residual air quality impacts may occur after well containment, air quality is expected to return to pre-spill conditions. However, longer-term adverse effects to humans and wildlife may occur, depending on the types and durations of exposure to pollutants.

Water and sediment quality in the open water, coastal, and estuarine Gulf environments, which are generally rated as fair to poor (EPA, 2008), would be affected by the release and transport of oil and natural gas, the disturbance and transport of suspended and oiled sediments, and the release of other possible gases, including hydrogen sulfide. The presence of weathered oil on the surface or dispersed in the water column is expected to have the most significant effect on the deterioration of water quality. The toxicity of oil depends on many factors, including effectiveness of the dispersion, temperature, salinity, degree of oil weathering, type of dispersant and degree of light penetration in the water column (NRC, 2005). The release of methane, which is highly soluble in deepwater environmental conditions (NRC, 2003) and would likely be oxidized as it diffused up through the aerobic zone, could contribute to increasing microbial degradation and a decrease in dissolved oxygen levels. There may be potential to harm biological resources from toxic concentrations of methane in the immediate vicinity of the well. While response efforts are expected to decrease the volume of oil, the same operations may impair marine and coastal water quality due to incidental pollution from vessels and containment and clean-up operations, including dispersant application. Plumes and clouds of dispersed oil may occur near the blowout site and may be transported in the marine environment, but are expected to decrease to undetectable levels over the larger Gulf (NOAA, 2010). Dissolved oxygen levels may decrease with increasing microbial degradation of oil and other soluble gases, however relatively large areas of the Gulf are not expected to reach hypoxic levels. Spills that occur during the spring and summer season and closer in proximity to naturally occurring hypoxic zones in the Northern Gulf of Mexico may contribute to further deterioration of dissolved oxygen levels.

As a result of a blowout, sediments could be resuspended and transported substantial distances before re-deposition. Sediment resuspension can lead to temporary changes in oxidation-reduction chemistry, release of metals, and nutrient re-cycling. Weathered, dispersed oil may be adsorbed to suspended sediments introduced by other sources and ultimately become buried through sedimentation over relatively large areas. If deposition occurs in shallow waters and along coastlines and marshes, oiled sediments may be subject to resuspension and stirring especially in storm events or through coastal erosion.

Physical, chemical, and biological processes are expected to rapidly degrade oil, other soluble gases, and dispersants, and water quality conditions are expected to return to pre-spill conditions. Longer-term adverse effects to humans and wildlife resulting from poor water and sediment quality may occur, depending on the nature and frequency of exposure.

Biological Resources

A catastrophic spill has the potential to cause significant impacts to marine and coastal biological habitats and resources in the Gulf of Mexico, as well as direct impacts to individual organisms.

Coastal and offshore habitats serve important ecological functions, and those functions are expected to be disturbed by oil contact, as well as containment and response operations. During a catastrophic oil spill, it is expected that weathered oil and dispersants will contact some soft-bottom and sensitive benthic habitats, and some shoreline and coastal marsh impact is expected. Due to the sensitivity of marine and coastal benthic habitats and the length of the coastline in the Gulf of Mexico, a catastrophic spill could cause extensive degradation to these habitats. Onshore, the loss of vegetation could exacerbate erosion and permanent land loss. Deep and shallow water soft bottom habitats, hard bottom habitats, and other sensitive biological features provide habitat for diverse communities of high biomass and moderate diversity with sensitive plant and animal species. Soft bottom infaunal and epifaunal communities that are negatively impacted by direct contact with oil or dispersed oil may experience sublethal and/or lethal effects. In areas affected by shoreline contact, a catastrophic spill could cause the destruction of remaining habitat of certain onshore species, such as the diamondback terrapin or beach mice. A catastrophic oil spill could degrade or decrease available habitat and could indirectly affect the survival rate and possible recruitment for species that depend upon that habitat.

Effects of oil on all biological organisms, such as fish, sea turtles, and marine mammals may include direct lethal toxicity, sublethal disruption of physiological processes (internal lesions), effects of direct coating by oil (suffocation by coating gills), incorporations of hydrocarbons in organisms causing tainting or accumulation in the food chain, and changes in biological habitat (such as decreased dissolved oxygen content). Multiple federal and state-listed, threatened and endangered species, including marine mammals and sea turtles, could be impacted. Early life stages of animals are usually more sensitive to oil than adults (Boesch and Rabelais, 1987; NRC, 2005). During a blowout event, an explosion would kill any birds resting on the affected platform, including birds protected under the Migratory Bird Treaty Act. The associated shock wave would injure or kill individual wildlife in the vicinity, including federally-listed threatened and endangered species under the ESA or MMPA. A shock wave under water may also impact commercial and recreational fisheries in the area. Benthic communities, beyond avoidance zones, could be smothered. During an oil spill following a blowout, damage to habitats, as well as loss

of reproductively-capable adults and juveniles, and sublethal impacts on wildlife surviving the oil exposure can lead to population level effects in particularly threatened species. In the case of birds, long-term, sub-lethal, chronic effects may exceed immediate losses due to direct mortality (i.e., oiled birds) if such residual effects influence a significant proportion of the population or disproportionately impact an important population segment. For benthic communities, localized areas of lethal effects would be recolonized by populations from neighboring habitats once the stressors have been reduced sufficiently to support marine life. This initial recolonization process may be locally rapid, but full recovery may take many years, depending on species present, substrate in the area, toxicity of oil spilled, concentration and dispersion of oil spilled, and surrounding environmental factors that may also effect recruitment and repopulation. Long-term, low-level re-exposure may occur locally to benthic fauna as a result of the remobilization of oil buried in sediments. Known deepwater communities that may be affected by dispersed oil and dispersant application include chemosynthetic communities and deepwater coral communities. Offshore, repopulation of benthic communities could take longer for areas affected by direct oil contact in higher concentrations.

Social Resources

A catastrophic oil spill, containment, and response activities may significantly affect socioeconomic and sociocultural resources. The immediate impacts would be realized mostly in the vicinity of the well, but as the spill and spill operations continue, the severity, geographic scope, and likely duration of effects would increase. A large number of fatalities and injuries to people on the drilling rig or platform could occur, and commercial and recreational fishers and divers near a blowout could be injured or killed. Spilled oil and other incidental releases related to the spill and response operations may be hazardous to response workers without protective equipment. Likewise, local and regional deterioration in air quality could present health hazards to exposed workers and coastal communities. A blowout could also cause damage to any unidentified archaeological sites nearby. Almost immediately following the loss of well control, a large portion of the Gulf of Mexico EEZ and state waters may be closed to commercial and recreational fishing for several months, possibly causing the substantial loss of revenue for an entire season or year if the spill occurred during prime fishing periods. These closures may affect minority or ethnic groups predominately. Tourism may also be impacted due to either perceived damage to recreational resources that has not yet materialized or to general hesitation on the part of travelers to visit the overall region due to the spill. It is possible that suspension of some oil and gas activities could follow a catastrophic event, temporarily affecting jobs in the oil and gas industry. The economic impact of these closures would have a disproportional effect on minority and low-income groups, and depending on the nature of shoreline impacts, could affect additional, but locally-realized subsistence-related effects. A catastrophic spill also has the potential to significantly impact the Gulf Coast recreation and tourism industries during the active spill phase, particularly water-dependent and beach-dependent components of these industries. The influx a large number of responders and the creation of staging areas due to a catastrophic spill would have temporary impacts (e.g., increased traffic congestion and some possible competing land use issues) on land use and infrastructure. In addition, there is a potential for delays in cargo handling and slow vessel traffic due to decontamination operations at various sites along the marine transportation system. Natural processes (e.g., flocculation) and human intervention (i.e., subsea dispersants) as containment and clean-up operations unfold may expose archaeological sites to oil. Additionally, known and previously undiscovered

