STRATEGY FOR POSTLEASE NEPA COMPLIANCE IN DEEPWATER AREAS OF THE GULF OF MEXICO

1. PURPOSE

The Minerals Management Service (MMS) regulates the development of Outer Continental Shelf (OCS) oil and natural gas resources and strives for operations that are both safe and environmentally sound. Programmatic and regulatory decisions by MMS must comply with the OCS Lands Act as well as the National Environmental Policy Act (NEPA). The purpose of this document is to further define how MMS will meet its statutory responsibilities under NEPA as industry continues to move into the deepwater Gulf of Mexico (GOM). Environmental impact statements (EIS's) are typically prepared for the 5-Year OCS Program and lease sales, which are prelease activities. For postlease activities, either categorical exclusion reviews (CER's) or environmental assessments (EA's) are usually prepared for NEPA compliance. The U.S. Department of the Interior's (USDOI) Departmental Manual prescribes the procedures used by MMS to implement the NEPA regulations. Categorical exclusions apply to categories of actions that do not individually or cumulatively have a significant effect on the human environment. For actions that are not categorically excluded, EA's analyze potential impacts and result in a Finding of No Significant Impact (FONSI) or lead to the preparation of an EIS.

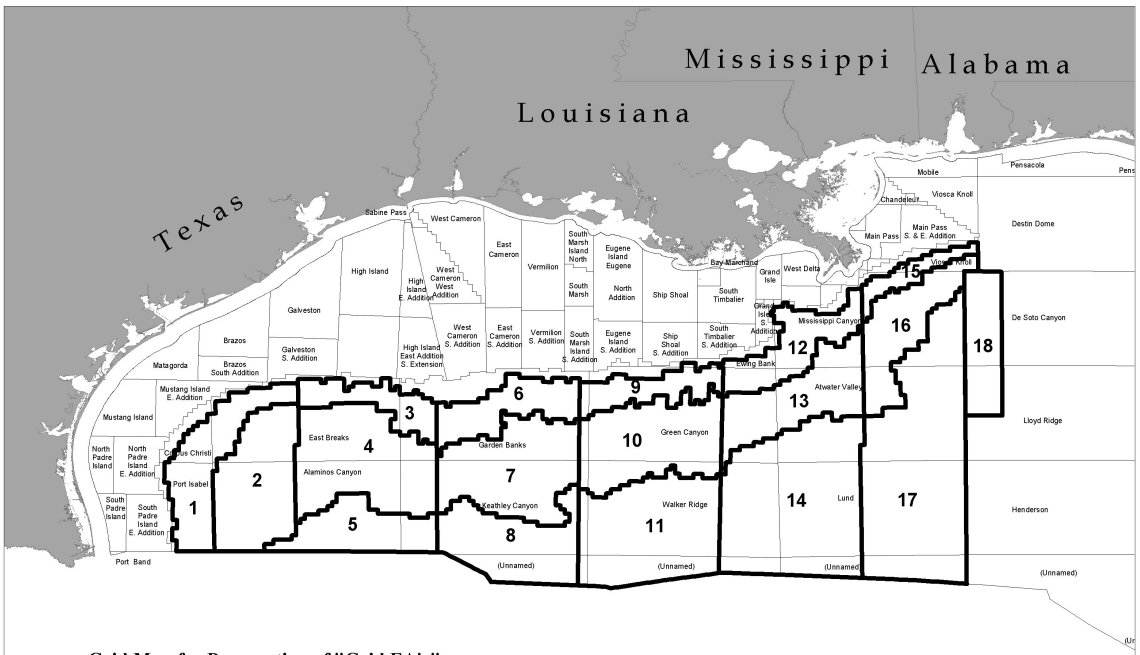
The MMS has over 30 years experience performing NEPA reviews on the continental shelf; hence, offshore oil and gas activities and the environmental resources that could be affected are well documented. As operations moved into the deeper waters, MMS recognized that both the technologies used and the potentially-affected environments were not as well known. To sort out the relevant issues, MMS prepared the *Gulf of Mexico Deepwater Operations and Activities Environmental Assessment* (DWEA) (USDOI, MMS, 2000). The DWEA includes analyses of potential impacts from deepwater operations and activities on various sensitive resources, including biological communities and habitats. One of the key findings of the DWEA is that current NEPA processes and established mitigation measures implemented by MMS adequately address the deepwater activities that are similar to those on the shelf.

