

**UNITED STATES DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE
GULF OF MEXICO OCS REGION**

In Reply Refer To: OS-2

September 22, 1983

Gentlemen:

Enclosed is Notice to Lessees and Operators (NTL) which describes the shallow hazards requirements in the Gulf of Mexico OCS Region. The requirements of this NTL are effective immediately and apply to all existing and future leases and pipeline rights-of-way.

The references to the "Regional Supervisor, Offshore Rules and Production" in this NTL require some explanation. A proposed reorganization of the Gulf of Mexico OCS Region of the Minerals Management Service will include a change in the name of the Office of Offshore Operations Support" to the "Office of Offshore Rules and Production." You will be notified when this reorganization becomes effective.

Paragraph II.A.5 requires that a copy of high-resolution survey data from the two lines closest to the proposed well or platform location be included with ne copy of each Plan of Exploration (POE) or Plan of Development/Production (POD/P) for leases issued after April 1983. You may contact the appropriate District Supervisor to discuss this requirement prior to submitting a particular POE or POD/P. If the District Supervisor determines that submittal of the information is not necessary, he can waive the requirement.

Sincerely yours,
[signed] D.W. Solanas
Regional Supervisor
Offshore Operations Support

Enclosure

**UNITED STATES DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE
GULF OF MEXICO OCS REGION**

83-03

September 7, 1983

**NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL AND GAS LEASES
IN THE OUTER CONTINENTAL SHELF, GULF OF MEXICO OCS REGION**

**Outer Continental Shelf
Shallow Hazards Requirements for the Gulf of Mexico OCS Region**

I. Introduction

In accordance with the provisions of 30 CFR 250.11(a), 250.34-1(k), 250.34-2(n), and 250.34-3, the Minerals Management Service (MMS) has established a shallow hazards program to ensure that exploratory, development, and production operations are conducted with a minimum risk to human life and the environment. This Notice to Lessees and Operators (NTL) specifies the requirements necessary to meet this objective in the Gulf of Mexico OCS Region.

The provisions of this NTL are intended to provide clarification, description, or interpretation of requirements contained in regulations or OCS Orders. This NTL does not impose additional requirements.

The purpose of this NTL is to consolidate, clarify, and formalize existing shallow hazards requirements. As a result, NTL 75-8, dated June 1, 1975, and NTL 80-5, effective July 1, 1980, are hereby cancelled. This NTL contains no changes in policy and very few changes from the requirements now in force.

The requirements of this NTL are effective immediately and shall apply to all existing and future leases and pipeline rights-of-way. A flow diagram of the shallow hazards program presented herein is provided in the Appendix.

II. Shallow Hazards Analysis

A. Plans of exploration (POEs) and Plans of Development/Production (POD/Ps)

All POEs and POD/Ps which propose seafloor-disturbing activities shall include a shallow hazards analysis for each proposed drilling or platform site. Detailed shallow hazards analyses of all pipeline routes shall be included in separate pipeline applications, not in POD/Ps.

A shallow hazards analysis for activities proposed in a POE or POD/P shall include the following:

1. A discussion and review of all available geological and geophysical data within 150 meters (490 feet) of each proposed operation.

2. An assessment of any seafloor and subsurface geologic and man-made features and conditions which may have an adverse effect on the proposed operations. Seafloor geologic hazards include fault scarps, gas vents, unstable slopes, and reefs. Subsurface geologic hazards include faults, gas-charged sediments, abnormal pressure zones, and buried channels. Man-made hazards include pipelines, wellheads, shipwrecks, ordinance, communication cables, and debris from previous oil and gas activities.

3. A specific discussion of mass movement of sediments, unstable slopes, active faulting, or gaseous sediments when required by the special operational constraints stipulation on some leases.

4. A discussion of any special safety measures that would minimize the adverse effects of shallow hazards on the proposed operations including a discussion on how compliance with the requirements of Section IV, paragraph B, of the NTL will be accomplished.

5. For leases issued after April 1983, a copy of high-resolution survey data from the two lines closest to the proposed well or platform location shall be included with one copy of each POE or POD/P.

