

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

NTL No. 98-06

Effective Date: August 10, 1998

Please have the GOMR Webmaster change the expiration date of the subject NTL from March 31, 2001, to **September 30, 2003**. Please have the Public Records Room do likewise on the copies they distribute. The NTL is NTL No. 98-06, *Archaeological Requirements*, effective August 10, 1998.

**NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL, GAS, SULPHUR, AND
SALT LEASES AND PIPELINE RIGHT-OF-WAY HOLDERS IN THE OUTER
CONTINENTAL SHELF, GULF OF MEXICO OCS REGION**

Archaeological Requirements

This notice supersedes Notice to Lessees and Operators and Pipeline Right-of-way Holders (NTL) 91-02, dated December 20, 1991, and makes minor technical amendments, updates cited regulatory authorities, and includes a statement regarding the Paperwork Reduction Act of 1995. We have deleted Section I of Enclosure No. 1, *Requirements for Archaeological Field Surveys*, except for one sentence because the procedures addressed therein are now adequately covered by 30 CFR 250.126(a). We made no changes to Enclosure No. 2, *Standards for Archaeological Resource Reports*, except to reduce the number of copies required from four to three. We have deleted Enclosure No. 3, *Requirements for Mitigation and Operational Restrictions*, because the provisions contained therein are now adequately covered by 30 CFR 250.126(a) and (b).

The Federal Government's responsibilities in archaeological resource management and protection on the Outer Continental Shelf (OCS) are based on the requirements of the National Historic Preservation Act of 1966, as amended, and on other applicable laws and regulations. The Minerals Management Service (MMS) has issued regulations at 30 CFR 250.126, 250.203(b)(15), 250.203(o), 250.204(b)(8)(v)(A), 250.204(s), and 250.1007(a)(5), which require OCS operators and pipeline right-of-way holders to conduct surveys and prepare reports designed to fulfill these archaeological resource legal responsibilities.

The Gulf of Mexico OCS Region (GOMR) issued NTLs Nos. 74-10 and 75-3 to implement the provisions of archaeological lease stipulations. On October 1, 1982, the GOMR revised and

reissued NTL No. 75-3 to provide guidance on uniformity and consistency of archaeological resource field surveys and reports. In June 1987, the MMS contracted with Texas A & M University to update and improve a 1977 historic resources study and to broaden the historic shipwreck database. The MMS specifically designed this study to reevaluate the zone of historic shipwreck high probability. The study was completed in November 1989. After reviewing the study results, the GOMR redefined the high probability areas for the occurrence of historic shipwrecks, thus substantially reducing the number of lease blocks in the Gulf of Mexico (i.e., approximately 50%) requiring a magnetometer survey. The study also demonstrated a compelling need to reduce the required survey linespacing interval in the historic shipwreck high probability areas from 150 meters to 50 meters in order that shipwreck magnetometer patterns may be recognized. On December 20, 1991, the GOMR issued NTL No. 91-02 to implement these changes and to make other changes to the GOMR archaeological program.

Please refer to the Letters to Lessees (LTL=s) dated March 17, 1995, and September 5, 1995, for information regarding procedures for determining whether archaeological surveys and reports are required for specific situations. In those LTL=s, you will also find information regarding the different types of archaeological surveys and procedures for filing reports.

Paperwork Reduction Act Statement

This Act (44 U.S.C. 3501 et seq.) requires us to inform you that MMS requires the information collection discussed in this NTL and its attachments to carry out the Federal Government=s responsibilities in archaeological resource management and protection in the OCS. Responses are mandatory. Proprietary data are covered under 30 CFR 250, Subpart A.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid Office of Management and Budget (OMB) Control Number. The OMB has approved this collection of information as part of the requirements in 30 CFR 250, subpart B, for exploration or development and production plans. The OMB control number is 1010-0049. We estimate the public reporting burden to average 580 hours for those plans, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the information. The collection of information referred to for requirements in 30 CFR 250, subpart J, on pipelines and pipeline rights-of-way, has also been approved by OMB and assigned control number 1010-0050.