archaeological sites and benthic habitats could be damaged by bottom-disturbing activities associated with the response effort, including anchoring of vessels. Even after a well is contained or killed, a catastrophic oil spill can also have long term impacts on socioeconomic resources. Positive employment impacts, caused by the spike in response and clean-up related employment, are likely to be shorter term than the negative impacts. Catastrophic spills have an enormous regional economic impact (billions of dollars) as recently seen with the *Deepwater Horizon* event if decisions are made to suspend drilling operations. Oxford Economics (2010) conducted a study of recent catastrophic events in order to estimate the longer-term economic implications of the *Deepwater Horizon* Oil Spill. They estimate that the long term economic damage from the spill could be between \$7.6 and \$22.7 billion. Analyzing previous oil spills and other catastrophic events, they also suggest that it could take 15 to 36 months for the tourism industry to recover to pre-spill levels, even after well containment. Past studies suggest that a healthy offshore petroleum industry also indirectly benefits low-income and minority populations over the long-term. The longer-term implications for commercial and recreational fishing and tourism depend on the extent and perception of environmental damage. After the well is killed and dispersed oil concentrations near pre-spill conditions, human health effects are possible, but highly uncertain. In order to address these data gaps, the National Institute of Environmental Sciences plans to begin a prospective study of the mental and physical health of about 50,000 workers who helped with the *Deepwater Horizon* spill. The primary environmental justice concerns would be long-term health impacts of predominately minority workers involved in cleanup operations (Savitz and Engel, 2010) and exposure to or disposal of oil-impacted waste in predominantly minority and low-income areas (Schleifstein, 2010). Long-term impacts to land use and coastal infrastructure are not expected. Unlike biological or other socioeconomic resources that have the potential to recover over the long-term, damage to archaeological resources from the spill or cleanup activities would be irreversible, leading to loss of important archaeological data needed for proper study and interpretation.

Other Impacts from Deepwater Drilling Operations and Activities Previously Analyzed

Other environmental effects, including cumulative effects, that may occur during deepwater drilling operations, including effects related to supporting / ancillary activities and other relatively smaller accidental oil spills, have been previously evaluated in the following NEPA documents:

- Minerals Management Service (MMS), 2000. Gulf of Mexico Deepwater Operations and Activities Environmental Assessment. OCS EIS/EA MMS 2000-001. Available at <http://www.gomr.boemre.gov/PDFs/2000/2000-001.pdf>.
- MMS, 2007. OCS Oil & Gas Leasing Program 2007-2012 Final Environmental Impact Statement. Volumes 1-2. OCS EIS/EA MMS 2007-003. Available at <http://www.boemre.gov/5-year/2007-2012FEIS.htm>.
- MMS, 2007. Final Environmental Impact Statement for Gulf of Mexico OCS Oil and Gas Lease Sales: 2007-2012; Western Planning Area Sales 204, 207, 210, 215, and 218; Central Planning Area Sales 205, 206, 208, 213, 216, and 222. Volumes 1-2. OCS EIS/EA MMS 2007-018. Available at <http://www.gomr.boemre.gov/PDFs/2007/2007-018-Vol1.pdf> and <http://www.gomr.boemre.gov/PDFs/2007/2007-018-Vol2.pdf>

- MMS, 2007 Gulf of Mexico OCS Oil and Gas Lease Sale 224 Eastern Planning Area Final Supplemental Environmental Impact Statement, MMS 2007-060, OCS EIS/EA, Final October 2007. Available at <http://www.gomr.boemre.gov/PDFs/2007/2007-060.pdf>
- MMS, 2008. Supplemental Environmental Impact Statement for Proposed Central Planning Area OCS Oil and Gas Lease Sales 208, 213, 216, and 222, and Proposed Western Planning Area OCS Oil and Gas Lease Sales 210, 215, and 218. OCS EIS/EA MMS 2008-041. Available at <http://www.gomr.boemre.gov/PDFs/2008/2008-041.pdf>.

The relatively short timeframe associated with the proposed action (when viewed against the no action alternative's November 30, 2010 expiration) suggests that there will be only minimal incremental impacts from normal operations.

Risk of Environmental Impacts

The significance of the effects of the proposed action is based on a combination of the consequences of the impacts on environmental resources that may be more susceptible to impacts because of the *Deepwater Horizon* spill and the likelihood of occurrence of a future spill potentially causing the catastrophic impacts discussed above.

Substantial improvements in safety, well containment, and response measures, technologies and operational improvements have occurred since the Macondo well blowout on April 20, 2010. New safety measures reduce the risk of catastrophic and a smaller oil spills occurring, whereas the development of new well containment technology, well containment protocols and oil spill response technology, methodologies, and protocols reduce the severity and duration of catastrophic oil spills. This is because containment of a spill is presumed to occur sooner, reducing the volume of oil spilled, and response operations would be more timely and targeted, reducing the footprint of effect. Although the occurrence of potential effects from oil spills has been effectively reduced by these improvements, a catastrophic spill with relatively large-scale and long-duration effects is still a possibility. If a catastrophic spill occurs, the effects would be significant. However, as a result of the improved regulations, containment capabilities, and increased spill response resources, the proposed action is unlikely to present a significant risk of a catastrophic spill.

The discussion below first describes the following:

1. The robust information collection, review, and analysis process
2. The regulatory changes that in part contributed to these improvements
3. The improvements in well reliability, containment technology, and spill response operations that have been achieved through regulation, industry initiative, and focused coordination are specifically identified.
4. A determination of the significance of effects of the proposed action in context of these improvements.

1. Information Collection, Review and Analysis

Between August 4 and September 13, 2010, BOEMRE held public forums in eight cities across the country – New Orleans, LA; Mobile, AL; Pensacola, FL; Santa Barbara, CA; Anchorage, AK; Houston, TX; Biloxi, MS; and Lafayette, LA. A total of 61 representatives from the academic community, the oil and gas industries, conservation groups, and local businesses provided thoughtful and valuable information about drilling safety, well containment, and oil spill response, as well as other issues related to offshore drilling. In addition 37 elected officials presented information on these issues and on the economic effects of the oil spill and the deepwater drilling moratorium on their constituents. BOEMRE received and reviewed 138 comment cards submitted by members of the public at the forums and 456 comments submitted to BOEMRE through an internet facility established for the purpose of obtaining public comment.

Other meetings to further information development include a September 22 summit sponsored by the Department of Energy and DOI, in which senior government scientists and officials, along with representatives from industry and stakeholder groups discussed critical issues pertaining to well control and blowout containment, and to the lessons learned from experience with the Macondo well. There have also been briefings from and meetings with approximately 17 groups, including the Joint Industry Task Forces established by the oil and gas industry, British Petroleum (BP), the major oil companies that initiated the Marine Well Containment System development project, a number of environmental groups, and members of the academic and research communities.