In order to provide sufficient information on which to base a shallow hazards analysis, it will usually be necessary to conduct a shallow hazards survey, as described in Section III, paragraphs C.2.a or C.2.b., of this NTL. However, if a thorough analysis can be made using available geological and geophysical information, including CDP and seismic bright spot data and seismic velocity data, a shallow hazards survey will not be required. If there is a question about the adequacy of available data to prepare an acceptable shallow hazards analysis, the appropriate District Supervisor may be contacted for guidance prior to submission of the POE or POD/P.

B. Applications for Permit to Drill

At the discretion of the appropriate District Supervisor, additional shallow hazards surveying and/or analysis may be required to support applications to drill individual wells. The District Supervisor may also request to review original survey data. These requirements are specified in paragraph 2.3 of OCS Order No. 2.

C. Platform Applications

Subparagraph 3.2.1.3.e of OCS Order No. 8 refers to the necessary shallow hazards information which shall accompany platform applications.

D. Pipeline Applications

All pipeline applications shall include a shallow hazards analysis that covers the entire length of the

pipeline.

1. A shallow hazards analysis of pipelines for which a specific pipeline pre-installation survey was conducted shall include the following:
 - a. A shallow hazards report prepared in accordance with the requirements of Section III, paragraph D.2., of this NTL.
 - b. A discussion of any special safety measures that would minimize the effects of shallow hazards on the proposed pipeline including a discussion of how compliance with the provisions of Section IV, paragraph B, of this NTL will be accomplished.
2. A shallow hazards analysis of pipelines for which a specific pipeline pre-installation survey was not conducted shall include the following:
 - a. A discussion of the specific data and reports used to make the analysis.
 - b. An assessment of any seafloor and subsurface geologic and man-made features and conditions which may have an adverse effect on the proposed pipeline.
 - c. A discussion of any special safety measures that would minimize the adverse effects of shallow hazards on the proposed pipeline including a discussion of how compliance with the provisions of Section IV, paragraph B, of this NTL will be accomplished.

For right-of-way pipelines, it will be necessary to conduct a pipeline pre-installation survey as prescribed in Section III, paragraph C.2.d., of this NTL in order to prepare an acceptable shallow hazards analysis. However, for lease and permit pipelines, it may not be necessary to conduct a pipeline pre-installation survey if a thorough analysis can be made using available geological and geophysical data. If there is a question about the adequacy of available data to prepare an acceptable analysis, the Regional Supervisor, Offshore Rules and Production, may be contacted for guidance prior to submission of the pipeline application.

III. Shallow Hazards Surveys and Reports

A. Introduction

Since the following shallow hazards survey requirements are similar to those for other surveys (e.g., cultural resource and live-bottom), the operator is encouraged to conduct the surveys concurrently. When any of the survey requirements cannot be met for technical, logistical, or other justifiable reasons, an explanation of the problem must be provided in the shallow hazards report.

B. Data Acquisition Instrumentation

Geophysical instrumentation for shallow hazards surveys shall be representative of the state-of-the-art in technological development and shall be deployed in a manner which minimized interference between the instrumentation systems. All data recorders shall be keyed to the navigation system to assure proper integration of information. The equipment operator shall ensure that all instruments are adequately tuned and that all recorded data are readable, accurate, and properly annotated.

The following instrumentation shall be utilized in conducting shallow hazards surveys unless sufficient justification is presented to the appropriate District Supervisor (or Regional Supervisor, Offshore Rules and Production for pipeline surveys) prior to conducting the survey that certain instrumentation is unnecessary.

1. Magnetometer

Total field intensity instruments shall be used to determine the presence of pipelines and other ferromagnetic objects. The sensor of the magnetometer should be towed as near as possible to the seafloor; a distance of six meters (20 feet) or less is preferred. Magnetometer sensitivity shall be one gamma or better, and the background noise level shall not exceed three gammas. Whenever possible, the magnetometer should be towed a minimum distance of three vessel lengths behind the vessel to eliminate its magnetic influence.

2. Side-Scan Sonar

Dual channel side-scan sonar systems shall be used to record continuous planimetric images of the seafloor. The system shall be operated in a manner that provides 100 percent coverage of the seafloor in the survey area. Data obtained should be of such quality so as to permit detection and evaluation of seafloor objects and features within the survey area.

The vertical sound beam width shall be appropriate to the water depth, and the horizontal sound beam width shall provide optimum resolution. The instrument shall be tuned to enhance echo returns from small nearby objects and features without sacrificing the quality of echo returns from more distant objects and features.