Direct comments regarding the burden estimate or this collection of information to the Information Clearance Officer, Mail Stop 4230, Minerals Management Service, Department of the Interior, 1849 C Street, N.W., Washington, DC 20240; and to the Office of Management and Budget, Office of Information and Regulatory Affairs, Attention: Desk Officer for the Department of the Interior (1010-0049), Washington, DC 20503.

Chris C. Oyles any other aspect of Collection

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Regional Director

Enclosures

ENCLOSURE NO. 1

REQUIREMENTS FOR ARCHAEOLOGICAL RESOURCE FIELD SURVEYS

I. Introduction

When any of the following requirements cannot be met for technical or logistical reasons, an explanation of the problem must be provided in the archaeological resource report.

II. Data Acquisition Instrumentation

Geophysical instrumentation for archaeological resource field surveys must be representative of the state-of-the-art in technological development and must be deployed in a manner that minimizes interference among the instrumentation systems. All data recorders must be interfaced into the navigation system to ensure proper integration of information. The equipment operator will ensure that all instrumentation is adequately tuned and that all recorded data are readable, accurate, and properly annotated.

The following instrumentation must be used in conducting archaeological resource field surveys:

A. Magnetometer

You need use a magnetometer only for historic shipwreck (HS) and historic shipwreck/prehistoric site (HS/PS) surveys. Total field intensity instruments must be used to determine the possible presence of historic shipwrecks. Data obtained must be of such quality so as to permit detection and evaluation of magnetic anomalies within the survey area.

The sensor of the magnetometer must be towed as near as possible to the seafloor; a distance of six meters or less is required. A mechanical or digital depth sensor must be attached to the magnetometer sensor, and each survey line must be annotated with tow sensor depth and with the start of the line (SOL) and end of the line (EOL) times.

Magnetometer sensitivity must be one gamma or less, with the data sampling rate not to exceed 1-second intervals. The use of the "zero-mode" setting during magnetometer surveying is prohibited. This surveying mode does not measure the ambient magnetic field as required. Background noise level must not exceed three gammas peak to peak. Analog strip chart recorders must be equipped with dual trace pens. Recording scales must include both 1,000-gamma and 100-gamma full scale, respectively. Shot points and recorder speed must be annotated on the strip charts for each survey line. The GOMR recommends that the strip chart

recorder speed be approximately two inches per minute. Whenever possible, the magnetometer must be towed a minimum distance of two and one-half vessel lengths behind the vessel to eliminate the magnetic influence and effect of the vessel.

B. Dual Channel Side-Scan Sonar

A dual channel side-scan sonar system will be used to record continuous planimetric images of the seafloor. The system will 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.

Whenever possible, the side-scan sonar sensor will be towed above the seafloor at a distance of 10 to 20 percent of the range of the instrument. The vertical sound beam width must be appropriate to the water depth, and the horizontal sound beam width must provide optimum resolution. Tuning should be accomplished in a manner that enhances the echo returns from small nearby objects and features without sacrificing the quality of echo returns from more distant objects and features.

C. Subbottom Profiler

A subbottom profiler system must be used to determine the character of near-surface geological features. Data obtained should be of such quality so as to permit evaluation of these features for determining any possible prehistoric archaeological significance. The system used must be capable of providing at least one to two meters of resolution within the upper 15 meters of sediment.

D. Depth Sounder

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

E. Additional Investigations

Under certain conditions, MMS may require additional instrumentation and methods such as underwater television; still, video, or movie cameras; divers; remote or manned submersibles; coring; and additional geophysical survey lines. Operators and pipeline right-of-way holders are directed to contact the Regional Supervisor, Leasing and Environment, to ascertain whether additional instrumentation and methods are required.

III. Survey Parameters

The following navigation and survey pattern requirements must be adhered to in the conducting of archaeological resource field surveys:

A. Navigation

Navigation for the survey must be accomplished by using a state-of-the-art continuous positioning system correlated to annotated geophysical records. The system must have an accuracy of 5 meters or less. The nominal fix spacing must be no more than 152 meters.