Extensive analyses have been prepared that focus on the causes and effects of the oil spill, including the following: a report prepared by BP in response to a request from BOEMRE, entitled “Deepwater Horizon Containment and Response: Harnessing Capabilities and Lessons Learned;”¹⁶ an interim report of the Subsea Well Control and Containment Joint Industry Task Force;¹⁷ an interim report of the Oil Spill Response Joint Industry Task Force¹⁸; BP’s Accident Investigation Report regarding the causes of the Macondo blowout and *Deepwater Horizon* event¹⁹; the Council of Economic Advisors’ Report, “Estimating the Economic Effects of the Drilling Moratorium on the Gulf Coast Economy;”²⁰ and the Bipartisan Policy Center’s report

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http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/incident_response/S_TAGING/local_assets/downloads_pdfs/Deepwater_Horizon_Containment_Response.pdf

17 <http://www.chevron.com/documents/pdf/SubseaWellControlRecommendations.pdf>

18 www.ipaa.org/news/

19

http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/incident_response/S_TAGING/local_assets/downloads_pdfs/Deepwater_Horizon_Accident_Investigation_Report.pdf

20 www.esa.doc.gov/drilling_moratorium.pdf

regarding the drilling moratorium.²¹ These documents have analyzed and summarized available information and provide direction as to how to proceed with safe drilling activities.

2. Regulatory Change

The information collection, review and analysis efforts considered above have resulted in new and planned Notices to Lessees (NTLs), BOEMRE regulations, and additional inspection procedures that address drilling safety, safety management and oil spill response capabilities. These NTLs, regulations and procedures were not in effect at the time of the Macondo well blowout, but will apply to all future applicable drilling activities. These NTLs, rules and procedures include:

Notices to Lessees

The NTLs provide clarification, description, or interpretation of requirements contained in 30 CFR 250.

- **NTL No. 2010-N05** - On June 8, 2010, BOEMRE issued NTL No. 2010-N05, “Increased Safety Measures for Energy Development” otherwise known as the “Safety NTL,” which provides additional information to lessees and operators about implementation of certain safety measures outlined in the Safety Report relating to well casing design, cementing programs and procedures, and BOP control systems and testing. These safety measures apply to all activities on the Outer Continental Shelf (OCS) and apply to operations in both deep and shallow waters. As discussed below, these safety measures are incorporated in the Safety Interim Final Rule. The Safety NTL also includes two provisions with which operators must comply, but which are not incorporated into the Safety Interim Final Rule: (1) certifications by the operator’s Chief Executive Officers of compliance with all BOEMRE drilling and safety regulations, and (2) certification of compliance with the BOEMRE-related provisions of the joint BOEMRE/United States Coast Guard safety alert issued on April 30, 2010 following the Deepwater Horizon.
- **NTL No. 2010-N06** – On June 18, 2010 BOEMRE issued NTL No. 2010-N06, “Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS,” (Plans NTL) which requires lessees and operators to submit additional information for blowout and worst case discharge scenarios submitted with an exploration plan (EP), a development and production plan (DPP), and a development operations coordination document (DOCD).

The additional information required will allow BOEMRE to verify the worst case discharge calculations. Should the worst case discharge exceed the worst case discharge in the operator’s Oil Spill Response Plan (OSRP), the operator is required to update its OSRP before BOEMRE will approve the proposed activity. This NTL also requires operators to provide information concerning their arrangements for drilling relief wells and the availability of a rig to drill a relief well.

²¹ <http://www.bipartisanpolicy.org/library/workshop-material/drilling-moratorium-working-group-report>

New Regulations

The BOEMRE is publishing two new rules that will help improve drilling safety by strengthening requirements for safety equipment, well control systems, and blowout prevention practices on offshore oil and gas operations, and improve workplace safety by reducing the risk of human error.

- **The Drilling Safety Rule Interim Final Rule to Enhance Safety Measures for Energy Development on the Outer Continental Shelf (the ‘Drilling Safety Rule’):** This rule is an emergency rulemaking under the Administrative Procedures Act, the requirements of which will be effective immediately upon the rule’s publication in the Federal Register. The Safety Interim Final Rule imposes standards and requirements that are critical to the safety of offshore oil and gas operations on the OCS. Broadly speaking, the requirements of the Safety Interim Final Rule fall into two categories: (1) wellbore integrity, including cementing and casing programs, negative-pressure testing, and the proper displacement of drilling fluids; and (2) well control equipment, including BOP components and testing of the capabilities of such equipment. [Citation]
- **Workplace Safety Rule on Safety and Environmental Management Systems (SEMS):** This rule requires operators to develop and implement a comprehensive Safety and Environmental Management System (SEMS) for identifying, addressing and managing operational safety hazards and impacts, with the goal of promoting both human safety and environmental protection. The Workplace Safety Rule will cover all offshore oil and gas operations within BOEMRE’s jurisdiction and will apply to the design, construction, start-up, operation, inspection, maintenance and decommissioning of offshore rigs and platforms. [Citation]

Enhanced Inspection Procedures

BOEMRE currently is developing plans and schedules for conducting safety inspections of all deepwater drilling facilities upon the expiration or termination of the suspension of deepwater drilling. These inspections are anticipated to include reviews of compliance certification and packages required under the Safety NTL and the Safety Interim Final Rule; baseline reviews of all deepwater drilling facilities for compliance with BOEMRE’s prescriptive regulations, including as appropriate, the new requirements of the Safety Interim Final Rule; and schedules and procedures for monitoring by qualified BOEMRE personnel of critical phases of deepwater drilling operations, such as casing and cementing processes.

3. Well Control, Containment and Response Improvements

The recent experience gained in controlling, containing, and responding to the Macondo event has improved industry and government knowledge, technology, equipment and preparedness.

Well Control

The promulgation of the Safety Interim Final Rule, an emergency rulemaking under the Administrative Procedures Act, is a major step toward reducing the risk of catastrophic and other oil spills that could result from loss of well control and blowouts. The rule’s

requirements will be effective immediately upon the rule's publication. The Safety Interim Final Rule imposes standards and requirements that are critical to the safety of offshore oil and gas operations on the OCS. Broadly speaking, the requirements of the Safety Interim Final Rule fall into two categories: (1) wellbore integrity, including cementing and casing programs, negative-pressure testing, and the proper displacement of drilling fluids; and (2) well control equipment, including BOP components and testing of the capabilities of such equipment. Additional information about the components and requirements of the rule is presented below.