In the DWEA, several topics were determined to require further consideration. These topics range from the need to prepare an EIS on the use of floating production, storage, and offloading systems (completed in January 2001) to considerations regarding monitoring, mitigations, and the usefulness of additional scientific studies. It was recognized that several activities might have localized impacts on deepwater benthic communities. These include potential impacts from the discharge of cuttings wetted with synthetic-based drilling fluids, seafloor discharges from drilling operations, and direct physical impacts from anchor and mooring systems and pipelines. To address these and other issues, the approach to NEPA compliance and mitigation in the deepwater Western and Central Planning Areas (WPA, CPA) of the GOM is as described below.

2. STRATEGY OVERVIEW

The specific geographic area addressed in this strategy is the area in water depths greater

than 400 meters (m) in the Western and Central Planning Areas, and a portion of the Eastern Planning Area, of the GOM. A biologically based grid system has been developed and mapped to ensure broad and systematic analysis of the area considered. The grid depicts 18 areas of biological similarity (see map below). The methodology used to develop these areas is described in Part V of this document. The strategy for postlease NEPA compliance in deepwater consists of four parts.



Grid Map for Preparation of "Grid EA's" and Remotely Operated Vehicle (ROV) Surveys in the Deepwater Gulf of Mexico

January 2003

The numbered grid depicts 18 areas of ecological similarity. A "Grid EA" will be prepared for Grids 1 - 17, located in the Western and Central Planning Areas of the GOM. A Grid EA will not be required for Grid 18, located in the Eastern Planning Area of the GOM, because preparation of site specific EA's for all EP's or DOCD's proposed in the Eastern Planning Area of the GOM is already required by the MMS Departmental Manual (516 DM 6 Appendix 10.4.C. (10). ROV surveys will be conducted in Grids 1 - 18 to investigate the possible occurrence of high density biological communities that may occur on the seafloor in deep water.

First, a comprehensive, site-specific EA will be prepared by MMS to address a single proposed development project for each of the 17 areas of biological similarity in the Western and Central Planning Areas. These will be referred to as "Grid EA's." There are differences in how this strategy will be applied for Grid 18, which is located in the Eastern Planning Area (EPA). These differences are explained below.

The Grid EA prepared for each of the 17 areas of biological similarity in the Western and Central Planning Areas will be comprehensive in terms of the impact-producing factors and environmental and socioeconomic resources described and analyzed. The first Development Operations Coordination Document (DOCD) submitted after implementation of this strategy that proposes installation of a surface facility located in water depths >400 m or proposes installation of a surface facility in any water depth to support a subsea development in water depths >400 m, will be the most likely candidate for preparation of a Grid EA unless it is so close to a grid boundary that it may not well represent the Grid. Once a Grid EA has been completed in a grid area, there is a very high likelihood that the NEPA review for each subsequent project will be a categorical exclusion review. Part VIII of this document describes how operators may check the status of Grid EA preparation.

DOCD's that are not candidates for preparation of a Grid EA but are submitted in a grid area before completion of a Grid EA for that area will be treated the same as DOCD's submitted for deepwater operations prior to implementation of the Grid EA process. This may result in preparation of an EA that focuses on site-specific impacts, but does not contain the detail of a Grid EA. DOCD's that are submitted subsequent to the completion of a Grid EA for that area may also warrant the preparation of an EA. However, such an EA will focus only on issues and impacts of the specific project that are substantially different from those analyzed in a Grid EA, and will not contain the detail of a Grid EA.

Grid 18 is treated differently than the other 17 grid areas due to its location in the EPA. The MMS Departmental Manual (516 DM 6 Appendix 10.4.C. (10)) allows for categorical exclusion of EP's and DOCD's in the Central and Western Planning Areas, except in certain circumstances. This option is not available in the EPA. Therefore, at least an EA must be prepared for EP's and DOCD's submitted for projects proposed in Grid 18. Nevertheless, MMS believes that EA's in the area should be as concise and project-specific as possible. To accomplish this, a Programmatic EA (PEA) was prepared that addresses

exploration activity in the EPA lease sale area. The MMS expects that nearly all plan submittals for projects proposed in Grid 18 will also be within the lease sale area covered by the PEA. EA's prepared for individual exploration plans will tier from this PEA. The PEA does not address development and production activities. However, the Final EIS for Sales 189 and 197 proposed to be held in the area will soon be published. This EIS will contain the most up-to-date description of the environment for areas potentially affected by activities related to existing and future OCS leases in the EPA lease sale area. EA's for DOCD's proposing activities in the area will tier from the Final EIS for Sales 189 and 197 to ensure that the EA's are concise and project-specific.