B. Survey Pattern

1. Lease Surveys X When multiple operations on the lease are planned or probable, it may be advantageous to conduct a lease survey. This survey must cover the entire area of the lease, as well as that portion external to the lease within which operational activities may cause physical and/or long-term magnetic disturbances. The area of physical disturbances includes, but is not limited to, the area within which drilling vessel anchors may be placed, but does not include the area within which workboat anchors may be placed or the area within which similar minimal disturbances may occur. The survey must be run along parallel primary lines spaced at a maximum of 50 meters for HS or HS/PS surveys and at a maximum of 300 meters for prehistoric site (PS) surveys with cross-tie lines spaced at a maximum of 900 meters for each type of survey. Tighter line spacing may be required by the GOMR in areas of known significant or potentially significant archaeological resources. The operator will be notified by letter of such requirements at the time of stipulation invocation.

Lease HS and HS/PS surveys that are conducted on lease blocks that have been identified by the letter of invocation as being in water depths greater than 60 meters must have the same survey pattern as lease PS surveys.

2. Single Drill Site/Platform Surveys (Site Specific Surveys) X These surveys must be run in an area approximately 914 meters (3,000 ft) square centered upon the proposed drill site with primary lines spaced at a maximum of 50 meters for HS or HS/PS surveys or at a maximum of 300 meters for PS surveys with three equidistant cross-tie lines. Additional survey lines may be necessary so that the area surveyed includes the area within which operations may cause physical and/or long-term magnetic disturbances. Tighter line spacing may be required by the GOMR in areas of known significant or potentially significant archaeological resources. The area of physical disturbances includes, but is not limited to, the area within which drilling vessel anchors may be placed, but does not include the area within which workboat anchors may be placed or the area within which similar minimal disturbances may occur. Single drill site/platform surveys are not required in areas where lease surveys have already provided sufficient archaeological coverage of the area.

Site-specific HS and HS/PS surveys that are conducted on lease blocks that have been identified by the letter of invocation as being in water depths greater than 60 meters must have the same survey pattern as site-specific PS surveys.

3. Pipeline Surveys

(a) Right-of-Way Pipelines X The survey pattern for all right-of-way pipelines must include a line along the proposed pipeline route (center line) and offset parallel lines (on either side of the center line) spaced at a maximum of 50 meters for HS and HS/PS surveys. For PS surveys, the survey must include a line along the proposed centerline with offset parallel lines spaced at a maximum of 300 meters. The number of offset parallel lines must be sufficient to provide adequate survey coverage of the area within which operations may cause physical and/or long-term magnetic disturbances. A minimum of two offset parallel lines is required. The area of physical disturbances includes, but is not limited to, the area where pipeline lay barge anchors will be placed.

A survey for a right-of-way pipeline that will be laid in an area where an HS or HS/PS survey is required and will be in water depths greater than 60 meters must include a center line with offset parallel lines spaced at a maximum of 300 meters. The number of offset parallel lines must be sufficient to provide adequate survey coverage of the area within which operations may cause physical and/or long-term magnetic disturbances. A minimum of two offset parallel lines is required.

(b) Lease-Term Pipelines X Archaeological resource surveys for lease-term pipelines that will be laid within leases that have been previously surveyed at 50-meter line spacing interval (i.e., HS, or HS/PS) are not required. Surveys for lease-term pipelines that will be laid within block(s) that have been previously surveyed and are exclusively considered to have a high potential for prehistoric archaeological resources (i.e., PS) are also not required.

In water depths shallower than 60 meters, surveys for lease-term pipelines on leases designated to have a high probability for historic period shipwrecks (i.e., HS, HS/PS) must be conducted using the survey pattern discussed in paragraph 3(a) for right-of-way pipelines. Previous surveys of these leases at 150- or 300-meter linespacing will not be adequate.

Surveys for lease-term pipelines that will be laid within leases in water depths greater than 60 meters are not required. However, for these pipelines, an archaeological resource report based on data obtained from a previous shallow hazards survey is required.

ENCLOSURE NO. 2

STANDARDS FOR ARCHAEOLOGICAL RESOURCE REPORTS

I. Introduction

An evaluation and synthesis of data gathered during an archaeological resource survey must be included in a report prepared and signed by an archaeologist and a geophysicist. Professional personnel in these fields must have credentials and experience sufficient to ensure that they are qualified to perform the necessary work. As needed, specialists in other fields may participate in data analysis and report preparation.

All original data used to prepare the archaeological resource report must be maintained by the lessee or permittee and be made available to the GOMR upon request at any time prior to lease termination or pipeline right-of-way relinquishment.