- Wellbore integrity provides the first line of defense against a blowout by preventing a loss of well control. Well bore integrity includes appropriate use of drilling fluids and the casing and cementing program. These are used to balance pressure in the borehole against the fluid pressure of the formation, preventing an uncontrolled influx of fluid into the wellbore. Specific provisions in the rule address wellbore integrity in the following ways:
 - Set standards relating to the isolation of potential flow zones during well construction;
 - Certification by a professional engineer that the casing and cementing program is appropriate for the purposes for which it is intended under expected wellbore pressures;
 - Ensuring proper installation of the casing or liner in the subsea wellhead or liner hanger, including ensuring that latching mechanisms or lock-down mechanisms are engaged upon installation of each casing string liner;
 - Testing requirements to ensure proper casing installation: (1) pressure testing on casing seal assemblies to ensure proper casing installation, and (2) negative-pressure testing;
 - Review and approval by BOEMRE District Managers prior to the displacement of kill-weight drilling fluid; and
 - Deepwater well control training for rig personnel.
- Well control equipment is used to bring a well back under control in the event of a loss of well control. Well control equipment includes the BOP and control systems that activate the BOP, either through a control panel on the drilling rig or through ROVs that directly interface with the BOP to activate appropriate rams. The provisions in the Safety Interim Final Rule that address well control equipment include the following:
 - Submission of documentation and schematics for all control systems;
 - Requirements for independent third-party verification that BOP blind-shear rams are capable of cutting any drill pipe in the hole under maximum anticipated surface pressure;

- Requirement for a subsea BOP stack equipped with ROV intervention capability, including minimum requirements that the ROV be capable of closing one set of pipe rams, closing one set of blind-shear rams, and unlatching the LMRP;
- Requirement for maintaining an ROV on each floating drilling rig on a continuous basis and having a trained ROV crew on each floating drilling rig;
- Requirement for autoshear and deadman systems for dynamically positioned rigs;
- Minimum requirements for personnel authorized to operate critical BOP equipment;
- Requirements for documentation of subsea BOP inspections and maintenance;
- Requirements for the testing of all ROV intervention functions on the subsea BOP stack during the stump test and testing at least one set of rams during the initial test on the seafloor;
- Function-testing autoshear and deadman systems on the subsea BOP stack during the stump test and testing the deadman system during the initial test on the seafloor; and
- Pressure testing of any shear rams used in an emergency.

Another major step that may reduce the risk of catastrophic and other spills is the implementation of the Workplace Safety Rule. Although many deepwater operators already comply with most SEMS requirements, full compliance with the Workplace Safety rule will require all deepwater operators to establish SEMS programs to identify, address, and manage safety, environmental hazards, and impacts during design, construction, start-up, operation, inspection, and maintenance activities. The intent of the rule is to hold the operator responsible for the overall safety of facilities and operations, and in doing so, reduce the risk of environmental hazards. This rule accomplishes this by ensuring contractors and subcontractors have robust policies and procedures in place that support SEMS implementation, including frequent procedural auditing and training of the program. It is anticipated that effective implementation will eliminate the most frequent causes of historic incidents that have occurred during OCS activities. One particularly relevant element is the requirement that personnel be trained and drilled on elements in Emergency Action Plans that focus on response, control, and evacuation procedures.

Containment and Response

The progress on containment and response measures, technologies and operational improvements has substantially reduced the possible duration and magnitude of effects associated with a catastrophic spill assuming containment will be achieved relatively faster and because of faster containment and more targeted response the volume spilled and areas affected

will be less. New containment and response technologies and procedures are now available in the following areas:

- Hydrate-inhibition system based on subsea delivery of methanol from a dedicated vessel
- Construction of two, containment-purpose, free-standing risers in the Gulf of Mexico that connect to the BOP to facilitate a top kill if necessary. These include a subsea manifold to collect oil flow from a wellhead during construction of a relief well. Although these technologies were specific to the damaged blowout preventer on the Macondo well and are currently being disassembled, a substantial improvement in engineering occurred that would facilitate similar design, fabrication, and deployment in the future.
- Industry led initiatives to develop enhanced subsea well control systems, such as plans for the Marine Well Containment System or BP's Containment Disposal Project
- Availability of a fleet of retrofitted existing vessels, now capable of multipurpose response vessels oil collection and spill response
- Improvements in use of remotely operated vehicles (ROVs) and Remote Sensing Technology:
- Operation command and logistics capabilities have improved from the new procedures and software that have developed from experiences dealing with responding to the Macondo spill.
- The drilling of relief wells to intercept and permanently seal the Macondo well resulted in significant technological advances in relief well interception capabilities that are available to apply to future incidents requiring the drilling of a relief well to regain well control.
- Improvements in oil spill response technology relating to the use of dispersants, oil detection and tracking, skimming capacity and recovery rates, and in-situ burning.

4. Determination of Significance

As explained earlier, the risks associated with deepwater drilling do not appreciably change, whether those operations begin after the end of the existing suspension, or seven weeks earlier, as contemplated by the proposed action. Moreover, the progress on safety, containment, and response measures, technologies and operational improvements has substantially reduced the risk of a catastrophic spill occurrence, as well as the possible duration and magnitude of effects associated with a catastrophic spill. The same measures, technologies and operational improvements also effectively reduce other effects associated with other smaller oil spills. Although the occurrence of potential effects from oil spills has been effectively reduced by these improvements, a catastrophic spill with relatively large-scale and long-duration effects is still a possibility. If a catastrophic spill occurs, the effects would be significant.

The key variable, in terms of assessing whether there is significant risk of environmental harm whenever the suspension ends, relies on the probable frequency of such an accidental catastrophic spill actually occurring. The *Deepwater Horizon* event, which involved the deepwater exploration drilling, not development drilling, was an unprecedented event in the history of deepwater drilling on the Outer Continental Shelf, which has been rapidly increasing since the early 1990s. Since the early 1970s, more than 4,000 wells have been drilled in water depths greater than 500 feet, a water depth at which a floating facility is usually required Over

2,300 deepwater development wellbores have been drilled, whereas approximately 2,600 deepwater exploration wellbores have been drilled. Some drilling activities pose a higher likelihood of encountering a blowout than others. As a general matter, the risks associated with types of drilling are determined by the drilling operators' familiarity with wellbore parameters, including pore pressures, fracture gradients, abnormal pressure zones, and possible lost circulation zones. Because exploration wells involve drilling to find new productive formations (or to confirm a previous discovery) under circumstances where there is limited knowledge of these wellbore parameters, these are higher-risk wells. Deepwater drilling of development wells generally involves less risk because they are typically drilled into known reservoirs and the relevant geological information is available to the operator. No deepwater development drilling has been led to a catastrophic spill to date. The probability, or expected frequency, of a catastrophic spill from a deepwater development well is very low, even remote. The knowledge gained and proactive steps taken since the Macondo well blowout that underlie the proposed action further reduces that probability, the degree to which is still unknown. The effects of the proposed action are not expected to be significant, considered in context of the remote probability of occurrence.

For these reasons, the effects of the proposed action of shortening the duration of the suspension for deepwater drilling of development wells is not significant. The probability of a catastrophic spill occurring is remote whenever the suspension ends, and the shortening of the suspension by seven weeks does not increase those remote risks.

Economic Effects of the Proposed Action

Under the proposed action, deepwater drilling would likely resume before November 30, 2010 on five development wells only. The economic effect from potentially resuming drilling on that subset of wells is not known, but it is assumed to be positive. Prior to resuming drilling, there would be new costs borne by operators in order to comply with the new safety requirements and to develop necessary containment and response capabilities. These costs are assumed to be substantially less than costs associated with continued delay in production. Shortening the suspension on deepwater development drilling alone would reduce negative economic effects compared to the no action and extension alternatives, whereas positive economic effects would be greater than shortening the suspension on deepwater exploration and development drilling.