The second major part of this strategy introduces a monitoring requirement to be implemented by industry in all 18 grid areas. The purpose is to determine whether high-density biological communities that may occur in deepwater are in the near vicinity of the facility, and to help design mitigation measures to avoid such areas in the future. Details on this are provided in Part VI. The monitoring will help to assess the effectiveness of existing avoidance criteria and expand the knowledge base regarding the benthic habitats of the deepwater seafloor. It will also provide additional information on issues such as the distribution and accumulation of muds and cuttings on the seafloor in deepwater. The MMS authority for requiring such monitoring is found at 30 CFR 250.104, 30 CFR 250.203, and 30 CFR 250.204.

Third, this area of the Gulf is characterized as "relatively untested or remote" compared with the more developed shelf area. The USDOI Departmental Manual requires that an EA be prepared for operations proposed in "relatively untested deepwater or remote areas." Implementation of this strategy will, over time, result in the grid areas no longer being considered untested or remote, thereby eliminating this as a trigger for preparing an EA.

Fourth, at the stage when an area may no longer be considered untested or remote, NEPA

reviews for new projects will still be required but will focus as much as possible on the unique site-specific aspects of the project. Among the topics that may require some additional level of NEPA review are (1) potential impacts to nearby biological communities, and (2) new or unusual technology that may affect the project's interaction with the environment.

3. RELATIONSHIP TO REGULATIONS AND POLICIES

The MMS has published a Plans Notice to Lessees and Operators (NTL 2003-G-17) that provides updated guidance and clarification on what information operators must submit when filing Exploration Plans (EP's) and DOCD's. This NTL is based on the current 30 CFR 250 regulations that were issued in May 1988. The NTL explains how the GOM OCS Region limits or adds information requirements in particular cases. On May 17, 2002, MMS published a proposed notice of rulemaking that proposes to update the current requirements of 30 CFR 250 Subpart B, which governs the filing of plans and accompanying information. A National NTL was published concurrently with the proposed Subpart B rule and also incorporates appropriate screening strategies now in the Plans NTL.

4. ENVIRONMENTAL SETTING

The northern GOM is a geologically complex basin resulting from interaction and deformation of salt and overlying sediment layers over geologic time. The existing biological information on this region is substantial. On the shelf, the benthic biological communities are relatively well known. The vast majority of the seafloor on the shelf consists of sand, mud, silt, and clay sediments.

In the shallow waters (less than 400 m), there are a number of features in the Western and Central Planning Areas of the GOM that support hard-bottom biological communities. The pinnacle trend is located at the outer edge of the Mississippi-Alabama shelf in several hundred feet of water between the Mississippi River and DeSoto Canyon. This region contains a variety of features from low-relief rocky outcrops to major pinnacle features. In addition to the pinnacle trend, there are 16 major topographic features in the Central Planning Area of the GOM and 23 major topographic features in the Western Planning Area of the GOM that support hard-bottom communities. The MMS ensures protection of the pinnacle trend and topographic features through the use of the Live-Bottom (Pinnacle Trend) Stipulation and the Topographic Features Stipulation.

In the deeper waters of the GOM, off the continental shelf, a number of chemosynthetic communities are known to occur. These areas are inhabited primarily by tubeworms, clams, and mussels and were first documented in 1984. There are currently 45 known sites where these communities occur and it is

suspected that there are many more. These chemosynthetic communities are protected by MMS by NTL 2000-G20, which requires site-specific surveys for proposed bottom-disturbing activities in water depths >400 m to allow identification and avoidance of known chemosynthetic communities or areas where conditions are conducive to supporting these communities (e.g., hydrocarbon seeps).

A researcher at Texas A&M University, Willis Pequegnat, led the first major study of the deep Northern Gulf between 1964 and 1973 (Pequegnat, 1983). A total of 157 stations were sampled and photographed between water depths of 300 and 3,800 m (the deepest part of the Gulf). A more recent study was completed by LGL Ecological Research Associates, Inc. and Texas A&M University in 1988 (Gallaway, 1988). This study included sampling of 60 slope stations throughout the northern Gulf between water depths of 300 and 3,000 m. As part of this multiyear study, a total of 48,000 photographic images were collected and viewed. In addition, trawl and quantitative box core samples were studied.

While there has been an association of carbonate outcrops with the crests of salt formations in many areas of the slope, the vast bulk of the deep GOM sea bottom consists of variations of sand, mud, silt, and clay sediments. Of the 48,000 images taken over the slope in the LGL study, only a very few exhibited any evidence of hard substrate. In recent years, it has become evident that some geologically-complex areas exhibit extensive expanses of exposed carbonate outcrops or hydrates. Some of these areas have been viewed from remotely operated vehicles (ROV) or submersibles and were virtually devoid of attached biological communities. A limited number of areas with specific conditions of faulting and hydrocarbon seepage support chemosynthetic communities. The MMS believes that existing review procedures and mitigation measures dealing with the avoidance of shallow hazards and potential chemosynthetic communities greatly reduce the chance of a potential well site, or seafloor disturbances caused by anchoring activities, being located near such communities.