3. Shallow Penetration Subbottom Profiler

A subbottom profiler system shall be used to determine the character of near-surface geological features. The system used shall be capable of providing a resolution of at least one meter (three feet) within the upper 15 meters (50 feet) of sediment.

4. Medium Penetration Seismic Profiler

A profiler system shall be used to determine the character of deeper geological features. The system used shall be capable of penetrating at least 300 meters (980 feet).

For seafloor obstruction surveys and pipeline pre-installation surveys, as discussed in paragraphs C.2.c. and C.2.d. of this section, a medium penetration profiler system is not required.

5. Depth Sounder

Continuous water depth measurements shall be made using a high-frequency narrow-beam depth sounder. Bathymetric data shall be recorded with a recording sweep appropriate to topography and water depth.

6. Additional Investigations

Under certain conditions, additional instrumentation and methods such as underwater television, still or movie cameras, divers, coring, remote or manned submersibles, and additional geophysical survey lines may be necessary.

C. Survey Parameters

The following navigation and survey pattern requirements shall be utilized in conducting shallow hazards surveys:

1. Navigation

Navigation for the survey shall use a state-of-the-art continuous positioning system correlated with annotated geophysical records. The accuracy of the system shall be on the order of ± 30 meters at 322 kilometers. The nominal fix spacing shall be no more than 150 meters (490 feet).

2. Survey Pattern

The pattern for each type of survey shall be designed to cover the area of anticipated physical disturbances. This area includes but is not limited to the area within which drilling vessel or pipeline-lay barge anchors may be placed, but does not include the area within which work boat anchors will be placed or the area within which similar minimal disturbances may occur.

The following survey patterns shall be utilized in conducting shallow hazards surveys unless sufficient justification is presented to the appropriate District Supervisor (or Regional Supervisor, Offshore Rules and Production for pipeline surveys) prior to conducting the surveys that a different survey pattern is adequate.

- a. Lease Surveys - When multiple operations on the lease are planned or probable, it may be advantageous to conduct a lease survey. This survey shall cover the entire area of the lease, as well as that portion external to the lease within which operational activities may cause physical disturbances. The survey shall be run along parallel lines spaced at a maximum of 300 meters (980 feet) with cross lines spaced at a maximum of 900 meters (2950 feet).

b. Site-Specific Surveys - These surveys shall be run in an area at least 1800 meters (5900 feet) square with parallel lines spaced at a maximum of 300 meters (980 feet) with cross lines spaced at a maximum of 900 meters (2950). Site-specific surveys are not required in areas where lease surveys have already adequately covered the area.

c. Seafloor Obstruction Surveys - Before operations involving mobile drilling rigs, pipeline-lay barges, and anchor-handling vessels can begin, it may be necessary to conduct a seafloor obstruction survey in order to locate existing pipelines and other potential hazards. This survey is not required if the data from other surveys are adequate to accomplish this purpose. Seafloor obstruction surveys for wells and platforms shall be run in an area at least 300 meters (980 feet) square with three equidistant primary lines and at least one cross line. Seafloor obstruction surveys for pipelines shall be run using the same pattern as that required for pipeline pre-installation surveys discussed in paragraph C.2.d of this section.

d. Pipeline Pre-installation Surveys - The pattern for pipeline pre-installation surveys shall include a line along the proposed pipeline route with an offset parallel line on either side spaced to coincide with the area that will be disturbed by the pipeline-lay barge anchors. Individual pipeline pre-installation surveys for lease and permit pipelines are not required in areas where other surveys have already adequately covered the area.

D. Shallow Hazards Reports

1. Introduction

An evaluation of data gathered during the shallow hazards survey and a synthesis with other available geological and geophysical information shall be included in a report prepared and signed by a geophysicist or geologist specializing in high-resolution geophysical interpretation.

Three copies of each shallow hazards report shall be submitted to the Regional Supervisor, Offshore Rules and Production (or the Regional Supervisor, Offshore Reserves and Development for unitized areas). The report shall be submitted with or in advance of the POE, POD/P, or pipeline application for which it was prepared. Operators are encouraged to combine shallow hazards reports with cultural resource reports (when required) since many of the requirements for these reports are similar. Shallow hazards reports are not required for seafloor obstruction surveys, as discussed in Section III, paragraph C.2.c., of this NTL.