A brief discussion of the economic effects of the present suspension is provided to contextualize the economic effects of shortening the suspension on five development wells, as well as the economic effects of other alternatives which are discussed in Sections 4.2 - 4.5. Even though many deepwater rigs discontinued drilling operations with the first moratorium, 41 of the 46 present on April 20, 2010 remain in the Gulf of Mexico Region. Only 15 of the remaining 41 rigs are now idle. The Council of Economic Advisors' / Inter-agency Economic Report, *Estimating the Economic Effects of the Deepwater Drilling Moratorium on the Gulf Coast Economy* (September 16, 2006),²² states that the suspension has not lead to large increases in the loss of jobs in the Gulf coast states since many deepwater operators and well servicing contractors have retained most of their employees (1) deploying them outside the Gulf or (2) internalizing costs

²² www.esa.doc.gov/drilling_moratorium.pdf

because rehiring or replacing highly specialized workers would be more expensive than keeping them on the payrolls for the duration of the suspension. The report estimates that the employment of drilling rig workers decreased by approximately 2,000 (20% of 9,7000 rig workers employed on April 2010) through September.

It is estimated that industry spending has declined \$1.8 billion, but that figure does not account for all offsetting economic policies. The direct reduction in spending impacts related service industries, which in turn affects consumer and business spending. When addressing this multiplier effect, the report expected 12,000 jobs to be temporarily lost. The report asserts that the lost jobs will be available or re-instated following the suspension expiration. Other employment impact analyses range from approximately 10,000 jobs in Louisiana up to 46,0000 jobs along the entire the Gulf coast (e.g., BOEMRE's September 8, 2010 estimate of lost employment was 23,000). Drop-off in oil production is estimated at about 30,000 barrels per day in late 2010 and up to 80,000 barrels per day in early 2011. These are relatively small reductions compared to world production, so no economic effects related to changing global prices are expected to occur. Production is effectively delayed, but there is the cost of delayed revenue to operators. Effects of reduced economic output, lost wages associated with employment loss, as well as decreases in fiscal revenues to federal, state, and local government are not considered in the report, making the Inter-Agency Economic Report a low bound estimate (Mason, 2010b). Using a different methodology with the same input, Mason suggests the economic effects may be as high as 20,000 jobs, \$5 billion in economic output, \$1.1 billion in wges, and \$239 million in lost tax revenues. "The Economic Cost of a Moratorium on Offshore Oil and Gas Exploration to the Gulf Region," by the same economist, predicted the national (versus Gulf) effects to be 12,000 job losses, \$2.8 billion in economic output, \$700 million in wages, and \$219 million in lost tax revenues (Mason, 2010a)²³. Shortening the drilling suspension on deepwater wells would result in marginally reduced economic effects compared to those presented herein.

4.2 Alternative 2 — No Modification to the Scope or Duration of the Suspension (No Action)

Under the no action alternative, there would be no modification to the scope or duration of the current deepwater drilling suspension. BOEMRE would continue the suspension of the drilling of wells using subsea or surface BOPs on floating facilities and would not approve pending or future applications for permits to drill wells that use subsea or surface BOPs on a floating facility until the November 30, 2010 expiration of the suspension. Operators of 35 exploration and development wells currently under suspension in the Gulf of Mexico Region would not be able to resume or commence operations until that time. Twelve APDs already submitted under approved exploration plans will not be considered for approval before the suspension's expiration on November 30, 2010. Production activities and drilling operations that are necessary to conduct emergency activities, such as drilling operations necessary for completions or

²³ http://www.instituteforenergyresearch.org/wp-content/uploads/2010/07/Mason-Economic_Cost_of_Offshore_Moratorium.pdf

workovers, abandonment or intervention operations would continue, as would activities related to waterflood, gas injection, or disposal wells.

Catastrophic Oil Spill Impacts

Under the no action alternative, there is no potential for a catastrophic oil spill to occur from deepwater development drilling prior to November 30, 2010. After the suspension expiration, if a catastrophic spill were to occur (the potential for which is remote) spill impacts would be significant and similar to those discussed relative to the proposed action. Any difference in impacts would result from the slightly delayed timing of a potential spill. Since no deepwater development drilling operations and associated effects would occur prior to November 30, 2010, the ecosystem health may have marginally improved and the stressed physical, biological, and social resources in the Gulf of Mexico may have marginally recovered. However, the extent of recovery is uncertain and it depends on the actual long-term effects to resources, which are not known at this time. The resiliency and residual sensitivity of environmental resources varies widely, not only across habitat types and species, but also within habitat types and species, depending on the severity and duration of the original effect. Marginally less sensitive resources may be marginally less susceptible to impacts of another catastrophic oil spill, if it were to occur upon the resumption of drilling.

Other Impacts Previously Analyzed

Other environmental impacts, including a smaller oil spill and cumulative effects, under the no action alternative would be the same as those previously analyzed (see NEPA references under the proposed action), with the exception that they would not occur until after the suspension expiration. As discussed above, ecosystem health may have marginally improved and environmental resources marginally recovered by that time, such that stressed resources may be marginally less susceptible to other effects of drilling operations.

Risk of Environmental Impacts

There is no risk of a catastrophic oil spill from deepwater development drilling prior to suspension expiration. The risk for a catastrophic event after suspension expiration is reduced for the same reasons discussed in the impact analysis of the proposed action. The risk of catastrophic effects resulting under this alternative would be marginally less than the proposed action, since neither deepwater exploration nor development wells would be drilled in the intervening seven weeks prior to the suspension expiration. Under the no action alternative, no significant effects associated with a catastrophic spill would occur prior to the suspension expiration.

Economic Effects

Under the no action alternative, deepwater drilling would not resume until after November 30, 2010. The economic effect of allowing the suspension to expire is assumed to be adverse relative to shortening the duration of the suspension, but the magnitude and duration of the relative economic effect is not known. The overall effect should not differ greatly from that previously

analyzed by economists. Adverse economic effects under the no action alternative would be slightly greater than economic effects under Alternatives 1 or 3.

4.3 Alternative 3 — Shorten the Duration of the Suspension of Deepwater Exploration and Development Drilling Operations

Under this alternative, BOEMRE would shorten the duration of the suspension on previously-approved deepwater drilling for exploration and development wells and would begin reviewing and potentially approving pending and future applications for permits to drill deepwater exploration and development wells. The July 12, 2010 suspension memorandum defines deepwater drilling as drilling operations using subsea or surface blowout preventers on floating facilities in the Gulf of Mexico and Pacific Regions. BOEMRE would shorten the suspension so that it ends on October 12, 2010, approximately seven weeks earlier than its planned expiration on November 30, 2010. Under this alternative, three scenarios of approvals could occur sooner than November 30, as compared with the no action alternative: (1) approval to resume or commence drilling operations previously approved under an exploration or development plan, (2) approval of a previously-submitted APD for drilling proposed under an approved exploration or development plan, and (3) approval of pending and future exploration and development plans and applications for permits to drill.

At least 36 previously-approved drilling operations are under suspension in the Gulf of Mexico (Table 1). One of these has been canceled. Deepwater drilling is currently suspended in Viosca Knoll, Mississippi Canyon, Atwater Valley, South Timbalier Area, Ewing Bank, Green Canyon, Walker Ridge, Garden Banks, Keathley Canyon, East Breaks, and Alaminos Canyon leasing/protraction diagram areas of the Central and Western Planning Areas (Figure 1) (Areas are listed from east to west) Thirty exploration wells are currently under suspension. The relative water depths of the suspended operations range from approximately 1,000 to 10,000 feet. Of these wells, 22 have been approved under a permit to drill or permit to modify, 12 under an application to sidetrack, and one under an application to bypass (*i.e.*, drilling a new wellbore as a bypass of an existing well).