Prior to commencing any drilling, production, or construction operations, the operator/applicant/permittee will submit to the Regional Supervisor, Field Operations, an original report and two (2) copies to determine the potential existence of any archaeological resource that may be affected by the operations. In the case of historic shipwreck reports, the required representative magnetometer data samples must be included in the original report and both copies. The report must be based on an assessment of the data from remote-sensing surveys in accordance with the specifications of this NTL, subsequent appropriate LTL's, and other pertinent archaeological and environmental information. Data required for shallow hazard surveys and platform foundation analyses will generally be sufficient for PS resource reports.

II. Contents of Archaeological Resource Reports

Archaeological resource reports must include the following information:

A. A description of the area surveyed including lease number(s), block numbers(s), OCS lease area(s), and water depths.

B. A listing of personnel and duties for individuals involved in survey planning, survey conduct, and report preparation.

C. A discussion of the archaeological resource field survey including the following:

1. A brief description of the navigation system with a statement of its estimated accuracy for the area surveyed.

2. A brief description of survey instrumentation including scale, sensitivity settings, sampling rate per second, and tow depths where required.
3. A description of the survey vessel including vessel size, sensor configuration, navigation antenna locations, and cable lengths.
4. Vessel speed and course changes.
5. Sea state and weather conditions.
6. A copy of the original daily survey operations log.
7. A description of survey procedures including a statement of survey and record quality, a comparison of survey line crossings, and a discussion of any problems that may affect the ability of the report preparation personnel to determine the potential for archaeological resources in the survey area.

D. A navigation postplot map of the survey area at a scale of 1:12,000 showing survey lines, shot points at 152-meter (500-foot) intervals, line direction in the grid projection in which the lease is described, e.g., UTM, Lambert, TM, etc., and x, y coordinates and tics placed every five inches thereon, with geodetic graticules every 60 seconds. This map, or separate maps at the same scale that also show survey lines, shot points, and line direction, must be oriented to true north and must delineate the following, as appropriate:

1. The horizontal and vertical extent of all relict geomorphic features having potential for associated prehistoric sites. Such areas include, but are not limited to, tidal estuaries, embayments, barrier islands, beach ridge sequences, spits, alluvial terraces, and stream channels. When relict fluvial systems are recorded, the map must:
 - (a) differentiate between generations of channeling when more than one generation is present;
 - (b) show any internal channel features such as point bar deposits and terraces;
 - (c) delineate any channel margin features such as natural levee ridges; and
 - (d) indicate all depths of channel banks and channel axes.

NOTE: An isopach map of channel fill sediments is often the most efficient means of conveying the above information, but this method alone will not allow differentiation between more than one generation of channeling.

2. Bathymetry.

3. All magnetic anomalies and seafloor side-scan sonar contacts of unknown source (i.e., magnetic anomaly, map symbol = >; side-scan sonar contact, map symbol = (SSS)). The duration of all magnetic anomalies will be plotted on the survey map at a scale of 1:12,000.

4. Sites of proposed oil and gas operations (i.e., proposed well locations, platform sites, and/or pipelines), when available at the time of report preparation.

5. Sites of former oil and gas operations (i.e., abandoned well locations, platform sites, and/or pipelines).

E. If an analysis of the potential for prehistoric sites within the survey area is required, the report must include:

1. A review of current existing literature on the late Pleistocene and Holocene geology, paleogeography and sea level change in the area, marine and coastal prehistory, and previous archaeological resource reports in the area, when available. A list of suggested references will be made available upon request.

2. A discussion of relict geomorphic features and their archaeological potential to include the following:

- (a) the type, age, and association of the features mapped;
- (b) the acoustic characteristics of channels and their fill material;
- (c) evidence for preservation or erosion of channel margins;
- (d) evidence for more than one generation of fluvial downcutting; and
- (e) the sea level curves used in the assessment.

3. A discussion of the potential for identification and evaluation of buried prehistoric sites based on the capabilities of current technology in relation to the thickness and composition of sediments overlying the area of a potential site.