2. Report Contents

Shallow hazards reports shall include the following information:

- a. A description of the area surveyed including lease number(s), block number(s), OCS lease area(s), and water depth.

b. A listing of the individuals involved in survey implementation and report preparation, and a brief description of the duties of each.

c. A discussion of the shallow hazards survey including (1) a brief description of the navigation system with a statement of its estimated accuracy for the area surveyed, (2) a brief description of all survey instrumentation including scale and sensitivity settings and tow depths for the magnetometer and side-scan sonar sensors, (3) a description or diagram of the survey vessel including vessel size, sensor configuration, navigation antenna location, cable lengths, and distances from sensors to navigation antenna, (4) vessel speed, (5) sea state and weather conditions, (6) a copy of the daily survey operations log, and (7) a description of survey procedures including a statement of survey and record quality, a comparison of data from survey line crossings, and a discussion of any problems which affected the ability of the geophysicist or geologist to identify and analyze shallow hazards in the survey area.

d. A map or separate maps at a scale of 1:12,000 and oriented to true north shall delineate (1) a navigation postplot of the survey area showing lease block lines, latitude-longitude reference coordinates, survey lines and directions and survey shotpoints, (2) bathymetry, (3) shallow geologic structure, (4) deep geologic structure (from medium penetration profiler data), and (5) all anomalies such as side-scan sonar contacts, magnetic anomalies, and areas of shallow gas.

The x and y coordinates are required for the origin and terminus of a proposed pipeline route and the crossing of safety fairway and anchorage area boundaries, existing pipelines, block lines, and the Federal/State boundary line.

e. An assessment of the potential for shallow hazards within the survey area including but not limited to discussions of (1) general geological background, (2) previous oil and gas activity including wells, platforms, and pipelines, (3) bathymetry, (4) seafloor features including side-scan sonar contacts, (5) geological structure including faults, river channels, and karst areas, (6) shallow gas and possible abnormal pressure zones, (7) magnetic anomalies, and (8) unstable seafloor areas.

f. A listing of all magnetic anomalies including the corrected location by line and shotpoint, intensity, duration, and source of each (if known).

g. A summary of conclusions and recommendations supported by the survey data and analyses including a discussion of known or potential shallow hazards and areas to be avoided or that may require further investigations.

E. Original Data

All original survey data for a leasehold shall be maintained by the operator and made available upon request to the MMS at any time prior to lease termination. The original pipeline right-of-way survey data shall be retained by the applicant until approval of the as-built location is obtained from MMS.

IV. Requirements for Mitigation of Potential Shallow Hazards

A. POEs, POD/P, and Pipeline Applications

When review by the MMS of a shallow hazards survey and report and/or shallow hazards analysis indicates a potential hazard and operations are proposed within its immediate area, the operator shall have the following three alternatives:

1. Amend the POE, POD/P, or pipeline application to locate the site of operations to avoid the potential shallow hazard.
2. Demonstrate to the Regional Supervisor, Offshore Rules and Production (or the Regional Supervisor, Offshore Reserves and Development for unitized areas) that the use of special protective measures will minimize the risk to safe operations.
3. Establish, on the basis of further investigation using such equipment and techniques as deemed necessary by the Regional Supervisor, Offshore Rules and Production (or the Regional Supervisor, Offshore Reserves and Development for unitized areas) that such operations will not be adversely affected by the shallow hazard.

B. On-site Requirements

1. Prior to performing operations, all existing pipelines and other potential hazards located within 150 meters (490 feet) of the operation (including anchor patterns) shall be buoyed. In areas highly congested with pipelines or debris, a safe working area large enough to accommodate the proposed operations may be outlined with buoys in lieu of marking each hazard.
2. In addition, a plat with a minimum scale of 1:12,000 (1" = 1000') depicting the location of the proposed activity, all associated anchor patterns, and existing pipelines or other potential hazards in the area shall be prepared. Copies of this plat shall be provided to key personnel on all drilling rigs, derrick barges, pipeline-lay barges, and anchor-handling vessels associated with the operations.

[Signed] John L. Rankin
Acting Regional Manager
Minerals Management Service
Gulf of Mexico OCS Region

Approved:

[Signed] John B. Rigg
Associate Director for Offshore
Minerals Management
Minerals Management Service

Date: Sep 7, 1983