Twelve additional exploration plans have been approved for the drilling of deepwater exploratory wells in the Gulf of Mexico; however, approvals of applications for permit to drill or modify have not been granted, despite applications being submitted. These activities are proposed in Mississippi Canyon, Green Canyon, Walker Ridge, as well as De Soto Canyon and Lloyd Ridge protraction diagrams in the Eastern and Central Planning Areas respectively. Shortening the suspension order would allow for immediate consideration of and potential approval of the 12 additional drilling operations prior to November 30th.

No equivalent drilling operations are currently suspended in the Pacific Region, and no APDs are submitted or under consideration for approved plans in the Pacific Region. No new deepwater exploration or development plans or applications for permits to drill are reasonably expected in the Pacific Region in the intervening seven weeks before the November 30th suspension expiration, since all existing drilling platforms are bottom-founded as opposed to floating. Therefore, any consideration of the resumption of deepwater exploration and development

drilling activities, as well as pending and future approvals of applications for permits to drill deepwater exploration and development wells, are effectively limited to the Gulf of Mexico Region.

The operators, prior to resuming or commencing drilling, would be required to comply with the same safety requirements specified in Alternative 1:

- NTL No. 2010-N05, “Increased Safety Measures for Energy Development” effective June 8, 2010 (“Safety NTL”)
- NTL No. 2010-N06, “Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS” effective June 18, 2010 (“Plans NTL”)
- The Drilling Safety Rule, “Interim Final Rule to Enhance Safety Measures for Energy Development on the Outer Continental Shelf” (the ‘Safety Rule’)
- The Workplace Safety Rule on Safety and Environmental Management Systems (SEMS).

Impact Analysis

Catastrophic Oil Spill Impacts

Under this alternative, there is a very low potential for a catastrophic oil spill to occur from deepwater exploration and development drilling prior to November 30, 2010. The same is true for a spill following the suspension expiration. If a catastrophic spill occurs, spill impacts would be significant and similar to those discussed relative to the proposed action.

Other Impacts Previously Analyzed

Other environmental impacts, including a smaller oil spill and cumulative effects, would be the same as those previously analyzed (see NEPA references under the proposed action). There may be a marginal increase in other impacts compared to the proposed action since a greater level of activity (i.e., both exploration and development drilling) occurs sooner.

Risk of Environmental Impacts

The risk of a catastrophic oil spill would arise seven weeks earlier under this alternative, as compared to the no action alternative, but the level of risk would not appreciably change. There is, however, a marginally higher risk of a catastrophic oil spill as compared to the proposed alternative. The risk increases for these reasons: (1) the potential volume of activity in the intervening seven weeks increases to include drilling operations for both development and exploration wells, (2) most of that increased volume is for exploration wells which, as described in the proposed action, are higher-risk wells because they are drilled into formations for which there is limited knowledge of the wellbore parameters, and (3) pending and future drilling operations may occur up to seven weeks sooner than they may have under the no action alternative. The recent Macondo well blowout and ensuing spill demonstrate the potential risks of drilling exploratory wells. It should be recognized that the occurrence of such a spill is unprecedented. While the cause of the Macondo event is not definitely known, preliminary

investigation reports suggest that industry best practice may not have been followed (British Petroleum, September 8, 2010).

The cost-benefit analysis prepared for the Safety Rule (September 30, 2010) estimates on the basis of historical data that one blowout is expected for every 275 deepwater wells drilled (note that deepwater drilling therein is defined as operations occurring in water depths >500 ft). Out of the 20 deepwater blowouts that have occurred to date, only three have resulted in spills and only the Macondo blowout has been catastrophic. The largest volume of the other spills was only 200 barrels. The cost-benefit analysis assumes that a catastrophic blowout spill under current regulations and practices is estimated to be 1 in 4,123 wells. Therefore, a major spill (if not catastrophic) from deepwater drilling may be expected to occur every 26 years under current deepwater drilling rates. This assumes that some future drilling operation may also not be following industry best practice. The key point is that no catastrophic spills have occurred to date from deepwater drilling when industry best practice and regulations have been strictly followed.

Under this alternative, the risk for catastrophic effects actually occurring is reduced for the same reasons discussed in the impact analysis of the proposed action. However, the risk relative to the deepwater development drilling is greater for the reasons previously discussed. The probability of a catastrophic spill from drilling deepwater exploration and development well remains very low, even remote. The knowledge gained and proactive steps taken since the Macondo well blowout further reduces that probability, the degree to which is still unknown. The environmental effects of shortening the suspension on all deepwater drilling are not expected to be significant when considering the remote probability of another catastrophic spill occurrence and the additional safety requirements and enhanced containment and response capability.

Economic Effects

The economic effect of shortening the suspension on all deepwater drilling is assumed to be positive, but the magnitude and duration of the relative effect is not known. Adverse economic effects will be less than the proposed action and no action alternative. However, the risk of economic effects from a catastrophic spill would be greater, since the risk of occurrence of a catastrophic spill is marginally greater.

4.4 Alternative 4—Continue the Suspension until Completion of the Investigations into the Root Causes of the Deepwater Horizon event

Under this alternative, BOEMRE would continue the suspension of deepwater drilling operations using a subsea BOP or a surface BOP on a floating facility in the Gulf of Mexico and Pacific Regions and would not approve pending or future applications for permits to drill wells using a subsea BOP or surface BOP on a floating facility until the completion of the investigations into the root causes of the *Deepwater Horizon* event. Operators of thirty-five exploration and development wells currently under suspension in the Gulf of Mexico Region would not be able to commence operations until the completion of the investigations or some time thereafter. Twelve APDs already submitted under approved exploration plans would not be evaluated and considered for approval before the November 30th expiration of the suspension and would likely

be delayed beyond November 30 unless the investigations are complete at that time. Production activities and drilling operations that are necessary to conduct emergency activities, such as drilling operations necessary for completions or workovers; abandonment or intervention operations; or waterflood, gas injection, or disposal wells would continue.

Prior to resuming or commencing the drilling of these wells, operators would at a minimum be required to comply with the following safety requirements:

- NTL No. 2010-N05, “Increased Safety Measures for Energy Development” effective June 8, 2010 (“Safety NTL”)
- NTL No. 2010-N06, “Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS” effective June 18, 2010 (“Plans NTL”)
- The Drilling Safety Rule, “Interim Final Rule to Enhance Safety Measures for Energy Development on the Outer Continental Shelf” (the ‘Safety Rule’)
- The Workplace Safety Rule on Safety and Environmental Management Systems (SEMS).

Impact Analysis

Catastrophic Oil Spill Impacts

Under this alternative, there would be no potential for a catastrophic oil spill until the completion of investigations identifying the root causes of the Deepwater Horizon event, which is assumed to occur much later than the existing suspension expiration date of November 30, 2010. The time required for those investigations to be completed and any corrective actions that may be required because of the investigations’ findings is not known. Assuming a catastrophic spill were to occur after deepwater drilling resumes, spill impacts would be significant and similar to those discussed relative to the proposed action. However, the synergistic or cumulative impacts of that spill may not be as severe since the ecosystem health will have improved and stressed physical, biological, and social resources will have recovered more even compared to the no action alternative. The degree of recovery is uncertain and depends on the actual long-term effects to resources which are not known at this time. Less sensitive resources may be less susceptible to impacts of a catastrophic oil spill if it were to occur upon the resumption of drilling.