F. If an analysis of the potential for historic shipwrecks within the survey area is required, the report must include, as appropriate, the following:

1. A current review of existing records for reported shipwreck locations in the survey area and adjacent areas;

2. A list of the magnetic anomalies with the lease block and survey line location (corrected for sensor offset), gamma intensity, lateral extent (duration), whether the anomaly is characterized by a dipolar or monopolar signature, and magnetometer sensor tow depth of each;

3. A list of side-scan sonar contacts with the lease block and survey line location (corrected for sensor offset), size, shape, and height of protrusion above the seafloor of each;
4. A discussion of any magnetic anomalies and side-scan sonar contacts of unknown source in terms of their potential as historic shipwrecks;
5. A discussion of any correlation between magnetic anomalies or side-scan sonar contacts and known or probable sources;
6. A discussion of the potential for shipwreck preservation in terms of the effects of past and present marine processes; and
7. A discussion of the potential for identification and evaluation of potential shipwrecks based on the capabilities of current technology in relation to the water depth, probable thickness and composition of sediments overlying the potential shipwreck location, and the preservation potential.

G. Representative data samples, as appropriate, must be submitted for the following:

1. A representative sample of subbottom profiler data for each type of relict landform identified. When more than one generation of fluvial channeling is evident, a sample depicting each must be submitted. Each sample must be readable and include horizontal and vertical scales. Any interpretive highlighting or annotation of the sample data must be on either a separate overlay or a copy of the representative sample data. In no instance should original survey data be highlighted. If relict channel features are referenced in the text of the archaeological report, representative copies of the subbottom profiler record of these geologic features must be included in the report.
2. A copy of the side-scan sonar data where contacts representing unidentified objects are recorded. The copies must be readable and will include the scale. Any highlighting or annotation of the sample data must be on either a separate overlay or a copy of the representative sample data. In no instance should original survey data be highlighted.
3. Magnetometer data as follows:
 - (a) for lease surveys and site specific surveys, a clear copy of three complete lines of magnetometer data. Two of these lines will be representative data samples of primary survey lines and the third survey line will be a cross-tie line. The primary survey lines will be adjacent lines and run in two different cardinal directions (e.g., one survey line heading north and the other heading south). Whenever possible, these survey lines will include unidentified magnetic anomalies.
 - (b) for pipeline surveys (i.e., lease term or right-of-way) that are three miles or longer in length, a clear copy of approximately one-quarter (25%) of the magnetometer

data (analog strip chart) for the center line of the survey. For pipeline surveys less than three miles in length, the entire center line magnetometer survey must be submitted. These data must include representative samples of unidentified magnetic anomalies (if any) that were recorded on the center line. Sample data may be reduced in size for report reproduction. Data quality must be sufficient to depict clearly both the 1,000-gamma and 100-gamma scale traces of the analog strip chart recorder.

H. A summary of conclusions and recommendations supported by the archaeological resource field survey data and archaeological analyses including:

1. A discussion of known or potential archaeological resources;
2. Recommendation for avoidance or for further archaeological investigations;
and/or
3. Recommendation that operations be permitted because data recovery negates adverse effects to archaeological resources.

I. A discussion of the data and results from any additional investigations that may be required by the GOMR must be appended to the archaeological resource report.

III. Review of Archaeological Resource Reports

A. The GOMR will determine whether a report meets the requirements contained this NTL. The review will be conducted by personnel with archaeological, geophysical, and other appropriate expertise. The GOMR will determine if the survey was performed properly and will evaluate the geophysical interpretations and archaeological conclusions.

B. If the report is not adequate or complete, the GOMR will notify the operator or right-of-way holder, in writing, of the problems and identify the data or information necessary to correct or complete the report.

C. After a thorough review of the report findings, the GOMR will notify the operator or right-of-way holder, in writing, of any mitigating measures or operational restrictions that may be required.

D. A previously submitted archaeological resource report may be acceptable for satisfying the archaeological resource report requirements under a new lease agreement, particularly if the lease falls exclusively within the area of high probability for the occurrence of prehistoric archaeological resources. Prior to submittal of an Exploration Plan or Development Operations Coordination Document, the operator will submit to the Regional Supervisor, Leasing and Environment, a written request for review of an archaeological report prepared for an expired lease to determine its compliance with current MMS requirements. A clean copy of the report to

be reviewed must be included with the operator's request.