5. THE GRID

The grid shown on the map was determined using data and information from deepwater GOM studies, several of which are discussed above. Three water depth zones (400-1,000 m, 1,000-2,000 m, and >2,000 m) are represented. This includes all of the continental slope in the Western and Central Planning Areas and a portion of the Eastern Planning Area, of the GOM. The database shows that the biological communities within a particular water depth zone are similar. The three water depth ranges are divided from east to west by longitudinal lines of about one and one-half degrees spacing. These lines are not as important as depth in the distribution of benthic habitats and were selected primarily to create areas of reasonable size for analysis. Other important biological resources were considered in defining areas of biological similarity, but we decided it was most logical and scientifically defensible to base the grids on benthic communities. It is also the most useful approach because site-specific reviews focus largely on the location and avoidance of fixed benthic habitats. We do not believe there is a biologically valid way to grid motile resources such as fish, marine mammals, sea turtles, and birds that move about considerably and are not contained by grid boundaries.

The purpose of the planned series of grid EA's in the Western and Central Planning Areas of the GOM is to analyze federally-permitted activities and determine what impacts may occur throughout the area of evaluation. The grid system has been designed to control the distribution of these analyses, similar to the way a sampling pattern controls the distribution of sample sites. While each grid EA is site-specific and represents impacts related to the site, we believe that the whole array of assessments is sufficient to represent impacts of activities in the two planning areas. If any of the EA's result in impacts that cast doubt on this general premise, the strategy will be modified to accommodate that information. It is acknowledged that the grids may be refined as we gain more information.

It is also important to note that the Grid EA approach was undertaken in 2000, after several years where EA's had already been completed by MMS on development plans filed by industry in deepwater areas. The MMS determined that it was still be necessary to do at least one EA in each grid area going forward.

6. MONITORING PROTOCOL

The existing information for the deepwater area described above indicates that the seafloor is composed primarily of sand, mud, silt, and clay sediments and that hard-bottom communities are rare or absent. While the occurrence of hard-bottom communities may be rare, it is possible that unexpected

biological communities could exist near a well site. However, this remote possibility does not warrant exhaustive search efforts. Neither does it warrant ignoring the possibility. Therefore, all operators of leases on blocks in water depths of 400 m or deeper in Grids 1 – 18 will be required to submit a plan for an ROV monitoring survey as an integral part of their EP or DOCD. This requirement is described in NTL 2003-G03 at http://www.gomr.mms.gov/homepg/regulate/regs/ntls/ntl03-g03.html. Once each grid area is adequately surveyed, subsequent plans in that particular area need not contain the ROV survey plan. Part VIII of this document describes how operators may check the status of ROV survey requirements.

The ROV surveys will serve several purposes. In addition to monitoring the effects of the particular plans for which they are required, the surveys will improve our overall knowledge of benthic habitats in deepwater and provide more information on the seafloor in deepwater. The surveys will also provide information on the distribution and accumulation of muds and cuttings and thereby possibly help us to develop and refine mitigation measures. The MMS will continue to conduct chemosynthetic community reviews for all plans proposing seafloor disturbances in water depths > 400 m, even if an ROV survey is not required for all of them.

The MMS approach to protecting sensitive and densely populated hard-bottom biological features is to avoid and leave undisturbed such features. Therefore, EP's or DOCD's submitted for projects in water depths of 400 m or greater in Grids 1 – 18 must include interpretations of survey results (e.g., high-resolution or interpreted 3D seismic) that evaluate potential areas for hard bottoms that could be populated by attached organisms. Proposed bottom-disturbing activities must avoid any such identified areas. The ROV surveys described above are designed to help assess the effectiveness of the MMS approach to protecting sensitive and densely populated hard-bottom biological features.

6.1 EXPLORATION PLANS

The first 10 EP's in each grid area, at a minimum, will be evaluated by MMS to determine whether the ROV monitoring surveys are needed. This determination will be based on proximity to existing study sites and previous monitoring areas. A minimum of five surveys will be required in each area. The operator will be notified by MMS after plan submittal if the ROV surveys will be waived and may follow the instructions in Part VIII to determine the location and status of ongoing ROV surveys.