Other Impacts Previously Analyzed

Other environmental impacts, including smaller oil spill and cumulative effects, would be the same as those previously analyzed (see NEPA references under the proposed action), with the exception that they would not occur until sometime after the suspension expiration. As discussed above, ecosystem health may have improved and environmental resources recovered by that time, such that stressed resources may be less susceptible to other effects of drilling operations.

Risk of Environmental Impacts

Under this alternative, no significant effects associated with a catastrophic spill would occur prior to the suspension expiration. Following expiration of the suspension extension, as discussed above, there is a remote probability that a catastrophic spill would occur and if it were to occur, it

would have significant effects. The risk of significant environment impacts is less under this alternative than the first three alternatives because it is probable that 1) further progress will be made in the development and implementation of the Marine Well Containment System and BP's Containment Disposal Project containment capabilities and 2) more response resources will become available from Macondo response operations and/or be mobilized from other areas in the intervening period before drilling resumes. More information will also become available about the nature of effects from the current spill which will be relevant to better analyze the state of resources and likely effects if a catastrophic spill were to occur. Since the probability of occurrence of such an event is remote, especially in context of the new safety measures and relatively-greater containment and response capabilities, effects of the alternative are not expected to be significant.

Economic Effects

Under this alternative, deepwater drilling would not resume until sometime after November 30, 2010. The economic effect of continuing the suspension beyond November 30th will be adverse, but the magnitude and duration of the relative effect is not known. The scope of effects would be greater than that previously predicted for the suspension and summarized in the impact analysis for the proposed action. The uncertainty of the duration of the suspension extension could have negative impacts on business decisions for the oil and gas industry, as well as service industries. Depending on the length of the extension, significant increases in unemployment and lost wages and decreases in economic output and tax revenue could affect the regional and national economy, especially if deepwater drilling rigs are mobilized out of the Gulf of Mexico.

4.5 Alternative 5— Continue the Suspension for a Period of Time Necessary for Compliance with New Safety Requirements or Further Advances in Well Containment Equipment

Under this alternative, BOEMRE would continue the suspension of deepwater exploratory drilling operations for a period of time necessary for compliance with new safety requirements or further advances in well containment. Deepwater drilling operations are defined as drilling operations using a subsea BOP or a surface BOP on a floating facility in the Gulf of Mexico and Pacific Regions.

Prior to resuming or commencing the drilling of these wells, operators would at a minimum be required to comply with the following safety requirements:

- NTL No. 2010-N05, "Increased Safety Measures for Energy Development" effective June 8, 2010 ("Safety NTL")
- NTL No. 2010-N06, "Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS" effective June 18, 2010 ("Plans NTL")
- The Drilling Safety Rule, "Interim Final Rule to Enhance Safety Measures for Energy Development on the Outer Continental Shelf" (the 'Safety Rule')
- The Workplace Safety Rule on Safety and Environmental Management Systems (SEMS).

Impact Analysis

Catastrophic Oil Spill Impacts

Under this alternative, there would be no potential for a catastrophic oil spill until full compliance with any new safety requirements and further advances in well containment. In practice, this is an extension of the suspension similar to Alternative 4. Therefore, drilling would resume much later than the existing suspension expiration date of November 30, 2010. The time required to satisfy the requirements of the alternative is not known. Assuming a catastrophic spill were to occur after deepwater drilling resumes, spill impacts would be significant and very similar to those discussed in Alternative 4.

Other Impacts Previously Analyzed

Other environmental impacts, including smaller oil spill and cumulative effects, would be the same as those previously analyzed (see NEPA references under the proposed action), with the exception that they would not occur until sometime after the suspension expiration. As discussed above, ecosystem health may have improved and environmental resources recovered by that time, such that stressed resources may be less susceptible to other effects of drilling operations.

Risk of Environmental Impacts

Under this alternative, no significant effects associated with a catastrophic spill would occur prior to the suspension expiration. Following expiration of the suspension extension, as discussed above, there is a remote probability that a catastrophic spill would occur and if it were to occur, it would have significant effects. The risk of significant environment impacts is less under this alternative than the first four alternatives because (1) potential safety requirements not yet identified would be in place, (2) further progress would be made in the development and implementation of the Marine Well Containment System and BP's Containment Disposal Project containment capabilities, and (3) more response resources would be available from Macondo response operations and/or be mobilized from other areas in the intervening period before drilling resumes. More information would also be available about the nature of effects from the current spill which would be relevant to better analyze the state of resources and likely effects if a catastrophic spill were to occur. However, since the probability of occurrence of a catastrophic spill in context of implementation of all new safety measures and relatively-greater containment and response capabilities, effects of this alternative are not expected to be significant.

Economic Effects

Under this alternative, deepwater drilling would not resume until sometime after November 30, 2010. The economic effect of this alternative would be adverse and similar to Alternative 4, but may be worse, depending on the duration of the extension. The magnitude and duration of the relative effect is not known. The uncertainty of the duration of the suspension extension could have negative impacts on business decisions for the oil and gas industry, as well as service industries. Depending on the length of the extension, even more significant increases in unemployment and lost wages and decreases in economic output and tax revenue could affect the

regional and national economy.

5.0 REFERENCES

BOEMRE, 2010a, NTL No. 2010-N05, National Notice to Lessees and Operators of Federal Oil and Gas Leases, Outer Continental Shelf (OCS): Increased Safety Measures for Energy Development on the OCS. Effective Date: June 8, 2010. OMB Control Number: 1010-0182. http://www.gomr.boemre.gov/homepg/regulate/regs/ntls/ntl_lst.html

BOEMRE, 2010b, NTL No. 2010-N06, National Notice to Lessees and Operators of Federal Oil and Gas Leases, Outer Continental Shelf (OCS): Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS. Effective Date: June 18, 2010. OMB Control Number 1010-0183. http://www.gomr.boemre.gov/homepg/regulate/regs/ntls/ntl_lst.html

BOEMRE, 2010, The Drilling Safety Rule, “Interim Final Rule to Enhance Safety Measures for Energy Development on the Outer Continental Shelf”

BOEMRE, 2010, The Workplace Safety Rule on Safety and Environmental Management Systems (SEMS).

BOEMRE 2010, Increased Safety Measures for Energy Development on the Outer Continental Shelf, for 30 CFR Part 250 Environmental Assessment and Finding of No Significant Impact

Boesch, D. F. and N.N. Rabalais (eds.). 1987. Long-Term Environmental Effects of Offshore Oil and Gas Development. Elsevier Applied Science Publishers, London, 696 p.

Burdeau, Cain, 2010. Widespread oyster deaths found on Louisiana reefs, Published by the Associated Press: Saturday, July 17, 2010, 11:00 AM, http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/07/widespread_oyster_deaths_found.html

Council of Economic Advisors / Inter-Agency Report, 2010. Estimating the Economic Effects of the Deepwater Drilling Moratorium on the Gulf Coast Economy. Inter-Agency Report, September 16, 2010, available at http://www.esa.doc.gov/drilling_moratorium.pdf

DOI 2010, “Increased Safety Measures for Energy Development on the Outer Continental Shelf” May 27, 2010.

Hagerty, Curry L. and Ramseur, Jonathan L. 2010. Deepwater Horizon Oil Spill: Selected Issues for Congress, Congressional Research Service, July 30, 2010, 53 pp. <http://www.fas.org/sgp/crs/misc/R41262.pdf>

Hornbeck Offshore Services v. Salazar, No. 10-1663 CED.La.

MMS, 2000. Gulf of Mexico Deepwater Operations and Activities Environmental Assessment. OCS EIS/EA MMS 2000-001. Available at <http://www.gomr.boemre.gov/PDFs/2000/2000-001.pdf>.

MMS, 2007. OCS Oil & Gas Leasing Program 2007-2012 Final Environmental Impact Statement. Volumes 1-2. OCS EIS/EA MMS 2007-003. Available at <http://www.boemre.gov/5-year/2007-2012FEIS.htm>.

MMS, 2007. Final Environmental Impact Statement for Gulf of Mexico OCS Oil and Gas Lease Sales: 2007-2012; Western Planning Area Sales 204, 207, 210, 215, and 218; Central Planning Area Sales 205, 206, 208, 213, 216, and 222. Volumes 1-2. OCS EIS/EA MMS 2007-018. Available at <http://www.gomr.boemre.gov/PDFs/2006/2006-062-Vol1.pdf> and <http://www.gomr.boemre.gov/PDFs/2006/2006-062-Vol2.pdf>.

MMS, 2008. Supplemental Environmental Impact Statement for Proposed Central Planning Area OCS Oil and Gas Lease Sales 208, 213, 216, and 222, and Proposed Western Planning Area OCS Oil and Gas Lease Sales 210, 215, and 218. OCS EIS/EA MMS 2008-041. Available at <http://www.gomr.boemre.gov/PDFs/2008/2008-041.pdf>.

MMS, 2010 Preliminary Revised Program Outer Continental Shelf Oil and Gas Leasing Program 2007 to 2012, March 2010. <http://www.boemre.gov/5-year/PDFs/PRP2007-2012.pdf>

Mason, J.R., 2010. Critique of the Inter-Agency Economic Report “Estimating the Economic Effects of the Deepwater Drilling Moratorium on the Gulf Coast Economy.” September 21, 2010. Prepared for Navigant Economics, LLC.

McDowell, J. Michel, K. Michel, J. Phinney, N. Rabalais, L. Roesner, and R. B. Spies). Washington, DC: National Academy Press. 265 pp.

National Park Service, 2010. Managing Sea Turtles During the Oil Spill Response, July 2010 http://www.nps.gov/archive/features/oilspillresponse/FactSheets/NPS_Turtles_Web.pdf

National Research Council (NRC). 2003. Oil in the sea III: Inputs, fates, and effects (Committee on Oil in the Sea: J.N. Coleman, J. Baker, C. Cooper, M. Fingas, G. Hunt, K. Kvenvolden, J. National Research Council (NRC). 2005. Oil Spill dispersants: Efficacy and Effects. Washington, DC: National Academy Press. 377 pp.

NOAA Fisheries, 2010. Deepwater Horizon/BP Oil Spill: Size and Percent Coverage of Fishing Area Closures Due to BP Oil Spill; last updated October 5, 2010 Southeast Regional Office. <http://sero.nmfs.noaa.gov/ClosureSizeandPercentCoverage.htm>

NOAA Fisheries 2010 Sea Turtles, Dolphins, and Whales and the Gulf of Mexico Oil Spill, Office of Protected Species, October 4, 2010. <http://www.nmfs.noaa.gov/pr/health/oilspill.htm>
Marine Mammal Commission, 2010. The Deepwater Horizon Oil Spill and Marine Mammals: Marine Mammals at Risk in the Gulf of Mexico, July 29, 2010. http://www.mmc.gov/oil_spill/welcome.html

NOAA, 2010. NOAA Re-opens One Third of the Gulf Closed Fishing Area; No Oil Has Been Observed for 30 Days in 26,388 Miles to be Reopened for Fishing, July 22, 2010. http://www.noaanews.noaa.gov/stories2010/20100722_reopening.html

Oxford Economics. 2010. Potential Impact of the Gulf Oil Spill on Tourism. Available at: www.ustravel.org/sites/default/files/page/2009/11/Gulf_Oil_Spill_Analysis_Oxford_Economics_710.pdf.

Rodriguez, Maya, 2010. Fresh Water Keeping Out Oil May be Endangering Oyster Health of Beds WWLTV Eyewitness News Posted July 20, 2010, <http://www.wwltv.com/news/gulf-oil-spill/Concerns-Raised-About-Health-Of-Oyster-Beds-Impacted-By-Fresh-Water-Diversions-98867889.html>

Salazar, Kenneth Lee, 2010a, Decision memorandum regarding the suspension of certain offshore permitting and drilling activities on the Outer Continental Shelf. From Ken Salazar, Secretary of the Interior, to Michael R. Bromwich, Director of the Bureau of Ocean Energy Management, Regulation and Enforcement, July 12, 2010 (29 pp.) <http://www.doi.gov/deepwaterhorizon/loader.cfm?csModule=security/getfile&PageID=38375>

Salazar, Keneth Lee, 2010b, Decision memorandum regarding the suspension of certain offshore permitting and drilling activities on the Outer Continental Shelf. From Ken Salazar, Secretary of the Interior, to Michael R. Bromwich, Director of the Bureau of Ocean Energy Management, Regulation and Enforcement, October 1, 2010.

Savitz, D.A. and L.S. Engel. 2010. Lessons for Study of the Health Effects of Oil Spills. *Annals of Internal Medicine*. August 23, 2010. Available at: <http://www.annals.org/content/early/2010/08/23/0003-4819-153-8-201010190-00276.full>.

Schleifstein, M. 2010. Environmental justice concerns arising from Gulf of Mexico oil spill aired. *Times-Picayune*. June 15, 2010. Available at: http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/06/environmental_justice_concerns.html.

U.S. Department of Commerce. National Oceanic and Atmospheric Administration (NOAA), 2010. Administration's Joint Analysis Group Releases First Scientific Report on Subsea Monitoring data from Gulf Spill. Internet website: http://www.noaanews.noaa.gov/stories2010/20100623_brooks.html. Updated June 23, 2010.

U.S. Environmental Protection Agency (USEPA). 2008. Coastal Condition Report III. United States Environmental Protection Agency Office of Research and Development/Office of Water. Washington, D.C. EPA/842-R-08-002. Available at: <http://water.epa.gov/type/oceb/assessmonitor/downloads.cfm>.

USFWS, 2010a, Wildlife Threatened on the Gulf Coast, 1 p. Web. 9-29-2010. <http://www.fws.gov/home/dhoilspill/pdfs/NewWildlifeOfGulf.pdf>

USFWS, 2010b, Federally Listed Wildlife and Plants Threatened by the Gulf Oil Spill, 2 p. Web. 9-29-2010. <http://www.fws.gov/home/dhoilspill/pdfs/FedListedBirdsGulf.pdf>

USFWS, 2008, Daphne Ecological Services Field Office, Alabama Beach Mouse (Fact Sheet) 1 p. Web. 9-29-2010. http://www.fws.gov/daphne/fact_sheets.html

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The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Bureau of Ocean Energy Management, Regulation and Enforcement Mission

As a bureau of the Department of the Interior, the Bureau of Ocean Energy Management, Regulation and Enforcement's (BOEMRE's) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

The BOEMRE strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending BOEMRE's assistance and expertise to economic development and environmental protection.