Monitoring will be conducted via an ROV survey at the time of exploration operations. The ROV survey will consist of detailed biological and physical information recorded on the MMS ROV survey form. The video tapes of bottom transects and any additional imagery that may help depict bottom conditions, such as ROV scanning sonar data, shall also be included in the monitoring information. The survey form and NTL 2003-G03, which describes the survey requirements, may be found at http://www.gomr.mms.gov/homepg/regulate/regs/ntls/ntl03-g03.html.

Survey transects will be conducted during two periods of the operation:

(1) prespudding; and

(2) postdrilling.

6.2 DEVELOPMENT PLANS

In deepwater areas, the operator submitting the first DOCD that proposes installation of a surface facility located in water depths >400 m may be required to carry out the prescribed monitoring during development drilling. If monitoring activities were conducted for an EP at the site and no areas of biological concern were found, then the survey for the DOCD would not be required; however, another survey for the DOCD would be required if an area of ecological sensitivity is found during the EP monitoring.

7. GRID EA CONTENTS

The Grid EA prepared by MMS for each of the 17 areas of biological similarity in the deepwater GOM will be comprehensive in terms of the topics discussed in the Affected Environment and Environmental Consequences Sections of the document. These topics will include sensitive environmental and socioeconomic resources and potential impact-producing factors. One of the reasons

that MMS designed the Grid EA's to be comprehensive is so parties that are not familiar with MMS's overall NEPA process can see that MMS has considered all of the important environmental resources and issues.

Potential impacts will be discussed in the Grid EA on a site-specific basis when potential impacts can be directly related to the actual location of the specific project. Examples of this may include impacts to benthic communities or archaeological resources near the site, employment associated with the individual project, air emissions from the development activity, or accidental oil-spills associated with the particular development activity. If potential impacts to particular resources would not be any different on a site-specific basis than as previously analyzed in the multisale lease sale EIS's, information on impacts would be briefly summarized and incorporated by reference from the multisale EIS's. Examples of this include impacts to motile resources such as marine mammals, sea turtles, birds, and fish, which would be affected similarly by a proposed developmental activity regardless of specific location.

The following is a list of physical, biological, and socioeconomic topics typically included in the Grid EA's.

Physical Elements of the Environment

- Geology
- Physical Oceanography
- Water Quality
- Meteorological Conditions and Air Quality
- Biological Resources
- Sensitive Coastal Environments
- Deepwater Benthic Communities/Organisms
- Marine Mammals
- Gulf Sturgeon (Central Planning Area only)
- Alabama, Choctawhatchee, and Perdido Key Beach Mice Habitats (Central Planning Area only)
- Sea Turtles
- Birds
- Fish Resources

Other Relevant Activities and Resources

- Socioeconomic Issues
- Commercial Fisheries
- Recreational Resources and Beach Use
- Archaeological Resources

The following is a selected list of impact-producing factors that are typically considered in the Grid EA's. Other impact-producing factors, as appropriate, may also be considered.

- Oil Spills
- Chemical Spills
- Chemical Usage
- Light

- Noise
- Discharges
- Turbidity
- Accumulations of Muds and Cuttings on the Seafloor/Smothering of Benthic Organisms
- Mid-water Obstructions
- Transportation (service vessels and helicopters)
- Barging/Tankering of Oil and Oily Wastes
- Pipelines
- Anchors
- Anchor Cables
- Footprint of Total Bottom Disturbance
- Organic Enrichment (from wastes discharged overboard and decomposition of synthetic drilling fluids adhering to discharged cuttings)
- Contaminant Loading (from wastes discharged overboard)
- Offshore Structures Functioning as FAD's (fish attracting devices)
- Service Base Development
- Fisheries Conflicts
- Geohazards (e.g., hydrates, faults)
- Waste Disposal
- Emissions

8. GRID EA AND ROV SURVEY STATUS

MMS has created and maintains a web site, http://www.gomr.mms.gov/homepg/regulate/environ/ea_grid/ea_grid.asp, to provide operators and other interested parties an opportunity to check the status of grid areas to determine if Grid EA and ROV survey requirements have been met. Users of this resource need only select the lease area and type in the block number of interest to determine the grid area in which the block is located.

LITERATURE CITED

Gallaway, B.J., ed. 1988. Northern Gulf of Mexico Continental Slope Study, final report, year 4; Volumes I-III. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 88-0052, 0053, and 0054.

Pequegnat, W.E. 1983. The ecological communities of the continental slope and adjacent regimes of the northern Gulf of Mexico. Prepared by TerEco Corp. for the U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. 398 pp. + appendices.

U.S. Department of the Interior. Minerals Management Service. 2000. Gulf of Mexico deepwater operations and activities, environmental assessment. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS EIS/EA MMS 2000-001.